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Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation

Documentation technique de produits — Vocabulaire — Termes relatifs aux dessins techniques, à la définition de produits et à la documentation associée

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Foreword

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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).

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This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS F01, *Technical drawings*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 10209:2012), which has been technically revised.

The main changes are as follows:

— certain terms have been added, deleted or revised;

— Annex A (deprecated terms) has been deleted.

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Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation

1 Scope

This document establishes and defines terms used in technical product documentation relating to technical drawings, product definition and related documentation in all fields of application.

The terms have been classified into specific fields of application.

NOTE New terms required by ISO/TC 10 subcommittees and working groups for new or revised standards will be ratified by the ISO/TC 10 vocabulary maintenance team and included in future amendments of this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 General terms

3.1.1
activity
processes, procedures or parts of them, usually related to established organization units

Note 1 to entry: The terms "process" and "procedure" are defined in ISO 9000. A detailed explanation of processes within companies is also given in ISO 9000.

3.1.2
activity matrix
matrix allocating activities to phases of the product life cycle and to a fixed organization unit

3.1.3
analysis
part of the product development process where a specification of requirements is prepared

3.1.4
ancillary system
system which is not directly required for the power plant process

Note 1 to entry: This includes heating, ventilation, air-conditioning systems, space heating systems, stationary compressed air supplies, fire protection systems, cranes, elevators, workshops and staff amenities.

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3.1.5
application reference model
information model that formally describes the information requirements and constraints for an application area

3.1.6
aspect
<document management> specific way of selecting information on, or describing, a system or an object of a system

3.1.7
aspect
<industrial systems> specific way of viewing an object

Note 1 to entry: Such ways include:

— what the system or object is doing (function viewpoint);

— how the system or object is constructed (product viewpoint);

— where the system or object is located (location viewpoint).

3.1.8
assembly
number of component parts fitted together to perform a specific function

3.1.9
authorization
<of a user> privileges that give access to designated activities

3.1.10
auxiliary system
system which is required for the support of a power plant process

Note 1 to entry: This includes auxiliary steam system, compressed air, carrier air, control air, central chemicals supply and sampling systems.

3.1.11
basic design
part of the product development process where one or more design proposals are evaluated and the basic documentation for design is prepared

3.1.12
burr
rough remainder of material outside the ideal geometrical shape of an external edge, residue of machining or forming process

3.1.13
CAD model
structured computer-aided design (CAD) data file(s) organized according to the physical parts of the objects represented, for example a building or a mechanical device

Note 1 to entry: Models can be two-dimensional or three-dimensional and can include graphical as well as non-graphical data attached to the objects.

3.1.14
complex device
device consisting of several functionally interrelated components or elements, the description of which needs a diagram

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3.1.15
component
constituent part of equipment that cannot be physically divided into smaller parts without losing its character

3.1.16
conceptual design
part of the product development process which includes the preparation of design specifications and design proposals for a product

3.1.17
conceptual schema
implementation-independent specification of information structures

3.1.18
concurrent engineering
coordination of parallel activities in the product life cycle, especially in the phases up to market introduction

3.1.19
configuration control
activities comprising the control of changes to a configuration item after formal establishment of its configuration documents

3.1.20
conjoint designation
designation of site, factory or plant complex as an optional element of the object identifier

3.1.21
construct
concept or fact that is modelled

3.1.22
coordinate axis
three reference straight lines in space which intersect at the point of origin, thus forming a coordinate system

3.1.23
coordinate system
basis for establishing a relationship between each point in space and the three corresponding coordinates and vice versa

3.1.24
coordinates
set of numerical ordered values (and their corresponding units of measure), giving unequivocally the position of a point in a coordinate system

3.1.25
cylindrical coordinate system
coordinate system based on a reference system given by a reference horizontally oriented straight line and its origin and units of measure

3.1.26
cylindrical coordinates
three coordinates of a point in space relative to a cylindrical coordinate system

Note 1 to entry: The three coordinates are: 1) the radius (distance of the point from the vertical axis passing through the origin); 2) the azimuth (angle formed by the vertical plane passing through the point and the origin and the reference horizontally oriented straight line); and 3) the height (distance of the point from the horizontal plane passing through the origin).

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3.1.27
data medium
material on which data can be recorded and from which they can be retrieved

3.1.28
detailed design
part of the product development process which includes the preparation of the final product definition

3.1.29
device
assembly of components to perform a required function

3.1.30
edge
intersection of two surfaces

3.1.31
element
part of a component

3.1.32
enlargement scale
scale where the ratio is larger than 1:1

3.1.33
equipment
<chemical and petrochemical industry> single part of a plant

EXAMPLE Vessel, column, heat exchanger, pump, compressor.

3.1.34
full size
scale with the ratio 1:1

3.1.35
function
<power plants> activity proper to anything, mode of action by which it fulfils its purpose

3.1.36
function
<industrial systems> intended or accomplished purpose or task

3.1.37
functional area
combination of groups and/or elements in a unit that can be used independently

3.1.38
functional group
combination of elements in a unit that can be used independently

3.1.39
functional unit
<graphical symbols> constructional assembly containing functionally interrelated components or devices

3.1.40
functional unit
<power plants> item under consideration defined according to function or effect

3.1.41
identifier
one or more characters used to identify or name a data category

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3.1.42
industrial complex
number of discrete or interconnected process plants, together with the associated buildings

3.1.43
information model
<metadata> conceptual model that describes a specific organization of data to provide communication for a given application context

3.1.44
information model
<document management> implementation-independent specification of information structures

3.1.45
layer
<graphical symbols> self-contained group of data that can be manipulated or displayed individually

3.1.46
layer
<computer-aided design> organizational attribute of entities in a computer-aided design (CAD) data file, used to separate data in order to manage and communicate those data and to control visibility on the computer screen and on plotted drawings

Note 1 to entry: In CAD systems, synonyms for layer are used, for example “level”.

3.1.47
line distance factor
factor defining the distance between succeeding base lines of a text in relation to the lettering height of the characters

3.1.48
medium
means of storing, representing and communicating information

3.1.49
multi-level reference designation
<process industry> reference designation derived from a structure path through an overall system

3.1.50
multi-level reference designation
<industrial systems> reference designation consisting of concatenated single-level reference designations

3.1.51
object
<document management> entity treated in the process of design, engineering, realization, operation, maintenance and demolition

3.1.52
object
<industrial systems> entity treated in a process of development, implementation, usage and disposal

Note 1 to entry: The object may refer to a physical or non-physical thing that possibly exists, exists or did exist.

Note 2 to entry: The object has information associated to it.

3.1.53
organization unit
part of an organization, with a fixed function

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3.1.54
part number
unique identification of a part for a particular organization

3.1.55
part reference
identification of component parts of assemblies and/or the identification of individual parts on the same drawing

Note 1 to entry: Part references are document-based, as opposed to reference designations, which are structure-based. Identical parts on drawings have the same part reference, normally a number (according to ISO 6433), while each occurrence of an object in a structure has a unique reference designation (according to IEC 81346-1).

3.1.56
physical unit
item under consideration, defined according to construction or configuration

Note 1 to entry: One or several functional units may be implemented in a single physical unit. The corresponding functional unit(s) is/are in some cases not explicitly designated.

Note 2 to entry: The various parts of a physical unit need not be functionally interrelated. For example, a physical unit may be in the form of an integrated circuit with four independent AND modules.

Note 3 to entry: If compound terms are used to designate physical units, the following should be used as the last word (in ascending order of rank):

— component;

— assembly;

— device;

— plant.

Note 4 to entry: See IEC 60050-351:2013, 351-56-03.

3.1.57
plant
complete set of technical equipment and facilities for solving a defined technical task

Note 1 to entry: A plant includes apparatus, machines, instruments, devices, means of transportation, control equipment and other operating equipment.

3.1.58
plant section
part of a process plant that can, at least occasionally, be operated independently

3.1.59
polar coordinate axis
horizontally oriented straight line and its origin

3.1.60
polar coordinate system
coordinate system based on a reference system given by a polar coordinate axis and its units of measure

3.1.61
polar coordinates
three coordinates of a point in space relative to a polar coordinate system

Note 1 to entry: The three coordinates are: 1) the radius (distance between the point and the origin); 2) the azimuth (angle formed by the vertical plane passing through the point and the origin, and the polar coordinate axis); and 3) the angular height (angle formed by the horizontal plane passing through the origin and the straight line passing through the point and the origin).

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3.1.62
process
<process plants and industry> sequence of chemical, physical or biological operations for the conversion, transport or storage of material or energy

Note 1 to entry: Different processes or process steps can be carried out in the same process plant or plant section at different times.

Note 2 to entry: A process can also be regarded as an entirety of interacting events in a system through which material, energy or information are transformed, transported or stored.

3.1.63
process
<industrial systems> set of interacting operations by which material, energy or information is transformed, transported or stored

3.1.64
process plant
facilities and structures necessary for performing a process

3.1.65
process step
part of a process which is predominantly self-sufficient and consists of one or several unit operations

3.1.66
product
<document management> intended or accomplished result of labour or of a natural or artificial process

3.1.67
product
<protection notices> thing or substance produced by a natural or artificial process

3.1.68
product
<graphical symbols> thing or result produced by a natural process or manufacture

3.1.69
product definition data
data elements required to completely define a product

3.1.70
product definition data set
collection of one or more computer file(s) that discloses (directly or by reference), by means of graphic or textual presentations, or combinations of both, the physical and functional requirements of a product

3.1.71
rectangular coordinate planes
coordinate planes intersecting at right angles

3.1.72
rectangular coordinate system
coordinate system based on a reference system given by three mutually orthogonal axes (rectangular coordinate axes), originating from the same point (origin), and their units of measure

3.1.73
rectangular coordinates
x, y and z coordinates of a point in space relative to a rectangular coordinate system

3.1.74
rectangular coordinate axes
coordinate axes intersecting at right angles

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3.1.75
reference designation
<process industry> identifier of a specific object with respect to the system of which the object is a constituent, based on one or more aspects of that system

3.1.76
reference designation
<process plants> code for identification of equipment in the functional position of the process

3.1.77
reference designation set
collection of two or more reference designations assigned to an object of which at least one unambiguously identifies this object

3.1.78
scale
ratio of the linear dimension of an element of an object as represented in the original drawing to the real linear dimension of the same element of the object itself

Note 1 to entry: The scale of a print may be different from that of the original drawing.

3.1.79
scaling factor
factor by which the coordinates of all defined points of the symbol will be enlarged or reduced in size in relation to the reference point of the symbol

3.1.80
sharp edge
external or internal edge of part with almost zero deviation from the ideal geometrical shape

3.1.81
single-level reference designation
reference designation assigned with respect to the object of which the specific object is a direct constituent in one aspect

3.1.82
specification of requirements
compilation of market-, authority- and company-related requirements

Note 1 to entry: 'Authority' relates to, for example, laws, regulations and directives.

3.1.83
state of an edge
geometrical shape and size of an edge

3.1.84
structure
organization of relations among objects of a system describing constituency relations (consist-of/is-a-part-of)

3.1.85
sub-contract
contract to carry out part of a larger contract

3.1.86
system
set of interrelated objects considered in a defined context as a whole and separated from their environment

Note 1 to entry: A system is generally defined with the view of achieving a given objective, for example by performing a definite function.

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Note 2 to entry: Elements of a system may be natural or man-made material objects, as well as modes of thinking and the results thereof (e.g. forms of organization, mathematical methods, programming languages).

Note 3 to entry: The system is considered to be separated from the environment and from the other external systems by an imaginary surface, which cuts the links between them and the system.

Note 4 to entry: The term system should be qualified when it is not clear from the context to what it refers, e.g. control system, colorimetric system, system of units, transmission system.

Note 5 to entry: When a system is part of another system, it may be considered as an object as defined in this document.

3.1.87
tender
written offer to execute at a stated price or rate an order for the supply of goods or services or the execution of works under given conditions

3.1.88
terminal designation
identifier of a terminal with respect to the object to which it belongs, related to one aspect of the object

3.1.89
unit operation
simplest operation in a process according to the theory of process technology

3.1.90
works
system of industrial complexes and the associated infrastructure in one location

3.1.91
knurling tool
knurl
tool or die used to make a raised surface on a workpiece by a cutting or rolling process

3.1.92
knurling
patterned raised surface on a workpiece produced by a knurl

3.1.93
diametral pitch
P
radial distance between two teeth measured on the outer diameter of the knurling

3.1.94
building
construction work that has the provision of shelter for its occupants or contents as one of its main purposes, and which is usually partially or totally enclosed and designed to stand permanently in one place

Note 1 to entry: A building is a type of construction entity.

3.1.95
control
purposeful action on or in a process to meet specified objectives

Note 1 to entry: Actions include measure, count, monitor, indicate, alert, record, log, manipulate, evaluate, optimize, intervene, manipulate by hand, safeguard, structure, configure, parameter, automate.

3.1.96
designation block
structured compilation of related information units, consisting of a prefix, letters and numbers, and optionally a breakdown mark

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3.1.97
operating equipment
products which serve to implement technical tasks as a whole or in individual parts

3.1.98
power plant process
process for the generation of electrical energy and/or heat energy products, including the conversion, supply and disposal processes

3.1.99
power plant unit
technical plant including all equipment needed for fulfilment of a power plant process

3.1.100
technical equipment
physical or functional unit used to fulfil a technical task

3.1.101
actuator
functional unit that generates from the controller output variable the manipulated variable to drive the final controlling element

Note 1 to entry: If the final controlling element is mechanically actuated, it is controlled via an actuated drive. The actuator drives the actuating drive in this case.

3.1.102
closed-loop control
process whereby one variable (quantity), namely the controlled variable, is continuously measured compared with another variable (quantity), namely the reference variable, and influenced in such a manner as to adjust to the reference variable

Note 1 to entry: A characteristic of closed-loop control is the closed action in which the controlled variable continuously influences itself in the action path of the closed loop.

3.1.103
control function
manipulation via the final controlling element of process media or process objects in order to bring the media or object into a condition or state defined by the process control system on the basis of measured process variables and predefined values

3.1.104
control loop
assembly of elements incorporated in the closed action of a closed-loop control

3.1.105
final controlling element
functional unit forming part of the controlled system and arranged at its input, driven by the manipulated variable and manipulating the mass flow or energy flow

Note 1 to entry: If the final controlling element is mechanically actuated, an additional actuator (positioner) is used in some cases.

Note 2 to entry: The output variable of the final controlling equipment is usually not free from feedback. The interface between the actuator and the final controlling element should therefore be selected in such a way that the manipulated variable is not affected by feedback from the final controlling element.

3.1.106
manipulate
change flows of mass energy or information by means of a final controlling element

Note 1 to entry: Manipulating can be affected continuously or by switching operations.

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Note 2 to entry: In control engineering, the final controlling element is regarded as belonging to a process.

3.1.107
open-loop control
process in a system whereby one or more variables (variable quantities) as input variables influence other variables (variable quantities) as output variables in accordance with the proper laws of the system

Note 1 to entry: A characteristic of open-loop control is the open action path or, in the case of a closed action path, the fact that the output variables being influenced by the input variables are not continuously influencing themselves and not by the same input variables.

3.1.108
process variable
quantity, quality or condition of a process media or process object whose value may be subject to change and can usually be measured

3.1.109
relief groove
clearance groove of specified form and dimensions created by removing material at an inner corner of a rotationally symmetric workpiece and which is necessary for subsequent machining and assembly with mating parts

3.1.110
developed length
initial length of material prior to forming, for example by bending

3.2 Views

3.2.1
alignment line
line parallel to a given line passing through the projection centre

Note 1 to entry: Its intersection with the projection plane gives the vanishing point of all lines parallel to the given line.

3.2.2
aspect
<views> specified way of viewing an object

3.2.3
axonometric representation
parallel projection of an object on a single projection plane

3.2.4
basic line
intersection between the projection plane and the basic plane

3.2.5
basic plane
horizontal plane parallel to the main projection line on which the viewer stands

Note 1 to entry: The viewer is considered to only use one single viewpoint.

3.2.6
bird's-eye perspective
one-point perspective, seen from above, on a horizontal projection plane

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3.2.7
cabinet axonometry
cavalier axonometry
oblique axonometry in which the projection plane is parallel to one of the coordinate planes

3.2.8
central projection
projection method in which the projection centre is placed at a finite distance and all projection lines are converging

3.2.9
circle of vision
trace of the vision cone on the projection plane

3.2.10
cut
sectional view
section showing, in addition, outlines beyond the cutting plane

3.2.11
cutting line
line indicating the position of a cutting plane, or the sectioning axis in the case of two or more cutting planes

3.2.12
cutting plane
imaginary plane at which the object represented is cut through

3.2.13
dimetric projection
axonometric representation in which the scales of two coordinate axes are identical, with a different scale on the third coordinate axis

3.2.14
distance point
each of the two vanishing points of all parallel horizontal lines inclined at 45° to the projection plane

3.2.15
elevation
view on a vertical plane

3.2.16
exploded view
drawing of an assembly in pictorial representation in which all the components are drawn to the same scale and correctly orientated relative to each other, but are separated from each other in their correct sequence along common axes

3.2.17
first-angle projection
orthographic representation comprising the arrangement around the principal view of an object of some or all of the other five views of that object

Note 1 to entry: With reference to the principal view, the other views are arranged as follows:

— the view from above is placed underneath;

— the view from below is placed above;

— the view from the left is placed on the right;

— the view from the right is placed on the left;

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— the view from the rear is placed on the left or the right, as convenient.

3.2.18
frog's eye perspective
one-point perspective, seen from beneath, on a horizontal projection plane

3.2.19
half cut
representation of a symmetrical object which, divided by the centre line, is drawn half in view and half in cut

3.2.20
half section
representation of a symmetrical object which, divided by the centre line, is drawn half in view and half in section

3.2.21
height of projection
vertical distance of the projection centre from the basic plane

3.2.22
horizon line
intersection between the horizon plane and the vertical projection plane

3.2.23
horizontal distance
distance between the projection centre and the projection plane

3.2.24
horizontal plane
horizontal plane passing through the projection centre

3.2.25
isometric axonometry
orthogonal axonometry in which any projection line forms three equal angles with respect to the coordinate axes

3.2.26
isometric representation
projection method in which each of the three coordinate axes is inclined at the same angle to the projection plane

3.2.27
level contour line
intersection of the horizontal plane in a topographical projection at a predetermined level above or below a reference level with the surface to be represented

3.2.28
local cut
representation in which only a part of an object is drawn in cut

3.2.29
local section
representation in which only a part of an object is drawn in section

3.2.30
main point
intersection between the main projection line and the projection plane

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3.2.31
main projection line
horizontal projection line passing through the projection centre and intersecting the vertical projection plane at right angles to the main point

3.2.32
monometric projection
axonometric representation in which all three scales on all three coordinate axes are identical

3.2.33
oblique axonometry
oblique projection on a single projection plane

3.2.34
oblique projection
parallel projection in which all projection lines intersect the projection plane at the same angle other than 90°

3.2.35
one-point perspective
perspective representation of an object placed with one of its faces parallel to the projection plane

3.2.36
origin
point of intersection of the coordinate axes

3.2.37
orthogonal axonometry
orthogonal projection on a single plane

3.2.38
orthogonal projection
parallel projection in which all projection lines intersect the projection plane at right angles

3.2.39
orthogonal representation
projection method in which the projectors are at right angles to the projection plane

3.2.40
orthographic representation
orthogonal projections of an object normally positioned with its main faces parallel to the coordinate planes on one or more projection planes coincident with, or parallel to, the coordinate planes

3.2.41
parallel projection
projection method in which the projection centre is placed at an infinite distance and all projection lines are parallel

3.2.42
perspective representation
central projection of an object on a projection plane

Note 1 to entry: This is normally vertical.

3.2.43
pictorial representation
parallel or central projection on a single projection plane giving a three-dimensional image of an object

3.2.44
plan
view, section or cut, in a horizontal plane, seen from above

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3.2.45
planometric axonometry
oblique axonometry in which the projection plane is parallel to the horizontal coordinate plane

3.2.46
point of view
projection of the projection centre on the basic plane

3.2.47
principal view
view of an object showing the important features, which may be chosen from the point of view of design, assembly, sales, service or maintenance

3.2.48
projection angle
angle formed by the projection plane and the horizon plane

3.2.49
projection centre
point from which all projection lines originate

3.2.50
projection line
projector
straight line originating from the projection centre and passing through a point on the object to be represented

3.2.51
projection method
rules used to obtain a two-dimensional image of a three-dimensional object

3.2.52
projection plane
plane on which the object is projected in order to obtain a representation of that object

3.2.53
reduction scale
scale where the ratio is smaller than 1:1

3.2.54
reference arrow layout
representation in which views and sections are freely positioned in the drawing

3.2.55
repeated feature
periodicity of features of the same spacing or angle referred to one or more reference features

3.2.56
representation
presentation of drawn information relating to any type of technical drawing

3.2.57
scale point
vanishing point of the horizontal direction orthogonal to that bisecting the angle formed by the horizon line and allowing the true length of the projection of the given line to be determined

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3.2.58
section
representation showing only the outlines of an object lying in one or more cutting planes

Note 1 to entry: The usage of the terms “cut” and “section” differs between the mechanical engineering and construction fields. While “cut” is generally used in the construction field, “section” is generally used in the mechanical engineering field.

3.2.59
station of observation
orthogonal projection of the projection centre onto the basic plane

3.2.60
third-angle projection
orthographic representation comprising the arrangement, around the principal view of an object, of some or all of the other five views of that object

Note 1 to entry: With reference to the principal view, the other views are arranged as follows:

— the view from above is placed above;

— the view from below is placed underneath;

— the view from the left is placed on the left;

— the view from the right is placed on the right;

— the view from the rear is placed on the left or the right, as convenient.

3.2.61
three-point perspective
perspective representation of an object having all its faces inclined to the projection plane

3.2.62
topographical projection
orthogonal projection on a horizontal projection plane of the intersections of a series of equidistant horizontal planes with the surface to be represented

3.2.63
trimetric projection
axonometric representation in which the scales are different on all three coordinate axes

3.2.64
true view
view of the features of an object that lie on a plane parallel to the projection plane, geometrically similar to the corresponding features of the object

3.2.65
two-point perspective
perspective representation of an object placed with its vertical faces inclined to, and its horizontal faces at right angles to, the projection plane

3.2.66
vanishing point
point at which converging lines meet when representing parallel straight lines in perspective representation

Note 1 to entry: It is the image of the point at infinite distance of all parallel straight lines.

3.2.67
view
orthogonal projection showing the visible part of an object and also, if necessary, its hidden outlines

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3.2.68
vision angle
angle of aperture of the vision cone

3.2.69
vision cone
right circular cone having the main projection line as its axis and the projection centre as vertex

3.2.70
X-ray view
pictorial representation, normally in perspective, showing complex objects as if they were partially transparent, in order to reveal their main parts

3.3 Dimensions

3.3.1
angular dimension
angle of an angular feature of size or angle between two features

Note 1 to entry: In mechanical engineering drawings, angular dimensions are classified as angular sizes or angular distances; see ISO 14405-2.

3.3.2
auxiliary dimension
dimensions derived from other dimensions given for information purposes only

3.3.3
dimensional value
nominal numerical value expressed in a specific unit relevant to a linear or angular dimension

Note 1 to entry: The tolerance limits and/or permissible deviations are applied to the dimensional value.

3.3.4
chain dimensioning
method of dimensioning where single dimensions are arranged in a row

3.3.5
coordinate dimensioning
method of dimensioning from a reference feature in a coordinate system

3.3.6
dimension
distance between two features or the size of a feature of size

3.3.7
feature of size
geometrical shape defined by a linear or angular dimension which is a size

3.3.8
linear dimension
linear size of a feature of size or a linear distance between two features

Note 1 to entry: In mechanical engineering drawings, linear dimensions are classified as linear sizes or linear distances; see ISO 14405-2.

3.3.9
origin circle
starting point of running dimensioning or coordinate dimensioning

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3.3.10
parallel dimensioning
method of dimensioning from a reference feature with parallel or concentric dimension lines

3.3.11
reference feature
feature which is used as the origin for the determination of another feature

3.3.12
resolved dimension
model value that is rounded off to the number of decimal places required for the design

3.3.13
running dimensioning
method of dimensioning from a reference feature where each feature is dimensioned

3.3.14
tabular dimensioning
method of dimensioning where features and/or dimensions are indicated by allocated numbers or letters and recorded in tables

3.3.15
terminator
indication signifying the extremities of a dimension or leader line

3.3.16
edge of undefined shape
transition line, included in an intersection plane, which is not defined on the nominal model and which exists between two adjacent integral surfaces

3.3.17
undercut
deviation inside the ideal geometrical shape of an edge defined by two tangent outside straight lines to the adjacent feature of the zone of the undefined edge

3.3.18
passing
deviation outside the ideal geometrical shape of an edge defined by two tangent outside straight lines to the adjacent feature of the zone of the undefined edge

3.3.19
origin symbol
circle indicating the start of running dimensioning or coordinate dimensioning

3.3.20
property indicator
symbol used to define the shape of a feature or property of an entity composed of several features

3.3.21
centroidal line
line passing through the centre of mass

3.4 Lines

3.4.1
centre line
line or set of two perpendicular lines used to represent a median feature, e.g. an axis or a centre plane

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3.4.2
connecting line
graphical symbol representing a functional connection, a mechanical link, a pipeline, a duct or an electric connection

3.4.3
dimension line
straight or curved line with terminators at each end or origin and terminator at each end, indicating the size of a feature or the extent of a feature or between two features, or between a feature and an extension line, or between two extension lines

3.4.4
extension line
line which is an extension of a feature outline or of a centre line

3.4.5
flow line
representation of the flow path of the inlet or outlet streams or of material, energy or energy carriers

3.4.6
leader line
continuous narrow line which establishes the connection between the features of a graphical representation and additional alphanumeric and/or written instructions in an unambiguous manner

Note 1 to entry: Examples of written instructions include notes, technical requirements and item references.

3.4.7
line
geometrical object, the length of which is more than half of the line width and which connects an origin with an end in any way

EXAMPLE Straight, curved, with or without interruptions.

Note 1 to entry: The origin and the end may coincide with one another, for example in the case of a line forming a circle.

Note 2 to entry: A line, the length of which is less than or equal to half of the line width, is called a dot.

Note 3 to entry: A test should be made in order to check the appearance of drawings intended to be microcopied or transferred by fax.

3.4.8
line element
single part of a non-continuous line

EXAMPLE Dots and dashes, which vary in length, and gaps.

3.4.9
line of symmetry
straight line on a drawing indicating the plane or axis of symmetry

3.4.10
line segment
group of two or more different line elements which form a non-continuous line

EXAMPLE Long dash/gap/dot/gap/dot/gap.

3.4.11
reference line
continuous narrow line connecting with the leader line horizontally or vertically and on or at which the additional instructions are indicated

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3.4.12
terminal line
line of a graphical symbol ending at a connect node

Note 1 to entry: Most graphical symbols of non-electric character are not provided with terminal lines; most graphical symbols of electric character are provided with terminal lines.

3.5 Tolerances

3.5.1
datum system
set of two or more situation features established in a specific order from two or more datum features

Note 1 to entry: To define a datum system, it is necessary to consider the collection surface created by the considered datum features. The invariance class of a collection surface can be complex, prismatic, helical, cylindrical, revolute, planar or spherical (see ISO 5459:2011, Table B.1).

3.5.2
tolerance of dimension
difference between the upper and lower tolerance limits of a dimension

3.6 Graphics

3.6.1
central line
imaginary line in the middle of each line or line element which is a constitutive part of a graphic character set

Note 1 to entry: Lines may be drawn by means of tubular technical pens conforming with ISO 9175-1.

Note 2 to entry: The central line is the basic datum for the design of tools for lettering, e.g. engraving tools for templates, programmes for lettering generators.

3.6.2
character aspect ratio
character expansion factor
relation of width to height of a character body

3.6.3
character body
rectangle used to enclose a single character shape

3.6.4
character justification
alignment of a character in its character body

3.6.5
character spacing factor
space between sequent character bodies

3.6.6
graphic character set
finite set of different graphic characters in a fixed type of lettering, including letters of a certain alphabet, numerals, diacritical marks, punctuation marks and additional graphical symbols, that is considered complete for a given purpose

Note 1 to entry: See ISO/IEC 2382.

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3.6.7
lettering
<procedure> procedure of writing graphic characters taken from a graphic character set on a (technical) drawing carrier (in addition to the graphical representation)

3.6.8
lettering
<drawing character> non-graphical information on a (technical) drawing carrier

Note 1 to entry: This can include text, instructions and dimensions.

3.6.9
lettering
<graphic character set> graphic characters of a graphic character set which can be used for transferring non-graphical information onto a (technical) drawing carrier

3.6.10
proportional lettering
lettering with characters having individual width of character bodies

3.6.11
special character
character not included in the set of letters A to Z, a to z, numerals and punctuation symbols

3.6.12
tabular lettering
lettering with characters having a constant width of all character bodies

3.6.13
text
data in the form of characters, symbols, words, phrases, paragraphs, sentences, tables or other character arrangements, intended to convey a meaning and whose interpretation is essentially based upon the reader's knowledge of some natural language or artificial language

3.7 Symbology

3.7.1
arc
curved line without inflection point

3.7.2
coded connect node class
encoded classification of a connect node

3.7.3
connect block
openings intended for the presentation of data associated with a connect node

3.7.4
connect node
point of access of an object intended for connection

3.7.5
connecting line directions
specification of directions under which connecting lines may be drawn onto a schematic connect node

3.7.6
descriptive block
openings intended for the presentation of descriptive information

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3.7.7
electrical node
<schematic> connect node designed for connecting to a representation of an electrical network

3.7.8
embedded area
area containing the graphical symbol

3.7.9
function symbol
graphical symbol representing an object with a defined behaviour, and provided with input and output functional nodes

3.7.10
functional node
<schematic> connect node designed for connecting to a representation of a functional network

3.7.11
graphical primitive
construct such as a line, circular arc, polyline or ellipses needed to draw a figure in a computer-aided drawing system

3.7.12
graphical symbol
visually perceptible figure used to transmit information independently of language

3.7.13
graphical symbol occurrence
graphical symbol presented in a diagram including the presentation of data associated with the object being represented

3.7.14
identifying block
openings intended for the presentation of reference designations

3.7.15
linkage node
<schematic> connect node designed for connecting to a representation of a mechanical linkage network

3.7.16
matter node
<schematic> connect node designed for connecting to a representation of a network intended for transport of matters

3.7.17
node name
identification of a connect node

3.7.18
opening
definition of a possibility to enter information associated with the object being represented by a graphical symbol occurrence

3.7.19
optical node
<schematic> connect node designed for connecting to a representation of an optical fibre network

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3.7.20
port
terminal
connect node
point of access to an object intended for connection to an external network

Note 1 to entry: The connection may refer to:

— a physical interface between conductors and/or contacts, or piping and/or duct systems to provide a signal, energy or material flow path;

— an association of functional nature established between, for example, logical elements or software modules for conveying information.

Note 2 to entry: The external networks may be of different natures and accordingly they may be classified. IEC 81714-3 provides such classifications.

3.7.21
product symbol
graphical symbol representing an object with a defined behaviour and provided with nodes, specifically implemented in either hardware or software

3.7.22
reference point
origin of the coordinate system used in the description of all the graphical elements of the graphical symbol

3.7.23
reference symbol
graphical symbol unambiguously identified and provided with openings for presentation of data associated with an object represented in a diagram by a graphical symbol occurrence

3.7.24
symbol classification
classification of an object represented by a graphical symbol

3.7.25
symbol classification code
encoded classification of an object represented by a graphical symbol

3.7.26
symbol description
textual description of the meaning of a graphical symbol

3.7.27
symbol family
set of graphical symbols with a common conception using graphical characteristics with specific meanings

3.7.28
symbol name
identifier of a graphical symbol within a symbol library

3.7.29
symbol type
attribute for a classification of a graphical symbol

Note 1 to entry: Used, for example, for a simplified management of symbols in computer-aided engineering (CAE) systems and allowing special evaluations, for example for terminals, devices, detached representation or attached representation.

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3.7.30
variant name
identifying name of a variant of a symbol

3.7.31
wave node
<schematic> connect node designed for connecting to a representation of a wave propagation network

3.7.32
symbol example
graphical symbol created from basic and supplementary graphical symbols

3.8 Digital practices

3.8.1
annotation
dimension, tolerance, note, text or symbol visible without any manual or external manipulation

3.8.2
annotation plane
conceptual plane containing annotation

3.8.3
assembly model
model in which the product described is an assembly of two or more items

3.8.4
associated entities
portion of a product definition to which annotation pertains

3.8.5
associated group
user-defined set of related digital elements

3.8.6
associativity
established relationship between digital elements

3.8.7
attribute
dimension, tolerance, note, text or symbol required to complete the product definition or model feature of the product that is not visible but available upon querying the model

3.8.8
design model
portion of the data set that contains model and supplemental geometry

3.8.9
digital element
geometric element, model feature, group of model features, annotation, associated group or attribute that exists in a data set

3.8.10
digital element identifier
label or name used to specify a unique digital element

3.8.11
direction-dependent tolerance
tolerance that invokes a zone of parallel lines or curves

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3.8.12
flagnote
note that is located with the general notes but applies only at specific areas or points on the model or drawing

3.8.13
geometric element
graphic entity used in a data set

3.8.14
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

3.8.15
management data
data required for the release, control and storage of product definition data as well as other relevant engineering data

3.8.16
model
<digital product definition> combination of design model, annotation and attributes that describes a product

3.8.17
model
<document types> three-dimensional physical or digital description of the ideal shape of an object

3.8.18
model coordinate system
representation of a Cartesian coordinate system in a product definition data set

3.8.19
model feature
model geometry that represents a physical portion of a part

3.8.20
model geometry
geometric elements in product definition data which represent designed product

3.8.21
model value
numerical value derived by querying the model that quantifies the form and spatial relationships of the geometry composing a design model or assembly of models to the precision (number of decimal places) of the computer system

3.8.22
query
means of interrogating a digital element or the relationship between digital elements

3.8.23
represented line element
supplemental geometry line or curve segment indicating the orientation of a direction-dependent tolerance

3.8.24
saved view
stored and retrievable specific orientation and a magnification factor of a mode

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3.8.25
supplemental geometry
geometric elements included in product definition data to communicate design requirements but not intended to represent a portion of the manufactured product

3.8.26
absolute coordinate system
primary model coordinate system in the computer-aided design (CAD) model used to define the location of digital elements in the CAD model

3.8.27
user-defined coordinate system
model coordinate system which is created in the computer-aided design (CAD) model in addition to the absolute coordinate system

3.8.28
classification code
designation assigned to product definition data that defines what data are included within the drawing, data set or both

Note 1 to entry: A drawing can either be in physical or electronic format.

3.8.29
classification code 1
drawing with optional data set

Note 1 to entry: Classification code 1 identifies that the data elements are located on the drawing and the drawing is the original.

3.8.30
classification code 2
data set with model and drawing

Note 1 to entry: Classification code 2 identifies that data elements are located on a drawing and the drawing is the original. A computer is used as a tool to prepare the drawing and the model. Data elements are located in the digital data and the drawing.

3.8.31
classification code 3
data set with model and simplified drawing

Note 1 to entry: Classification code 3 identifies a model with a simplified drawing used to expedite communication of common part features and to define non-geometric part definitions.

3.8.32
classification code 4
data set with annotated model and drawing

Note 1 to entry: Classification code 4 identifies that all data elements are located in both the digital data and the drawing. The data set is the original. For example, the model or the drawing can be used individually to satisfy this requirement.

3.8.33
classification code 5
data set with model

Note 1 to entry: Classification code 5 identifies that all data elements are located in the data set with model. No drawing exists.

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3.8.34
digital mock-up
DMU
digital specification given to a complete mechanical product or sub-system with an independent function, not only of the geometric properties but also of its function, performance or both in a particular field

Note 1 to entry: The digital mock-up of the product is built at a design stage and is applicable to the whole life cycle of the product, including design, manufacture, marketing and aftermarket. The digital mock-up can realize, for example, interference check, motion analysis, simulation of performance and manufacturing, technical training, advertising or maintenance planning.

3.8.35
complete digital mock-up
digital specification given to all the information of a complete mechanical product or its systems

Note 1 to entry: The complete description pertains to, for example, mechanical components, system devices, function components or accessories.

3.8.36
sub-system digital mock-up
digital specification of all the information of sub-systems based on the different functional divisions of mechanical products

EXAMPLE Digital mock-up of power, transmission and control systems.

3.8.37
scheme digital mock-up
part of the complete digital mock-up, which includes the digital specification of product plan design

3.8.38
detailed digital mock-up
part of the complete digital mock-up, which includes the digital specification of elaborate product design

3.8.39
manufacturing digital mock-up
part of the complete digital mock-up, which includes the digital specification of product machining and assembling

3.8.40
geometry digital mock-up
subset of the complete digital mock-up, providing digital information specification, geometrically emphasized, extracted from officially released digital mock-up

3.8.41
function digital mock-up
subset of the complete digital mock-up, providing a digital information specification, functionally emphasized, extracted from officially released digital mock-up

3.8.42
performance digital mock-up
subset of the complete digital mock-up, providing a digital information specification, based on performance, extracted from officially released digital mock-up

3.8.43
special-purpose digital mock-up
description extracted or simplified from a complete product model of a digital mock-up for special purposes, such as simulation, technical training or marketing

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3.8.44
retrofit digital mock-up
digital mock-up of a new product, built on the basis of an existing one

3.8.45
simplification
method which allows some features built without modelling or some parts (or components) without assembling during the modelling process

Note 1 to entry: Through simplification, the geometric detailed representation can be simplified and the model loading efficiency can be improved, provided that the simplification does not incur ambiguous understanding or bring about inconvenience to the use of a model.

3.8.46
lightweight
method to extract patches from the product geometry model

Note 1 to entry: It reduces resource expenditure in model loading and is suitable for, for example, large assembly, assembly simulation, advertising and technical training.

3.8.47
product configuration information
requirements for product design, realization, verification, operation and support

3.8.48
configuration management
coordinated activities to direct and control configuration

3.8.49
plot
graphic image created by a numerically controlled draughting machine and presented on draughting media

3.8.50
reference file
computer-aided design (CAD) file that is displayed and printed together with information from another file which can be stored and updated independently of the first file

Note 1 to entry: A typical use is a CAD drawing consisting of a file for the sheet and using the CAD model as a reference file. The view of the model in each drawing where it is referenced can thus be automatically updated.

3.8.51
wildcarding
using a special character to match any character, or group of characters, in a string comparison

3.8.52
digital manual
document that describes product information, whose contents are organized in a structured way, mainly expressed by three-dimensional models, published in either electronic or paper form and used to guide the use, repair and maintenance of products

3.8.53
engineering bill of materials
list of part numbers and assemblies that make up the design engineering configuration that contains the raw stock size and the material specification

3.8.54
service bill of materials
bill about the items and quantities of the complete machine, components, parts and their service attributes, which is listed based on demands of after-sale service

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3.8.55
data element
basic unit of data, of which the definition, identification, expression or allowable value may be stipulated by a set of properties known as metadata

3.8.56
data module
independent and complete data unit that describes the structure, performance and operational steps of mechanical products using models, text, pictures, audio and video

3.8.57
template
electronic document with a fixed format for preparing digital manuals

3.8.58
service bill of materials for product type
bill for product type about the items and quantities of the complete machine, components, parts and their service attributes, which is listed based on demands of after-sale service

3.8.59
configuration information
requirements for product or service design, realization, verification, operation and support

3.8.60
service bill of materials for product instance
bill for product instance about the items and quantities of the complete machine, components, parts and their service attributes, which is listed based on demands of after-sale service

3.9 Computer-related terms

3.9.1
configurable
capability of the system to allow the user to select from pre-programmed functions (modular software units) those which are necessary to accomplish a control strategy or other complex functions, without the use of computer language

3.9.2
distributed control system
system for process control purposes which, while being functionally integrated, consists of sub-systems which may be physically separated and located remotely from one another

3.9.3
process computer
programmable device which operates in real time on process data, online (primarily sensor-based), to perform user specifiable supervision and/or control functions

3.9.4
programmable
<system> able to accept instructions in computer language given by the user for performing control strategies or complex functions

3.9.5
screen dump
hard copy of a displayed image

3.9.6
shared display
shared control system
system in which shared functions, such as display, control and communications, are shared in time, i.e. “time-shared” functions

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3.9.7
software link
interconnection of system functions via keyboard or program instructions (soft wiring as opposed to hard wiring)

3.10 Documentation

3.10.1
aggregated document
document containing separately identified documents (parts) that are logically dependent but can be physically independently managed

3.10.2
alarm diagram
diagram which shows the design of an alarm installation in a simplified way

3.10.3
angular chart
chart showing the relation between the angular position of an object and the function

3.10.4
annotated design model
combination of design model, annotation and attributes that describes a product

3.10.5
apparatus list
list providing information about the constituent functional components included in a system

3.10.6
architectural drawing
drawing which shows the appearance of general arrangements, assemblies, component ranges and details of a building

3.10.7
archive master
document replica for long-term storage in a trusted encoding format

3.10.8
as-built drawing
record drawing
drawing used to record the details of a construction following its completion

3.10.9
assembly drawing
drawing representing the relative position and/or shape of a high-level group of assembled parts

3.10.10
assembly instruction
document providing information of how and in what sequence the different parts are assembled to receive a specific end product

3.10.11
bar schedule
component range drawing in which the lengths, sizes, bending dimensions and identification of reinforcement bars are given

3.10.12
base drawing
drawing which shows a certain stage of design, and which is used by the designers on a project as basic information for further design

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3.10.13
bill-of-material
BOM
presentation of the constituents in a product structure with the possibility to adapt the level of decomposition to actual need

3.10.14
bill of quantities
document for tendering, usually prepared in a standard form, comprising both a descriptive list of quantities of works and a description of the materials, workmanship and other matters required for construction works

3.10.15
blasting plan
drawing which presents the scope of the blasting work, including location and firing pattern of explosive charges, division into stages, charges and all other information necessary to satisfy safety and other requirements

3.10.16
block diagram
overview diagram predominantly using block symbols

3.10.17
block plan
drawing which identifies a site and locates the outlines of construction works in relation to a town plan or similar document

3.10.18
brief
working document which specifies at any point in time the relevant needs and aims, the resources of the client and user, the context of the project and any appropriate design requirements within which all subsequent briefing (when needed) and designing can take place

3.10.19
building permit drawing
document which forms the basis for the decision on a building permit

3.10.20
bulk excavation plan
excavation plan which specifies information for the realization of overall excavation works

3.10.21
cable diagram
diagram providing information on cables, such as the identification of the conductors, the location of the ends, and, if needed, the characteristics, routes and function

3.10.22
cable-run drawing
drawing which shows the location of cables in an electrical installation

3.10.23
CAD drawing
selected parts of a computer-aided design (CAD) model as presented on screen or on paper

Note 1 to entry: Visibility on the drawing can be controlled by views and layers. The drawing can contain additional graphics, such as border lines, title block and legends. CAD drawings can also be produced independently without an underlying CAD model (a drawing-oriented approach as opposed to the model-oriented approach).

3.10.24
calculation sheet
document providing the results of calculations regarding essential product characteristics

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3.10.25
ceiling drawing
drawing which specifies the scope and workmanship of the ceilings of a storey of a building, and which is normally in mirrored projection

3.10.26
chart
document of information in the form of a table, graph or diagram

3.10.27
circuit diagram
diagram providing information about the circuitry of objects

3.10.28
complementary document
document, referenced in the main document, containing specifying information

3.10.29
completion certificate
document which certifies completion of the work

3.10.30
component drawing
drawing depicting a single component and which includes all the information required for the definition of the component

3.10.31
component range drawing
drawing showing the size, system of reference (type of component and identification number) and performance data of a range of components of a given type

3.10.32
component schedule
component range drawing which lists components and which may contain information in the form of a table

3.10.33
compound document
document consisting of several embedded files in a specified file structure

3.10.34
connection diagram
diagram which shows the electrical connections of an installation or equipment

3.10.35
connection table
table which lists the connections on different levels, internal and external, of the installation

3.10.36
construction drawing
drawing which specifies construction information

3.10.37
content
subject information of a document

3.10.38
context
frame of reference in which a construct is specified

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3.10.39
contract
legally enforceable agreement to supply goods, execute work or provide services

3.10.40
contract document
document forming part of a contract

3.10.41
control and surveillance drawing
drawing showing an opto-electrical installation designed to detect and signal the presence, entry or attempted entry of an intruder

3.10.42
coordinate data list
list providing information about certain positions on a part represented in a Cartesian coordinate system

3.10.43
coordination drawing
base drawing which is used for coordination among the designers on a project

3.10.44
data
<digital product definition> information represented in a formal manner suitable for communication, interpretation or processing by human beings or computers

3.10.45
data
<metadata> representation of facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing by human beings or by automatic means

3.10.46
data
<document management> reinterpretable presentation of information in a formalized manner suitable for communication, interpretation or processing

3.10.47
delivery plan
document which specifies dates for delivery of material and execution of work

3.10.48
demolition drawing
general arrangement drawing which specifies the scope and performance of demolition, and which may also specify parts to be dismantled for reuse, in accordance with agreed rules

3.10.49
design meeting minutes
document which records decisions of essential importance made during the design process

3.10.50
detail
representation on a drawing of a part, or a feature of a part or an assembly, generally enlarged, to give the required information

3.10.51
detail drawing
drawing showing parts of a construction or a component, generally enlarged, and including specific information about the form and construction or about the assembly and joints

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3.10.52
detailed excavation plan
excavation plan which specifies detailed information for excavation works

3.10.53
development plan
document which covers an extensive area, which controls both development and use of land and water areas and which is normally prepared by a planning authority

3.10.54
diagram
<process industry> drawing showing the functions of the objects composing a system and their interrelations using graphical symbols

3.10.55
diagram
<documentation> technical document showing the functions of the objects composing a system and their interrelations using graphical symbols

3.10.56
dimensional drawing
drawing which specifies the dimensions necessary for construction or production

3.10.57
document
<document management> fixed and structured amount of information that can be managed and interchanged as a unit between users and systems

3.10.58
document
<process industry> fixed and structured amount of information intended for human perception that can be managed and interchanged as a unit between users and systems

3.10.59
document
<protection notices> medium with information recorded on or in it

EXAMPLE Paper documents, electronic data, software programs, graphics, videos and recorded sounds.

3.10.60
document list
formally built-up inventory in which all relevant documents for a specific purpose are listed

3.10.61
document part
part of a document having a function of its own

3.10.62
document replica
true or close-to-true copy of an original document

3.10.63
document type
document defined with respect to its specific content of information, function and form of presentation

3.10.64
kind of document
type of document defined with respect to its specified content of information and form of presentation

Note 1 to entry: Sometimes the term document type is used for the same concept.

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3.10.65
document kind class
group of document kinds having similar characteristics concerning the content of information independent of the form of presentation

3.10.66
documentation
<document management> collection of documents related to a given subject

3.10.67
documentation
<process industry> continuous and systematic compilation and processing of recorded information for the purpose of storage, classifying, retrieval, utilization or transmission

3.10.68
documentation
<industrial systems> collection of documents assigned to a specific object

Note 1 to entry: This can include technical, commercial and/or other documents.

3.10.69
door schedule
component range drawing of doors and their hardware, which can contain information in the form of a table

3.10.70
draft drawing
preliminary drawing
drawing serving as a basis for the choice of a final solution, for discussion between the involved parties or both

3.10.71
drainage drawing
drawing which shows the scope and workmanship of drainage works

3.10.72
drawing
technical information, given on an information carrier, graphically presented in accordance with agreed rules and usually to scale

3.10.73
earthwork drawing
drawing which specifies the scope and workmanship of earthwork, cut and fill

3.10.74
electrical construction drawing
drawing which comprises installations for electrical construction

Note 1 to entry: Electrical construction includes power supply, lighting, electric heating, motor operation, telecommunications and voltage adjustment.

3.10.75
electrical layout drawing
drawing which shows wires and cables, exterior light fittings and other external electrical installations in a comprehensive way for an installation or a site

3.10.76
elevation drawing
drawing which shows a view on a vertical plane

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3.10.77
evacuation drawing
drawing which shows ways of evacuation and how the fire brigade and other emergency services are called and gain access

3.10.78
excavation plan
drawing which specifies the information necessary for the realization of excavation works

3.10.79
fabrication drawing
part drawing of an assembly of fully specified items, permanently joined together

3.10.80
facade drawing
elevation drawing which shows an external view of a building

3.10.81
file drawing
as-built drawing which complies with certain requirements for archive durability

3.10.82
final certificate
document which authorizes final payment

3.10.83
fire alarm drawing
drawing which shows the location of fire alarm equipment and the cable network which is part of a fire alarm installation, and which specifies the detectors, cables and central unit

3.10.84
fire cell drawing
drawing which shows the division of a building into fire cells

3.10.85
flow diagram
diagram representing the procedure, configuration and function of a process plant or plant section

3.10.86
form-work drawing
drawing which specifies the execution of moulds in detail

3.10.87
function diagram
diagram providing information about the functional behaviour of a system

3.10.88
furnishing plan
drawing which specifies the scope and location of furniture and equipment

3.10.89
general arrangement drawing
drawing showing the layout of construction works, including location, item references and sizes

3.10.90
general assembly drawing
assembly drawing identifying all groups and parts of a complete product

3.10.91
general specification
document which provides a general description of materials to be provided and works to be performed

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3.10.92
graph
diagram showing the relation between variable quantities, typically of two variables, each measured along a pair of lines at right angles

3.10.93
ground planning drawing
groundworks drawing which specifies the scope and performance of the top layer and covering on, for example, footpaths, roadways and planting areas

3.10.94
groundworks drawing
drawing which comprises ground planning drawings, excavation plans, water supply and sewerage drawings

3.10.95
hard copy
printed or plotted copy of all or part of a data set

3.10.96
heating, ventilation and air conditioning drawing
HVAC drawing
drawing which shows systems for heating, ventilation, air-conditioning, cooling and heating pumps

3.10.97
installation diagram
document showing the location of the components of an installation and their interconnections by means of graphical symbols

3.10.98
illustration drawing
drawing showing figures and sketches for any general purpose which is not covered by the more specific document types

3.10.99
interconnection diagram
diagram representing the connections between the different units of an installation

3.10.100
interface drawing
drawing giving information for the assembly and matching of two parts, concerning, for example, their dimensions, configuration limitations, performance and test requirements

3.10.101
interference model
model that shows the overall geometry and the space required as well as possible collisions

3.10.102
interim certificate
document that authorizes payment to be made for work carried out or materials supplied up to a given date

3.10.103
invitation to tender
document which contains an invitation to selected firms to submit tenders, or an announcement that tenderers are invited to carry out certain works

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3.10.104
landscape drawing
drawing which shows the composition and processing of the landscape

Note 1 to entry: Landscape includes roads, planted areas and external installations.

3.10.105
layout drawing
location drawing
drawing showing the location of sites, structures, buildings, spaces, elements, assemblies or components

3.10.106
levelling drawing
drawing which records the level of points which have been levelled

3.10.107
lighting drawing
drawing which specifies the type and location of lighting, lighting equipment and lighting system circuitry

3.10.108
list
document in which the information is presented in columns and rows

3.10.109
main document
document containing the complete compilation of the information by which a part or an assembly is specified

Note 1 to entry: The information can be given directly in the main document or by reference to complementary documents.

3.10.110
mains chart
drawing which shows the main pipes in pipe systems for water, sewage and heating

3.10.111
maintenance manual
document which contains advice on care and servicing requirements of a construction works

3.10.112
manufacturing drawing
drawing which provides all the necessary information for production

3.10.113
masonry drawing
drawing which shows a view, cut and/or section of a construction of bricks, stones or blocks

3.10.114
measuring-in drawing
drawing which specifies positions of identified points in plan and level

3.10.115
network diagram
overview diagram which shows the connections between different kinds of installations for transmitting, for example, electrical power, telecommunications or equipment

3.10.116
network map
overview diagram showing a network on a map

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3.10.117
nomogram
chart from which it is possible to determine without calculation the approximate numerical value of one or more quantities

3.10.118
operational manual
document which contains advice on the use of equipment

3.10.119
original document
document onto which the technical description or definition of a product is recorded and which forms the base for future changes

3.10.120
original drawing
drawing giving the currently approved information or data and on which the latest revision has been recorded

3.10.121
outline drawing
drawing giving the outside peripheral envelope, overall dimensions and mass of an object

3.10.122
overlay drawing
drawing which is produced on a transparent medium and thus can be copied together with other drawings related to the same subject and at the same scale

3.10.123
overview diagram
diagram providing a comprehensive view of an object with low degree of detailing

3.10.124
page
portion in a low-level physical substructure of a document, providing a presentation-dependent division of the document content

Note 1 to entry: Primarily applied in the context of a text-based document.

3.10.125
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

3.10.126
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

3.10.127
part model
model in which the product described is one single item

3.10.128
partial arrangement drawing
drawing showing a delimited part of a general arrangement drawing, usually to a larger scale and giving supplementary information

3.10.129
parts list
list of elements of an object

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3.10.130
pattern drawing
drawing depicting a pattern made of wood, metal or other material, around which moulding material is placed to make a mould for castings

3.10.131
performance specification
document which specifies requirements for the function of a building, and which is normally separate for construction and installation works

3.10.132
piling drawing
drawing which shows the scope and workmanship of piling work

3.10.133
piping and instrumentation diagram
P&ID
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

3.10.134
planting and fittings drawing
drawing which specifies the scope and workmanship of plants, and loose and fixed equipment

3.10.135
process flow diagram
diagram illustrating the configuration of a process system or process plant by means of graphical symbols

3.10.136
process specification
document that defines the type and sequence of steps of a process used to produce a part

3.10.137
production drawing
drawing giving all information about a part required for its production

3.10.138
quality plan
document defining a set of activities planned that helps achieve quality in the project being executed

3.10.139
rebuilding drawing
general arrangement drawing which specifies the scope and workmanship of rebuilding and shows existing and new parts, and which may also show parts which are to be demolished, in accordance with agreed rules

3.10.140
regulation installation drawing
drawing which specifies the setting values for an installation

3.10.141
reinforcement drawing
drawing which shows the position and designation of rods, bars, wires and cables embedded in a reinforced concrete structure

3.10.142
replica fidelity
level of ability of a document replica to promote the information of the original document

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3.10.143
report
account given of a matter after investigation or consideration

3.10.144
requirement specification
document compiled and evaluated with the requirements from the markets (customer), authorities and the company itself

3.10.145
reuse dismantling drawing
drawing which shows how a building is dismantled for reuse

3.10.146
roof plan
drawing which specifies the roof in detail as seen from above

3.10.147
room relation drawing
drawing which shows the disposition of rooms in accordance with the brief as regards the relative positions of rooms and their relations to others

3.10.148
setting-out drawing
drawing used to establish marks and lines to define the position and level of elements for construction work so that the work can proceed with reference to them

3.10.149
sheet
segment of a technical drawing

3.10.150
signal list
list providing information about signals defined as input or output of functional units

3.10.151
single-line diagram
diagram which shows the composition of a service installation in a simplified way, using single lines only

3.10.152
site plan
location 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

3.10.153
sketch
drawing prepared freehand or in a computer-aided design (CAD) system and not necessarily to scale

3.10.154
space envelope drawing
drawing showing the maximum space which can be occupied for an intended design solution and the geometrically significant interfaces of components and assemblies which are not yet designed in detail

3.10.155
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

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3.10.156
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

3.10.157
structural engineering drawing
drawing which comprises structural frames, non-structural frames and reinforcements with their dimensions

3.10.158
structural-frame drawing
drawing of a structure that relies wholly or mainly on a frame for strength and stability

3.10.159
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

3.10.160
sub-assembly drawing
assembly drawing on a lower structural level showing only a limited number of groups or parts

3.10.161
supplier drawing
drawing defining a part developed and owned by an external supplier

3.10.162
tabular drawing
drawing listing differing variations of a specific configuration using a single common illustration

3.10.163
technical product documentation
TPD
means of conveying all or part of a design definition or specification of a product

3.10.164
technical product specification
TPS
technical product documentation comprising the complete design definition and specification of a product for manufacturing and verification purposes

Note 1 to entry: A TPS (which may contain drawings, 3-D models, parts lists or other documents forming an integral part of the specification, in whatever format they are presented) may consist of one or more TPDs.

3.10.165
technical specification
document specifying the requirements for one specific part or for a group of parts with equal characteristics

3.10.166
test plan
document describing the scope realization resources and plans for the intended test activities

3.10.167
test report
compilation of tests carried out on a new part, assembly, product or system and documentation of test results

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3.10.168
test specification
specification explaining how to perform the test activities according to the test plan

3.10.169
textual
presentation form using characters, for example in written instructions and descriptions

3.10.170
traffic and parking plan
drawing which shows routes of traffic movement and areas for parking

3.10.171
viewing copy
document replica for viewing, commenting and for production of hard copies

3.10.172
water supply and sewerage drawing
drawing showing pipelines which convey a general water supply and a system of sewers and ancillary works

3.10.173
window schedule
component range drawing of windows and window doors including their hardware, which may contain information in the form of a table

3.10.174
process and instrumentation diagram
PID
<power plants> diagram representing the technical realization of a process system by means of graphical symbols for equipment, process flow path and process measurement, and control functions

3.10.175
process and instrumentation diagram
PID
<measurement and control> diagram representing the technical realization of a process system by means of graphical symbols for equipment, connections, process measurement and manipulating objects

Note 1 to entry: The diagram type process and instrumentation diagram is technically identical with the piping and instrumentation diagram. The argument for change of the designation is that the diagram type is used for both fluid and solid material processes. The abbreviation PID deviates from the traditional used abbreviation PID for the piping and instrumentation diagram.

3.10.176
process control diagram
PCD
<power plants> diagram representing the configuration of the measuring, control and actuating functions of a system or sub-system

3.10.177
process control diagram
PCD
<measurement and control> diagram representing the configuration of measuring, control and actuating functions of a process system by means of graphical symbols for measuring, control and manipulating functions

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3.10.178
typical diagram
TYD
<process plant> diagram representing the detailed configuration of a complex object by means of graphical symbols

EXAMPLE Pneumatic control valve with positioner and instrument air supply.

3.10.179
typical diagram
TYD
<measurement and control> diagram representing the detailed configuration of a definite measuring or actuating system which can be referred to in an associated diagram by a graphical symbol and document reference

3.11 Document management

3.11.1
approval
confirmation by an authority that something conforms to previously defined requirements

3.11.2
approval phase
stage in which the document content is formally checked and approved

3.11.3
archiving phase
stage in which product documents are removed from the storage of active documents to a historical archive

3.11.4
classification
method of structuring a defined type of item (objects or documents) into classes and subclasses in accordance with their characteristics

3.11.5
configuration
<document management> arrangement of the elements of a system

3.11.6
configuration
<digital mock-up> interrelated functional and physical characteristics of a product defined in product configuration information

3.11.7
creation phase
stage in which the design documentation work is carried out

3.11.8
data field
bounded area used for a specific category of data

3.11.9
data transfer
moving of data from one computer process to another in an ordered form

3.11.10
database
collection of data organized according to a conceptual structure describing the characteristics of these data and the relationships among their corresponding entities, supporting one or more application areas

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