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Title: ISO 14617-2 Graphical symbols for diagrams

Part 2. Graphical symbols

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/Figure/ Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

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DRAFT INTERNATIONAL STANDARD

ISO/DIS 14617-2

ISO/TC **10**/SC **10**

Secretariat: **DIN**

Voting begins on:
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Voting terminates on:
2024-02-08

Graphical symbols for diagrams —

Part 2:
Graphical symbols

ICS: 01.080.30

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 10, *Process plant documentation*.

This third edition cancels and replaces the second edition (ISO 14617-1 to - 15:2002 and 2004), which has been technically revised and merged into two documents.

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

— Previous ISO 14617-1 has been technically revised;

— Previous ISO 14617-2 to ISO 14617-15 have been merged into one document;

— Symbols from other relevant standards, see Figure 1, have been included.

— Annexes of previous ISO 14617 series have reconstructed and placed in their appropriate part 1 or part 2.

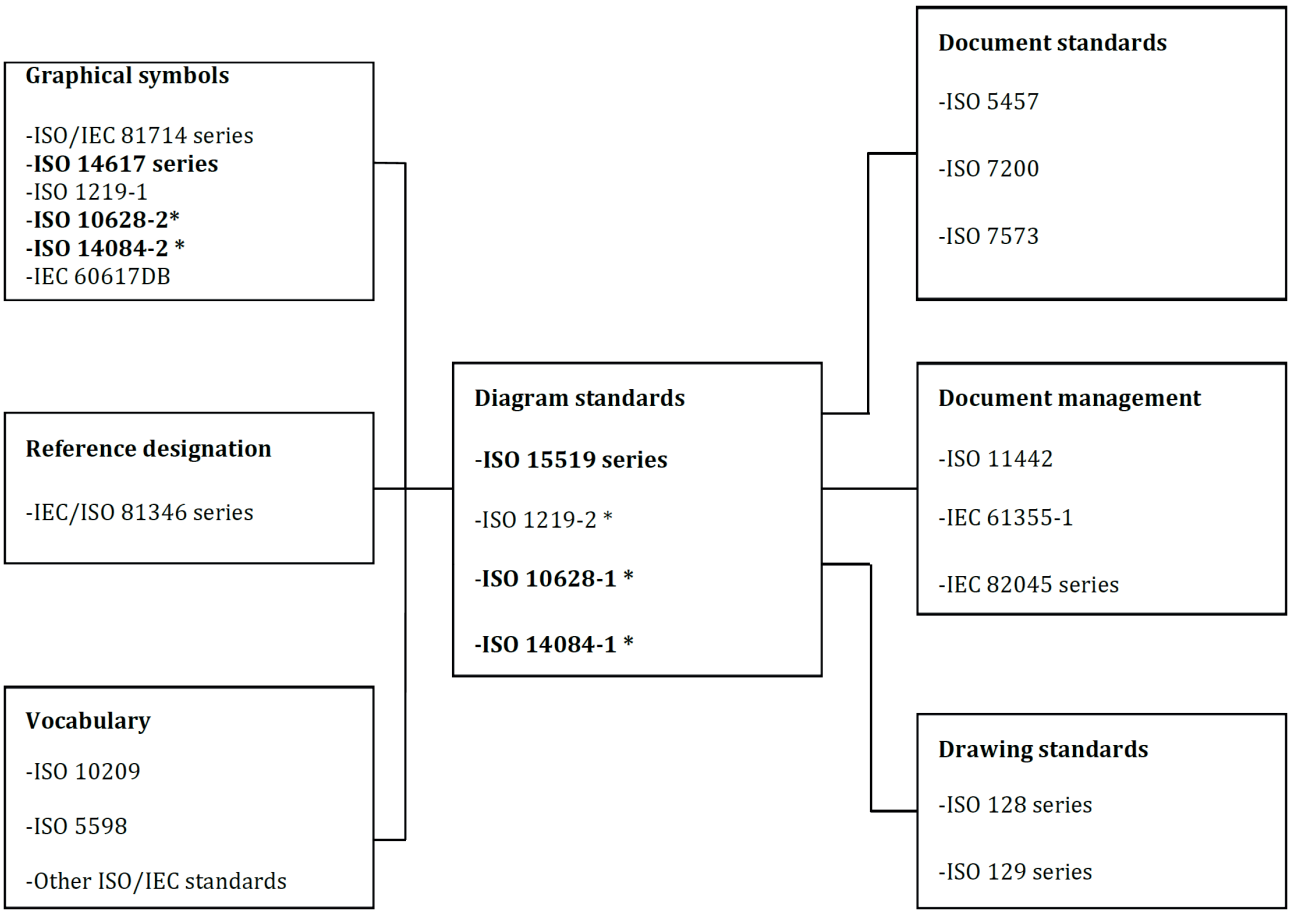
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Introduction

ISO/TC10/SC10 prepares standards for diagrams including graphical symbols, which together with standards prepared by other ISO committees and IEC constitute the basis for preparation of diagrams.

The interrelations between these standards are illustrated in Figure 1. Standards in bold are ISO/TC10/SC10 standards.



NOTE Standards marked * are collective application standards (See explanation in below clause: 0:4 Collective Application Standards)

Figure 1 — Interrelations between ISO and IEC standards for diagrams

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Graphical symbols for diagrams —

Part 2:
Graphical symbols

1 Scope

This document specifies graphical symbols for diagrams related to industrial components, products, and processing.

The standard constitutes a symbol library, from which users can use the symbols or created symbol examples for use in diagrams.

General rules and guidelines for the preparation and presentation of graphical symbols are given in ISO 14617-1.

Graphical symbols for fluid power objects are covered by ISO 1219-1, which is the collective application standards of ISO 14617 series. Also, symbols of measurement and control functions such as mathematical functions and process functions, which were defined in the previous ISO 14617 parts 2 and 6, are not included in this standard from the reasons shown in the new ISO 14617-1. Graphical symbols for electro technical objects are covered by IEC 60617 database.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO 1219-2, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 2: Circuit diagrams*

ISO 7000, *Graphical symbols for use on equipment — Registered symbols*

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 15519 (all parts), *— Specifications for diagrams for process industry*

ISO 17724, *Graphical symbols — Vocabulary*

ISO 81714 (all parts), *— Design of graphical symbols for use in the technical documentation of products*

IEC 60417, *Graphical Symbols for use on equipment*

IEC 60617 (all parts), *Graphical Symbols for Diagrams*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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

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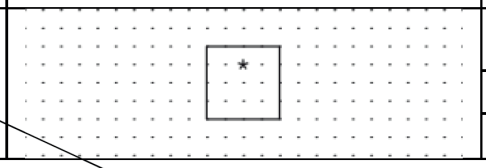
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— IEC Electropedia: available at https://www.electropedia.org/

4 General application symbols

4.1 Components, devices, functional units, equipment, plants and functions

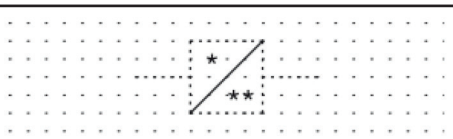
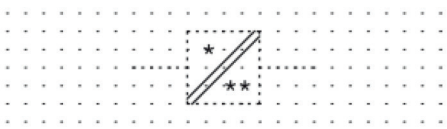
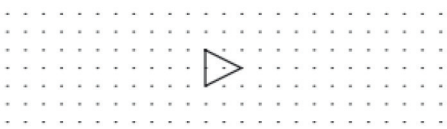
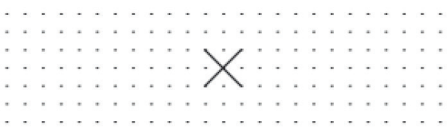
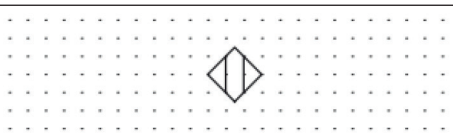
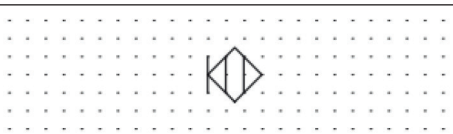
4.1.1 Basic symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
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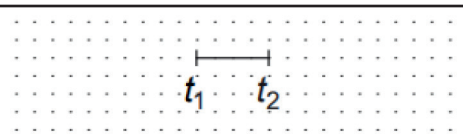
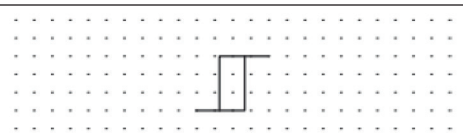
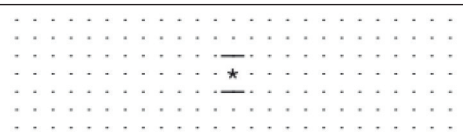
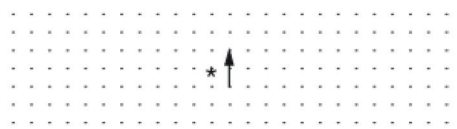
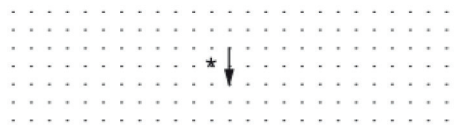
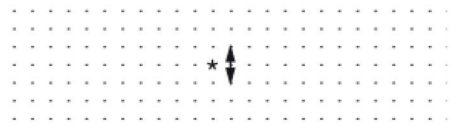
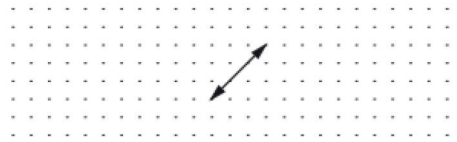
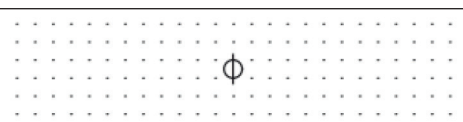
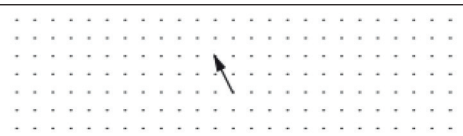
These are the part of ISO 14617 series where the symbol was shown. These are just information and will be deleted at later stage.

4.1.2 Supplementary symbols

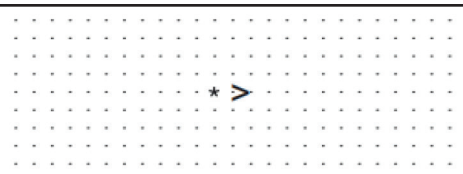
4.1.2.1 General functions

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.1.2.1.1 (Part 2)	111		Conversion The definition is in IEC 60050-551-11-02 and IEC 60050-601-01-07. R111
4.1.2.1.2 (Part 2)	113		Conversion without connection R111
4.1.2.1.3 (Parts 2, 6)	115		Amplification
4.1.2.1.4 (Part 2)	119		Magnetic field effect
4.1.2.1.5 (Part 2)	121		Proximity effect
4.1.2.1.6 (Part 2)	122		Touch effect

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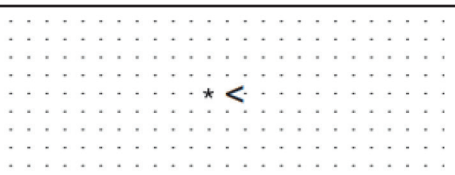
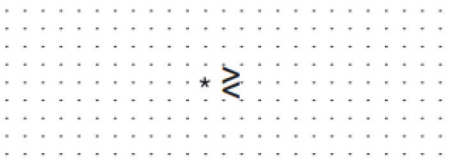
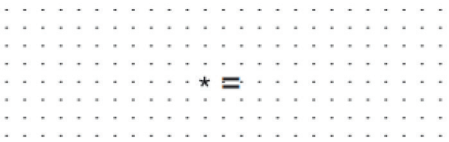
Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.1.2.1.7 (Part 2, 6)	123		Delay R112
4.1.2.1.8 (Part 2, 6)	124		Hysteresis The definition is in IEC 60050-351-45-16.
4.1.2.1.9 (Part 2)	125		Stabilizing Stabilization is defined in IEC 60050-151-16-32. R113
4.1.2.1.10 (Part 2) (Part 11)	130		Transition to a higher quantity level R115
4.1.2.1.11 (Part 2) (Part 11)	131		Transition to a lower quantity level R115
4.1.2.1.12 (Part 2) (Part 11)	132		Transition to a higher or lower quantity level R115
4.1.2.1.13 (Part 2)	144		Automatic operation The definition is in IEC 60050-351-55-03.
4.1.2.1.14 (Parts 2, 6)	145		Complex function The definition is in IEC 60617-12. R116
4.1.2.1.15 (Part 2)	148		Indicating

4.1.2.2 Change of discrete state at specified values of a characteristic quantity

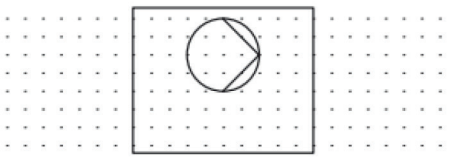
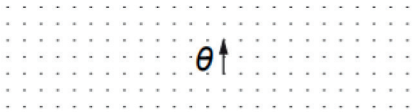
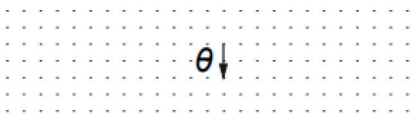
Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.1.2.2.1 (Part 2) (Part 8)	171		Change of state when the characteristic quantity passes a set value from below, for example, in a safety valve or an overpressure pilot switch. R121

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Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.1.2.2.2 (Part 2) (Part 8)	172		Change of state when the characteristic quantity passes a set value from above, for example, in a vacuum valve or an under-temperature pilot switch. R122
4.1.2.2.3 (Part 2)	173		Change of state when the characteristic quantity passes an upper set value from below or a lower set value from above, for example, in a pilot switch for over- and under-temperature.
4.1.2.2.4 (Part 2)	174		Change of state when the characteristic quantity is equal to a set value.
4.1.2.2.5 (Part 2)	175		Change of state when the characteristic quantity is approximately equal to a set value.

4.1.3 Symbol examples

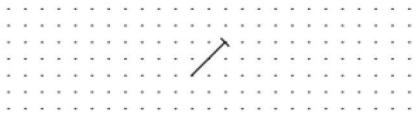
Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.1.3.1 (Part 2)	X101		Pumping system containing one or more pumps 101, 2301
4.1.3.2 (Part 2)	X107		Hydraulic controlling unit 101
4.1.3.3 (Part 15)	X3523		Heat pump type — temperature increase 130
4.1.3.4 (Part 15)	X3524		Heat pump type — temperature decrease 131

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4.2 Variability

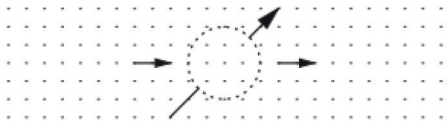
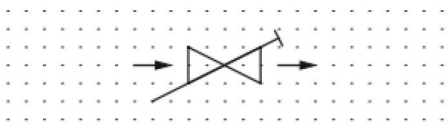
4.2.1 Basic symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.2.1.1 (Parts 2, 8, 10,14)	201		Adjustability R201
4.2.1.2 (Part 2) (Part 8)	203		Pre-set adjustability R201

4.2.2 Supplementary symbols

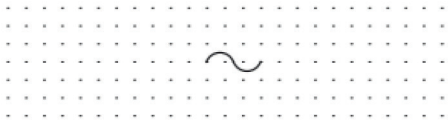
No supplementary symbols.

4.2.3 Symbol examples

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.2.3.1	X3501		Adjustable motor, pump, fan, compressor, etc. 201
4.2.3.2 (ISO 14084)	X6119		Pre-set control valve For example, flow balancing valve 203, 2101

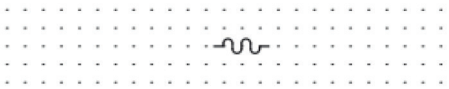
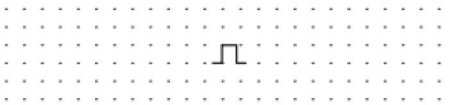
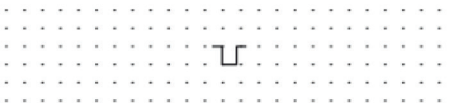
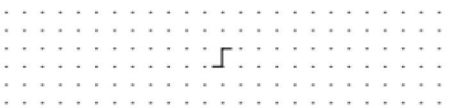
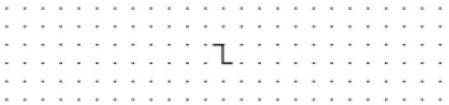
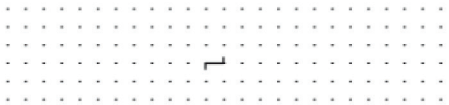
4.3 Characteristics for force, motion, mass flow, magnetic flow and signals

4.3.1 Basic symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.3.1.1 (Parts 2, 9, 10)	221		Constant force, motion or flow Form 1 R221
4.3.1.2 (Parts 2, 9, 10)	222		Constant force, motion or flow Form 2 R221
4.3.1.3 (Part 2)	223		Approximately constant force, motion or flow
4.3.1.4 (Parts 2, 10)	224		Sinusoidal force, motion or flow R222

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Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.3.1.5 (Part 2,9,10)	225		Pulse-shaped force, motion or flow
4.3.1.6 (Part 2)	226		Burst of sinusoidal flow
4.3.1.7 (Part 2)	227		Saw-tooth shaped force, motion or flow
4.3.1.8 (Part 2)	228		Oscillating motion
4.3.1.9 (Part 2)	229		Positive-going pulse
4.3.1.10 (Part 2)	230		Negative-going pulse
4.3.1.11 (Part 2)	231		Positive-going step
4.3.1.12 (Part 2)	232		Negative-going step
4.3.1.13 (Parts 2, 10)	233		Stepping function

4.3.2 Supplementary symbols

No supplementary symbols.

4.3.3 Symbol examples

No symbol examples.

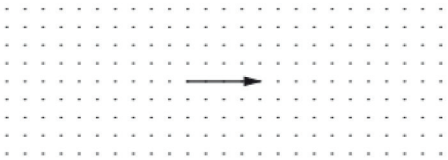
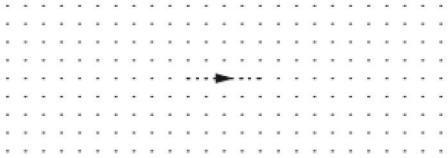
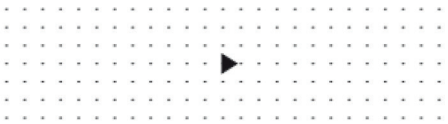
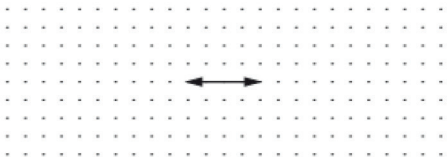
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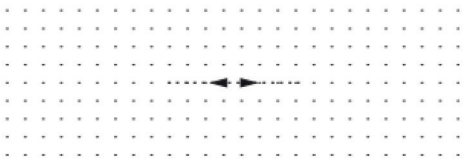
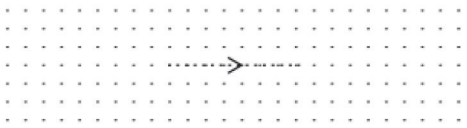
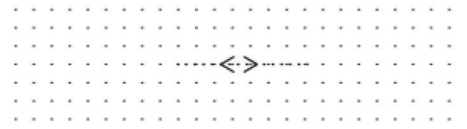
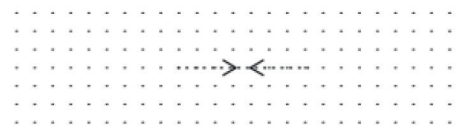
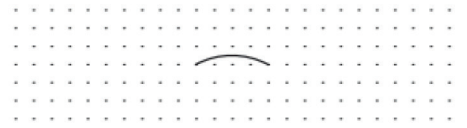
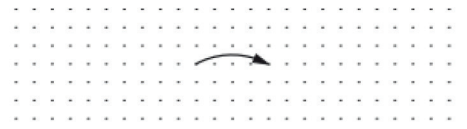
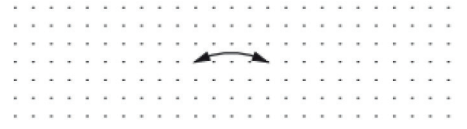
4.4 Directions

4.4.1 Basic symbols

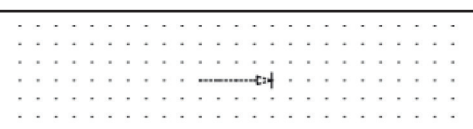
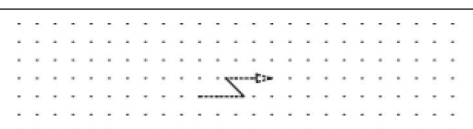
Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.1.1 (Parts 2, 14)	241		Direction in general, except for energy and signal flow Form 1 For example: — force; — rectilinear motion; — mass flow (solid material or fluid); — magnetic flow; — sound. R221, R241, R242, R244
4.4.1.2 (Part 2)	242		Direction in general, except for energy and signal flow Form 2 For example: — force; — rectilinear motion; — mass flow (solid material or fluid); — magnetic flow; — sound. R221, R243, R244
4.4.1.3 (Part 2)	243		Working direction of hydraulic power R245
4.4.1.4 (Part 2)	244		Working direction of pneumatic power R245
4.4.1.5 (Parts 2, 14)	245		Alternative direction in general, except for energy and signal flow Form 1 For example: — force; — rectilinear motion; — mass flow (solid material or fluid); R221, R241

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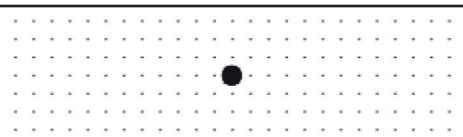
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Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.1.6 (Part 2)	246		Alternative direction in general, except for energy and signal flow Form 2 For example: — force; — rectilinear motion; — mass flow (solid material or fluid); R221, R243
4.4.1.7 (Parts 2, 6)	249		Propagation, energy, or signal flow (simplex) R247
4.4.1.8 (Parts 2, 6)	250		Propagation, energy, or signal flow, alternative directions (half-duplex) R247
4.4.1.9 (Parts 2, 6)	251		Propagation, energy, or signal flow simultaneously in both directions possible (full-duplex) R247
4.4.1.10 (Parts 2, 12)	254		Circular motion, unspecified direction R248
4.4.1.11 (Parts 2, 12)	255		Circular motion R248, R249
4.4.1.12 (Part 2)	256		Circular motion, alternative directions R248, R249

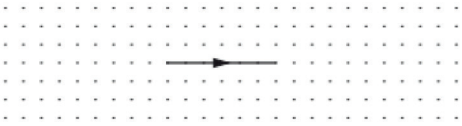
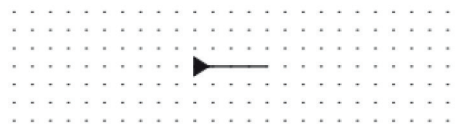
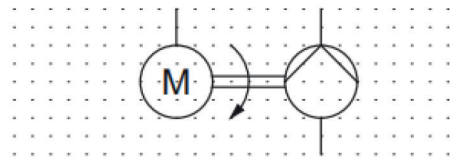
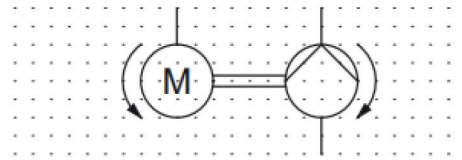
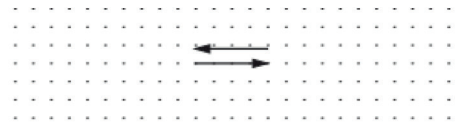
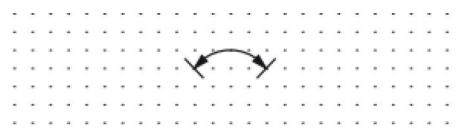
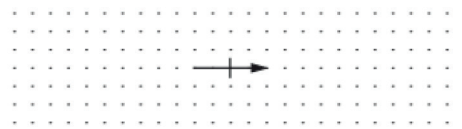
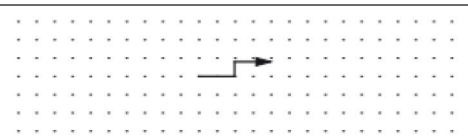
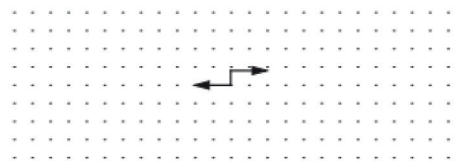
4.4.2 Supplementary symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.2.1 (Part 2)	261		Limit R251
4.4.2.2 (Part 2)	262		Momentary and partial reversal of motion

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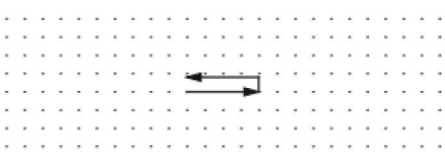
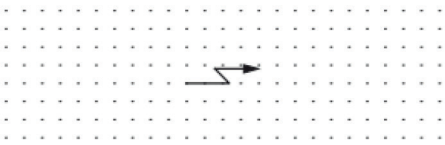
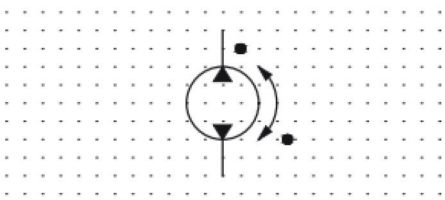
Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.2.3 (Part 2)	263		Correlation indication R252

4.4.3 Symbol examples

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.3.1 (Part 2)	X242		Direction of mass flow in a pipeline 242
4.4.3.2 (Part 2)	X246		Hydraulic power source, simplified representation 243, 405
4.4.3.3 (Part 2)	X250		Electric motor and pump, the motor rotating Form 1 255, 402, 2301, 4150
4.4.3.4 (Part 2)	X251		Electric motor and pump, the motor rotating Form 2 255, 402, 2301, 4150
4.4.3.5 (Part 2)	X252		Reciprocating motion 241
4.4.3.6 (Part 2)	X253		Limited circular motion in alternative directions 256, 261
4.4.3.7 (Part 2)	X254		Rectilinear motion with intermediate stop, manual re-start from the stop 241, 261
4.4.3.8 (Part 2)	X255		Rectilinear motion with intermediate dwell, automatic re-start after a specified time 241, 261
4.4.3.9 (Part 2)	X256		Rectilinear motion in alternative directions with intermediate dwell; automatic re-start after a specified time in each direction 241, 261

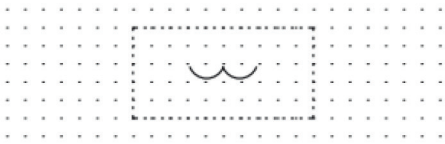
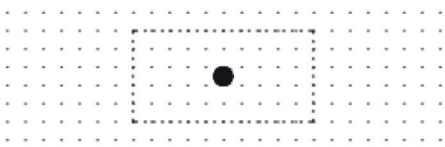
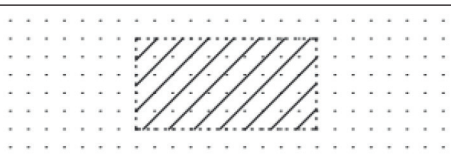
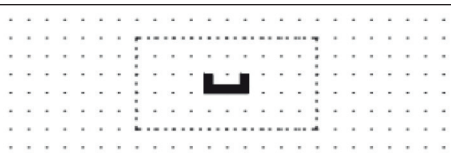
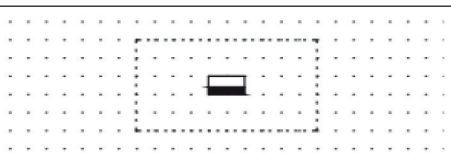
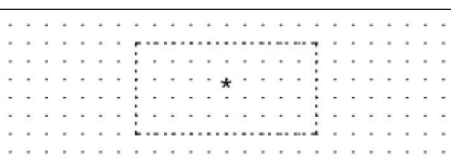
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Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.4.3.10 (Part 2)	X257		Rectilinear motion in the direction of the arrow pointing to the right and back in the opposite direction with dwell at the return point 241, 261
4.4.3.11 (Part 2)	X258		Rectilinear motion in the direction of the arrow with partial reversal in an intermediate position 241, 262
4.4.3.12 (Part 2)	X261		Correlation between the rotational direction of a hydraulic pump with alternative directions of flow and the directions of flow 256, 263, 2401

4.5 Materials

4.5.1 Basic symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.5.1.1 (Part 2)	321		Liquid
4.5.1.2 (Part 2)	322		Gas
4.5.1.3 (Part 2)	325		Insulating material R321
4.5.1.4 (Part 2)	326		Permanent magnet
4.5.1.5 (Part 2)	327		Bimetal
4.5.1.6 (Part 2)	328		Material of other type R322

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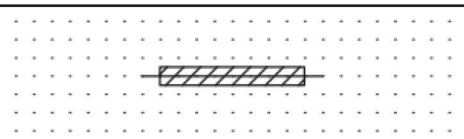
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4.5.2 Supplementary symbols

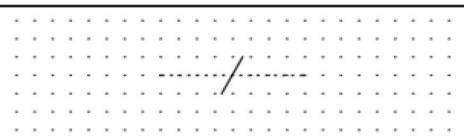
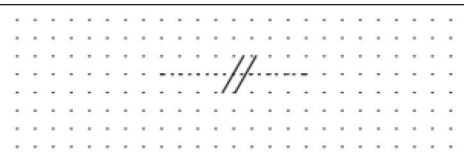
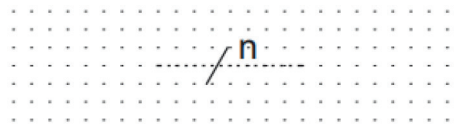
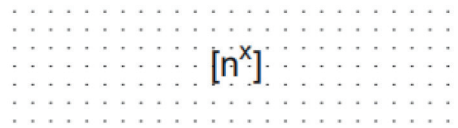
No supplementary symbols.

4.5.3 Symbol examples

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.5.3.1 (Part 2)	X322		Pipeline or duct with thermal insulation 325, 405

4.6 Simplifications

4.6.1 Basic symbols

Entry. no.	Reg. no.	Symbol graphics	Symbol names and references
4.6.1.1 (Part 2)	341		One item only R341, R342
4.6.1.2 (Part 2)	342		Two identical items R341
4.6.1.3 (Part 2)	343		Three identical items R341
4.6.1.4 (Part 2)	344		Two or more identical items Form 1 R221, R341, R343
4.6.1.5 (Part 2)	345		Two or more identical items Form 2 R221, R344

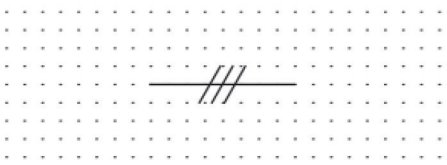
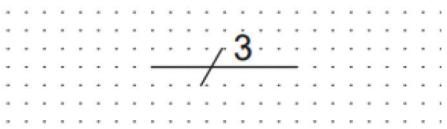
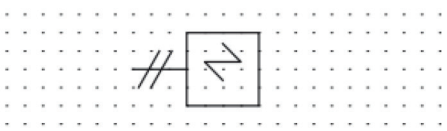
4.6.2 Supplementary symbols

No supplementary symbols.

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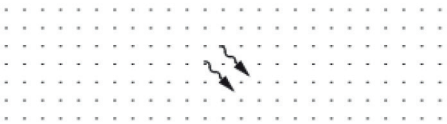
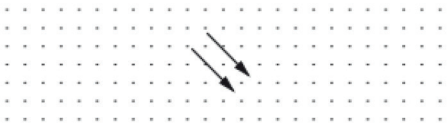
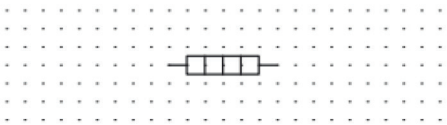
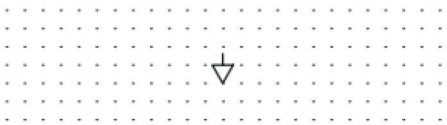
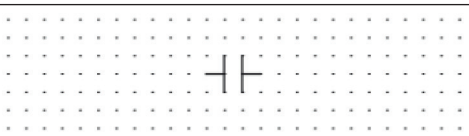
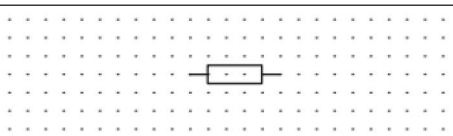
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4.6.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
4.6.3.1 (Part 2)	X341		Three connections in single-line representation Form 1 Single-line representation is defined in IEC 61082-1. 343, 406, R221
4.6.3.2 (Part 2)	X342		Three connections in single-line representation Form 2 344, 406, R221
4.6.3.3 (Part 2)	X349		Two pipelines (inlet and outlet) connected to a heat exchanger or heating radiator 101, 342, 406, 2501

4.7 General electrotechnical symbols

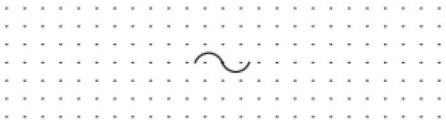
4.7.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
4.7.1.1 (Part 11)	4200		Radiation type Ionizing
4.7.1.2 (Part 11)	4201		Optical type Non-ionizing
4.7.1.3 (Parts 11, 12)	4202		Electric thermal, resistant
4.7.1.4 (Part 11)	4203		Electric electrode type
4.7.1.5 (Parts 11, 12)	4204		Electromagnetic, induction
4.7.1.6 (Part 12)	4205		Electrostatic type
4.7.1.7 (Part 5)	4206		Strain gauge type

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
4.7.1.8 (IEC 60417)	5031		Direct current The definition is in IEC 60617 – S01401 and ISO 7000 / IEC 60417- 5031.
4.7.1.9 (IEC 60417)	5032		Alternating current The definition is in IEC 60617 – S01403 and ISO 7000 / IEC 60417- 5032.

4.7.2 Supplementary symbols

No supplementary symbols.

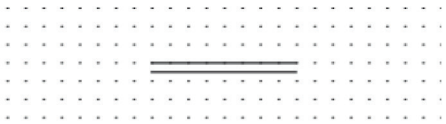
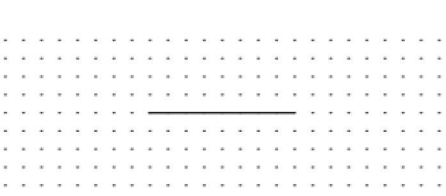
4.7.3 Symbol examples

No symbol examples.

5 Connections and related devices (fluids)

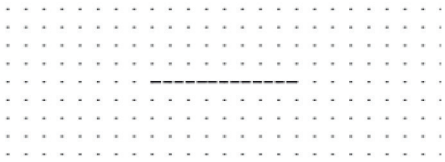
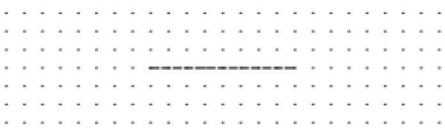
5.1 Connections, general

5.1.1 Basic symbols

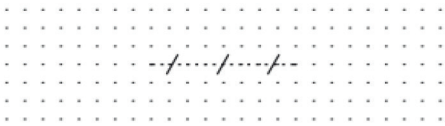
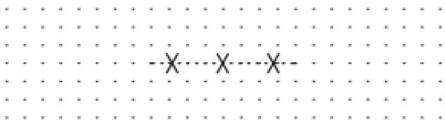
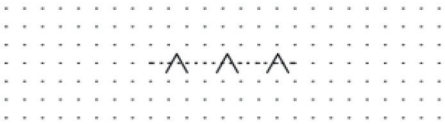
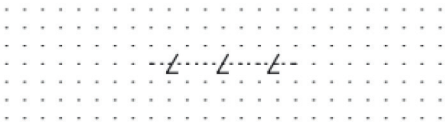
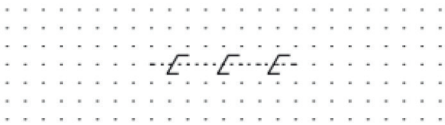
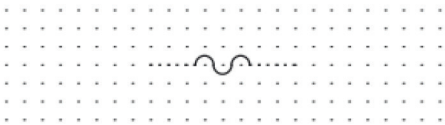
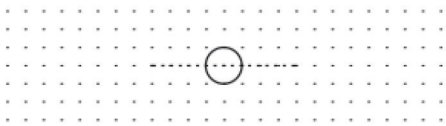
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.1.1.1 (Parts 3,6)	401		Functional connection Connection is defined in IEC 60050-581-26-01. R401, R402
5.1.1.2 (Part 3)	402		Mechanical link, shaft Form 1 R221, R401, R402
5.1.1.3 (Part 3)	403		Mechanical link, shaft, wire Form 2 R221, R401, R402
5.1.1.4 (Part 3)	404		Electrically insulating mechanical link, shaft, wire R401, R402, R403
5.1.1.5 (Part 3)	405		Pipeline, duct R401, R402
5.1.1.6 (Part 3)	406		Group of pipelines, ducts in single-line representation R401, R402

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.1.1.7 (Part 3)	411		Non-guided electromagnetic beam
			R401, R402
5.1.1.8 (Part 3)	412		Planned pipeline, duct
			R401, R402
5.1.1.9 (Part 3)	413		Group of planned pipelines, ducts in single-line representation
			R401, R402
5.1.1.10 (Part 3)	422		Pilot, drain, purge, or bleed line
			R401, R402

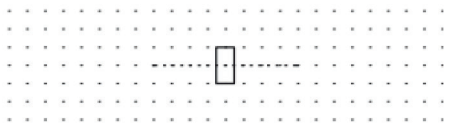
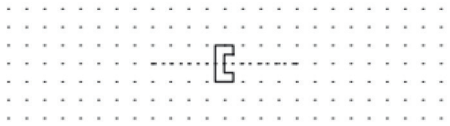
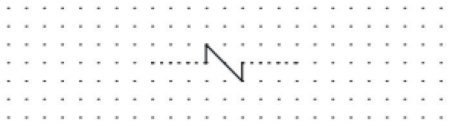
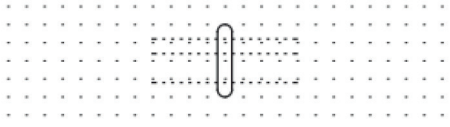
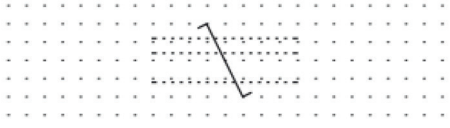
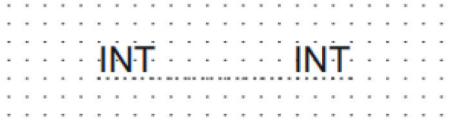
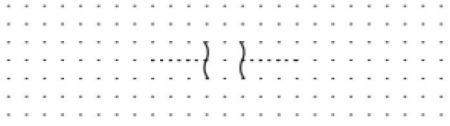
5.1.2 Supplementary symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.1.2.1 (Parts 3, 6)	431		Connection, pure functional type
5.1.2.2 (Part 3)	432		Connection, capillary type
5.1.2.3 (Part 3)	433		Connection, pneumatic type
5.1.2.4 (Part 3)	434		Connection, hydraulic type
5.1.2.5 (Part 3)	435		Connection, electric type
5.1.2.6 (Part 3)	444		Flexible type
			R412
5.1.2.7 (Part 3)	445		Circular shape

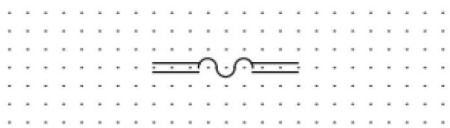
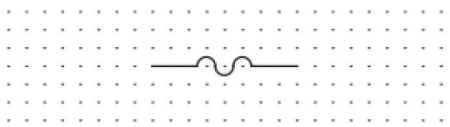
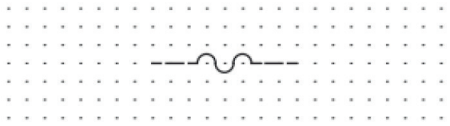
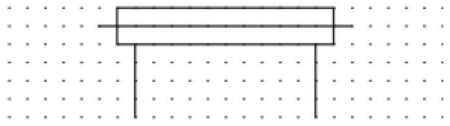
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.1.2.8 (Part 3)	446		Rectangular shape
5.1.2.9 (Part 3)	447		Ridged shape
5.1.2.10 (Part 3)	448		Twisted pipeline or duct
5.1.2.11 (Part 3)	449		Cable, pipe unit Cable is defined in IEC 60050-151-12-38. R412
5.1.2.12 (Part 3)	450		Twisting of pipelines R412
5.1.2.13 (Part 3)	451		Internal connection Connection in the form of one or more pipelines or conductors that is an integral part of a component R413
5.1.2.14 (ISO 14084)	4100		Interruption of connection line

5.1.3 Symbol examples

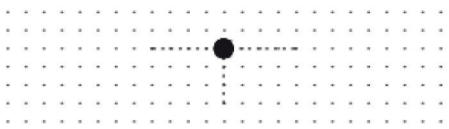
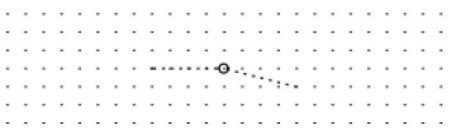
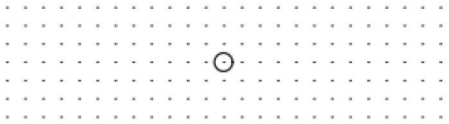
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.1.3.1 (Part 3)	X402		Flexible mechanical link Form 1 402, 444
5.1.3.2 (Part 3)	X403		Flexible mechanical link Form 2 403, 444
5.1.3.3 (Part 3)	X404		Flexible, electrically insulating mechanical link, shaft 404, 444
5.1.3.4 (Part 3)	X409		Jacketed (sleeved) pipeline 101, 405

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5.2 Connection functional joints

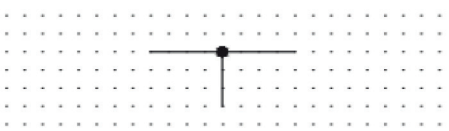
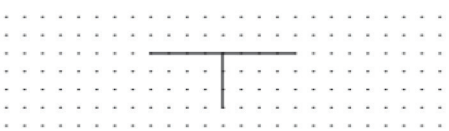
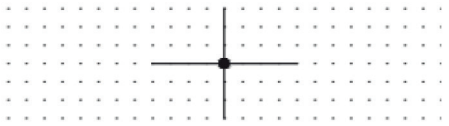
5.2.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.2.1.1 (Part 3, 6)	501		Joint of connections R501
5.2.1.2 (Part 3) (Part 7)	2005		Joint of two mechanical parts permitting motion of the parts
5.2.1.3 (Part 3)	561		Port The definition is in ISO 5598. R561

5.2.2 Supplementary symbols

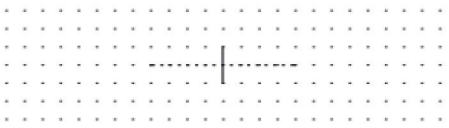
No supplementary symbols.

5.2.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.2.3.1 (Part 3)	X504		T-joint of functional connections, mechanical links, or pipelines Form 1 401, 403/405, 501, R221
5.2.3.2 (Part 3)	X505		T-joint of functional connections, mechanical links, or pipelines Form 2 401, 403/405, R221
5.2.3.3 (Part 3)	X506		Joint of multiple functional connections, mechanical links, or pipelines 401, 403/405, 501

5.3 Connection devices

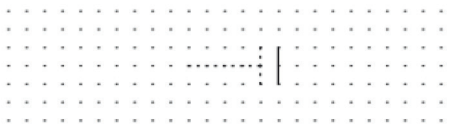
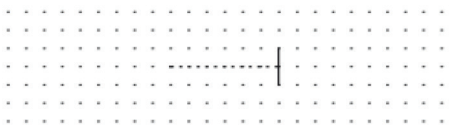
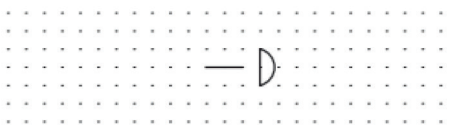
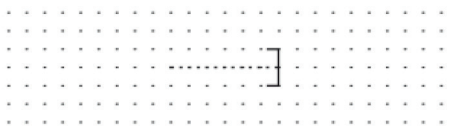
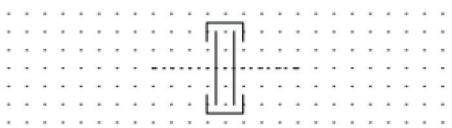
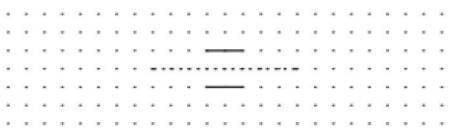
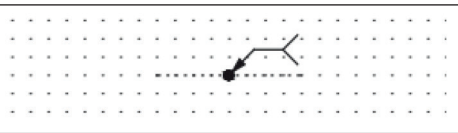
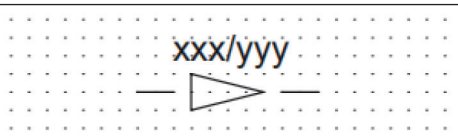
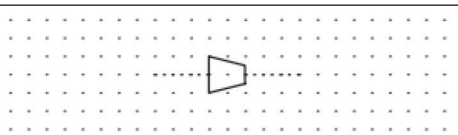
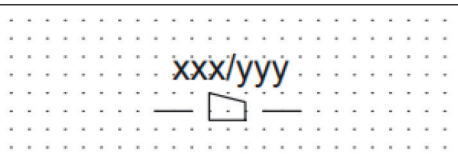
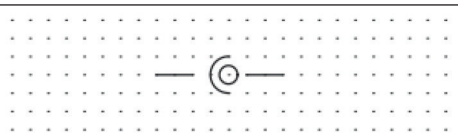
5.3.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.3.1.1 (ISO 10628) (ISO 14084)	4101		Flange single R521

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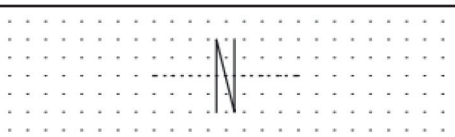
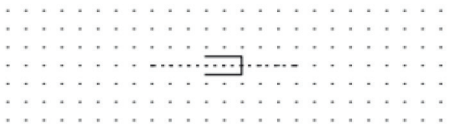
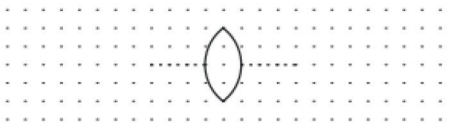
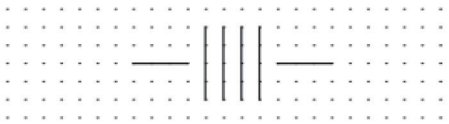
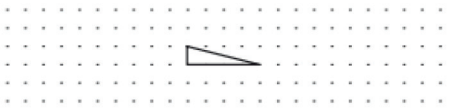
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.3.1.2 (Part 3)	511		Flange coupling, flange pair R521
5.3.1.3 (ISO 14084)	4102		Blind flange R521
5.3.1.4 (Part 3)	503		Closed end of pipeline or duct, general R521
5.3.1.5 (ISO 14084)	4103		End cap R521
5.3.1.6 (Part 3)	518		End cap, screwed R521
5.3.1.7 (Part 3)	513		Clamped flange coupling R521
5.3.1.8 (Part 3)	514		Screwed joint R521
5.3.1.9 (Part 3)	515		Joint, welded, brazed, or soldered R521
5.3.1.10 (ISO 14084)	4104		Pipe reducer, general R521
5.3.1.11 (Part 3)	516		Pipe reducer, concentric R521
5.3.1.12	4207		Pipe reducer, eccentric R521
5.3.1.13	4208		Swivel joint R521

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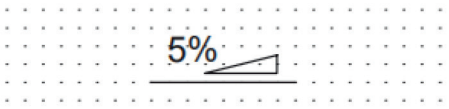
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.3.1.14 (Part 3)	512		Flexible coupling R521
5.3.1.15 (Part 3)	532		Expansion sleeve R521
5.3.1.16 (Part 3)	533		Expansion bellows Form 1 R221, R521
5.3.1.17	4209		Expansion bellows Form 2 R221, R521
5.3.1.18 (Part 14) (Part 15)	3061		Slope R3054

5.3.2 Supplementary symbols

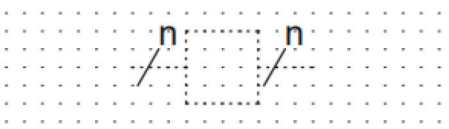
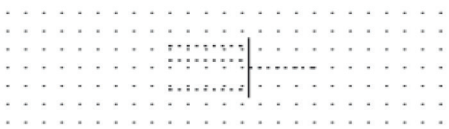
No supplementary symbols.

5.3.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.3.3.1 (Part 15)	X3010		Pipeline with 5 % slope to the left 3061

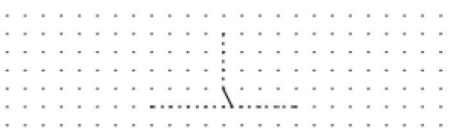
5.4 Connection, simplifications

5.4.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.4.1.1 (ISO14617-3)	601		Connection with n parallel identical branches R601
5.4.1.2 (Part 3)	602		Transition between multi-line and single-line representation R602

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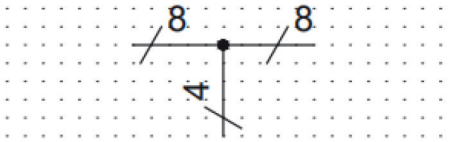
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.4.1.3 (Part 3)	603		Exit from, or entrance into, a bundle Bundle is defined as a group of conductors or pipelines that mainly follow the same path. R603

5.4.2 Supplementary symbols

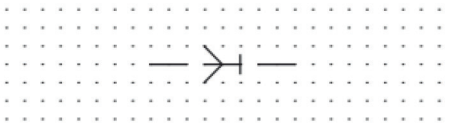
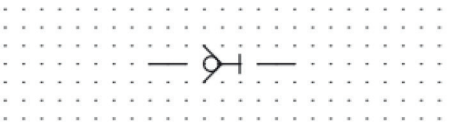
No supplementary symbols.

5.4.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.4.3.1 (Part 3)	X602		Eight connections, four of them branching 344, 401, 501, 601

5.5 Couplings, quick release couplings

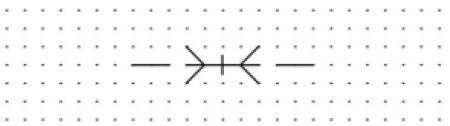
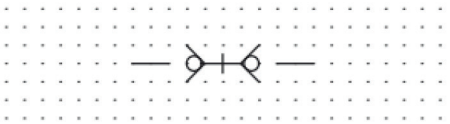
5.5.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.5.1.1 (ISO 14084)	4182		Quick release coupling half
5.5.1.2 (ISO 14084)	4183		Quick release coupling half with auto closing

5.5.2 Supplementary symbols

No supplementary symbols.

5.5.3 Symbol examples

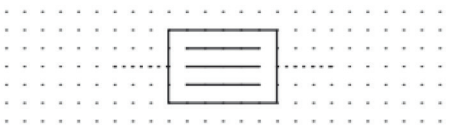
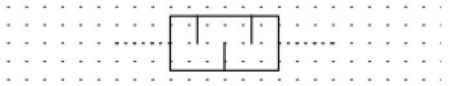
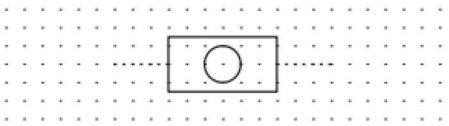
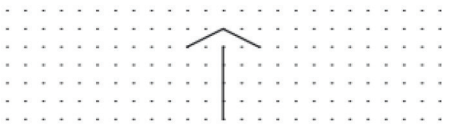
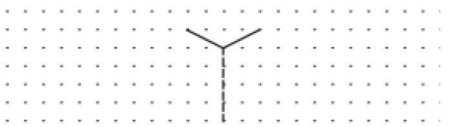
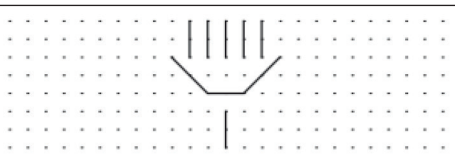
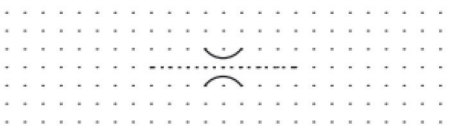
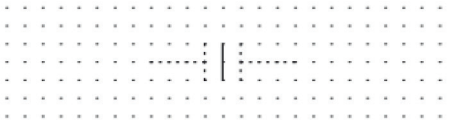
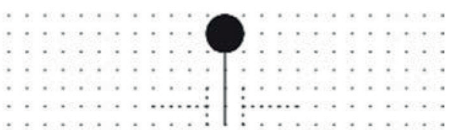
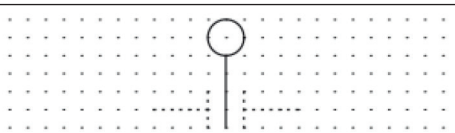
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.5.3.1 (ISO 14084)	X3503		Quick release coupling, coupled 4182
5.5.3.2 (ISO 14084)	X3504		Quick release coupling with auto closing, coupled 4183

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5.6 Pipeline and duct elements

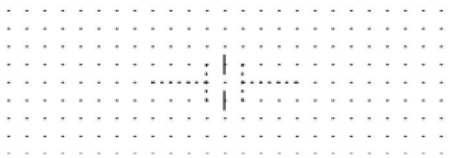
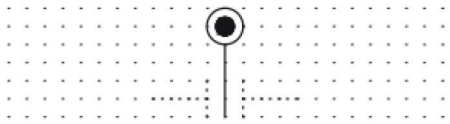
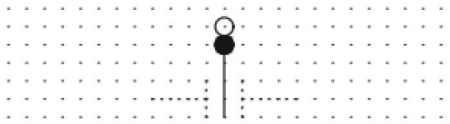
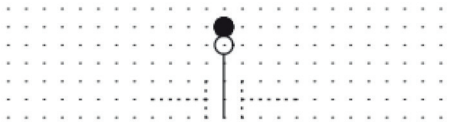
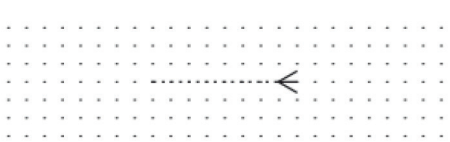
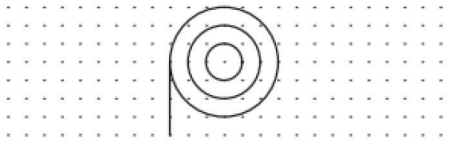
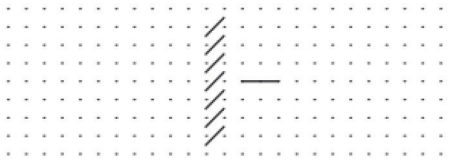
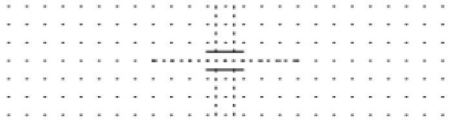
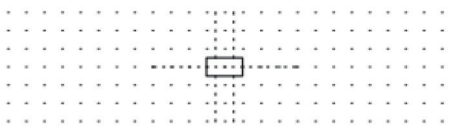
5.6.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.6.1.1 (Part 7)	2032		Flow straightener
5.6.1.2 (Part 7)	2033		Silencer
5.6.1.3 (Part 7)	2034		Viewing glass
5.6.1.4 (Part 7)	2038		Siphon, anti-siphon trap
5.6.1.5 (Part 7)	2039		Vent
5.6.1.6 (Part 7)	2040		Drain funnel Form 1 R221
5.6.1.7 (ISO14084)	4105		Drain funnel Form 2 R221
5.6.1.8 (Part 7)	2031		Restrictor
5.6.1.9 (Part 7)	2043		Blind disc Form 1 R221
5.6.1.10 (ISO 10628)	4000		Blind disc Form 2
		[吉田肇1]	R221
5.6.1.11 (ISO 10628)	4001		Open disc

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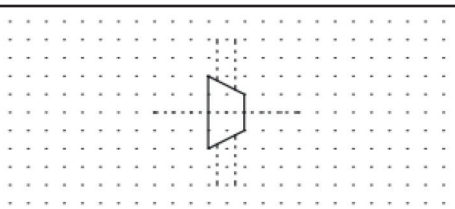
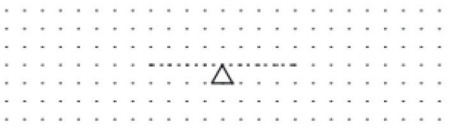
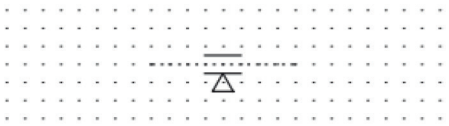
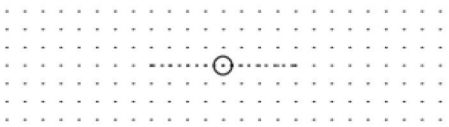
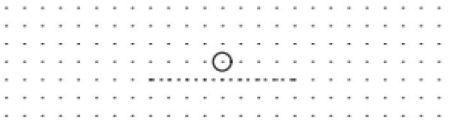
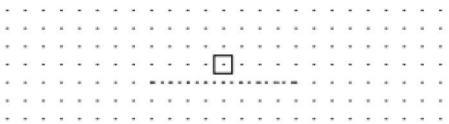
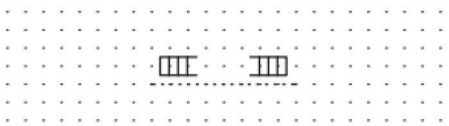
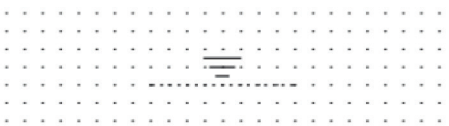
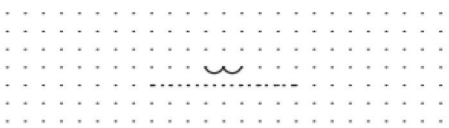
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.6.1.12 (Parts 5, 7)	772		Orifice plate The definition is in ISO 4006. Form 1 The same symbol is appeared in 19.1.2.3. R221
5.6.1.13 (ISO 10628)	4002		Orifice plate Form 2 R221
5.6.1.14 (Part 7)	2044		Spectacle blind, shown in closed position
5.6.1.15 (Part 7)	2045		Spectacle blind, shown in open position
5.6.1.16 (Part 7)	2042		Pig receiver; launcher
5.6.1.17 (Part 7) (Part 11) (Part 12)	2037		Spray nozzle
5.6.1.18 (ISO 14084)	4106		Hose reel
5.6.1.19 (ISO 14084)	4107		Air inlet or outlet grill
5.6.1.20 (Part 15)	3001		Sleeve for penetration of construction such as a wall; wall duct
5.6.1.21 (Part 15)	3002		Seal for penetration of construction such as wall; sealed wall duct R3001

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.6.1.22 (Part 15)	3003		Seal for penetration of construction partitioning a space with different air pressure
5.6.1.23 (Part 15)	3004		Anchor point
5.6.1.24 (Part 15)	3005		Guide bracket, for example, for pipelines
5.6.1.25 (Part 15)	3053		Located on poles
5.6.1.26 (Part 15)	3054		Located in a circular duct or pipe
5.6.1.27 (Part 15)	3055		Located in a rectangular duct
5.6.1.28 (Part 15)	3056		Located on a tray — endpoints indicated
5.6.1.29 (Part 15)	3057		Located on a tray — continuous
5.6.1.30 (Part 15)	3051		Located underground
5.6.1.31 (Part 15)	3052		Located underwater

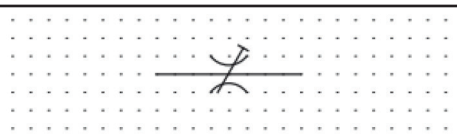
5.6.2 Supplementary symbols

No supplementary symbols.

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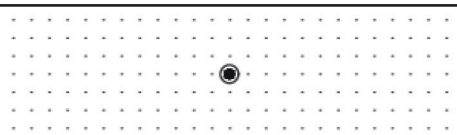
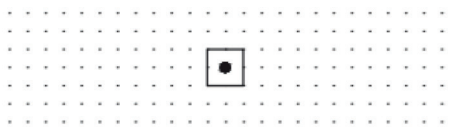
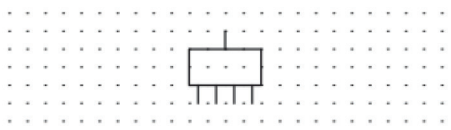
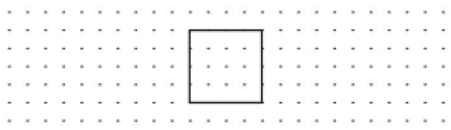
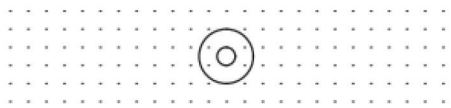
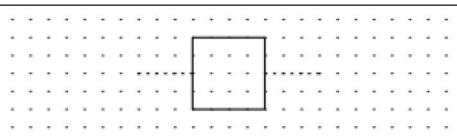
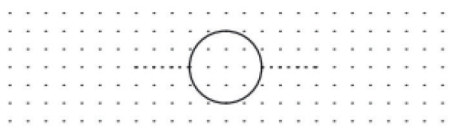
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5.6.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.6.3.1 (Part 7)	X2031		Restriction with pre-set adjustability 203, 405, 2031

5.7 Access chambers, inspection wells

5.7.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.7.1.1 (Part 15)	3081		Connection box, junction box
5.7.1.2 (Part 15)	3082		Consumer's terminal, service entrance equipment
5.7.1.3 (Part 15)	3083		Distribution centre
5.7.1.4 (Part 15)	3084		Enclosure R3081
5.7.1.5 (Part 15)	3085		Cross-connection device
5.7.1.6 (Part 15)	3086		Access chamber, inspection well, square-shaped
5.7.1.7 (Part 15)	3087		Access chamber, inspection well, circular-shaped

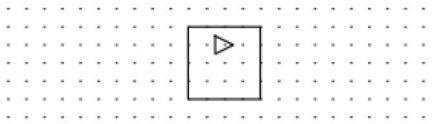
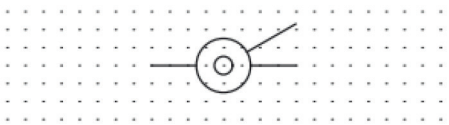
5.7.2 Supplementary symbols

No supplementary symbols.

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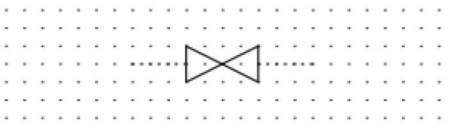
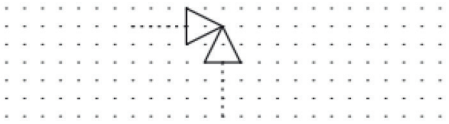
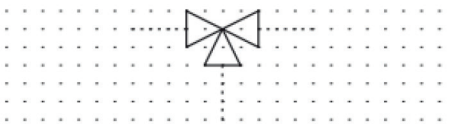
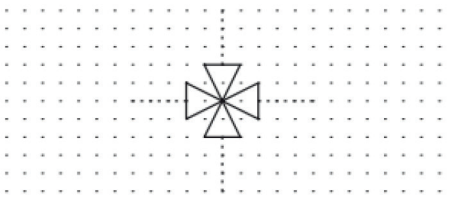
5.7.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
5.7.3.1 (Part 15)	X3081		Enclosure with amplifying equipment 101, 891, 3084
5.7.3.2 (Part 15)	X3082		Cross-connection point with three pipelines, power or telecommunication lines 401, 403, 405, 3085

6 Fluid flow control

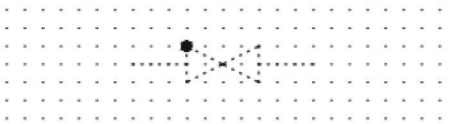
6.1 General purpose valves

6.1.1 Basic symbols

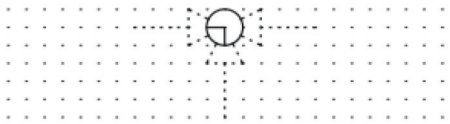
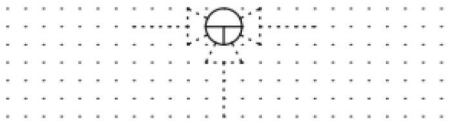
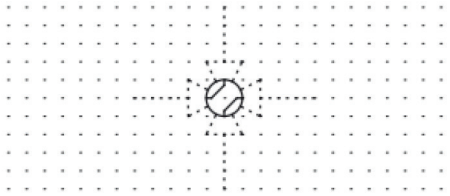
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.1.1 (Part 8)	2101		Two-way valve R2101
6.1.1.2 (Part 8)	2102		Two-way angled valve R2102
6.1.1.3 (Part 8)	2103		Three-way valve
6.1.1.4 (Part 8)	2104		Four-way valve

6.1.2 Supplementary symbols

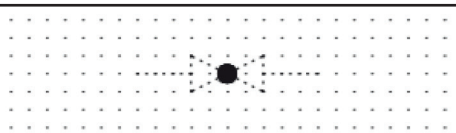
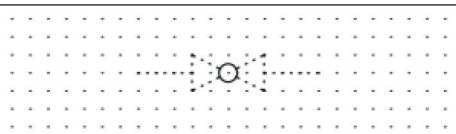
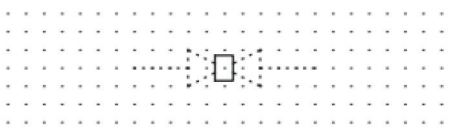
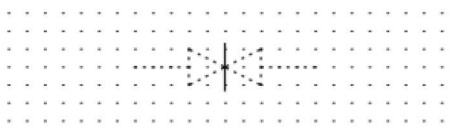
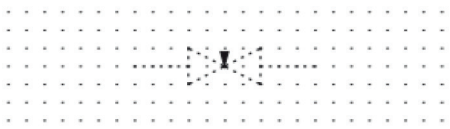
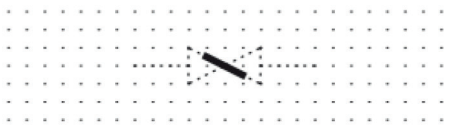
6.1.2.1 Functions

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.2.1.1 (Part 8)	2111		Non-return function or check function

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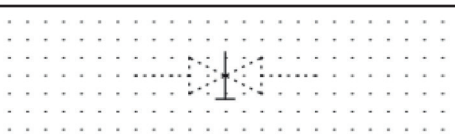
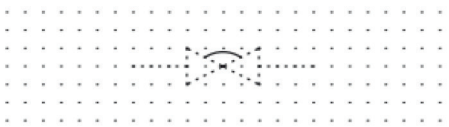
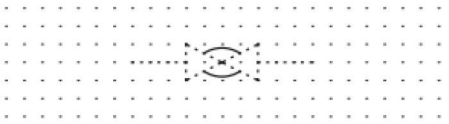
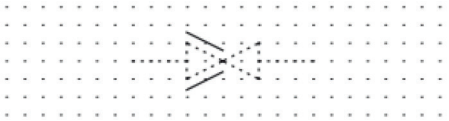
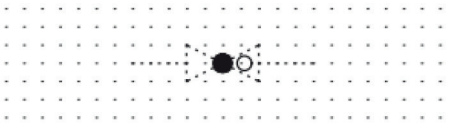
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.2.1.2 (Part 8)	2112		Safety function
6.1.2.1.3 (Part 8)	2113		Three- or four-way L-bore ball valve
6.1.2.1.4 (Part 8)	2114		Three- or four-way T-bore ball valve
6.1.2.1.5 (Part 8)	2115		Four-way double L-bore ball valve

6.1.2.2 Construction

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.2.2.1 (Part 8)	2121		Globe type valve
6.1.2.2.2 (Part 8)	2122		Ball type valve
6.1.2.2.3 (Part 8)	2123		Plug type valve
6.1.2.2.4 (Part 8)	2124		Gate type valve
6.1.2.2.5 (Part 8)	2125		Needle type valve
6.1.2.2.6 (Part 8)	2126		Disc or butterfly type valve

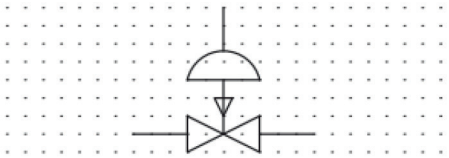
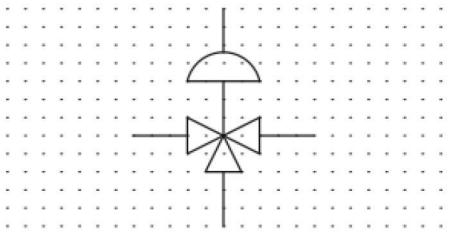
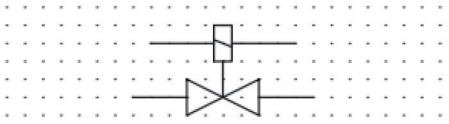
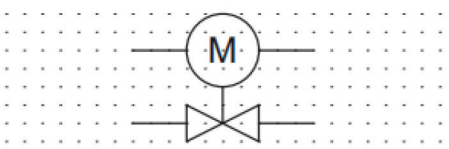
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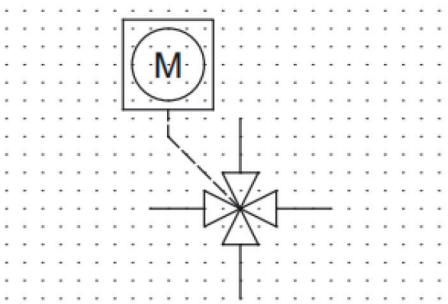
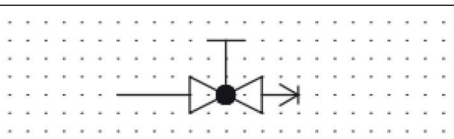
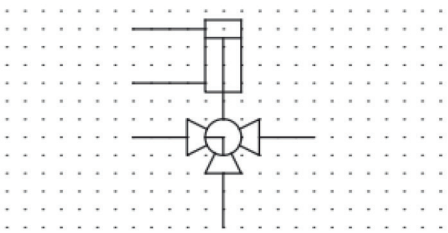
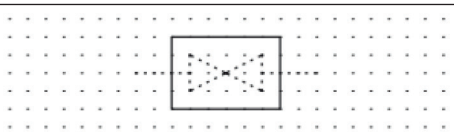
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.2.2.7 (Part 8)	2127		Piston or plunger type valve
6.1.2.2.8 (Part 8)	2128		Diaphragm type valve
6.1.2.2.9 (Part 8)	2129		Hose type valve
6.1.2.2.10 (Part 8)	2130		Reduce bore type valve
6.1.2.2.11	4212		Start-up and continuous venting valve

6.1.3 Symbol examples

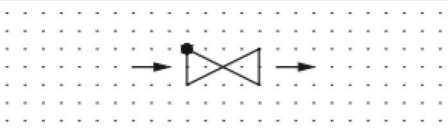
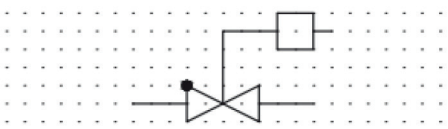
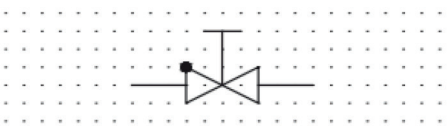
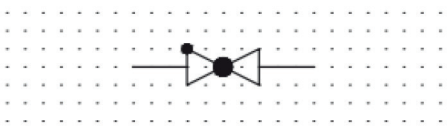
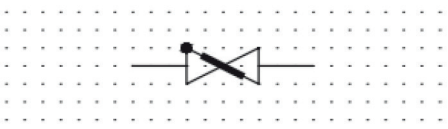
6.1.3.1 Shut-off valves

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.1.1 (Part 8)	X2101		Two-way valve – diaphragm actuator 403, 405, 654, 725, 2101
6.1.3.1.2 (Part 8)	X2102		Three-way valve – diaphragm actuator 403, 405, 725, 2103
6.1.3.1.3 (Part 8)	X2103		Two-way valve – solenoid actuator 403, 405, 2101, 4214
6.1.3.1.4 (Part 8)	X2104		Two-way valve with electric motor actuator 403, 405, 2101, 4150

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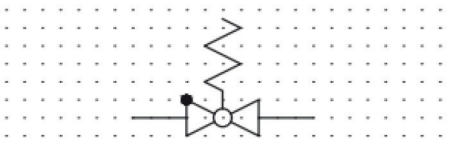
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.1.5 (Part 8)	X2105		Four-way valve with actuating device of electric-motor type 404, 405, 741, 2104, 4150
6.1.3.1.6 (Part 8)	X2106		Globe-type two-way valve with quick-release coupling, for example, for fire hydrant 403, 405, 565, 681, 2101, 2121
6.1.3.1.7 (Part 8)	X2107		Ball-type three-way valve with double-action fluid cylinder actuator 403, 405, 2103, 2113, 2442
6.1.3.1.8 (Part 8)	X2108		Jacketed type valve 101, 2101

6.1.3.2 Non-return and check valves

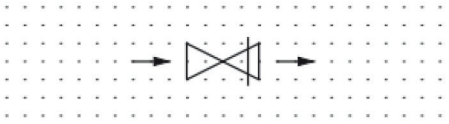
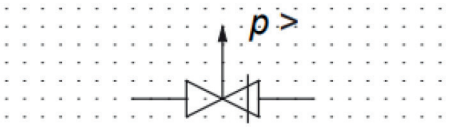
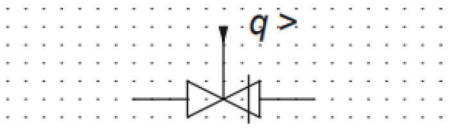
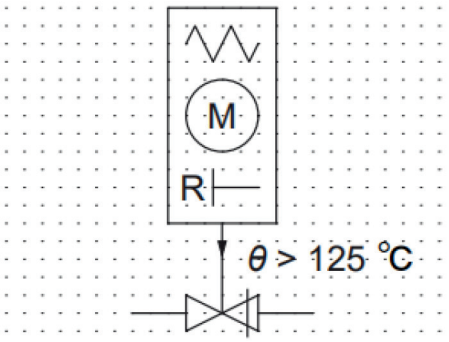
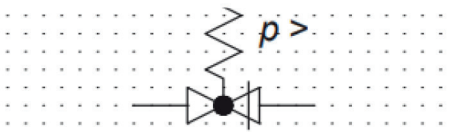
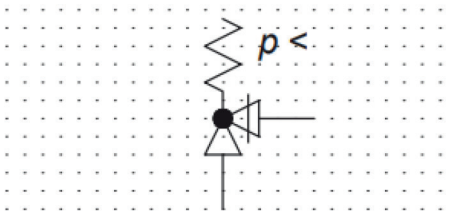
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.2.1 (ISO 14084)	X6105		Non-return valve, check valve, general 2101, 2111
6.1.3.2.2 (Part 8)	X2111		Weight-load non-return valve 403, 405, 2001, 2101, 2111
6.1.3.2.3 (Part 8)	X2112		Closable non-return valve 403, 405, 681, 2101, 2111
6.1.3.2.4 (Part 8)	X2113		Globe or lift-type non-return valve 405, 2101, 2111, 2121
6.1.3.2.5 (Part 8)	X2114		Swing-type non-return valve 405, 2101, 2111, 2126

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.2.6 (Part 8)	X2115		Ball-type spring-load non-return valve 403, 405, 2002, 2101, 2122

6.1.3.3 Valves with safety function

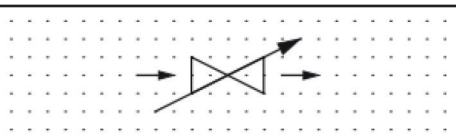
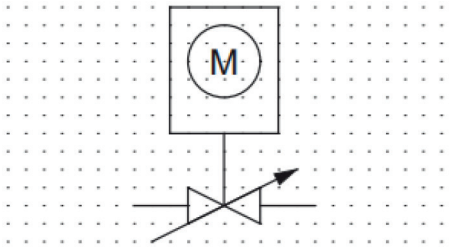
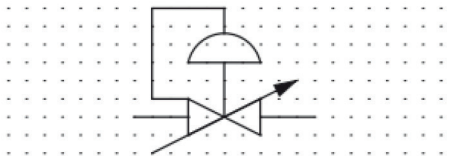
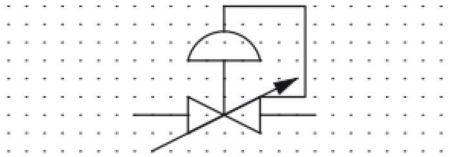
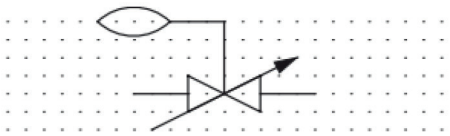
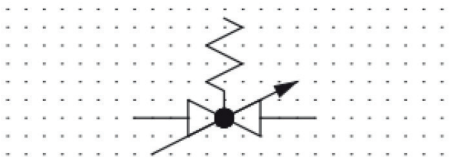
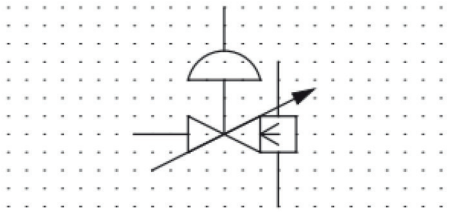
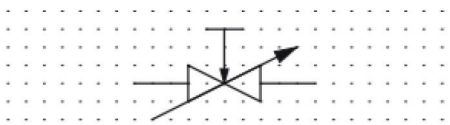
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.3.1 (ISO 14084)	X6120		Safety valve, general The definition is in ISO 4126-1. 2101, 2112
6.1.3.3.2 (Part 8)	X2121		Safety valve Open when pressure p is higher than set value 171, 242, 403, 405, 2101, 2112
6.1.3.3.3 (Part 8)	X2122		Safety valve Close when flow rate q is higher than set value 171, 242, 403, 405, 2101, 2112
6.1.3.3.4 (Part 8)	X2123		Quick-acting valve Close by spring actuator when temperature θ higher than 125 °C, with manual reset 171, 242, 403, 405, 681, 741, 2002, 2101, 2112, 4150
6.1.3.3.5 (Part 8)	X2124		Safety valve globe type, spring-loaded Open when pressure p is higher than set value 171, 403, 2002, 2101, 2112, 2121
6.1.3.3.6 (Part 8)	X2125		Safety valve angle globe type, spring-loaded Open when pressure p is lower than set value 172, 403, 2002, 2102, 2112, 2121

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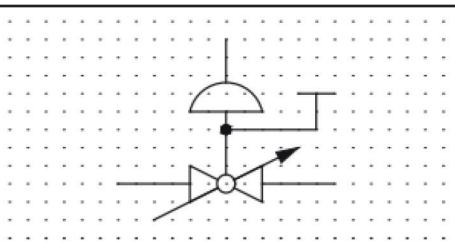
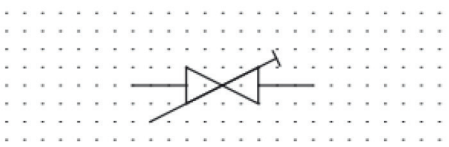
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6.1.3.4 Control valves [ISO 14617-8:2002, 3.3]

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.4.1 (ISO 10628) (ISO 14084)	X6110		Control valve, general 201, 2101
6.1.3.4.2 (Part 8)	X2131		Control valve with electric motor 201, 403, 405, 741, 2101, 4150
6.1.3.4.3 (Part 8)	X2132		Back pressure control valve, self-operated 201, 403, 405, 725, 2101
6.1.3.4.4 (Part 8)	X2133		Pressure reducing control valve, self-operated 201, 403, 405, 725, 2101
6.1.3.4.5 (Part 8)	X2134		Control valve float-operation 201, 403, 405, 715, 2101
6.1.3.4.6 (Part 8)	X2135		Spring-load globe type relief valve 201, 403, 405, 2002, 2101, 2121
6.1.3.4.7 (Part 8)	X2136		Control valve, diaphragm operated with desuper-heater 101, 201, 403, 405, 725, 2037, 2101
6.1.3.4.8 (Part 8)	X2137		Control valve, manual operated, needle type 201, 403, 405, 681, 2101, 2125

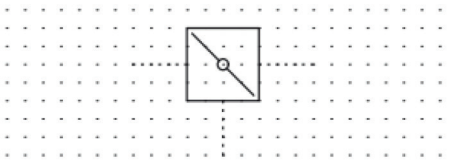
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.1.3.4.9 (Part 8)	X2138		Control valve, diaphragm or manual operated 201, 403, 405, 501, 681, 725, 2101, 2122
6.1.3.4.10 (Part 8)	X2141		Restrictor valve 203, 2101

6.2 Dampers

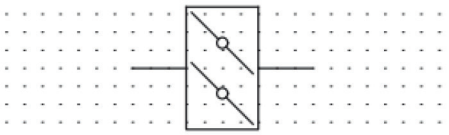
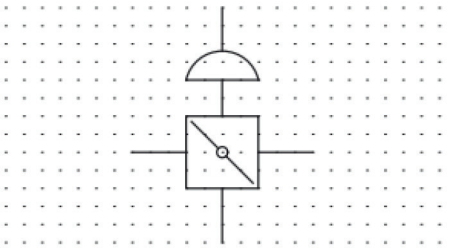
6.2.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.2.1.1 (Part 8)	2151		Two or three-way damper R2101

6.2.2 Supplementary symbols

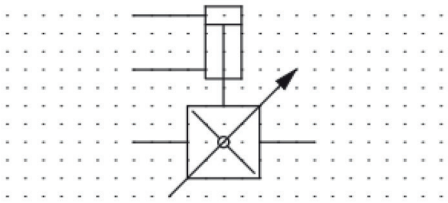
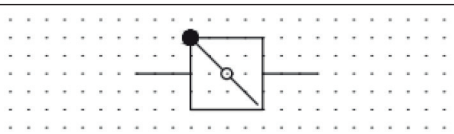
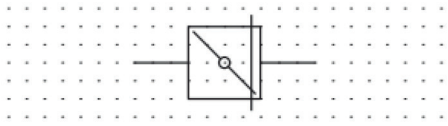
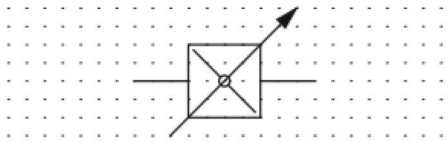
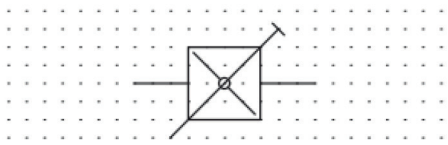
No supplementary symbols.

6.2.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.2.3.1 (Part 8)	X2151		Multi-leaf damper 2151
6.2.3.2 (Part 8)	X2152		Three-way damper, diaphragm operated 403, 405, 725, 2151

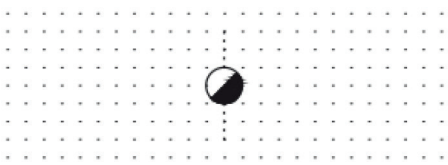
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.2.3.3 (Part 8)	X2153		Control damper with double-action fluid cylinder 201, 403, 405, 724, 2151
6.2.3.4 (Part 8)	X2154		Damper with non-return or check function Flow from left to right possible. 2111, 2151
6.2.3.5 (Part 8)	X2155		Damper with safety function Inlet is to the left. 2112, 2151
6.2.3.6 (Part 8)	X2156		Adjustable damper 201, 2151
6.2.3.7 (Part 8)	X2157		Pre-set adjustable damper 203, 2151

6.3 Valves with special functions

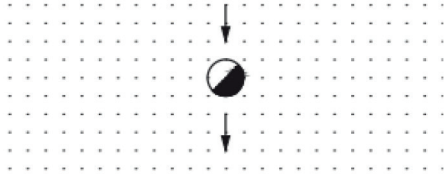
6.3.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.3.1.1 (Part 8)	2181		Self-regulating release valve Release valve is defined as a valve through which non-desired air or steam in a pipe system may be released.

6.3.2 Supplementary symbols

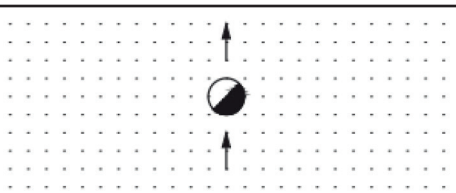
No supplementary symbols.

6.3.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.3.3.1 (ISO 10628) (ISO 14084)	X6130		Steam trap 241, 2181

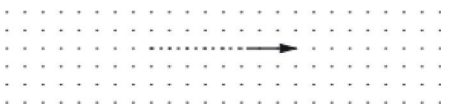
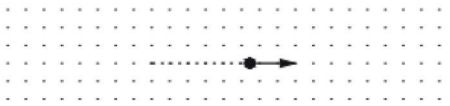
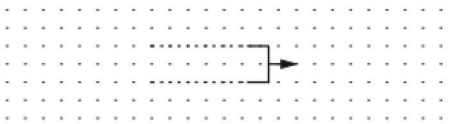
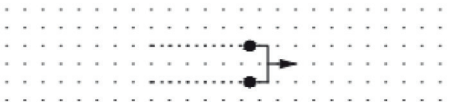
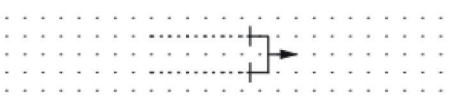
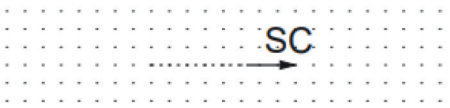
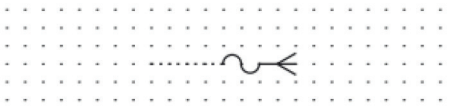
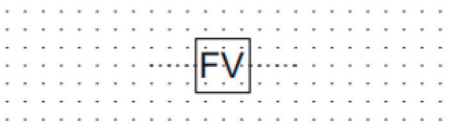
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.3.3.2 (ISO 14084)	X6131		Air release valve 241, 2181

6.4 Taps, showers, etc.

6.4.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.4.1.1 (Part 15)	3101		Outlet tap
6.4.1.2 (Part 15)	3102		Outlet tap in taphole
6.4.1.3 (Part 15)	3103		Outlet tap on wall
6.4.1.4 (Part 15)	3104		Mixing outlet tap
6.4.1.5 (Part 15)	3105		Mixing outlet tap in taphole
6.4.1.6 (Part 15)	3106		Mixing outlet tap on wall
6.4.1.7 (Part 15)	3107		Self-closing outlet tap
6.4.1.8 (Part 15)	3108		Hand-held shower
6.4.1.9 (Part 15)	3109		Flushing valve with pipe interrupter

6.4.2 Supplementary symbols

No supplementary symbols.

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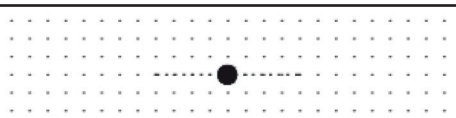
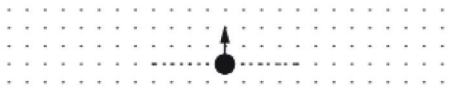
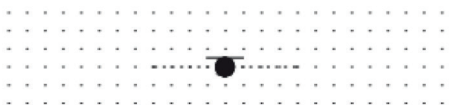
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6.4.3 Symbol examples

No symbol examples.

6.5 Hydrants

6.5.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.5.1.1 (Part 15)	3121		Underground hydrant
6.5.1.2 (Part 15)	3122		Above-ground hydrant
6.5.1.3 (Part 15)	3123		Wall hydrant

6.5.2 Supplementary symbols

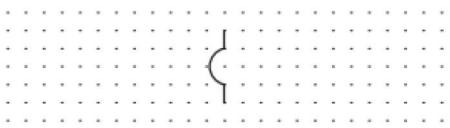
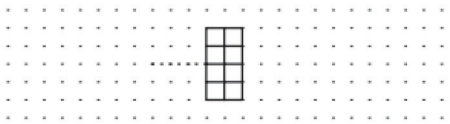
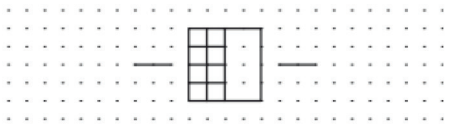
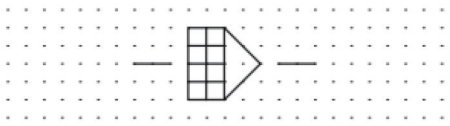
No supplementary symbols.

6.5.3 Symbol examples

No symbol examples.

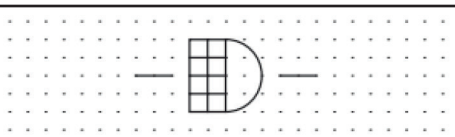
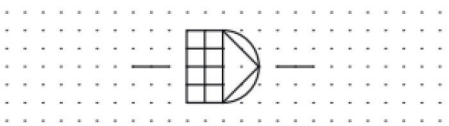
6.6 Safety devices other than valves

6.6.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.6.1.1 (Part 7)	2035		Rupturing disc
6.6.1.2 (Part 7)	2036		Flame arrestor
6.6.1.3 (ISO 10628) (ISO 14084)	4003		Flame arrestor, explosion proof
6.6.1.4 (ISO 10628) (ISO 14084)	4004		Flame arrestor, detonation proof

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
6.6.1.5 (ISO 10628) (ISO 14084)	4005		Flame arrestor, fire resistant
6.6.1.6 (ISO 10628)	4006		Fire-resistant and detonation proof flame arrestor out to atmosphere

6.6.2 Supplementary symbols

No supplementary symbols.

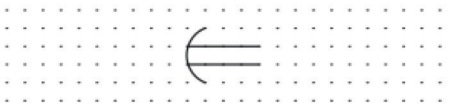
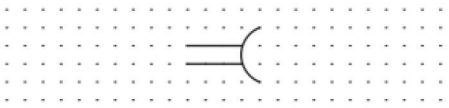
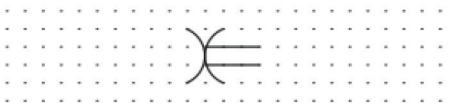
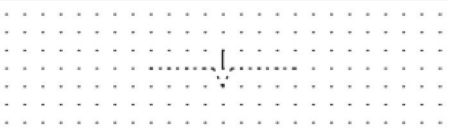
6.6.3 Symbol examples

No symbol examples.

7 Actuators

7.1 Basic elements

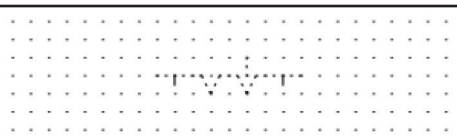
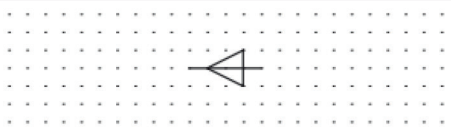
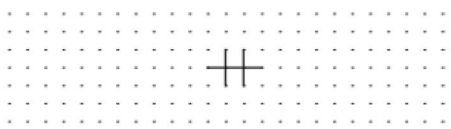
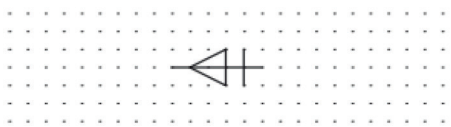
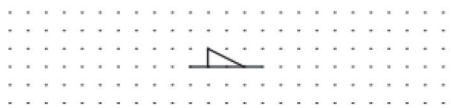
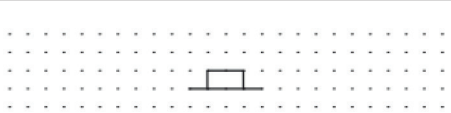
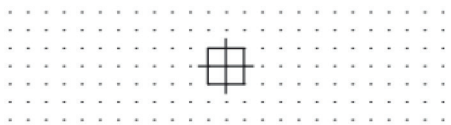
7.1.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.1.1.1 (Parts 4, 6)	651		Delay device ON Delay device is defined in IEC 60050-442-04-34. R651
7.1.1.2 (Parts 4, 6)	652		Delay device OFF R651
7.1.1.3 (Parts 4, 6)	653		Delay device ON-OFF R651
7.1.1.4 (Parts 4,7)	2002		Spring R2001
7.1.1.5 (Parts 4, 6)	655		Detent for detaining in a discrete position Detent is defined in ISO 5598. R652
7.1.1.6	4213		Detent lock

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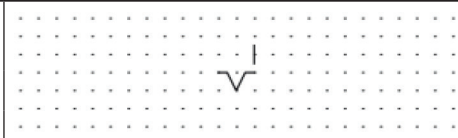
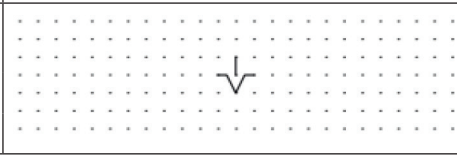
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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.1.1.7 (Parts 4)	658		Indication of position without detention
7.1.1.8 (Parts 4, 6)	654		Automatic return device Automatic is defined in IEC 60050- 351-42-30. R652, R653, R2101
7.1.1.9 (Parts 4, 6)	659		Detent for detaining in any position R652
7.1.1.10 (Parts 4, 6)	660		Detent for detaining in any position drift to left permitted
7.1.1.11 (Parts 4, 6)	661		Latching device
7.1.1.12 (Parts 4, 6)	664		Blocking device Overcurrent blocking device is defined in IEC 60050-421-12-09.
7.1.1.13 (Part 4)	665		Trip-free mechanism R665
7.1.1.14 (Parts 4, 6)	666		Interlocking device The definition is in IEC 60050-151-13-74 and IEC 60050-441-16-49.

7.1.2 Supplementary symbols

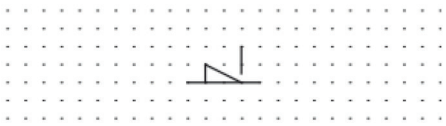
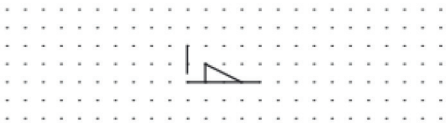
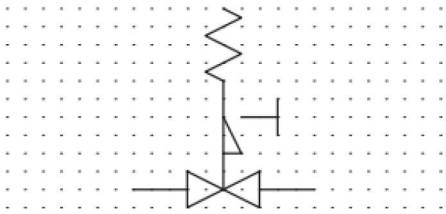
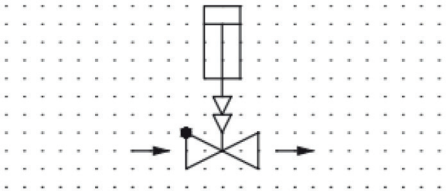
No supplementary symbols.

7.1.3 Symbol examples

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.1.3.1 (Part 4)	X3507		Detent for detaining in a discrete position shown in disengaged position Detent is defined in ISO 5598. 655, 4213
7.1.3.2 (Part 4)	X3508		Detent for detaining in a discrete position shown in engaged position 655, 4213

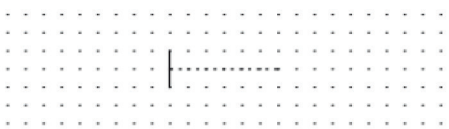
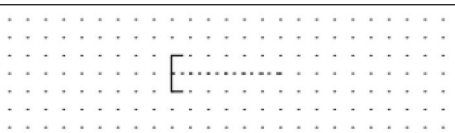
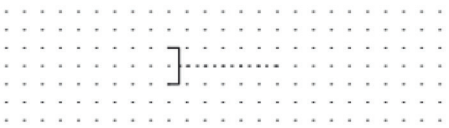
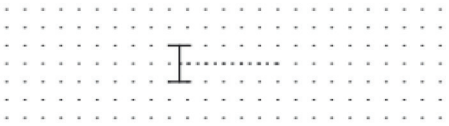
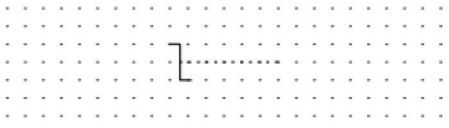
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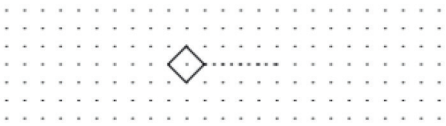
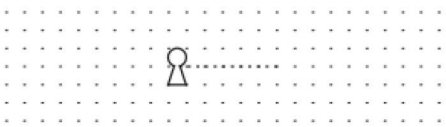
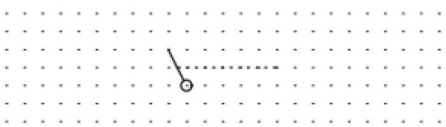
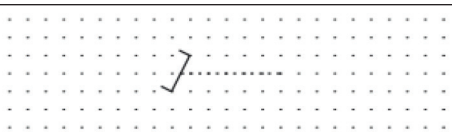
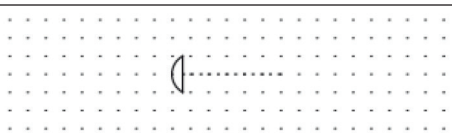
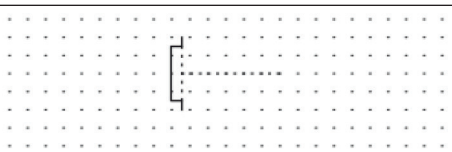
Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.1.3.3 (Part 4)	X3509		Latching device shown in disengaged position 661, 4213
7.1.3.4 (Part 4)	X3510		Latching device shown in engaged position 661, 4213
7.1.3.5 (Part 7)	X2004		Quick-acting valve, closing when spring is released Symbol 2002 indicates storing of energy. 403, 405, 661, 681, 2002, 2101
7.1.3.6 (ISO 14084)	X6107		Non return valve, quick closing assisted cylinder actuator – fail to close 244, 403, 723, 2101, 2111

7.2 Manually operated actuators

7.2.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.2.1.1 (Part 4)	681		Manual actuator in general Actuator is defined in IEC 60050 IEV 151-13-49, 151-13-49, and 441-15-22. R681, R682
7.2.1.2 (Part 4)	682		Manual actuator operated by pushing R681, R682, R683
7.2.1.3 (Part 4)	683		Manual actuator operated by pulling R681, R682, R683
7.2.1.4 (Part 4)	684		Manual actuator operated by pushing and pulling R681, R682, R684
7.2.1.5 (Part 4)	685		Manual actuator operated by turning R681, R682, R685

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.2.1.6 (Part 4)	686		Manual actuator operated by remove handle R681, R682, R685
7.2.1.7 (Part 4)	687		Manual actuator operated by key R681, R682, R685
7.2.1.8 (Part 4)	688		Manual actuator operated by form of lever R681, R682, R684
7.2.1.9 (Part 4)	689		Manual actuator operated by form of pedal R681, R682, R683
7.2.1.10 (Part 4)	690		Manual actuator operated in form of treadle R681, R682, R684
7.2.1.11 (Part 4)	691		Manual actuator operated e.g. emergency stop R681
7.2.1.12 (Part 4)	692		Device for restricted access e.g. a cover R681

7.2.2 Supplementary symbols

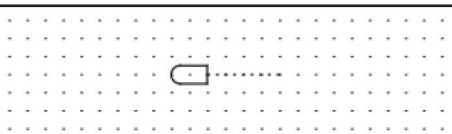
No supplementary symbols.

7.2.3 Symbol examples

No symbol examples.

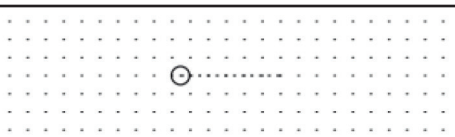
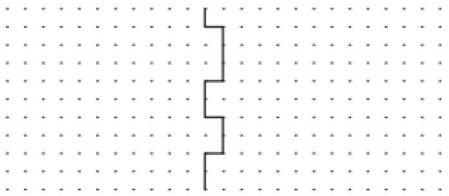
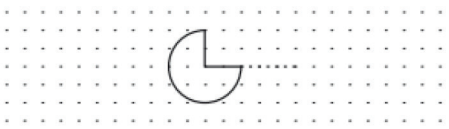
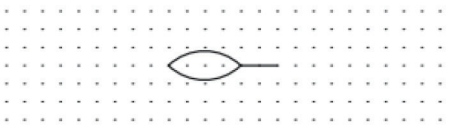
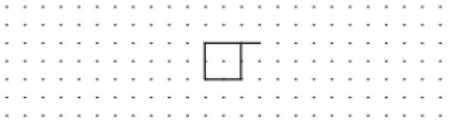
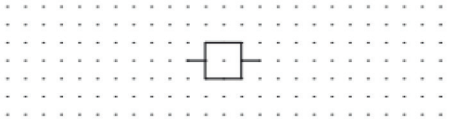
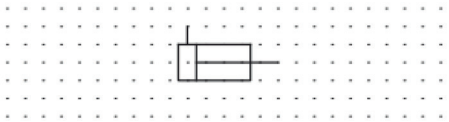
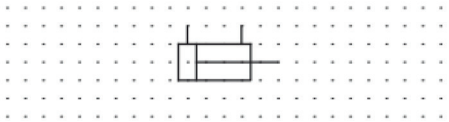
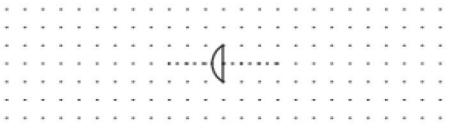
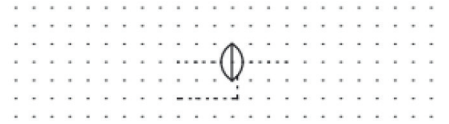
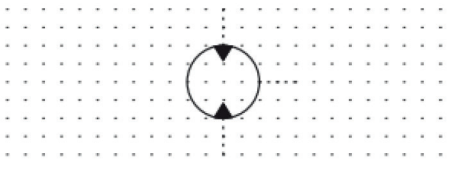
7.3 Automatic actuators

7.3.1 Basic symbols

Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.3.1.1 (Parts 4, 7)	711		Actuating by plunger or tracer

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Entry. No.	Reg. no.	Symbol graphics	Symbol names and references
7.3.1.2 (Parts 4, 7)	712		Actuating by roller
7.3.1.3 (Parts 4, 7)	713		Actuating by cam-profile R711
7.3.1.4 (Part 4)	714		Actuating by cam-sector
7.3.1.5 (Parts 4, 7)	715		Actuating by fluid-level as float The same symbol is appeared in 19.1.2.1.
7.3.1.6 (Parts 4, 7)	716		Actuating by set flow with flag
7.3.1.7 (Part 7)	2001		Weight
7.3.1.8 (Part 4)	723		Actuator as single-action fluid-cylinder
7.3.1.9 (Part 4)	724		Actuator as double-action fluid-cylinder
7.3.1.10 (Part 4)	725		Actuator as single-action diaphragm
7.3.1.11 (Part 4)	726		Actuator as double-action diaphragm
7.3.1.12 (Parts 4, 10)	2407		Actuator as hydraulic motor with alternative direction of flow 243

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