
Graphical symbols for diagrams —
Part 1:
General information and indexes

Symboles graphiques pour schémas —
Partie 1: Informations générales et index

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 14617-1 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 10, *Process plant documentation and tpd-symbols*.

This second edition cancels and replaces the first edition (ISO 14617-1:2002), of which it constitutes a minor revision.

ISO 14617 consists of the following parts, under the general title *Graphical symbols for diagrams*:

- *Part 1: General information and indexes*
- *Part 2: Symbols having general application*
- *Part 3: Connections and related devices*
- *Part 4: Actuators and related devices*
- *Part 5: Measurement and control devices*
- *Part 6: Measurement and control functions*
- *Part 7: Basic mechanical components*
- *Part 8: Valves and dampers*
- *Part 9: Pumps, compressors and fans*
- *Part 10: Fluid power converters*
- *Part 11: Devices for heat transfer and heat engines*
- *Part 12: Devices for separating, purification and mixing*
- *Part 13: Devices for material processing*
- *Part 14: Devices for transport and handling of material*
- *Part 15: Installation diagrams and network maps*

Introduction

The purpose of ISO 14617 in its final form is the creation of a library of harmonized graphical symbols for diagrams used in technical applications. This work has been, and will be, performed in close cooperation between ISO and IEC. The ultimate result is intended to be published as a standard common to ISO and IEC, which their technical committees responsible for specific application fields can use in preparing International Standards and manuals.

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Graphical symbols for diagrams —

Part 1: General information and indexes

1 Scope

This part of ISO 14617 serves as an introduction to all the other parts. In particular, it gives information on the creation and use of registration numbers for identifying graphical symbols used in diagrams, rules for the presentation and application of these symbols, and examples of their use and application. It includes three indexes: an alphabetical index and an index of registration numbers — both concerned uniquely with ISO 14617 — and an index of cross-references to related items found in other International Standards.

For the fundamental rules of creation and application of graphical symbols in diagrams, see ISO 81714-1.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 81714-1:1999, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms and definitions

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

NOTE The list has been restricted to terms whose meaning is not obvious and which have not been defined elsewhere in an International Standard, or which have been defined in various ways in different standards. In preparing these definitions, ISO and IEC standards on terminology have been consulted; see the references in parentheses. However, most of the definitions in those standards were prepared by different technical committees within a restricted scope. This means that many terms so defined have to be given more general or neutral definitions when applied in the context of graphical symbols.

3.1

function

activity proper to anything, mode of action by which it fulfils its purpose

EXAMPLE To measure, to control, to indicate.

3.2

product

thing produced by natural process or manufacture; result

EXAMPLE An element, a component or a device.

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

[IEC 60050-131]

3.4 device
assembly of components to perform a required function

EXAMPLE An actuating device, a centrifuge.

[IEC 60050-151]

3.5 element
part of a component

EXAMPLE A filter element in a filter, a contact in an electromechanical relay.

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

[ISO 81714-1]

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

NOTE A connect node is a location on a graphical symbol intended for connection (ISO 81714-1).

[ISO 81714-1]

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

[IEC 61082-1]

4 Arrangement of ISO 14617

4.1 Domains of application

The complete ISO 14617 is to consist of a number of other parts in addition to those listed in the Foreword. Among the parts under preparation are ISO 14617-13, concerned with graphical symbols for material processing, and ISO 14617-14, concerned with the symbols representing devices for transport and handling of material.

This part of ISO 14617 is an introduction to all the other parts. ISO 14617-2 to ISO 14617-6 cover graphical symbols for use in most technical fields. ISO 14617-7 to ISO 14617-12 cover those for use in all fields except the electrotechnical. ISO 14617-15 comprises graphical symbols for use in installation diagrams and on network maps for pipelines, ducts and electric connections.

4.2 Subdivision of parts

Each part of ISO 14617 is divided into clauses that each deal with graphical symbols for a particular group of generic products or functions. When appropriate, clauses are given subclauses, as follows using the example of Clause 7 from ISO 14617-2:

Clause 7	Directions
Subclause 7.1	Symbols of basic nature
Subclause 7.2	Application rules for the symbols in 7.1
Subclause 7.3	Symbols giving supplementary information
Subclause 7.4	Application rules for the symbols in 7.3
Subclause 7.5	Application examples

Where certain subclauses are further subdivided, this has been done along the following lines. Take, for example, 4.3 in ISO 14617-2:

Subclause 4.3	Symbols giving supplementary information
Subclause 4.3.1	Input and output labels
Subclause 4.3.2	General functions
Subclause 4.3.3	Mathematical operations
Subclause 4.3.4	Change of discrete state at specified values of a characteristic quantity
Subclause 4.3.5	Logic negation, logic inversion, inputs and outputs for auxiliary power supply

When a cross-reference is made to a particular graphical symbol or application rule or application example, its location is given within parentheses after the registration number of the symbol, rule or example.

EXAMPLE 1 “See R101 (4.2.1)” directs the reader to application rule R101, located in subclause 4.2.1.

When cross-referencing to another part, the part number is also included.

EXAMPLE 2 A cross-reference to symbol 142 in ISO 14617-2 is given as “See 142 (2-4.3.2.28)”.

5 Registration numbers

IMPORTANT — A direct relationship does not necessarily exist between graphical symbols, application rules and application examples using registration numbers that share the same numerals. For example, while graphical symbol 101 correlates to both application rule R101 and application example X101, it correlates as well to application examples X102 to X114; whereas symbol 114, to take just one other example, is unrelated to R114 and X114.

5.1 Graphical symbol

Each graphical symbol is assigned a unique registration number. In principle, this number is arbitrarily chosen. No information can be derived from it. The registration number will remain unchanged throughout the lifetime of the corresponding graphical symbol, including in future revisions of this publication. If a graphical symbol is changed in the future, the registration number shall be supplemented with one or more characters. If the graphical symbol is substantially changed, it shall instead be given a new registration number.

5.2 Application rule

Each application rule has a registration number in the same way as the graphical symbols, except that the registration number starts with the letter R (e.g. R101).

5.3 Application example

Each application example has a registration number in the same way as the graphical symbols, except that the registration number starts with the letter X (e.g. X101).

6 Presentation of graphical symbols

6.1 General

ISO 14617 establishes graphical symbols to be used in diagrams such as overview diagrams, flow diagrams and circuit diagrams.

6.2 Graphical symbols of same shape but different meaning

Graphical symbols having the same shape but different meanings have different registration numbers. This implies that it is possible to distinguish between same-shape graphical symbols in a CAD (computer-aided design) system, provided that each symbol has been recalled from a CAD library using the appropriate registration number.

For a person reading a diagram, the intended meaning can normally be recognized by the context of the diagram. When this is not possible, graphical symbols having the same shape shall be provided with supplementary information. For examples, see the symbols for connections in ISO 14617-3 and the rules for adding symbols giving supplementary information such as application rule R402 in the same part.

6.3 Different forms of graphical symbols

In some cases, different forms of a graphical symbol can occur. These different forms are given separate registration numbers. The primary reason for having two or more forms for the same symbolization is that they convey differing amounts of information.

Symbols having different forms and differing amounts of information (e.g. those for use in overview diagrams and those for use in circuit diagrams) are marked Form 1, Form 2, etc. This marking is also used in some cases where the different forms contain the same amount of information, but where more than one form is justified because of different application methods in the rules for preparing diagrams.

6.4 Dimensions of graphical symbols

The graphical symbols in ISO 14617 have been designed in accordance with the rules given in ISO 81714-1. The module size $M = 2,5$ mm has been used. For small graphical symbols, the symbol is shown double its normal size, applying the same module and the same line width. Such symbols are marked "200 %".

For the auxiliary grid system defined in ISO 81714-1, the module $0,25 M$ has been used.

6.5 Descriptions

In those cases where ISO and IEC have the same term for different items, the term has been provided with ISO and IEC superscripts, for example, line^{ISO} and line^{IEC}.

7 Application rules and examples

The application rules give information on how to design composite symbols and how to apply the graphical symbols in a diagram. The application examples are to be regarded as guidelines.

In order to facilitate their use, the application examples are accompanied by information on which graphical symbols have been used to compose the examples shown.

EXAMPLE “101, 123” in 2-4.5.8 signifies that the example X108 is built up from graphical symbols 101 and 123.

8 Use of graphical symbols

8.1 Choice of graphical symbols

Rules for the choice of graphical symbols are given in the standards for the preparation of diagrams.

8.2 Dimensions of graphical symbols

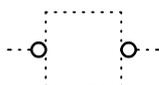
Symbols may be increased in size, for example, in order to allow all terminals to be represented. They may also be reduced in size. In both cases, the original line width shall be maintained.

Further rules for the use of graphical symbol sizes and line widths are given in the standards dealing with the preparation of diagrams.

8.3 Auxiliary lines

In some cases, the symbol has been shown together with auxiliary lines in order to indicate its correct location in relation to other symbols or the recommended location of connecting lines. Such auxiliary lines are not part of the symbol and are shown dotted (very short dashes).

EXAMPLE 1 Symbol 181 — logic negation — shown at an outline of a symbol indicated by a dotted rectangle.



EXAMPLE 2 An auxiliary line indicating the correct location of the symbol for a connection to a two-way valve, symbol 2101.



8.4 Variants of graphical symbols

The rules for diagram layout give the possibility of arranging circuits horizontally or vertically, and of arranging circuits for feedback and similar signals in a direction opposite to the normal one. For that purpose, different variants of the graphical symbols exist. The rules for the creation of the different variants are given in ISO 81714-1.

9 Lettering

For lettering, see ISO 81714-1.

10 Indexes

The alphabetic index given in Annex A can be used to find a graphical symbol for a certain component, device or function wherever the meaning (description) is known. This index also covers the application examples.

The registration number index given in Annex B can be used to locate a graphical symbol whose registration number is already known.

The cross-reference index given in Annex C is intended as a link between the registration numbers and the corresponding descriptions in other, existing ISO and IEC standards.

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Annex A (informative)

Alphabetical index

This alphabetical index can be used to find a graphical symbol for a certain component, device, or function if its meaning (description) is already known. The index also covers the application examples.

Description	Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)
Above ground hydrant	3122	15-7.2	– Manual ~ in the form of removable handle	686	4-5.1.6
Access chamber			– Manual ~ in the form of treadle	690	4-5.1.10
– Circular-shaped ~, inspection well	3087	15-5.1.7	– Manual ~ operated by pulling	683	4-5.1.3
Acoustic signalling device	866	5-10.1.4	– Manual ~ operated by pushing	682	4-5.1.2
Active area			– Manual ~ operated by pushing and pulling	684	4-5.1.4
– Double-acting hydraulic actuator with different ~s	721	4-6.1.11	– Manual ~ operated by turning	685	4-5.1.5
– Double-acting pneumatic actuator with different ~s	722	4-6.1.12	– Manual ~ with special shape for safety purpose	691	4-5.1.11
Actuating device	741	4-7.1.1	– operating when actual temperature is less than set value	X717	4-6.5.5
– of double-acting diaphragm actuator type	X743	4-7.5.3	– Single-acting diaphragm ~	725	4-6.1.15
– of electric motor type	X2131	8-4.5.4.1		X2136	8-4.5.4.6
– of pneumatic motor type	X742	4-7.5.2		X2138	8-4.5.4.8
– of single-acting fluid cylinder type	X741	4-7.5.1		X2152	8-5.5.2
– operated by pneumatic power stored inside actuator	X747	4-7.5.7	– Single-acting hydraulic ~	717	4-6.1.7
– operating with touch effect	X744	4-7.5.4	– Single-acting pneumatic ~	718	4-6.1.8
– Spring-operated ~ with manual spring charging	X745	4-7.5.5	Actuators		
– Spring-operated ~ with spring charging by electric motor	X746	4-7.5.6	– Automatic ~	–	4-6
– Spring-loaded ~	X2005	7-4.5.5	See also <i>Hydraulic actuators, Pneumatic actuators, Manually operated actuators</i>		
Actuating devices	–	4-7	Additional simplifications	–	3-9
Actuator			Adjustability	201	2-5.1.1
– Cam-operated ~	714	4-6.1.4			8-4.3.1.3
– Device for restricted access to ~	692	4-5.1.12			8-5.3.3
– Double-acting diaphragm ~	726	4-6.1.16			9-4.3.1
– Double-acting ~ of fluid cylinder type	X2107	8-4.5.1.7			10-4.3.1
– Double-acting hydraulic ~	719	4-6.1.9			10-5.3.1
– Double-acting, hydraulic ~ with different active areas	721	4-6.1.11			14-4.3.1
– Double-acting, pneumatic ~	720	4-6.1.10	– Non-linear ~	202	2-5.1.2
– Double-acting pneumatic ~ with different active areas	722	4-6.1.12	– Pre-set ~	203	2-5.1.3
– Flow-target-operated ~	716	4-6.1.6			8-4.3.1.4
		7-4.1.5			8-5.3.4
		7-4.1.4			10-4.3.2
– Fluid-level-operated ~	715	4-6.1.5	– Resistor with continuous ~	X203	2-5.5.3
		7-4.1.4	– Resistor with electric-motor-operated ~	X205	2-5.5.5
			– Resistor with manual ~	X204	2-5.5.4
– in the form of a double-acting fluid cylinder	724	4-6.1.14	– Resistor with pre-set ~	X201	2-5.5.1
	X713	4-6.5.3	– Resistor with ~ in five steps	X202	2-5.5.2
	X2107	8-4.5.1.7	See also <i>Variability</i>		
– in the form of a hydraulic motor with alternative directions of flow	2407	4-6.1.17	Adjustable capacity		
– in the form of a pneumatic motor	X712	4-6.5.2	– Hydraulic pump with ~	X2401	10-4.5.1
– in the form of a pneumatic motor with alternative directions of flow	2408	4-6.1.18		X2402	10-4.5.2
– in the form of a single-acting fluid cylinder	723	4-6.1.13	– Liquid pump with ~	X2301	9-4.5.1
– Manual ~	681	4-5.1.1		X2302	9-4.5.2
– Manual ~ in the form of key	687	4-5.1.7	– Over-centre hydraulic pump with ~	X2407	10-4.5.7
– Manual ~ in the form of lever	688	4-5.1.8	Adjustable gain		
– Manual ~ in the form of pedal	689	4-5.1.9	– Amplifier with ~	X207	2-5.5.7
			Adjustable hydraulic rotary torque converter	X2431	10-5.5.1
			Adjustable restrictor (valve)	X2211	8-6.5.3.1
				X2212	8-6.5.3.2

Description	Registration number	Location (Part-subclause)
– with adjustable flow in one direction and restricted flow in the other	X2213	8-6.5.3.3
Adjustable speed		
– Hydraulic motor with ~	X2415	10-4.5.15
– Hydraulic pump driven by shaft with ~	X2404	10-4.5.4
– Liquid pump driven by shaft with ~	X2303	9-4.5.3
Adsorption pump	2335	9-5.1.5
	2336	9-5.1.6
Affected area	2177	8-6.3.7
Agglomeration		
– Size enlarging by sintering, ~ coagulation, or flocculation	2809	13-4.3.9
Air conditioner	X3152	15-9.5.2
– for pneumatic systems	2691	12-7.1.1
Air conditioning	3151	15-9.3.2
Air fin cooler with induced draft	X2505	11-4.5.5
Air lubricator	X2674	12-6.5.4
Alarm	3066	15-4.3.16
– High pressure ~	X1062	6-7.5.22
– Indicating and transmitting of level, registering, and ~	X1065	6-7.5.25
– Light ~	3067	15-4.3.17
Air conditioner for pneumatic systems	2691	12-7.1.1
Air fin cooler with induced draft	X2505	11-4.5.5
Air lubricator	X2674	12-6.5.4
Alarm		
– High pressure ~	X1062	6-7.5.22
– Indicating and transmitting of level, registering, and ~	X1065	6-7.5.25
Alarming	1051	6-7.3.1.1
All-or-nothing relay		
– Electromechanical ~ with some contacts delayed	X653	4-4.5.3
– Electromechanical ~, the whole relay delayed when coil is energized	X654	4-4.5.4
Alternative directions		
– Direction of propagation, energy, or signal flow, ~ (half-duplex)	250	2-7.1.8 6-4.3.3
– Gas pump, compressor, fan with ~ of flow	2304	9-4.1.4
– Hydraulic pump/motor with ~ of flow	2413	10-4.1.13
– Hydraulic motor with ~ of flow	2407	10-4.1.7
– Hydraulic pump with ~ of flow	2403	10-4.1.3
– in general, except for energy and signal flow	245	2-7.1.5 14-4.3.3
	246	2-7.1.6
– Limited circular motion in ~	X253	2-7.5.8
– Liquid pump with ~ of flow	2303	9-4.1.3
– of circular motion	256	2-7.1.14
– of propagation, energy, or signal flow (half-duplex)	250	2-7.1.8
– Pneumatic motor with ~ of flow	2408	10-4.1.8
– Pneumatic pump, compressor with ~ of flow	2404	10-4.1.4
– Pneumatic pump/motor with ~ of flow	2414	10-4.1.14
– Rectilinear motion in ~ with intermediate dwell	X256	2-7.5.11
Amplification	115	2-4.3.2.5 6-7.3.3.1
Amplifier	891	5-12.1.1
	892	5-12.1.2
– Differential ~	X910	5-12.5.10
– Summing ~	X909	5-12.5.9
– with adjustable gain	X207	2-5.5.7
– with return channel	893	5-12.1.3
	894	5-12.1.4

Description	Registration number	Location (Part-subclause)
– with the gain compensated for frequency variations	X110	2-4.5.10
Amplifying equipment		
– Enclosure with ~	X3081	15-5.5.1
Analogue signal	234	2-6.1.14 6-4.3.5
Analogue signal processing		
– Devices for ~	–	5-12
Anchor point	3004	15-4.1.4
AND-elements		
– Component consisting of two identical ~	X346	2-11.5.3
	X347	2-11.5.4
AND-function (Logic ~)	142	2-4.3.2.28 6-7.3.3.12
Angle		
– Measuring transducer for ~	X769	5-4.5.19
Angled globe type spring-loaded vacuum valve operating when pressure is lower than set value	X2125	8-4.5.3.5
Angled two-way valve	2102	8-4.1.2
Annealing		
– Heat treatment, for example, ~ or tempering	2807	13-4.3.7
Anti-clockwise rotation	X250	2-7.5.5
	X251	2-7.5.6
	X2416	10-4.5.16
	X2417	10-4.5.17
	X2419	10-4.5.19
	X2422	10-4.5.22
	X2423	10-4.5.23
Anti-siphon trap	2038	7-5.1.12 15-10.3.5
Approximately constant force, motion, or flow	223	2-6.1.3
Area		
– Affected ~	2177	8-6.3.7
Areas		
– Double-acting hydraulic actuator with different active ~	721	4-6.1.11
– Double-acting pneumatic actuator with different active ~	722	4-6.1.12
Arrestor		
– Flame ~	2036	7-5.1.10
Automatic actuators	–	4-6
Automatic closing		
– Quick-release coupling element of female type with ~	567	3-8.1.6
– Quick-release coupling element of male type with ~	566	3-8.1.5
– Quick-release coupling element which fits into another coupling element of the same type with ~	568	3-8.1.7
Automatic operation	144	2-4.3.2.30
– of final controlling element	1022	6-6.1.2
– of pump	X1031	6-6.5.11
– of valve controlled by analogue signal	X1028	6-6.5.8
	X1035	6-6.5.15
– of valve with infinite number of stable positions	X1034	6-6.5.14
	X1036	6-6.5.16
– of valve with automatic return to closed position	X1026	6-6.5.6
– of valve with automatic return to open position	X1027	6-6.5.7
– of valve with automatic return towards closed position	X1029	6-6.5.9
– of valve with automatic return towards open position	X1030	6-6.5.10

Description	Registration number	Location (Part-subclause)
– of valve with two stable positions, open and closed	X1032	6-6.5.12
	X1033	6-6.5.13
Automatic return		
– Control-switch operated by turning with ~ from two extreme positions	X686	4-5.5.6
– device	654	4-4.1.9
		6-6.3.4
– Directional control valve with ~	X688	4-5.5.8
– Single-acting hydraulic cylinder with ~	X2442	10-6.5.2
– Manually operated control-switch with ~	X685	4-5.5.5
– Manually operated valve with ~	X1022	6-6.5.2
– Valve with diaphragm actuator and ~	X2101	8-4.5.1.1
Auxiliary location		
– in central control room	1102	6-7.3.4.2
– in local control room or on local control panel	1104	6-7.3.4.4
Auxiliary power supply		
– Input or output for ~	183	2-4.3.5.3
Averaging		
– Device for ~	X903	5-12.5.3
– function component	X105	2-4.5.5
Back-pressure control valve, self-operating	X2132	8-4.5.4.2
Back-up		
– function	–	6-9
– Temperature indication and control performed by computer with ~ by discrete device	X1081	6-9.5.1
Bag	2068	7-6.1.8
Bag filter	X2606	12-4.5.6
Ball	2014	7-4.1.20
	2015	7-4.1.21
Ball type	2122	8-4.3.2.2
– control valve, operated by diaphragm actuator or by manual actuator	X2138	8-4.5.4.8
– Spring-loaded ~ non-return valve	X2115	8-4.5.2.5
– three-way valve with double-acting cylinder actuator	X2107	8-4.5.1.7
Barrel	2067	7-6.1.7
Basic elements (for actuators and actuating devices)	–	4-4
Bath scrubber	X2622	12-4.5.22
Beam		
– Non-guided, electromagnetic ~	411	3-4.1.7
Bearing	2006	7-4.1.12
Bed filter		
– of fixed type	X2609	12-4.5.9
– of fluidized type	X2610	12-4.5.10
Bed filter element		
– of fixed type	2603	12-4.1.4
– of fluidized type	2604	12-4.1.5
Bellows		
– Expansion ~	533	3-7.1.3
Belt conveyor		
– Mobile ~ with scraper flights and adjustable elevation	X3804	14-4.5.4
– Uni-directional driven ~ by electric motor	X3801	14-4.5.1
– with adjustable length	X3806	14-4.5.6
Belt filter	X2608	12-4.5.8
Belt type	3821	14-4.3.6
– with scraper flights	3822	14-4.3.7
Bending		
– Material forming by ~ or folding	2804	13-4.3.4
Belt filter	X2608	12-4.5.8

Description	Registration number	Location (Part-subclause)
Bias	162	2-4.3.3.2
		6-7.3.3.16
– Device for ~	X904	5-12.5.4
– function component	X103	2-4.5.3
Bidirectional information bus type	443	3-4.3.7
Bidirectional, simultaneously	247	14-4.3.4
Bimetal	327	2-10.1.5
Binary logic elements	–	5-11
Binary logic functions	–	6-8
Binary signal	236	2-6.1.16
		6-4.3.7
Biologic filter	X2634	12-4.5.34
Biologic type	2623	12-4.3.11
Bistable element		
– RS~	X112	2-4.5.12
Bleed line	422	3-4.1.10
Blind	2043	7-5.1.17
– flange pair	517	3-6.1.7
– Spectacle ~ in closed position	2044	7-5.1.18
– Spectacle ~ in open position	2045	7-5.1.19
Blocking device	664	4-4.1.20
		6-6.3.9
Blocking of electric current	3063	15-4.3.13
– Device for ~ in a pipeline	X3011	15-4.5.11
Boiler	2531	11-7.1.1
– feed-water vessel with deaerator	X2071	7-6.5.11
– of electrode type	X2533	11-7.5.3
– of fired type	X2531	11-7.5.1
– with dome	2532	11-7.1.2
– with superheater	X2534	11-7.5.4
Boilers	–	11-7
Bore		
– Reduced ~	2130	8-4.3.2.10
Boring, drilling	2815	13-4.3.15
Boss with		
– insertion pipe	803	5-5.1.3
– Temperature sensor in a ~ well	X801	5-5.5.1
– well	801	5-5.1.1
Brake		
– applied in unactuated state	2012	4-4.1.5
		7-4.1.18
– disengaged in unactuated state	2011	4-4.1.4
		7-4.1.17
– Solenoid-operated ~ applied at no-voltage	X652	4-4.5.2
Branches		
– Connection with n parallel identical ~	601	3-9.1.1
– Eight connections, four of them branching	X602	3-9.5.2
– Three parallel identical ~	X601	3-9.5.1
Branching of a bundle	X607	3-9.5.7
	X608	3-9.5.8
Brazed joint	515	3-6.1.5
Breaking		
– Size reduction by crushing, ~, or pulverisation	2808	13-4.3.8
Buffer head	2007	7-4.1.13
Buffer		
– Hydraulic ~	X2007	7-4.5.7
– Spring equipped ~	X2006	7-4.5.6
Bulldozer	3867	14-7.1.7
Burglar detector	X3141	15-8.5.11
Buffer head	2007	7-4.1.13
Bundle		
– Branching of a ~	X607	3-9.5.7
	X608	3-9.5.8
– Exit from or entrance into a ~	603	3-9.1.3
Bunker	2064	7-6.1.4
– Open ~	X2074	7-6.5.14

Description	Regis- tration number	Location (Part- subclause)
Burst of sinusoidal flow	226	2-6.1.6
Bus		
– Bidirectional information ~ type	443	3-4.3.7
– Unidirectional information ~ type	442	3-4.3.6
Butterfly type	2126	8-4.3.2.6
Cable (pipe unit)	449	3-4.3.14
– Four pipelines forming a unit	X421	3-4.5.14
– Four pipelines, two of them forming a ~	X422	3-4.5.15
Calendering	2826	13-4.3.26
Cam driven mechanical counter with output closing at each <i>n</i> events	X877	5-8.5.7
Cam profile	713	4-6.1.3
		7-4.1.3
– and roller	X711	4-6.5.1
Cam-operated actuator	714	4-6.1.4
Candle filter	X2606	12-4.5.6
Cap		
– End ~	518	3-6.1.8
Capacitive type	IEC	5-4.3.1.13
Capillary type	432	3-4.3.2
Cargo ship	3881	14-7.1.16
Cargo ships	–	14-7
Cartridge filter	X2606	12-4.5.6
Cascade control		
– Temperature-flow rate ~	X1105	6-10.5
Casting or moulding	2801	13-4.3.1
Casting machine	X2801	13-4.5.1
Casting machines and machine tools	–	13-4
Catalytic type	2661	12-5.3.1
– Purifier of ~	X2651	12-5.5.1
Central control room		
– Auxiliary location in a ~	1102	6-7.3.4.2
– Primary location in a ~	1101	6-7.3.4.1
– Temperature indication in a ~	X1075	6-7.5.35
– Temperature indication in a ~, instrument not accessible to operator	X1076	6-7.5.36
Centrifugal filter	X2614	12-4.5.14
Centrifuge		
– Decanter ~	X2620	12-4.5.20
– High-speed ~	X2619	12-4.5.19
– rotor	2608	12-4.1.9
Chain or wire driven type	3823	14-4.3.8
Change		
– of pipe dimension; pipe reducer	516	3-6.1.6
Change of state when the characteristic quantity		
– is approximately equal to the set value	175	2-4.3.4.5
– is equal to the set value	174	2-4.3.4.4
– passes the set value from above	172	2-4.3.4.2
		8-4.3.1.6
– passes the set value from below	171	2-4.3.4.1
		8-4.3.1.5
– passes the upper set value from below or the lower set value from above	173	2-4.3.4.3
Characteristic quantity		
– Actuator operating when the ~ passes the set value	733	4-6.1.19
– Change of state when the ~ is approximately equal to the set value	175	2-4.3.4.5
– Change of state when the ~ is equal to the set value	174	2-4.3.4.4
– Change of state when the ~ passes the set value from above	172	2-4.3.4.2
		8-4.3.1.6
– Change of state when the ~ passes the set value from below	171	2-4.3.4.1
		8-4.3.1.5

Description	Regis- tration number	Location (Part- subclause)
– Change of state when the ~ passes the upper set value from below or the lower set value from above	173	2-4.3.4.3
Characteristics for force, motion, mass flow, magnetic flow, and signals	–	2-6
Check function: See <i>Non-return function</i>		
Check valve: See <i>Non-return valve</i>		
Chemical type	2622	12-4.3.10
Circular motion		
– Direction of ~	255	2-7.1.13
		12-4.3.2
– limited in alternative directions	X253	2-7.5.8
– with alternative directions	256	2-7.1.14
– with unspecified direction	254	2-7.1.12
		12-4.3.1
Circular shape	445	3-4.3.10
Circular-shaped access chamber, inspection well	3087	15-5.1.7
Cistern for atmospheric pressure	2061	15-10.3.6
Cistern for atmospheric pressure	2061	7-6.1.1
Clock	842	5-8.1.2
– Master ~	843	5-8.1.3
Clocks	–	5-8
Clock-wise rotation	X249	2-7.5.4
	X250	2-7.5.5
	X251	2-7.5.6
	X2304	9-4.5.4
	X2305	9-4.5.5
	X2306	9-4.5.6
	X2405	10-4.5.5
	X2406	10-4.5.6
	X2407	10-4.5.7
Closed end of pipeline or duct	503	3-5.1.3
Closed flow path	2172	8-6.3.2
Closed flow path of a leak-free valve	2173	8-6.3.3
Closed tank for atmospheric pressure	X2061	7-6.5.1
Clutch		
– disengaged in unactuated state	2009	4-4.1.2
		7-4.1.15
– engaged in unactuated state	2010	4-4.1.3
		7-4.1.16
– Solenoid-operated ~, disengaged at no-voltage	X651	4-4.5.1
Coagulation		
– Size enlarging by sintering, agglomeration, ~, or flocculation	2809	13-4.3.9
Coating, for example, painting	2827	13-4.3.27
Coil		
– Heating or cooling ~	2501	11-4.1.3
Column		
– Tray ~, fractionating ~	X2625	12-4.5.25
	X5626	12-4.5.26
Combined non-return valve and manually actuated stop valve	X2112	8-4.5.2.2
Combustion engine		
– External ~	2583	11-10.1.3
– Internal ~	2582	11-10.1.2
– Internal ~ with reciprocating pistons	X2581	11-10.5.1
– Internal ~ with rotating pistons	X2582	11-10.5.2
Comparing	140	2-4.3.2.26
		6-7.3.3.11
Compensated		
– Amplifier with gain ~ for frequency variations	X110	2-4.5.10
– output	128	2-4.3.2.14
– Pressure and temperature ~ flow control valve	X2216	8-6.5.3.6
	X2217	8-6.5.3.7

Description	Registration number	Location (Part-subclause)	Description	Registration number	Location (Part-subclause)
– Pressure ~ flow control valve.....	X2214	8-6.5.3.4	Constant force, motion, or flow	222	2-6.1.2
.....	X2215	8-6.5.3.5			9-4.3.3
– Pressure ~ flow control valve with overflow to reservoir	X2218	8-6.5.3.8			10-4.3.4
.....	X2219	8-6.5.3.9	Contactor		
– Pressure ~ flow divider	X2220	8-6.5.3.10	– Electropneumatically operated ~	X405	3-4.5.5
Compensating input	127	2-4.3.2.13	Container for atmospheric pressure	2061	7-6.1.1
Complex			Continuous pneumatic-hydraulic		
– device	101	2-4.1.1	– converter.....	2435	10-5.1.2
– function	145	2-4.3.2.31	– intensifier	2436	10-5.1.4
	145	6-7.3.3.14	Continuous variability.....	212	2-5.3.2
Component consisting of			Control		
– one AND-element and three OR-elements	X348	2-11.5.5	– Cascade ~	X1105	6-10.5
– two identical AND-elements.....	X346	2-11.5.3	– Flow rate feedback ~	X1104	6-10.4
	X347	2-11.5.4		X1108	6-10.8
Component selecting the highest input signal as output signal	X106	2-4.5.6	– Flow rate feedback ~, based on square root value of flow rate	X1106	6-10.6
Compressing screw conveyor.....	X3811	14-4.5.11	– Flow rate feedback ~ with automatic closing of valve at flow rate higher than set value	X1107	6-10.7
Components (in general)	–	2-4	– Indication and feedback ~ of electric reactive power	X1061	6-7.5.21
Compression filter, compression by piston, screw, plate or membrane.....	X2612	12-4.5.12	– Manual, remote ~ of a control valve with indication of the set value.....	X1103	6-10.3
Compressor	2302	9-4.1.2	– Manual, remote ~ of valve with infinite number of stable positions and indication of valve position.....	X1102	6-10.2
	2402	10-4.1.2	– Manual, remote ~ of a valve with automatic return to closed position.....	X1101	6-10.1
– with alternative directions of flow	2304	9-4.1.4	– Temperature-flow rate cascade ~	X1105	6-10.5
Compressors.....	–	9-4	– with back-up	–	6-9
Compressors for fluid power	–	10-4	Control damper with double-acting fluid cylinder	X2153	8-5.5.3
Computer			Control line (fluid power systems).....	422	3-4.1.10
– Function performed by a ~ with back-up ...	X1081	6-9.5.1	Control panel		
Computing.....	1075	6-7.3.1.25	– Auxiliary location in a local control room or on a local ~	1104	6-7.3.4.4
– Flow rate ~	X1072	6-7.5.32	– Primary location in a local control room or on a local ~	1103	6-7.3.4.3
	X1073	6-7.5.33	Control room		
– Level ~	X1074	6-7.5.34	– Auxiliary location in a central ~	1102	6-7.3.4.2
Condenser	X2501	11-4.5.1	– Auxiliary location in a local ~ or on a local control panel.....	1104	6-7.3.4.4
Condensers.....	–	11-4	– Primary location in a central ~	1101	6-7.3.4.1
Conductive electrode type	IEC	5-4.3.1.14	– Primary location in a local ~ or on a local control panel.....	1103	6-7.3.4.3
Connection			Control valve		
– Functional ~	401	3-4.1.1	– Ball type ~, operated by diaphragm actuator or by manual actuator.....	X2138	8-4.5.4.8
		6-4.1.1	– Diaphragm-operated de-superheater control valve.....	X2136	8-4.5.4.6
– Internal ~	451	3-4.3.16	– Direct hydraulically operated directional ~	X2164	8-6.5.1.4
– Internal ~ in pressure relief valve.....	X435	3-4.5.18		X2165	8-6.5.1.5
– joints	–	3-5	– Directional leak-free ~ with two ports and two positions.....	X2183	8-6.5.1.23
– joints of specified design.....	–	3-6	– Directional servo~ valve with positive overlapping in mid-position.....	X2175	8-6.5.1.15
– of test point	1066	6-7.3.1.16	– Directional servo~ with negative overlapping in mid-position.....	X2176	8-6.5.1.16
– with <i>n</i> parallel, identical branches	601	3-9.1.1	– Directional ~ with four ports and three distinct positions, automatic return to mid-position	X2003	7-4.5.3
Connection boxes, access chambers, inspection wells, distribution centres	–	15-5	– Directional ~ with four positions, operated by a lever and with one stable position and automatic return from the other positions	X688	4-5.5.8
Connections	–	3-4	– Directional ~ with pilot valve	X2171	8-6.5.1.11
– between three components (bundle).....	X606	3-9.5.6		X2172	8-6.5.1.12
– Crossing of symbols for ~	X401	3-4.5.1		X2173	8-6.5.1.13
– Eight ~, four of them branching (single-line representation)	X602	3-9.5.2		X2174	8-6.5.1.14
– Joint of ~	501	3-5.1.1			
		6-4.1.2			
– Three ~ (single-line representation).....	X341	2-11.5.1			
	X342	2-11.5.2			
– Three ~ with changed sequence (single-line representation)	X605	3-9.5.5			
– Three ~ with reversed sequence (single-line representation)	X604	3-9.5.4			
– Three ~ with the same sequence between two components (single-line representation)	X603	3-9.5.3			
– Fixed portion of ~	576	3-8.1.8			
– Movable portion of ~	577	3-8.1.9			
Connectors.....	–	3-8			
Constant force, motion, or flow	221	2-6.1.1			
		9-4.3.2			
		10-4.3.3			

Description	Registration number	Location (Part-subclause)
– Directional ~ with three ports and three positions	X2181	8-6.5.1.21
	X2182	8-6.5.1.22
– Directional ~ with three ports and two positions	X2179	8-6.5.1.19
	X2180	8-6.5.1.20
– Electrically operated directional ~	X2177	8-6.5.1.17
	X2178	8-6.5.1.18
– Electrohydraulically or manually operated directional ~ with spring return to resting position (mid-position)	X2168	8-6.5.1.8
– Electropneumatically operated directional ~ with spring return	X2167	8-6.5.1.7
– Float-operated ~	X2134	8-4.5.4.4
– Flow ~, pressure and temperature compensated	X2216	8-6.5.3.6
	X2217	8-6.5.3.7
– Flow ~, pressure compensated	X2214	8-6.5.3.4
	X2215	8-6.5.3.5
– Flow ~, pressure compensated, with overflow to reservoir	X2218	8-6.5.3.8
	X2219	8-6.5.3.9
– Lever-operated directional ~, detained in all three positions	X2169	8-6.5.1.9
– Lever operated directional ~ with three positions and spring return to resting position (mid-position)	X2163	8-6.5.1.3
– Manually operated directional ~, detained in both positions with restricted access to the actuator	X2170	8-6.5.1.10
– Manually operated directional ~ with spring return to resting position	X2161	8-6.5.1.1
– Manually operated needle type ~	X2137	8-4.5.4.7
– Manually or electrically operated directional ~ with spring return	X2166	8-6.5.1.6
– Pneumatically operated directional ~ with spring return to resting position	X2162	8-6.5.1.2
– Self-operating back-pressure ~	X2132	8-4.5.4.2
– Self-operating pressure reducing ~	X2133	8-4.5.4.3
– with actuating device of electric motor type	X2131	8-4.5.4.1
See also <i>Directional control valve</i>		
Control-switch		
– Manually operated ~	X685	4-5.5.5
– Manually operated ~ with manually disengaged latch	X657	4-4.5.7
– Manually operated ~ with electrically disengaged latch	X658	4-4.5.8
– Manually operated multi-position ~	X656	4-4.5.6
– operated by lever with four operation directions	X684	4-5.5.4
– operated by pulling	X682	4-5.5.2
– operated by pushing	X681	4-5.5.1
– operated by pushing and pulling	X683	4-5.5.3
– operated by turning	X687	4-5.5.7
– operated by turning with automatic return from the two extreme positions	X686	4-5.5.6
Controller		
– Feedback ~	895	5-12.1.5
	896	5-12.1.6
– Feedback ~ with internal set point adjustability	X911	5-12.5.11
– Feedback ~ for rotational speed	X912	5-12.5.12
– Feedback ~ with PID characteristic and many inputs	X913	5-12.5.13
Controlling	792	5-4.3.2.2
	1053	6-7.3.1.3
Controlling unit		
– Hydraulic ~	X107	2-4.5.7

Description	Registration number	Location (Part-subclause)
Conversion	111	2-4.3.2.1
	112	2-4.3.2.2
– Devices for purification by ~	–	12-5
– of analogue flow rate signal to digital form	X1071	6-7.5.31
– of fluid or mechanical energy by intermediate fluid step: Devices for ~	–	10-5
– of mechanical energy to fluid energy or vice versa: Devices for ~	–	10-4
– without connection between input and output circuits	113	2-4.3.2.3
	114	2-4.3.2.4
Converter		
– Adjustable hydraulic rotary torque ~	X2431	10-5.5.1
– DC to DC ~	X111	2-4.5.11
See also <i>Pneumatic-hydraulic converter, Signal converter, Torque converter</i>		
Converting	1075	6-7.3.1.25
Conveyor		
– Belt ~ with adjustable length	X3806	14-4.5.6
– connected to a feeding belt conveyor with scraper flights coming from below	X3805	14-4.5.5
– Compressing screw ~	X3811	14-4.5.11
	X3813	14-4.5.13
– Reversible ~	X3802	14-4.5.2
– Uni-directional belt ~ driven by electric motor	X3801	14-4.5.1
– with rotary vane feeder	X3812	14-4.5.12
Conveyors		
– Two ~ of roller type interlinked by a turntable	X3815	14-4.5.15
Conveyors and associated devices	–	14-4
Cooler		
– Air fin ~ with induced draft	X2505	11-4.5.5
– Water-sprayed ~	X2504	11-4.5.4
Cooling coil	2501	11-4.1.3
Cooling tower	2521	11-6.1.1
	X2521	11-6.5.1
– with forced draft	X2523	11-6.5.3
– with induced draft	X2522	11-6.5.2
Cooling towers	–	11-6
Correlation	263	2-7.3.3
– between the rotational direction of an hydraulic pump with alternative directions of flow and the direction of flow	X261	2-7.5.15
– between two motions	X260	2-7.5.14
– for a reversible liquid pump	X2307	9-4.5.7
– for a reversible hydraulic pump	X2408	10-4.5.8
Counter	841	5-8.1.1
– Cam driven mechanical ~ with output closing at each <i>n</i> events	X877	5-8.5.7
– counting downwards with pre-set to <i>n</i> events	X872	5-8.5.2
– Electromechanical ~	X873	5-8.5.3
– Electromechanical ~ indicating a new event when the electrical pulse disappears (postponed action)	X874	5-8.5.4
– Electromechanical ~ with electrical reset to 0	X876	5-8.5.6
– Electromechanical ~ with manual reset to 0	X875	5-8.5.5
– with reset to 0	X871	5-8.5.1
Counter-clockwise: See <i>Anti-clockwise</i>		
Counting devices	–	5-8
Coupling		
– Clamped flange ~	513	3-6.1.3
– Flange ~	511	3-6.1.1
– Flexible ~	512	3-6.1.2
– Quick-release ~	X563	3-8.5.1

Description	Registration number	Location (Part-subclause)
Coupling element		
– Quick-release ~ of female type	564	3-8.1.3
– Quick-release ~ of female type with automatic closing	567	3-8.1.6
– Quick-release ~ of male type	563	3-8.1.2
– Quick-release ~ of male type with automatic closing	566	3-8.1.5
– Quick-release ~ which fits into another coupling element of the same type	565	3-8.1.4
– Quick-release ~ which fits into another coupling element of the same type with automatic closing	568	3-8.1.7
Covered lorry, van	3869	14-7.1.9
Covered railway wagon or covered trailer	3872	14-7.1.12
Crane	3841	14-5.1.1
– Overhead, travelling crane ~	X3842	14-5.5.2
– travelling on two mono-rails	X3841	14-5.5.1
Cranes, lifts, hoists, and materials handling robots	–	14-5
Critical flow nozzle	774	7-5.1.4
Critical flow nozzle type	774	5-4.3.1.6
Cross-connection device	3085	15-5.1.5
Cross-connection point with three pipelines, power or telecommunication lines	X3082	15-5.5.2
Crossing of symbols for connections	X401	3-4.5.1
Crushing		
– Size reduction by ~, breaking, or pulverisation	2808	13-4.3.8
Cryo pump	2339	9-5.1.9
Cushion	2444	10-6.1.11
– Double-acting hydraulic cylinder with adjustable ~ on each side of the piston	X2444	10-6.5.4
Cyclone separator	X2618	12-4.5.18
Cyclonic type	2621	12-4.3.3
Damper		
– Control ~ with double-acting fluid cylinder	X2153	8-5.5.3
– Multi-leaf ~	X2151	8-5.5.1
– Three-way ~ with diaphragm actuator	X2152	8-5.5.2
– Two- or three-way ~	2151	8-5.1.1
Dampers	–	8-5
DC to DC converter	X111	2-4.5.11
De-superheater control valve, diaphragm-operated	X2136	8-4.5.4.6
De-superheater, humiditor	X2503	11-4.5.3
Dead band	137	2-4.3.2.23 5-12.3.5 6-7.3.3.8
Deaerator		
– Boiler feedwater vessel with ~	X2070	7-6.5.10
Decanter centrifuge	X2620	12-4.5.20
Delay	123	2-4.3.2.9 6-7.3.3.2
Delay device	651	4-4.1.6 6-6.3.1 4-4.1.7 6-6.3.2 4-4.1.8 6-6.3.3 2-4.5.8
– with delay in both directions	653	4-4.1.8 6-6.3.3 2-4.5.8
Delay element with switch-on delay	X108	2-4.5.8
Delayed output	X113	2-4.5.13
Density	1054	6-7.3.1.4
Desalination (desalting) plant	X3209	15-10.5.9
Detector, pilot switch	3132	15-8.1.2
– Dust ~	X3137	15-8.5.7
– Earthquake ~	X3144	15-8.5.14
– Fire ~	X3135	15-8.5.5
– Heat (temperature) ~	X3132	15-8.5.2
– Light ~	X3134	15-8.5.4

Description	Registration number	Location (Part-subclause)
– Motion ~	X3138	15-8.5.8
– Passage ~	X3139	15-8.5.9
– for pressure changes (burglar detector)	X3141	15-8.5.11
– for pressure higher than the setting value	X3140	15-8.5.10
– Smoke ~	X3136	15-8.5.6
– Sound ~	X3133	15-8.5.3
– Vibration ~	X3142	15-8.5.12
– Vibration ~ for vertical vibrations	X3143	15-8.5.13
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– bias	X904	5-12.5.4
– blocking of electric current in a pipeline	X3011	15-4.5.11
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– operated de-superheater control valve	X2136	8-4.5.4.6
– Pressure vessel with ~	X2073	7-6.5.13
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– operating a valve	X2101 X2102 X2132	8-4.5.1.1 8-4.5.1.2 8-4.5.4.2
– Single-acting ~	725	4-6.1.15
Difference	1054	6-7.3.1.4
Difference pressure transmitting and indication	X1054	6-7.5.14
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– amplifier	X910	5-12.5.10
– type	793 X768	5-4.3.2.3 5-4.5.18
Diffusion pump	2332	9-5.1.2

Description	Registration number	Location (Part-subclause)
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Digital signal.....	235	2-6.1.15
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Direction		
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– of mass flow in valve	X243	2-7.5.2
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– Direct hydraulically operated ~, different affecting areas	X2165	8-6.5.1.5
– Direct pneumatically operated ~, spring return to resting position	X2162	8-6.5.1.2
– Directional leak-free control valve, two ports, two positions	X2183	8-6.5.1.23
– Electrically operated ~	X2177 X2178	8-6.5.1.17 8-6.5.1.18
– Electrohydraulically or manually operated ~, spring return	X2168	8-6.5.1.8
– Electropneumatically operated ~, spring return	X2167	8-6.5.1.7
– Leak-free ~ with two ports and two positions	X2183	8-6.5.1.23
– Lever-operated ~, detained in all positions	X2169	8-6.5.1.9
– Lever operated ~, three positions, spring return	X2163	8-6.5.1.3
– Manually operated ~, detained in both positions, restricted access to actuator.	X2170	8-6.5.1.10
– Manually operated ~, spring return to resting position	X2161	8-6.5.1.1
– Manually or electrically operated ~, spring return	X2166	8-6.5.1.6
– with four ports and three distinct positions, automatic return to mid-position	X2003	7-4.5.3
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Description	Registration number	Location (Part-subclause)
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Directions.....	–	2-7
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– Bidirectional, simultaneously	247	14-4.3.4
– Propagation, energy, or signal flow in two simultaneous ~ (full-duplex).....	251	2-7.1.9 6-4.3.4
– Rectilinear motion in two ~ with dwell.....	X257	2-7.5.12
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Disc		
– Rupturing ~	2035	7-5.1.9
– type.....	2126	8-4.3.2.6
– with knife	2606	12-4.1.7
Disc and plate (knife) separator.....	X2615	12-4.5.15
Dish-washer.....	X2624	12-4.5.24
Displacement type: See <i>Positive ~</i>		
Displacer.....	771	7-4.1.6
– type.....	771	5-4.3.1.2
Display unit	851	5-9.1.1
Displaying discrete state.....	1052	6-7.3.1.2
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Disposal plant		
– Waste ~ (waste tip).....	X3215	15-0.5.15
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– by laser beam	2814	13-4.3.14
– by sawing	2811	13-4.3.11
– by shearing.....	2812	13-4.3.12
– material.....	2810	13-4.3.10
Division		
– Device for ~	X902	5-12.5.2
Dome		
– Boiler with ~	2532	11-7.1.2
Double L-bore in four-way valve	2115	8-4.3.1.9
Double-acting diaphragm actuator	726	4-6.1.16
Double-acting fluid cylinder		
– Actuator in form of ~	724 X713 X2153	4-6.1.14 4-6.5.3 8-5.5.3
– with adjustable cushions	X2444	10-6.5.4
– with double-ended piston rod	X2443	10-6.5.3
Double-acting hydraulic actuator	719	4-6.1.9
– with different active areas.....	721	4-6.1.11
Double-acting hydraulic cylinder.....	2442	10-6.1.5
– different piston areas, adjustable cushions X2444	X2444	10-6.5.4
– of telescopic type.....	2450	10-6.1.9
Double-acting pneumatic actuator.....	720	4-6.1.10
– with different active areas.....	722	4-6.1.12
Double-acting pneumatic cylinder	2448	10-6.1.6
– of telescopic type.....	2451	10-6.1.10
– with double-ended piston rod	X2443	10-6.5.3
Drain funnel	2040	7-5.1.14
Drain line.....	422	3-4.1.10
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– to the left permitted.....	660	4-4.1.16 6-6.3.7
Drilling, boring.....	2815	13-4.3.15
Driverless, automatic fork lift truck, including remote controlled	3863	14-7.1.3
Duct	405	3-4.1.5
– Closed end of ~	503	3-5.1.3
– elements.....	–	7-5

Description	Registration number	Location (Part-subclause)
– Insulated ~	X322	10.5.2
– Planned ~	412	3-4.1.8
– Located in a rectangular ~, for example, pipelines, conductors, or cables	3055	15-4.3.5
– Pipeline or conductor within a six-pipe ~	X3002	15-4.5.2
– with thermal insulation	X322	3-4.5.7
Duct or pipe		
– Located in a circular, ~ for example, conductors or cables	3054	15-4.3.4
Ducts		
– Group of ~	406	3-4.1.6
– Group of planned ~	413	3-4.1.9
– Joint of ~	501	3-5.1.1
Ducts, Installation of pipelines and ~	–	15-4
Duplex: See <i>Full-duplex</i>		
Dust	3144	15-8.3.4
– detector	X3137	15-8.5.7
Dwell		
– at return point	X257	2-7.5.12
– Intermediate ~	X255	2-7.5.10
– Intermediate ~, alternative directions	X256	2-7.5.11
Earthquake detector	X3144	15-8.5.14
Effect		
– Magnetic field ~	119	2-4.3.2.6
– Proximity ~	121	2-4.3.2.7
– Touch ~	122	2-4.3.2.8
Ejector pump	2331	9-5.1.1
Electric current		
– Device for blocking of ~ in a pipeline	X3011	15-4.5.11
Electric electrode type	IEC	11-7.3.4
Electric heating element type	IEC	11-7.3.3
Electric hot water generating plant	X3203	15-10.5.3
Electric induction liquid pump	2352	9-6.1.2
	2353	9-6.1.3
Electric induction type	IEC	11-7.3.5
Electric liquid pump	2351	9-6.1.1
Electric motor and pump, motor rotating anti-clockwise, pump rotating clockwise	X250	2-7.5.5
	X251	2-7.5.6
Electric pumps	–	9-6
Electric thermal power and hot water generating plant		
– Combined ~	X3204	15-10.5.4
Electric type	435	3-4.3.5
	3203	15-0.3.12
Electric variable	1055	6-7.3.1.5
Electric window foil	3133	15-8.1.3
Electrically insulating mechanical link, shaft, wire	404	3-4.1.4
– Flexible	X404	3-4.5.4
Electro-thermal type	IEC	12-4.3.8
Electrode furnace	X2536	11-7.5.6
Electrode type		
– Conductive ~	IEC	5-4.3.1.14
– Electric ~	IEC	11-7.3.4
Electrohydraulically operated two-stage pressure relief valve	X2196	8-6.5.2.6
	X2197	8-6.5.2.7
Electrohydraulically or manually operated directional control valve with spring return to resting position (mid-position)	X2168	8-6.5.1.8
Electromagnetic		
– Non-guided ~ beam	411	3-4.1.7
– separator	X2628	12-4.5.28
– type	IEC	12-4.3.5
Electromechanical all-or-nothing relay		
– some contacts delayed	X653	4-4.5.3
– whole relay delayed	X654	4-4.5.4

Description	Registration number	Location (Part-subclause)
Electromechanical counter	X873	5-8.5.3
– indicating when the pulse disappears (postponed action)	X874	5-8.5.4
– electrical reset to 0	X876	5-8.5.6
– manual reset to 0	X875	5-8.5.5
Electromechanical indicator	864	5-10.1.2
– with automatic return	X893	5-10.5.1
– without automatic return (manual reset)	X894	5-10.5.2
Electromechanical position indicator	865	5-10.1.3
Electropneumatically operated		
– contactor	X405	3-4.5.5
– control valve with spring return	X2167	8-6.5.1.7
Electrostatic		
– separator	X2627	12-4.5.27
– type	IEC	12-4.3.4
Emergency acting	1076	6-7.3.1.26
Emergency stop		
– Manual actuator with special shape	691	4-5.1.11
Enabling input	126	2-4.3.2.12
Enclosure	3084	15-5.1.4
– with amplifying equipment	X3081	15-5.5.1
End		
– cap	518	3-6.1.8
– Closed ~ of pipeline or duct	503	3-5.1.3
Energy flow		
– Alternative directions of ~	250	2-7.1.8
		6-4.3.3
– Direction of ~	249	2-7.1.7
		6-4.3.2
– Directions of ~ simultaneously in both directions possible	251	2-7.1.9
		6-4.3.4
Engines with reciprocating or rotary pistons	–	11-10
Entrainment pumps	–	9-5
Entrance into a bundle	603	3-9.1.3
Entrapment pump	2335	9-5.1.5
Entrapment pumps	–	9-5
Envelope (tank)	301	2-9.1.1
		11-4.1.1
		12-4.1.2
Envelopes	–	2-9
Equipment	101	2-4.1.1
	–	2-4
Escalator		
– function	3834	14-4.3.16
– going downwards and to the left	X3819	14-4.5.19
– going downwards and to the right	X3817	14-4.5.17
– going upwards and to the left	X3818	14-4.5.18
– going upwards and to the right	X3816	14-4.5.16
Even flow		
– Liquid pump with substantially ~	X2309	9-4.5.9
Events		
– Number of ~	1076	6-7.3.1.26
Exhaust valve		
– Pilot-operated non-return valve	X2233	8-6.5.4.3
Exit from a bundle	603	3-9.1.3
Expansion		
– bellows	533	3-7.1.3
– loop	531	3-7.1.1
– sleeve	532	3-7.1.2
External combustion engine	2583	11-10.1.3
Extremely		
– high	1084	6-7.3.2.4
	1085	6-7.3.2.5
– low	1089	6-7.3.2.9
	1090	6-7.3.2.10

Description	Registration number	Location (Part-subclause)
Extruding		
– Material forming by ~ or pultruding	2806	13-4.3.6
Facsimile	151	2-4.3.2.35
Fan	2302	9-4.1.2
– with alternative directions of flow	2304	9-4.1.4
Feedback control		
– Flow rate ~	X1101	6-10.4
	X1108	6-10.8
– Flow rate ~ and automatic closing	X1107	6-10.7
– Flow rate ~, square root value	X1106	6-10.6
– of electric reactive power	X1061	6-7.5.21
Feedback controller	895	5-12.1.5
	896	5-12.1.6
	X911	5-12.5.11
– for rotational speed	X912	5-12.5.12
– with PID characteristic and many inputs	X913	5-12.5.13
Feeder		
– Screw ~ with feeding funnel	X3809	14-4.5.9
	X3810	14-4.5.10
– Conveyor with vibrating rotary vane ~	X3814	14-4.5.14
– Vane ~ rotor	3807	14-4.1.3
Feeding funnel, hopper	3806	14-4.1.2
Feeding funnel		
– Screw feeder with ~	X3809	14-4.5.9
	X3810	14-4.5.10
Female type		
– Quick-release coupling element of ~	564	3-8.1.3
Filter	X2601	12-4.5.1
	X2602	12-4.5.2
– Bag ~, candle ~, leaf ~, cartridge ~	X2606	12-4.5.6
– Bed ~, fixed type	X2609	12-4.5.9
– Bed ~, fluidized type	X2610	12-4.5.10
– Belt ~, roll ~	X2608	12-4.5.8
– Biologic ~	X2634	12-4.5.34
– Centrifugal ~	X2614	12-4.5.14
– Compression ~	X2612	12-4.5.12
– press	X2611	12-4.5.11
– with rotating drum	X2603	12-4.5.3
– with rotating drum and scraper	X2604	12-4.5.4
– with spray	X2607	12-4.5.7
Filter element	2602	12-4.1.3
– Bed ~, fixed type	2603	12-4.1.4
– Bed ~, fluidized type	2604	12-4.1.5
Final controlling element		
– Automatic operation of ~	1022	6-6.1.2
– Manual operation of ~	1021	6-6.1.1
Final controlling elements		
– Operation of ~	–	6-6
Finned tube	2502	11-4.1.4
Fire		3142 15-
8.3.2		
– detector	X3135	15-8.5.5
		15-10.3.9
Fired heater	X2537	11-7.5.7
Fired type	2541	11-7.3.2
		12-4.3.9
		15-9.3.1
		15-10.3.9
– Boiler of ~	X2531	11-7.5.1
– Stove or water heater of ~	X3151	15-9.5.1
First aid fire hose reel	3124	15-7.4
Fittings	–	3-7
– for sensors and measuring transducers	–	5-5
Fixed portion of a connector pair	576	3-8.1.8
Flag	716	7-4.1.5
Flame arrestor	2036	7-5.1.10

Description	Registration number	Location (Part-subclause)
Flange		
– Blind ~ pair	517	3-6.1.7
Flange coupling, flange pair	511	3-6.1.1
– Clamped ~	513	3-6.1.3
Flare	2591	11-11.1.1
Flexible coupling	512	3-6.1.2
Flexible, electrically insulating mechanical link, shaft	X404	3-4.5.4
Flexible mechanical link	X402	3-4.5.2
	X403	3-4.5.3
Flexible pipeline, hose	X411	3-4.5.11
	X412	3-4.5.12
Flexible pipelines, two of them of flexible type	X413	3-4.5.13
Flexible type	444	3-4.3.8
	452	3-4.3.9
Float-operated control valve	X2134	8-4.5.4.4
Float type	715	5-4.3.1.1
Flocculation		
– Size enlarging by sintering, agglomeration, coagulation, or ~	2809	13-4.3.9
Flow		
– Approximately constant ~	223	2-6.1.3
– Burst of sinusoidal ~	226	2-6.1.6
– Constant ~	221	2-6.1.1
		9-4.3.2
		10-4.3.3
	222	2-6.1.2
		9-4.3.3
		10-4.3.4
– Hydraulic pump with pulse-shaped ~	X2410	10-4.5.10
– Hydraulic pump with sinusoidal ~	X2411	10-4.5.11
– Pulse-shaped ~	225	2-6.1.5
		9-4.3.4
		10-4.3.6
– Saw-tooth shaped ~	227	2-6.1.7
– Sinusoidal ~	224	2-6.1.4
		10-4.3.5
– to open air	2174	8-6.3.4
Flow control valve		
– Pressure and temperature compensated ~	X2216	8-6.5.3.6
	X2217	8-6.5.3.7
– Pressure compensated ~	X2214	8-6.5.3.4
	X2215	8-6.5.3.5
– Pressure compensated ~, with over-flow to reservoir	X2218	8-6.5.3.8
	X2219	8-6.5.3.9
Flow divider, pressure compensated ~	X2220	8-6.5.3.10
Flow elbow type	776	5-4.3.1.8
Flow nozzle	773	7-5.1.3
– Critical ~	774	7-5.1.4
– Flow rate measuring transducer, sensor of ~ type	X760	5-4.5.10
Flow nozzle type	773	5-4.3.1.5
– Critical ~	774	5-4.3.1.6
Flow path		
– Closed ~	2172	8-6.3.2
– Closed ~, leak-free	2173	8-6.3.3
– Open ~	2171	8-6.3.1
Flow straightener	2032	7-5.1.6
Flow rate	1056	6-7.3.1.6
– computing	X1072	6-7.5.32
	X1073	6-7.5.33
– feedback control	X1104	6-10.4
	X1108	6-10.8
– feedback control, square root	X1106	6-10.6
– feedback control, automatic closing	X1107	6-10.7
– indication	X1048	6-7.5.8

Description	Registration number	Location (Part-subclause)
– measuring transducer, sensor of flow nozzle type.....	X760	5-4.5.10
– sensor.....	X759	5-4.5.9
– transmitting and registering of ratio	X1053	6-7.5.13
Flow-target operated actuator.....	716	4-6.1.6 7-4.1.5
Fluid cylinder		
– Actuating device, the main element of which is single-acting ~.....	X741	4-7.5.1
– Actuator in the form of a double-acting ~.....	X713	4-6.5.3
– Actuator in the form of a double-acting ~.....	724	4-6.1.14
– Actuator in the form of a single-acting ~.....	723	4-6.1.13
See also <i>Hydraulic cylinder, Pneumatic cylinder</i>		
Fluid cylinders.....	–	10-6
Fluid motor: See <i>Hydraulic motor, Pneumatic motor</i>		
Fluid motors.....	–	10-4
Fluid-level-operated actuator.....	715	4-6.1.5 7-4.1.4
Force.....	1073	6-7.3.1.23
– Approximately constant ~.....	223	2-6.1.3
– Constant ~.....	221	2-6.1.1 9-4.3.2 10-4.3.3
	222	2-6.1.2 9-4.3.3 10-4.3.4
– Pulse-shaped ~.....	225	2-6.1.5 9-4.3.4 10-4.3.6
– Saw-tooth shaped ~.....	227	2-6.1.7
– Sinusoidal ~.....	224	2-6.1.4 10-4.3.5
Flushing valve with pipe interrupter.....	3109	15-6.9
Folding		
– Material forming by bending or ~.....	2804	13-4.3.4
Forging		
– Material forming by ~.....	2802	13-4.3.2
Fork lift truck.....	3862	14-7.1.2
– Driverless, automatic~, including remote controlled.....	3863	14-7.1.3
Four-way valve.....	2104	8-4.1.4
– with actuating device of electric motor type.....	X2105	8-4.5.1.5
Fraction.....	1056	6-7.3.1.6
Fractionating column.....	X2625	12-4.5.25
– with passage for gas.....	X2626	12-4.5.26
Freezer.....	2551	11-8.1.1
	X2552	11-8.5.2
Freezers.....	–	11-8
Frequency.....	1069	6-7.3.1.19
Freshwater infiltration plant.....	X3208	15-10.5.8
Full-duplex.....	251	2-7.1.9 6-4.3.4
Functional connection.....	401	3-4.1.1 6-4.1.1
Functional links and junctions.....	–	6-4
Functional type		
– Pure ~.....	431	3-4.3.1 6-4.3.1
Functional unit.....	101	2-4.1.1 13-4.1.1 15-9.1.1 15-10.1.1
Functional units.....	–	2-4
Functions.....	–	2-4

Description	Registration number	Location (Part-subclause)
Funnel		
– Drain ~.....	2040	7-5.1.14
Furnace.....	2533	11-7.1.3
– Electrode ~.....	X2536	11-7.5.6
Furnaces.....	–	11-7
Gain		
– Amplifier with adjustable ~.....	X207	2-5.5.7
Gas.....	322	2-10.1.2
Gas discharge tube		
– Protective ~.....	X321	2-10.5.1
Gas holder.....	X2066	7-6.5.6
Gas pump.....	2302	9-4.1.2
– of positive displacement type.....	X2310	9-4.5.10
– with alternative directions of flow.....	2304	9-4.1.4
See also <i>Pneumatic pump</i>		
Gas turbine.....	2573	11-9.1.3
Gas turbines.....	–	11-9
Gas-lift pump.....	2334	9-5.1.4
Gate type.....	2124	8-4.3.2.4
Gauge.....	1057	6-7.3.1.7
Gear pair		
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– Mechanical ~, higher rotational speed on the output side than that on the input side.....	X249	2-7.5.4
General purpose valves.....	–	8-4
Generating plant		
– Electric hot water ~.....	X3203	15-10.5.3
– Heat-pump hot water ~.....	X3205	15-10.5.5
– Heat-pump refrigeration coolant ~.....	X3206	15-10.5.6
– Hot water ~.....	X3201	15-10.5.1
– Hot water ~ fired type.....	X3202	15-10.5.2
Generator: See <i>Tachometer generator, Steam generator, etc.</i>		
Getter ion pump.....	2338	9-5.1.8
Getter pump.....	2335	9-5.1.5
	2337	9-5.1.7
Globe type.....	2121	8-4.3.2.1
– Non-return valve of ~.....	X2113	8-4.5.2.3
– Spring-loaded safety valve of ~.....	X2114	8-4.5.3.4
– Two-way valve of ~ with quick-acting coupling.....	X2106	8-4.5.1.6
Glueing		
– Joining, for example, by riveting, ~ welding, brazing or soldering.....	2823	13-4.3.2.3
Going between a storey above and a storey below, for example, pipeline, cable, or conductor bundle.....	3060	15-4.3.10
Going to a storey above,		
– for example, pipeline, cable, or conductor bundle.....	3058	15-4.3.8
– Pipeline direction of flow upwards.....	X3004 X3005	15-4.5.4 15-4.5.5
– Pipeline ~ coming from a storey below; direction of flow upwards.....	X3008 X3009	15-4.5.8 15-4.5.9
Going to a storey below		
– for example, pipeline, cable, or conductor bundle.....	3059	15-4.3.9
– Pipeline ~; direction of flow downwards.....	X3006 X3007	15-4.5.6 15-4.5.7
Group of		
– pipelines, ducts.....	406	3-4.1.6
– planned pipelines, ducts.....	413	3-4.1.9
Grouping		
– Label ~.....	107	2-4.3.1.2

Description	Registration number	Location (Part-subclause)
Gravity slide		
– Spiral ~	X3808	14-4.5.8
– Straight ~	X3807	14-4.5.7
Gravity type	3832	14-4.3.14
– Spiral ~ (sliding)	3833	14-4.3.15
Grinding		
– Surface treatment by removal of material, for example, by, ~, honing, polishing, or sanding	2824	13-4.3.24
Guide bracket, for example, for pipelines	3005	15-4.1.5
Half-duplex	250	2-7.1.8
		6-4.3.3
Hand	1058	6-7.3.1.8
Hand-held shower	3108	15-6.8
Handle		
– Manual actuator in the form of a removable ~	686	4-5.1.6
Heat		
– exchanger type	2501	15-10.3.8
– pump hot water generating plant	X3205	15-10.5.5
– pump refrigeration coolant generating plant	X3206	15-10.5.6
– pump type; temperature decrease	3202	15-0.3.11
– pump type; temperature increase	3201	15-0.3.10
– (temperature) detector	X3132	15-8.5.2
– (temperature) sensor	X3131	15-8.5.1
– treatment, for example, annealing or tempering	2807	13-4.3.7
Heat exchanger	X2501	11-4.5.1
– of double-pipe type	2515	11-5.1.5
– of floating type	2512	11-5.1.2
– of plate type	2516	11-5.1.6
– of spiral type	2517	11-5.1.7
– Regenerative pre-heater	2518	11-5.1.8
– type	2501	11-7.3.6
		12-4.3.7
– with coil-shaped tubes	2514	11-5.1.4
– with straight tubes	2511	11-5.1.1
– with three flow paths	X2502	11-4.5.2
		12-4.3.7
– with U-shaped tubes	2513	11-5.1.3
Heat exchangers		11-4
– with specified design		11-5
Heat pump	2551	11-8.1.1
	X2551	11-8.5.1
– Device serving as a ~ or refrigerator	X2553	11-8.5.3
Heat pumps		11-8
Heater		
– Fired ~	X2537	11-7.5.7
Heating		
– Electric ~ element type	IEC	11-7.3.3
Heating coil	2501	11-4.1.3
High	1081	6-7.3.2.1
– Extremely ~	1084	6-7.3.2.4
		1085
– limitation: See below		
– or low	1091	6-7.3.2.11
– pressure alarm	X1062	6-7.5.22
– selection: Component selecting ~	X106	2-4.5.6
– Very ~	1082	6-7.3.2.2
	1083	6-7.3.2.3
High limitation	133	2-4.3.2.19
		5-12.3.1
		6-7.3.3.4
	134	2-4.3.2.20
		5-12.3.2
		6-7.3.3.5
– Device for ~	X906	5-12.5.6

Description	Registration number	Location (Part-subclause)
– Device for ~, input value can be negative	X908	5-12.5.8
High-speed centrifuge	X2619	12-4.5.19
Higher or lower quantity level		
– Transition to a ~	132	2-4.3.2.18
		11-8.3.3
Higher quantity level		
– Transition to a ~	130	2-4.3.2.16
		11-8.3.1
Highest value		
– Selection of ~	138	2-4.3.2.24
		6-7.3.3.9
Hoist, lift	3842	14-5.1.2
Hoists		14-5
Honing		
– Surface treatment by removal of material, for example, by grinding, ~, polishing, or sanding	2824	13-4.3.24
Hopper	3806	14-4.1.2
Hose type	2129	8-4.3.2.9
Hot water generating plant	X3201	15-10.5.1
– Combined electric thermal power and ~	X3204	15-10.5.4
– Electric ~	X3203	15-10.5.3
– fired type	X3202	15-10.5.2
– Heat-pump ~	X3205	15-10.5.5
Humidifier	X2521	11-6.5.1
Humiditor	X2503	11-4.5.3
Humidity	1063	6-7.3.1.13
Hydrant		
– Above ground ~	3122	15-7.2
– Underground ~	3121	15-7.1
– Wall ~	3123	15-7.3
Hydrants and related devices		15-7
Hydraulic actuator		
– Double-acting ~	719	4-6.1.9
– Double-acting ~ with different active areas	721	4-6.1.11
– Single-acting ~	717	4-6.1.7
Hydraulic buffer	X2007	7-4.5.7
Hydraulic controlling unit	X107	2-4.5.7
Hydraulic cylinder		
– Double-acting ~	2442	10-6.1.5
– Double-acting ~ of telescopic type	2450	10-6.1.9
– Double-acting ~ with different piston areas and cushions	X2444	10-6.5.4
– Single-acting ~ of extension type	2441	10-6.1.1
– Single-acting ~ of retraction type	2446	10-6.1.3
– Single-acting ~ of retraction type with spring return	X2442	10-6.5.2
– Single-acting ~ of telescopic type	2443	10-6.1.7
Hydraulic motor	2405	10-4.1.5
– Actuator in the form of ~	2407	4-6.1.17
– Reversible ~	X2420	10-4.5.20
– Rotodynamic ~	X2414	10-4.5.14
– Semi-rotary ~	2415	10-4.1.15
– Stepping ~	X2421	10-4.5.21
– with adjustable speed	X2415	10-4.5.15
– with alternative directions of flow	2407	10-4.1.7
– with anti-clockwise rotation	X2416	10-4.5.16
	X2417	10-4.5.17
– with anti-clockwise rotation, independent direction of flow	X2419	10-4.5.19
– with positive displacement with adjustable capacity	X2413	10-4.5.13
	X2418	10-4.5.18
Hydraulic power source: See <i>Working direction of hydraulic power</i>		
Hydraulic pump	2401	10-4.1.1

Description	Registration number	Location (Part-subclause)	Description	Registration number	Location (Part-subclause)
– driven by a shaft with adjustable speed	X2404	10-4.5.4	– Temperature ~ and control performed by computer with backup by discrete device	X1081	6-9.5.1
– of uni-flow type	X2409	10-4.5.9	– Temperature ~ in a central control room	X1075	6-7.5.35
– Over-centre ~, adjustable capacity	X2407	10-4.5.7	– Temperature ~ in a central control room; instrument not accessible to operator	X1076	6-7.5.36
– Reversible ~	X2408	10-4.5.8	– Temperature ~ in a local control room or on a local control panel	X1077	6-7.5.37
– Rotodynamic ~, external leakage	X2403	10-4.5.3	Indication and feedback control of reactive power	X1061	6-7.5.21
– with alternative directions of flow	2403	10-4.1.3	Indicator		
– with built-in electric motor (wet rotor)	X2425	10-4.5.25	– Electromechanical position ~	865	5-10.1.3
– with clockwise rotation	X2405	10-4.5.5	– Electromechanical ~	864	5-10.1.2
	X2406	10-4.5.6	– Electromechanical ~ with automatic return	X893	5-10.5.1
– with positive displacement, adjustable capacity	X2402	10-4.5.2	– Electromechanical ~ without automatic return (manual reset)	X894	5-10.5.2
	X2401	10-4.5.1	– Mechanical ~	863	5-10.1.1
– with positive displacement, pulsating flow	X2410	10-4.5.10	– Over-current relay with mechanical ~ without automatic return (manual reset)	X895	5-10.5.3
– with positive displacement, sinusoidal flow	X2411	10-4.5.11	Induction		
See also <i>Liquid pump</i>			– Electric ~ pump	2352	9-6.1.2
Hydraulic pump/motor	2409	10-4.1.9		2353	9-6.1.3
– with alternative directions of flow	2413	10-4.1.13	– Electric ~ type	IEC	11-7.3.5
– with anti-clockwise rotation	X2422	10-4.5.22	Industrial truck	3861	14-7.1.1
	X2423	10-4.5.23	Industrial trucks, vehicles, and cargo ships	–	14-7
– with different directions of flow	2411	10-4.1.11	Infiltration plant		
Hydraulic rotary torque converter	2434	10-5.1.5	– Freshwater ~	X3208	15-10.5.8
– Adjustable ~	X2431	10-5.5.1	Infinite number of intermediate positions of valve	2175	8-6.3.5
Hydraulic semi-rotary motor	2415	10-4.1.15		X1026	6-6.5.6
	X2412	10-4.5.12	Information	3062	15-4.3.12
Hydraulic stepping motor	X2421	10-4.5.21	Information bus		
Hydraulic torque converter			– of bidirectional type	443	3-4.3.7
– Adjustable ~	X2431	10-5.5.1	– of unidirectional type	442	3-4.3.6
Hydraulic type	434	3-4.3.4	Information processing function	1041	6-7.1.1
Hygienic valve	X2241	8-7.5.1	– performed by time-sharing	1042	6-7.1.2
	X2242	8-7.5.2	– with enabling	X1043	6-7.5.3
	X2243	8-7.5.3	– with negated enabling (disabling)	X1044	6-7.5.4
	X2244	8-7.5.4	– with negated input	X1041	6-7.5.1
Hygienic valves	–	8-7	– with negated output	X1042	6-7.5.2
Hysteresis	124	2-4.3.2.10	– with retained output signal	X1045	6-7.5.5
		6-7.3.3.3	Information processing functions	–	6-7
Identical branches			Inherent variability	204	2-5.1.4
– Connection with <i>n</i> parallel, ~	601	3-9.1.1	– Non-linear ~	205	2-5.1.5
– Connection with three parallel ~	X601	3-9.5.1	Input		
Identical items			– by keyboard	153	2-4.3.2.37
– Three ~	343	2-11.1.3	– Compensating ~	127	2-4.3.2.13
– Two ~	342	2-11.1.2	– Enabling ~	126	2-4.3.2.12
– Two or more ~	344	2-11.1.4	– for auxiliary power supply	183	2-4.3.5.3
	345	2-11.1.5	– label	106	2-4.3.1.1
Impact on process	1072	6-7.3.1.22	Input and output circuits		
In-line rotary mixer	X2672	12-6.5.2	– Signal converter, measuring transducer without connection between ~	755	5-4.1.5
In-line static mixer	X2673	12-6.5.3		756	5-4.1.6
Indicating	148	2-4.3.2.32	Insertion pipe	802	5-5.1.2
	1059	6-7.3.1.9	– Boss with ~	803	5-5.1.3
– and transmitting of level, registering, alarming	X1065	6-7.5.25	– Temperature sensor in an ~	X802	5-5.5.2
– measuring instrument	832	5-7.1.2	Inspection well		
Indication			– Circular-shaped access chamber, ~	3087	15-5.1.7
– Correlation ~	263	2-7.3.3	Installation of pipelines and ducts	–	15-4
– Measuring point inside vessel, temperature transmitting and ~	X1059	6-7.5.19	Instrument		
– of affected area	2177	8-6.3.7	– Indicating ~	832	5-7.1.2
– of differential pressure	X1054	6-7.5.14	– Integrating ~	834	5-7.1.4
– of flow rate	X1048	6-7.5.8	– Recording ~	833	5-7.1.3
– of level in vessel	X1957	6-7.5.17	Insulated pipeline or duct	X322	2-10.5.2
– of level in vessel by viewing	X1058	6-7.5.18			
– of position without detention	658	4-4.1.14			
– of positions of controlled element	701	4-5.3.1			
	702	4-5.3.2			
	703	4-5.3.3			
	704	4-5.3.4			

Description	Registration number	Location (Part-subclause)
Insulating		
– Electrically ~ mechanical link, shaft, wire	404	3-4.1.4
– material	325	2-10.1.3
Insulation		
– Jacketed (sleeved) pipeline with thermal ~	X410	3-4.5.10
– Pipeline or duct with thermal ~	X322	3-4.5.7
– Pipeline with thermal ~, heated or cooled by a separate circuit	X408	3-4.5.8
Integral, total	1067	6-7.3.1.17
Integrating	1067	6-7.3.1.17
Integrating measuring instrument	834	5-7.1.4
Intensifier		
– Continuous pneumatic-hydraulic pressure ~	2436	10-5.1.4
– Linear pneumatic-hydraulic pressure ~	2432	10-5.1.3
Interlocking device	666	4-4.1.22 6-6.3.10
Intermediate dwell		
– Rectilinear motion in alternative directions with ~	X256	2-7.5.11
– Rectilinear motion with ~	X255	2-7.5.10
Intermediate positions		
– Infinite number of ~ of valve	2175	8-6.3.5
Intermediate stop		
– Rectilinear motion with ~	X254	2-7.5.9
Internal combustion engine	2582	11-10.1.2
– with reciprocating piston(s)	X2581	11-10.5.1
– with rotating pistons	X2582	11-10.5.2
Internal connection	451	3-4.3.16
– in a pressure relief valve	X435	3-4.5.18
Inversion		
– Logic ~	182	2-4.3.5.2
Ion exchange separator	X2633	12-4.5.33
Ion exchange type	2624	12-4.3.12
Ionizing radiation		
– Sensor for ~	X764	5-4.5.14
– type	IEC	11-7.3.1
Item		
– One ~ only	341	2-11.1.1
Items		
– Three identical ~	343	2-11.1.3
– Two identical ~	342	2-11.1.2
– Two or more identical ~	344	2-11.1.4
	345	2-11.1.5
Jacket	2131	8-4.3.2.11
Jacketed (sleeved) pipeline	X409	3-4.5.9
– with thermal insulation	X410	3-4.5.10
Jet motor	2574	11-9.1.4
– Turbo-fan ~	2575	11-9.1.5
Joining, for example, by riveting, glueing, welding, brazing or soldering	2823	13-4.3.23
Joint		
– screwed	514	3-6.1.4
– Underground ~ of pipeline or cable	X3001	15-4.5.1
– welded, brazed, or soldered	515	3-6.1.5
Joint of		
– connections	501	3-5.1.1 6-4.1.2
– multiple electrically insulating mechanical links	X509	3-5.5.9
– multiple functional links, links, or pipelines	X506	3-5.5.6
– mechanical parts permitting motion of the parts in two or more dimensions	2005	3-5.1.2 7-4.1.11
Junction box, connection box,	3081	15-5.1.1

Description	Registration number	Location (Part-subclause)
Key		
– Manual actuator in the form of a ~	687	4-5.1.7
Keyboard		
– Input by ~	153	2-4.3.2.37
Knife		
– Disc with ~	2606	12-4.1.7
L-bore		
– Double ~ in four-way valve	2115	8-4.3.1.9
– in three- or four-way valve	2113	8-4.3.1.7
Label		
– Input or output ~	106	2-4.3.1.1
Label grouping	107	2-4.3.1.2
	X114	2-4.5.14
Latching device	661	4-4.1.17
– Control-switch with ~	X657	4-4.5.7
– shown in disengaged position	662	4-4.1.18
– shown in engaged position	663	4-4.1.19
Laser		
– Dividing by ~ beam	2814	13-4.3.14
– generator	IEC	13-4.3.13 X2802
Lathe		
	13-4.5.2	
Launcher	2042	7-5.1.16
Lavatory		
– Public ~	X3214	15-0.5.14
Leaf filter	X2606	12-4.5.6
Leak-free valve		
– Closed flow path of ~	2173	8-6.3.3
Leakage connection		
Hydraulic pump with ~	X2403	10-4.5.3
Length	1057	6-7.3.1.7
Level	1062	6-7.3.1.12
– computing	X1074	6-7.5.34
– indication	X1057	6-7.5.17
– operated actuator	715	4-6.1.5
– sensor	X751	5-4.5.1
– Transition to a higher or lower quantity ~	132	2-4.3.2.18 11-8.3.3
– Transition to a higher quantity ~	130	2-4.3.2.16 11-8.3.1
– Transition to a lower quantity ~	131	2-4.3.2.17 11-8.3.2
Level measuring transducer		
– of float type	X752	5-4.5.2
– of optical type, separate source	X755	5-4.5.5
– of sonic type, integral source	X753	5-4.5.3
– of sonic type, separate source	X754	5-4.5.4
Lever		
– Control-switch operated by ~, four operation directions	X684	4-5.5.4
– Directional control valve, operated by ~	X688	4-5.5.8
– Manual actuator in form of ~	688	4-5.1.8
Lever-operated directional control valve		
– detained in all positions	X2169	8-6.5.1.9
– three positions with spring return to resting position (mid-position)	X2163	8-6.5.1.3
Lift, hoist	3842	14-5.1.2
Lifts	–	14-5
Lift-type non-return valve	X2113	8-4.5.2.3
Light		
– alarm	3067	15-4.3.17
– detector	X3134	15-8.5.4
Limit	261	2-7.3.1
Limitation		
– Device for high ~	X906	5-12.5.6
– Device for high ~, input value can be negative	X908	5-12.5.8

Description	Registration number	Location (Part-subclause)
– Device for low ~	X907	5-12.5.7
– High ~	133	2-4.3.2.19 5-12.3.1 6-7.3.3.4
	134	2-4.3.2.20 5-12.3.2 6-7.3.3.5
– Low ~	135	2-4.3.2.21 5-12.3.3 6-7.3.3.6
	136	2-4.3.2.22 5-12.3.4 6-7.3.3.7
– of high values of flow rate signal.....	X1069	6-7.5.29
Limited circular motion in alternative directions	X253	2-7.5.8
Linear fluid motor		
– Double-acting ~	724	4-6.1.14
– Double-acting, hydraulic ~	2442	10-6.1.5
– Single-acting ~	723	4-6.1.13
	2441	10-6.1.1
– Single-acting ~ of hydraulic, telescopic type	2443	10-6.1.7
Linear fluid motors	–	10-6
Linear pneumatic-hydraulic converter.....	2431	10-5.1.1
Linear pneumatic-hydraulic pressure intensifier	2432	10-5.1.3
Link		
– Electrically insulating mechanical ~	404	3-4.1.4
– Flexible, electrically insulating mechanical ~	X404	3-4.5.4
– Flexible ~	X402	3-4.5.2
	X403	3-4.5.3
– Mechanical ~	402	3-4.1.2
	403	3-4.1.3
Links		
– Joint of two mechanical parts permitting motion in two or more dimensions.....	2005	3-5.1.2
Liquid	321	2-10.1.1 15-10.3.4
Liquid pump	2301	9-4.1.1 15-10.3.7
– driven by shaft with adjustable speed.....	X2303	9-4.5.3
– Electric induction ~	2352	9-6.1.2
	2353	9-6.1.3
– Electric ~	2351	9-6.1.1
– of over-centre type.....	X2306	9-4.5.6
– of positive displacement type, adjustable capacity	X2301	9-4.5.1
– of uni-flow type.....	X2308	9-4.5.8
– Reversible ~	X2307	9-4.5.7
– Rotodynamic ~ with adjustable capacity, actuator shown	X2302	9-4.5.2
– with substantially even flow	X2309	9-4.5.9
– with alternative directions of flow	2303	9-4.1.3
– with built-in electric motor (wet rotor).....	X2311	9-4.5.11
– with clockwise rotation	X2304	9-4.5.4
	X2305	9-4.5.5
See also <i>Hydraulic pump</i>		
Loader		
– Log ~	3866	14-7.1.6
– Wheel ~	3865	14-7.1.5
Local control panel		
– Auxiliary location in a local control room or on a ~	1104	6-7.3.4.4
– Primary location in a local control room or on a ~	1103	6-7.3.4.3

Description	Registration number	Location (Part-subclause)
– Temperature indication in a local control room or on a ~	X1077	6-7.5.37
Local control room		
– Auxiliary location in a ~ or on a local control panel	1104	6-7.3.4.4
– Primary location in a ~ or on a local control panel	1103	6-7.3.4.3
– Temperature indication in a ~ or on a local control panel.....	X1077	6-7.5.37
Located		
– in a circular duct or pipe, for example, conductors or cables	3054	15-4.3.4
– in a rectangular duct, for example, pipelines, conductors, or cables	3055	15-4.3.5
– on a tray, for example, pipelines, conductors, or cables; endpoints indicated	3056	15-4.3.6
– on a tray, for example, pipelines, conductors, or cables; continuous	3057	15-4.3.7
– on poles, for example, pipeline, cable, or power line	3053	15-4.3.3
– underground, for example, pipeline, cable, or joint	3051	15-4.3.1
– underwater, for example, pipeline or cable.....	3052	15-4.3.2
Location		
– Auxiliary ~ in a central control room	1102	6-7.3.4.2
– Auxiliary ~ in a local control room or on a local control panel.....	1104	6-7.3.4.4
– Primary ~ in a central control room.....	1101	6-7.3.4.1
– Primary ~ in a local control room or on a local control panel.....	1103	6-7.3.4.3
Locomotive	3875	14-7.1.15
Log loader	3866	14-7.1.6
Logic		
– AND-function	142	2-4.3.2.28 6-7.3.3.12
– elements (Binary ~)	–	5-11
– functions (Binary ~).....	–	6-8
– inversion	182	2-4.3.5.2
– negation.....	181	2-4.3.5.1
		6-7.3.3.18
– OR-function	143	2-4.3.2.29 6-7.3.3.13
Loop		
– Expansion ~	531	3-7.1.1
Lorry.....	3868	14-7.1.8
Low	1086	6-7.3.2.6
– Device for ~ limitation	X907	5-12.5.7
– Extremely ~	1089	6-7.3.2.9
	1090	6-7.3.2.10
– High or ~	1091	6-7.3.2.11
– limitation.....	135	2-4.3.2.21 5-12.3.3 6-7.3.3.6
		2-4.3.2.22 5-12.3.4 6-7.3.3.7
– Very ~	1087	6-7.3.2.7
	1088	6-7.3.2.8
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– Transition to ~	131	2-4.3.2.17 11-8.3.2
Lowest value		
– Selection of ~	139	2-4.3.2.25 6-7.3.3.10
Lubricator		
– Air ~	X2674	12-6.5.4

Description	Registration number	Location (Part-subclause)
Magnet		
– Permanent ~	326	2-10.1.4
– Permanent ~ type	326	12-4.3.6
Magnetic field effect	119	2-4.3.2.6
Male type		
– Quick-release coupling element of ~	563	3-8.1.2
Manual	1058	6-7.3.1.8
Manual actuator	681	4-5.1.1
– in form of a key	687	4-5.1.7
– in form of a lever	688	4-5.1.8
– in form of a pedal	689	4-5.1.9
– in form of a removable handle	686	4-5.1.6
– in form of a treadle	690	4-5.1.10
– operated by pulling	683	4-5.1.3
– operated by pushing	682	4-5.1.2
– operated by pushing and pulling	684	4-5.1.4
– operated by turning	685	4-5.1.5
– with special shape for safety purpose	691	4-5.1.11
Manual operation of		
– final controlling element	1021	6-6.1.1
– valve	X1021	6-6.5.1
– valve with automatic return to closed position	X1022	6-6.5.2
– valve with delayed automatic return to closed position	X1023	6-6.5.3
– valve with infinite number of stable positions	X1025	6-6.5.5
– valve with two stable positions	X1024	6-6.5.4
Manual, remote control of		
– control valve with indication of set value	X1103	6-10.3
– valve with infinite number of stable positions, indication of valve position	X1102	6-10.2
– valve with automatic return to closed position	X1101	6-10.1
Manual reset		
– Electromechanical counter with ~ to 0	X875	5-8.5.5
Manual setting of set value of feedback control function	X1047	6-7.5.7
Manual switching	X1046	6-7.5.6
Manually operated		
– actuators	4-5	4-5
– control-switch	X685	4-5.5.5
– directional control valve: See below		
– multi-position control-switch	X656	4-4.5.6
– needle type control valve	X2137	8-4.5.4.7
Manually operated control-switch		
– with electrically disengaged latch	X658	4-4.5.8
– with manually disengaged latch	X657	4-4.5.7
Manually operated directional control valve		
– detained in both positions, restricted access to actuator	X2170	8-6.5.1.10
– with spring return to resting position	X2161	8-6.5.1.1
Manually or electrically operated directional control valve with spring return	X2166	8-6.5.1.6
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Machine tools	–	13-4
Mass flow		
– Direction of ~ in pipeline	X242	2-7.5.1
– Direction of ~ in valve	X243	2-7.5.2
Master clock	843	5-8.1.3
Material forming by		
– bending or folding	2804	13-4.3.4
– extruding or pultruding	2806	13-4.3.6
– forging	2802	13-4.3.2
– pressing	2803	13-4.3.3

Description	Registration number	Location (Part-subclause)
– rolling	2805	13-4.3.5
Material of other type	328	2-10.1.6
Materials	–	2-10
– handling robot	3843	14-5.1.3
Measurement		
– in pipeline	X1012	6-5.5.2
– inside pressure vessel	X1011	6-5.5.1
– Point of ~	1011	6-5.1.1
– Torque ~	795	5-4.3.2.5
Measuring instrument		
– Indicating ~	832	5-7.1.2
– Integrating ~	834	5-7.1.4
– Recording ~	833	5-7.1.3
Measuring instruments	–	5-7
Measuring point inside vessel, temperature transmitting and indication	X1059	6-7.5.19
Measuring transducer	753	5-4.1.3
	754	5-4.1.4
	759	5-4.1.8
	796	5-4.3.2.6
– for angle	X769	5-4.5.19
– for flow rate	X760	5-4.5.10
– for pressure	X758	5-4.5.8
– for temperature, voltage as output, contact closing when temperature is greater than set value	X770	5-4.5.20
– Level ~ of float type	X752	5-4.5.2
– Level ~ of optical type, separate source	X755	5-4.5.5
– Level ~ of sonic type, integral source	X753	5-4.5.3
– Level ~ of sonic type, separate source	X754	5-4.5.4
– Position ~ of differential transformer type	X768	5-4.5.18
– Pressure ~	X758	5-4.5.8
– Signal converter or ~	X765	5-4.5.15
– Temperature ~ with built-in sensor of semiconductor type	X762	5-4.5.12
– utilizing the synchro effect	760	5-4.1.9
– without connection between input and output circuits	755	5-4.1.5
	756	5-4.1.6
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Measuring transformers	–	5-6
Mechanical elements	–	7-4
Mechanical gear pair	2008	4-4.1.1
		7-4.1.1.4
– with higher rotational speed on the output side than that on the input side	X249	2-7.5.4
Mechanical indicator	863	5-10.1.1
– in over-current relay	X895	5-10.5.3
Mechanical link	402	3-4.1.2
	403	3-4.1.3
– Electrically insulating ~	404	3-4.1.4
– Flexible ~	X402	3-4.5.2
	X403	3-4.5.3
– Flexible, electrically insulating ~	X404	3-4.5.4
– Joint of ~s	501	3-5.1.1
Mechanically driven		
– compressors	–	9-4
– compressors for fluid power	–	10-4
– fans	–	9-4
– pumps	–	9-4
– pumps for fluid power	–	10-4
Membrane	2003	7-4.1.9
	2004	7-4.1.10
Membrane type	2003	5-4.3.1.3
Milling	2821	13-4.3.21
Mixer	X2671	12-6.5.1
– In-line rotary ~	X2672	12-6.5.2
– In-line static ~	X2673	12-6.5.3

Description	Registration number	Location (Part-subclause)
Mixing		
– Device for ~	2671	12-6.1.1
– Devices for ~	–	12-6
Mixing element		
– rotary	2672	12-6.1.2
– static	2673	12-6.1.3
Mixing outlet tap	3104	15-6.4
– in taphole	3105	15-6.5
– on wall	3106	15-6.6
Moisture	1063	6-7.3.1.13
Momentarily	1063	6-7.3.1.13
Momentary and partial reversal of motion	262	2-7.3.2
Monitoring		
– Television transmission and ~	X1060	6-7.5.20
Mono-rail	3851	14-6.1.1
– Crane travelling on two ~s	X3841	14-5.5.1
Motion		
– in alternative directions, circular	256	2-7.1.14
– Approximately constant ~	223	2-6.1.3
– Constant ~	221	2-6.1.1
		9-4.3.2
	222	10-4.3.3
		2-6.1.2
		9-4.3.3
		10-4.3.4
– detector	X3138	15-8.5.8
– Direction of circular ~	255	2-7.1.13
		12-4.3.2
– Limited circular ~ in alternative directions	X253	2-7.5.8
– Momentary and partial reversal of ~	262	2-7.3.2
– Oscillating ~	228	2-6.1.8
– Pulse-shaped ~	225	2-6.1.5
		9-4.3.4
		10-4.3.6
– Reciprocating ~	X252	2-7.5.7
– Rectilinear ~ with alternative directions and intermediate dwell	X256	2-7.5.11
– Rectilinear ~ with dwell at the return point	X257	2-7.5.12
– Rectilinear ~ with intermediate dwell	X255	2-7.5.10
– Rectilinear ~ with intermediate stop	X254	2-7.5.9
– Rectilinear ~ with partial reversal at an intermediate position	X258	2-7.5.13
– Saw-tooth shaped ~	227	2-6.1.7
– Sinusoidal ~	224	2-6.1.4
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– Unspecified direction of circular ~	254	2-7.1.12
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Motions		
– Correlation between two ~	X260	2-7.5.14
Motor and pump		
– Electric ~; motor rotating anti-clockwise, pump clockwise	X250	2-7.5.5
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Motors: See <i>Electric motors, Fluid motors, Hydraulic motors, Pneumatic motors, etc.</i>		
Moulding		
– Casting or ~	2801	13-4.3.1
Movable portion of connector pair	577	3-8.1.9
Moving part of non-return valve	2163	8-6.1.3
Multi-function	1071	6-7.3.1.21
Multi-leaf damper	X2151	8-5.5.1
Multi-line representation		
– Transition between ~ and single-line representation	602	3-9.1.2
Multi-position control-switch	X656	4-4.5.6
Multi-variable	1071	6-7.3.1.21
Multiplying	1073	6-7.3.1.23

Description	Registration number	Location (Part-subclause)
Needle type	2125	8-4.3.2.5
Needle type control valve		
– Manually operated ~	X2137	8-4.5.4.7
Negation (Logic ~)	181	2-4.3.5.1
		6-7.3.3.18
Negative-going pulse	230	2-6.1.10
Negative-going step	232	2-6.1.12
Non-guided, electromagnetic beam	411	3-4.1.7
Non-ionizing, electromagnetic radiation		
– Sensor for ~	X763	5-4.5.13
Non-linear adjustability	202	2-5.1.2
Non-linear, inherent variability	205	2-5.1.5
Non-return function	2111	8-4.3.1.1
		8-5.3.1
Non-return valve		
– Combined ~ and manually actuated stop valve	X2112	8-4.5.2.2
– Moving part of a ~	2163	8-6.1.3
– of globe type; lift-type	X2113	8-4.5.2.3
– of swing-type	X2114	8-4.5.2.4
– Pilot-controlled double ~	X2234	8-6.5.4.4
– Pilot-operated ~ closed by pilot pressure	X2232	8-6.5.4.2
– Pilot-operated ~ opened by pilot pressure against return spring	X2233	8-6.5.4.3
– Seat of ~	2162	8-6.1.2
– Spring-loaded ~	X2231	8-6.5.4.1
– Spring-loaded ~ of ball type	X2115	8-4.5.2.5
– Weight-loaded ~	X2111	8-4.5.2.1
Nozzle		
– Critical flow ~	774	7-5.1.4
– Critical flow ~ type	774	5-4.3.1.6
– Flow ~	773	7-5.1.3
– Flow ~ type	773	5-4.3.1.5
– Spray ~	2037	7-5.1.11
		11-4.1.2
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Nuclear reactor, hot-water type	X2532	11-7.5.2
Nuclear type	IEC	11-7.3.1
Number of events	1076	6-7.3.1.26
One item only	341	2-11.1.1
Open air		
– Flow to ~	2174	8-6.3.4
Open bunker	X2074	7-6.5.14
Open flow path	2171	8-6.3.1
Open store	2065	7-6.1.5
Operation		
– Automatic ~	144	2-4.3.2.30
– Automatic ~ of final controlling element	1022	6-6.1.2
– Automatic ~ of pump	X1031	6-6.5.11
– Automatic ~ of valve	X1026	6-6.5.6
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	X1030	6-6.5.10
	X1032	6-6.5.12
	X1033	6-6.5.13
	X1034	6-6.5.14
	X1035	6-6.5.15
	X1036	6-6.5.16
– Manual ~ of final controlling element	1021	6-6.1.1
– Manual ~ of valve	X1021	6-6.5.1
	X1022	6-6.5.2
	X1023	6-6.5.3
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– of final controlling elements	–	6-6
Optical type	IEC	5-4.3.1.19

Description	Registration number	Location (Part-subclause)
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Orifice plate.....	772	7-5.1.2
Orifice plate type.....	772	5-4.3.1.4
Oscillating motion.....	228	2-6.1.8
Other type (of material).....	328	2-10.1.6
Outlet tap.....	3101	15-6.1
– in taphole.....	3102	15-6.2
– Mixing ~.....	3104	15-6.4
– Mixing ~ in taphole.....	3105	15-6.5
– Mixing ~ on wall.....	3106	15-6.6
– on wall.....	3103	15-6.3
– Self-closing ~.....	3107	15-6.7
Output		
– Compensated ~.....	128	2-4.3.2.14
– for auxiliary power supply.....	183	2-4.3.5.3
– label.....	106	2-4.3.1.1
– Over-current relay with delayed ~.....	X113	2-4.5.13
– Postponed ~.....	129	2-4.3.2.15
Over-centre hydraulic pump with adjustable capacity.....	X2407	10-4.5.7
Over-centre liquid pump.....	X2306	9-4.5.6
Over-current relay.....	X113	2-4.5.13
– with mechanical indicator without automatic return (manual reset).....	X895	5-10.5.3
Page printing.....	150	2-4.3.2.34
Painting		
– Coating, for example, ~.....	2827	13-4.3.27
Pair		
– Blind flange ~.....	517	3-6.1.7
– Clamped flange ~.....	513	3-6.1.3
– Flange ~.....	511	3-6.1.1
– Mechanical gear ~.....	2008	4-4.1.1 7-4.1.14
Parallel identical branches.....	X601	3-9.5.1
– Connection with <i>n</i> ~.....	601	3-9.1.1
Partial		
– Momentary and ~ reversal of motion.....	262	2-7.3.2
– Rectilinear motion with ~ reversal.....	X258	2-7.5.13
Passage detector.....	X3139	15-8.5.9
Pedal		
– Manual actuator in the form of ~.....	689	4-5.1.9
Perforating.....	152	2-4.3.2.36
Permanent magnet.....	326	2-10.1.4
– separator.....	X2629	12-4.5.29
– type.....	326	12-4.3.6
Pig receiver.....	2042	7-5.1.16
Pilot-controlled double non-return valve.....	X2234	8-6.5.4.4
Pilot-operated non-return valve		
– closed by pilot pressure.....	X2232	8-6.5.4.2
– opened by pilot pressure against return spring.....	X2233	8-6.5.4.3
Pilot switch, detector.....	3132	15-8.1.2
Pilot valve		
– Directional control valve with ~.....	X2171	8-6.5.1.11
	X2172	8-6.5.1.12
	X2173	8-6.5.1.13
	X2174	8-6.5.1.14
Pipe		
– Boss with insertion ~.....	803	5-5.1.3
– Four pipelines or conductors in a ~ and five pipelines or conductors in another.....	X3003	15-4.5.3
– Located in a circular duct or ~, for example, conductors or cables.....	3054	15-4.3.4
Pipe break valve		
– Directional leak-free control valve, two ports, two positions.....	X2183	8-6.5.1.23

Description	Registration number	Location (Part-subclause)
– closing when flow rate is higher than set value.....	X2122	8-4.5.3.2
Pipe		
– Insertion ~.....	802	5-5.1.2
Pipe interrupter		
– Flushing valve with ~.....	3109	15-6.9
Pipe reducer.....	516	3-6.1.6
Pipe unit.....	449	3-4.3.14
Pipeline.....	405	3-4.1.5
– Closed end of ~.....	503	3-5.1.3
– elements.....	–	7-5
– ends.....	–	3-5
– ends of specified design.....	–	3-6
– Exit or entrance of individual ~.....	603	3-9.1.3
– Flexible ~, hose.....	X411	3-4.5.11
	X412	3-4.5.12
	X413	3-4.5.13
– or conductor within a six-pipe duct.....	X3002	15-4.5.2
– with 5 % slope to the left.....	X3010	15-4.5.10
Pipeline going to a storey		
– above; direction of flow upwards.....	X3004	15-4.5.4
– above coming from a storey below; direction of flow upwards.....	X3008	15-4.5.8
	X3009	15-4.5.9
– below; direction of flow downwards.....	X3006	15-4.5.6
	X3007	15-4.5.7
– Insulated ~.....	X322	2-10.5.2
– Jacketed (sleeved) ~.....	X409	3-4.5.9
– Jacketed (sleeved) ~, with thermal insulation.....	X410	3-4.5.10
– of circular shape.....	445	3-4.3.10
– of flexible type.....	444	3-4.3.8
– of rectangular shape.....	446	3-4.3.11
– of twisted type.....	448	3-4.3.8
– Planned ~.....	412	3-4.1.13
– Twisted ~ of rectangular shape.....	X406	3-4.5.6
– with thermal insulation.....	X322	3-4.5.7
– with thermal insulation, heated or cooled by separate circuit.....	X408	3-4.5.8
Pipelines		
– Four pipelines forming a unit.....	X421	3-4.5.14
– Four pipelines, two of them forming a unit.....	X421	3-4.5.14
– Four pipelines, two of them of flexible type.....	X413	3-4.5.13
– Group of ~.....	406	3-4.1.6
– Group of planned ~.....	413	3-4.1.9
– Joint of ~.....	501	3-5.1.1
– Three pipelines in single-line representation.....	X431	3-4.5.16
	X432	3-4.5.17
– Twisting of ~.....	450	3-4.3.15
– Two ~ (inlet and outlet) connected to a heat exchanger or heating radiator.....	X349	2-11.5.6
Pipelines and ducts, Installation of ~.....	–	15-4
Piston type.....	2127	8-4.3.2.7
Pitot tube type.....	778	5-4.3.1.10
Planing.....	2817	13-4.3.17
Planned		
– Group of ~ pipelines, ducts.....	413	3-4.1.9
– pipeline, duct.....	412	3-4.1.8
Plant.....	101	2-4.1.1
Plants.....	–	2-4
Plate for separating.....	2607	12-4.1.8
Plug.....	577	3-8.1.9
Plug type.....	2123	8-4.3.2.3
Plunger.....	711	4-6.1.1
	–	7-4.1.1
Plunger type.....	2127	8-4.3.2.7

Description	Registration number	Location (Part-subclause)
Pneumatic actuator		
– Double-acting ~	720	4-6.1.10
– Double-acting ~ with different active areas	722	4-6.1.12
– Single-acting ~	718	4-6.1.8
Pneumatic cylinder		
– Double-acting ~	2448	10-6.1.6
– Double-acting ~ with double ended piston rod	X2443	10-6.5.3
– Double-acting ~ of telescopic type	2451	10-6.1.10
– Single-acting ~ of extension type	2445	10-6.1.2
– Single-acting ~ of retraction type	2447	10-6.1.4
– Single-acting ~ of telescopic type	2449	10-6.1.8
Pneumatic motor	2406	10-4.1.6
– Actuating device, the main element of which is ~	X742	4-7.5.2
– Actuator in the form of ~	X712	4-6.5.2
– Rotodynamic ~	X2424	10-4.5.24
– Semi-rotary ~	2416	10-4.1.16
– with alternative directions of flow	2408	10-4.1.8
Pneumatic power		
– Actuating device operated by ~ stored inside the actuator	X747	4-7.5.7
Pneumatic power source: See <i>Working direction of pneumatic power</i>		
Pneumatic pump	2402	10-4.1.2
– with alternative directions of flow	2404	10-4.1.4
See also <i>Gas pump</i>		
Pneumatic pump/motor	2410	10-4.1.10
– with alternative directions	2414	10-4.1.14
– with one direction	2412	10-4.1.12
Pneumatic semi-rotary motor	2416	10-4.1.16
Pneumatic type	433	3-4.3.3
Pneumatic-air lubricator	X2674	12-6.5.4
Pneumatic-hydraulic converter		
– Continuous ~	2435	10-5.1.2
– Linear ~	2431	10-5.1.1
Pneumatic-hydraulic pressure intensifier		
– Continuous ~	2436	10-5.1.4
– Linear ~	2432	10-5.1.3
Pneumatically operated directional control valve with spring return	X2162	8-6.5.1.2
Point of measurement	1011	6-5.1.1
–	–	6-5
– in pipeline	X1012	6-5.5.2
– inside pressure vessel	X1011	6-5.5.1
Poles		
– Located on ~, for example, pipeline, cable, or power line	3053	15-4.3.3
Polishing		
– Surface treatment by removal of material, for example, by grinding, honing, ~, or sanding	2824	13-4.3.24
Pond	3206	15-0.3.15
– Sewage after-treatment ~	X3213	15-0.5.13
Port	561	3-8.1.1
Ports	–	3-8
Position	1057	6-7.3.1.7
– Electromechanical ~ indicator	865	5-10.1.3
– Indication of ~ without detention	658	4-4.1.14
– measuring transducer of differential transformer type	X768	5-4.5.18
– Transitory ~	2176	8-6.3.6
Positions		
– Indication of ~ of controlled element	701	4-5.3.1
	702	4-5.3.2
	703	4-5.3.3
	704	4-5.3.4

Description	Registration number	Location (Part-subclause)
– Infinite number of intermediate ~ of valve	2175	8-6.3.5
Positive displacement type	2321	9-4.3.5
– Hydraulic motor of ~	X2413	10-4.3.8
– Hydraulic pump of ~	X2401	10-4.5.13
	X2402	10-4.5.2
	X2410	10-4.5.10
	X2411	10-4.5.11
– Liquid pump of ~	X2301	9-4.5.1
Positive-going		
– pulse	229	2-6.1.9
– step	231	2-6.1.11
Postponed action		
– Electromechanical counter with ~	X874	5-8.5.4
Postponed output	129	2-4.3.2.15
Power	1060	6-7.3.1.10
– indication	X1049	6-7.5.9
Power source: See <i>Working direction of hydraulic power, pneumatic power</i>		
Power supply		
– Input or output for auxiliary ~	183	2-4.3.5.3
Pre-heater		
– of regenerative type	2518	11-5.1.8
Pre-set adjustability	203	2-5.1.3
		8-4.3.1.4
		8-5.3.4
		10-4.3.2
– Resistor with ~	X201	2-5.5.1
Press filter	X2611	12-4.5.11
Pressing		
– Material forming by ~	2803	13-4.3.3
Pressure	1066	6-7.3.1.16
– and temperature compensated flow control valve	X2216	8-6.5.3.6
		8-6.5.3.7
– compensated flow control valve	X2214	8-6.5.3.4
	X2215	8-6.5.3.5
– Continuous pneumatic-hydraulic ~ intensifier	2436	10-5.1.4
– Linear, pneumatic-hydraulic ~ intensifier	2432	10-5.1.3
– measuring transducer	X758	5-4.5.8
– pilot switch	X716	4-6.5.4
– testing facility by direct connection to the process flow	X1052	6-7.5.12
– transmitting	X1051	6-7.5.11
Pressure changes		
– Detector for ~ (burglar detector)	X3141	14-8.5.11
Pressure higher than the setting value		
– Detector for ~	X3140	15-8.5.10
Pressure reducing control valve		
– of self-operating type	X2133	8-4.5.4.3
Pressure reducing valve	X2198	8-6.5.2.8
	X2199	8-6.5.2.9
– Single-stage, hydraulic ~	X2200	8-6.5.2.10
– Two-stage ~	X2201	8-6.5.2.11
Pressure relief valve		
– Electrohydraulically operated two-stage ~	X2196	8-6.5.2.6
	X2197	8-6.5.2.7
– Single-stage ~	X2191	8-6.5.2.1
	X2192	8-6.5.2.2
– Single-stage ~ with external drain	X2193	8-6.5.2.3
– Two-stage ~ with provision for remote control	X2194	8-6.5.2.4
	X2195	8-6.5.2.5
Pressure sensor	X756	5-4.5.6
– of strain gauge type	X757	5-4.5.7

Description	Registration number	Location (Part-subclause)
Pressure vessel	2062	7-6.1.2
	2063	7-6.1.3
	X2072	7-6.5.12
– with diaphragm	X2073	7-6.5.13
– with external electric heater	X2070	7-6.5.10
– with heating or cooling jacket	X2069	7-6.5.9
Primary location		
– in a central control room	1101	6-7.3.4.1
– in a local control room or on a local control panel	1103	6-7.3.4.3
Printing	149	2-4.3.2.33
– Page ~	150	2-4.3.2.34
Process		
– Impact on ~	1072	6-7.3.1.22
Processing (functions): See <i>Information processing</i>		
Profile		
– Cam ~	713	4-6.1.3
		7-4.1.3
– Cam ~ and roller	X711	4-6.5.1
Propagation		
– Alternative directions of ~ (half-duplex)	250	2-7.1.8 6-4.3.3
– Direction of ~ (simplex)	249	2-7.1.7 6-4.3.2
– Directions of ~ simultaneously in both directions possible (full-duplex)	251	2-7.1.9 6-4.3.4
Protection unit for potable water systems	3134	15-8.1.4
Protective gas discharge tube	X321	2-10.5.1
Proximity effect	121	2-4.3.2.7
Public lavatory	X3214	15-0.5.14
Pulling		
– Control-switch operated by ~	X682	4-5.5.2
– Manual actuator operated by ~	683	4-5.1.3
Pulsating flow		
– Hydraulic pump with ~	X2410	10-4.5.10
Pulse		
– Negative-going ~	230	2-6.1.10
– Positive-going ~	229	2-6.1.9
Pulse-shaped force, motion, or flow	225	2-6.1.5 9-4.3.4 10-4.3.6
Pultruding		
– Material forming by extruding or ~	2806	13-4.3.6
Pulverisation		
– Size reduction by crushing, breaking, or ~	2808	13-4.3.8
Pump		
– Liquid ~	2301	15-10.3.7
– of adsorption type	2336	9-5.1.6
– of cryo type	2339	9-5.1.9
– of diffusion type	2332	9-5.1.2
– of diffusion-ejector type	2333	9-5.1.3
– of ejector type	2331	9-5.1.1
– of entrapment type	2335	9-5.1.5
– of gas-lift type	2334	9-5.1.4
– of getter type	2337	9-5.1.7
– of getter ion type	2338	9-5.1.8
See also <i>Liquid pump, Hydraulic pump, Gas pump, Pneumatic pump, etc.</i>		
Pumping station	X3211	15-0.5.11
Pumping system	X101	2-4.5.1
Pure functional type	431	3-4.3.1 6-4.3.1
Purge line	422	3-4.1.10
Purification by conversion		
– Devices for ~	–	12-5

Description	Registration number	Location (Part-subclause)
Purifier		
– of catalytic type	X2651	12-5.5.1
– using conversion	2651	12-5.1.1
Pushing		
– Control-switch operated by ~	X681	4-5.5.1
– Manual actuator operated by ~	682	4-5.1.2
Pushing and pulling		
– Control-switch operated by ~	X683	4-5.5.3
– Manual actuator operated by ~	684	4-5.1.4
Quality	1067	6-7.3.1.17
Quantity	1076	6-7.3.1.26
– Actuator operating when characteristic ~ passes set value	733	4-6.1.19
– Change of state when characteristic ~ is equal to set value	174	2-4.3.4.4
– Change of state when characteristic ~ is approximately equal to set value	175	2-4.3.4.5
– Change of state when characteristic ~ passes set value from below	171	2-4.3.4.1 8-4.3.1.5
– Change of state when characteristic ~ passes upper set value from below or lower set value from above	173	2-4.3.4.3
– Change of state when characteristic ~ passes set value from above	172	2-4.3.4.2 8-4.3.1.6
Quantity level		
– Transition to higher or lower ~	132	2-4.3.2.18 11-8.3.3
– Transition to higher ~	130	2-4.3.2.16 11-8.3.1
– Transition to lower ~	131	2-4.3.2.17 11-8.3.2
Quick-acting valve	X2004	7-4.5.4
– closing by spring actuator when temperature is higher than 125 °C	X2123	8-4.5.3.3
Quick-release coupling	X563	3-8.5.1
Quick-release coupling element		
– fitting into another coupling element of the same type	565	3-8.1.4
– fitting into another coupling element of the same type and with automatic closing	568	3-8.1.7
– of female type	564	3-8.1.3
– of female type with automatic closing	567	3-8.1.6
– of male type	563	3-8.1.2
– of male type with automatic closing	566	3-8.1.5
Quick-release couplings	–	3-8
Radiation	–	2-8
Radiation	1068	6-7.3.1.18
– Sensor for ionizing ~	X764	5-4.5.14
– Sensor for non-ionizing ~	X763	5-4.5.13
Radioactive type	IEC	5-4.3.1.18
Railway tanker or trailer tanker	3874	14-7.1.14
Railway track	3852	14-6.1.2
Railway turntable serving four railway tracks	X3852	14-6.5.2
Railway wagon		
– Covered ~ or covered trailer	3872	14-7.1.12
– or trailer for non-solid material	3873	14-7.1.13
– tip, platform tip	3855	14-6.1.5
– tip, platform tip at the end of a railway track adjacent to a bunker	X3853	14-6.5.3
Rate of change		
– Time ~	1061	6-7.3.1.11
Ratio	1056	6-7.3.1.6
Reaction vessel with spray nozzles	X2635	12-4.5.35

Description	Registration number	Location (Part-subclause)
Reaming.....	2816	13-4.3.16
Receiver.....	794	5-4.3.2.4
Receiving		
– Transmitting and ~ ultrasonic type.....	IEC	5-4.3.1.17
Receiving ultrasonic type.....	IEC	5-4.3.1.16
Reception.....	253	2-7.1.11
Reciprocating motion.....	X252	2-7.5.7
Reciprocating or rotary pistons		
– Engines with ~.....	–	11-10
Reciprocating steam engine.....	2581	11-10.1.1
Recording.....	149	2-4.3.2.33
	1068	6-7.3.1.18
– measuring instrument.....	833	5-7.1.3
– of flow rate with summation of volume.....	X1056	6-7.5.16
– temperature meter.....	X851	5-7.5.4
Rectangular shape.....	446	3-4.3.11
– Twisted pipeline with ~.....	X406	3-4.5.6
Rectilinear motion		
– with alternative directions and intermediate dwell.....	X256	2-7.5.11
– with dwell at return point.....	X257	2-7.5.12
– with intermediate dwell.....	X255	2-7.5.10
– with intermediate stop.....	X254	2-7.5.9
– with partial reversal at intermediate position.....	X258	2-7.5.13
Reduced bore.....	2130	8-4.3.2.10
Refrigeration coolant generating plant		
– Heat-pump ~.....	X3206	15-10.5.6
Refrigerator.....	2551	11-8.1.1
	X2552	11-8.5.2
– Device serving as heat pump or ~.....	X2553	11-8.5.3
Refrigerators.....	–	11-8
Regenerative pre-heater.....	2518	11-5.1.8
Registering.....	149	2-4.3.2.33
	1068	6-7.3.1.18
– Flow rate ~ of ratio between two flow rates.....	X1053	6-7.5.13
– Indicating and transmitting of level, ~, and alarming.....	X1065	6-7.5.25
– Temperature ~ by scanning.....	X1055	6-7.5.15
– Voltage ~.....	X1050	6-7.5.10
Release valve		
– Self-operating ~.....	2181	8-8.1.1
Relief valve		
– Electrohydraulically operated two-stage pressure ~.....	X2196	8-6.5.2.6
	X2197	8-6.5.2.7
– Single-stage pressure ~.....	X2191	8-6.5.2.1
	X2192	8-6.5.2.2
– Single-stage pressure ~ with external drain.....	X2193	8-6.5.2.3
– Spring-loaded globe type ~.....	X2135	8-4.5.4.5
– Two-stage pressure ~ with provision for remote control.....	X2194	8-6.5.2.4
	X2195	8-6.5.2.5
Remote control		
– Manual, ~ of control valve with indication of set value.....	X1103	6-10.3
– Manual, ~ of valve with infinite number of stable positions and indication of valve position.....	X1102	6-10.2
– Manual, ~ of valve with automatic return to closed position.....	X1101	6-10.1
Removable handle		
– Actuator with ~.....	686	4-5.1.6
Removal of material		
– Surface treatment by, ~ for example, by grinding, honing, polishing, or sanding.....	2824	13-4.3.24

Description	Registration number	Location (Part-subclause)
Reset		
– Electromechanical counter with manual ~ to 0.....	X875	5-8.5.5
Resistor		
– adjustable in five steps.....	X202	2-5.5.2
– with continuous adjustability.....	X203	2-5.5.3
– with electric-motor-operated adjustability.....	X205	2-5.5.5
– with manual adjustability.....	X204	2-5.5.4
– with non-linear inherent variability.....	X206	2-5.5.6
– with pre-set adjustability.....	X201	2-5.5.1
Resolving.....	794	5-4.3.2.4
Restricted access		
– Device for ~ to actuator.....	692	4-5.1.12
– to actuator of directional control valve.....	X2170	8-6.5.1.10
Restriction with pre-set adjustability.....	X2031	7-5.5.1
Restrictor.....	2031	7-5.1.1
Restrictor valve.....	X2141	8-4.5.5.1
Restrictor (valve)		
– Adjustable ~.....	X2211	8-6.5.3.1
	X2212	8-6.5.3.2
– with adjustable flow in one direction and restricted flow in the other.....	X2213	8-6.5.3.3
Return		
– Automatic ~ device.....	654	4-4.1.9
		6-6.3.4
Reversal		
– Momentary and partial ~ of motion.....	262	2-7.3.2
– Rectilinear motion with partial ~ at intermediate position.....	X258	2-7.5.13
Reverse.....	163	2-4.3.3.3
		6-7.3.3.17
Reverse function		
– component.....	X104	2-4.5.4
– Device for ~.....	X905	5-12.5.5
Reversible		
– conveyor.....	X3802	14-4.5.2
– hydraulic motor.....	X2418	10-4.5.18
	X2420	10-4.5.20
– hydraulic pump.....	X2408	10-4.5.8
– liquid pump.....	X2307	9-4.5.7
Ridged shape.....	447	3-4.3.12
Riveting		
– Joining, for example, by ~, glueing, welding, brazing or soldering.....	2823	13-4.3.23
Robot		
– Materials handling ~.....	3843	14-5.1.3
Robots, material handling ~.....	–	14-5
Roll filter.....	X2608	12-4.5.8
Roller.....	712	4-6.1.2
		7-4.1.2
– Cam profile and ~.....	X711	4-6.5.1
Roller type.....	3824	14-4.3.9
Rolling		
– Material forming by ~.....	2805	13-4.3.5
– Ropeway type, overhead type.....	3825	14-4.3.10
Rotatable stator type.....	791	5-4.3.2.1
Rotary mixer.....	X2671	12-6.5.1
	X2672	12-6.5.2
Rotary mixing element.....	2672	12-6.1.2
Rotary type.....	2405	5-4.3.1.11
Rotary vane feeder		
– Conveyor with ~.....	X3812	14-4.5.12
	X3813	14-4.5.13
Rotation		
– Electric motor and pump, motor rotating anti-clockwise, pump clockwise.....	X250	2-7.5.5
	X251	2-7.5.6

Description	Registration number	Location (Part-subclause)
Rotodynamic type	2322	9-4.3.6 10-4.3.9
– Hydraulic motor of ~	X2414 X2403	10-4.5.14 10-4.5.3
– Liquid pump of ~	X2302	9-4.5.2
– Pneumatic motor of ~	X2424	10-4.5.24
RS-bistable element	X112	2-4.5.12
Rupturing disc	2035	7-5.1.9
Safety		
– acting	1076	6-7.3.1.26
– function	2112	8-4.3.1.2 8-5.3.2
– Manual actuator with special shape for ~ purpose	691	4-5.1.11
Safety valve		
– Globe type spring-loaded ~	X2124	8-4.5.3.4
– opening when the pressure p is higher than the set value	X2121	8-4.5.3.1
– Spring-loaded ~	X2002	7-4.5.2
– Spring-loaded ~ detained open after operation	X655	4-4.5.5
– Weight-loaded ~	X2001	7-4.5.1
Salinity meter	X846	5-7.5.3
Salt		3205 15-
0.3.14		
Sanding		
– Surface treatment by removal of material, for example, by grinding, honing, polishing, or ~	2824	13-4.3.24
Saw-tooth shaped force, motion, or flow	227	2-6.1.7
Sawing		
– Dividing by ~	2811	13-4.3.11
Scanning	1060	6-7.3.1.10
– Temperature registering by ~ and alarm	X1055	6-7.5.15
Scraper	2605	12-4.1.6
Scraper flights		
– Belt type with ~	3822	14-4.3.7
Screen	2602	12-4.1.3
	X2601	12-4.5.1
	X2602	12-4.5.2
– Vibrating ~	X2605	12-4.5.5
– with rotating drum	X2603	12-4.5.3
– with rotating drum and scraper	X2604	12-4.5.4
Screw conveyor		
– Compressing ~	X3811	14-4.5.11
Screw feeder with feeding funnel	X3809	14-4.5.9
	X3810	14-4.5.10
Screw type	3830	14-4.3.12
Screwed joint	514	3-6.1.4
Scrubber		
– Bath ~	X2622	12-4.5.22
– Spray ~	X2621	12-4.5.21
Seal for penetration of construction		
– for example, a wall; sealed wall duct	3002	15-4.1.2
– partitioning a space with different air pressure	3003	15-4.1.3
Sealing, for example, by caulking	2828	13-4.3.28
Seat of non-return valve	2162	8-6.1.2
Selection of		
– highest value	138	2-4.3.2.24 6-7.3.3.9
– lowest value	139	2-4.3.2.25 6-7.3.3.10
– the lowest flow rate signal	X1070	6-7.5.30
Self-closing outlet tap	3107	15-6.7
Self-operating		
– back-pressure control valve	X2132	8-4.5.4.2

Description	Registration number	Location (Part-subclause)
– pressure reducing control valve	X2133	8-4.5.4.3
– release valve	2181	8-8.1.1
Semi-rotary		
– hydraulic motor	2415	10-4.1.15
	X2412	10-4.5.12
– pneumatic motor	2416	10-4.1.16
Semiconductor		
– Temperature measuring transducer with sensor of ~ type	X762	5-4.5.12
– type	IEC	5-4.3.1.20
Sensing	1055	6-7.3.1.5
Sensor		
	751	5-4.1.1
	752	5-4.1.2
– Flow rate ~	X759	5-4.5.9
– for ionizing radiation	X764	5-4.5.14
– for non-ionizing radiation	X763	5-4.5.13
– Heat (temperature) ~	X3131	15-8.5.1
– Level ~	X751	5-4.5.1
– Pressure ~	X756	5-4.5.6
– Pressure ~, strain gauge type	X757	5-4.5.7
– Temperature ~ in boss with well	X801	5-5.5.1
– Temperature ~ in insertion pipe	X802	5-5.5.2
– Temperature ~, thermocouple type	X761	5-4.5.11
Sensors	–	5-4
Separating		
– Device for ~	2601	12-4.1.1
– Devices for ~	–	12-4
– Plate for ~	2607	12-4.1.8
Separator		
– Cyclone ~	X2618	12-4.5.18
– Disc and plate (knife) ~	X2615	12-4.5.15
– Electromagnetic ~	X2628	12-4.5.28
– Electrostatic ~	X2627	12-4.5.27
– Permanent-magnet ~	X2629	12-4.5.29
– Settling ~	X2616	12-4.5.16
– Settling ~ with space for reject and with reject outlet	X2617	12-4.5.17
– Thermal ~ using direct-heating source	X2632	12-4.5.32
– Thermal ~ using electrical heating	X2631	12-4.5.31
– Thermal ~ using heating or cooling coil	X2630	12-4.5.30
Sequence		
– Three connections with changed ~	X605	3-9.5.5
– Three connections with reversed ~	X604	3-9.5.4
Servo-control valve		
– Directional ~ with negative overlapping	X2176	8-6.5.1.16
– Directional ~ with positive overlapping	X2175	8-6.5.1.15
Set value		
– Actuator operating when characteristic quantity passes ~	733	4-6.1.19
– Change of state when characteristic quantity passes ~ from above	172	2-4.3.4.2 8-4.3.1.6
– Change of state when characteristic quantity passes ~ from below	171	2-4.3.4.1 8-4.3.1.5
– Change of state when characteristic quantity is approximately equal to ~	175	2-4.3.4.5
– Change of state when characteristic quantity is equal to ~	174	2-4.3.4.4
– Characteristic quantity, change of state when characteristic quantity passes upper set value from below or lower ~ from above	173	2-4.3.4.3
Setting of set value		
– Manual ~	X1047	6-7.5.7
Settling separator	X2616	12-4.5.16

Description	Registration number	Location (Part-subclause)	Description	Registration number	Location (Part-subclause)
– with space for the reject and with reject outlet	X2617	12-4.5.17	Single-acting fluid cylinder		
Sewage			– Actuating device with the main element in the form of single-acting fluid cylinder.....	X741	4-7.5.1
– after-treatment pond	X3213	15-0.5.13	– Actuator in the form of a ~	723	4-6.1.13
– treatment plant.....	X3212	15-0.5.12	Single-acting hydraulic actuator.....	717	4-6.1.7
– water	3204	15-0.3.13	– of extension type	2441	10-6.1.1
Shaft.....	402	3-4.1.2	– of retraction type	2446	10-6.1.3
	403	3-4.1.3	– of telescopic type	2443	10-6.1.7
– Electrically insulating ~	404	3-4.1.4	– with automatic return, spring.....	X2442	10-6.5.2
– Flexible, electrically insulating ~	X404	3-4.5.4	– with drain	X2441	10-6.5.1
Shape			Single-acting pneumatic actuator.....	718	4-6.1.8
– Circular ~	445	3-4.3.10	– of extension type	2445	10-6.1.2
– Rectangular ~	446	3-4.3.11	– of retraction type.....	2447	10-6.1.4
– Ridged ~	447	3-4.3.12	– of telescopic type	2449	10-6.1.8
Shearing			Single-line representation	–	2-11
– Dividing by ~	2812	13-4.3.12	– Transition between multi-line and ~	602	3-9.1.2
Shelf store	2066	7-6.1.6	Single-stage pressure reducing valve.....	X2200	8-6.5.2.10
Ship			Single-stage pressure relief valve	X2191	8-6.5.2.1
– Cargo ~	3881	14-7.1.16		X2192	8-6.5.2.2
Ships	–	14-7	Single-stage pressure relief valve with external drain	X2193	8-6.5.2.3
Shower			Sintering		
– Hand-held ~	3108	15-6.8	– Size enlarging by ~, agglomeration, coagulation, or flocculation	2809	13-4.3.9
Shuttle valve			Sinusoidal		
– Directional control valve, three ports, three positions	X2181	8-6.5.1.21	– Burst of ~ flow	226	2-6.1.6
	X2182	8-6.5.1.22	Sinusoidal flow		
– Directional control valve, three ports, two positions	X2179	8-6.5.1.19	– Hydraulic pump with ~	X2411	10-4.5.11
	X2180	8-6.5.1.20	Sinusoidal force, motion, or flow	224	2-6.1.4
Sieve	X2601	12-4.5.1	Siphon, anti-siphon trap	2038	7-5.1.12
	X2602	12-4.5.2		2038	15-10.3.5
– Vibrating ~	X2605	12-4.5.5	Size reduction by crushing, breaking, or pulverisation	2808	13-4.3.8
Signal			Sleeve		
– Analogue ~	234	2-6.1.14	– Expansion ~	532	3-7.1.2
		6-4.3.5	– for penetration of construction, for example, a wall; wall duct	3001	15-4.1.1
– Binary ~	236	2-6.1.16	Slide		
		6-4.3.7	– Spiral gravity ~	X3808	14-4.5.8
– Digital ~	235	2-6.1.15	– Straight gravity ~	X3807	14-4.5.7
		6-4.3.6	Slope	3061	14-4.3.5
Signal converter	753	5-4.1.3	– Pipeline with 5 % ~ to the left	X3010	15-4.5.10
– for electric power	X114	2-4.5.14	Smoke.....	3143	15-8.3.3
– or measuring transducer.....	X765	5-4.5.15	– detector.....	X3136	15-8.5.6
– without connection between input and output circuits.....	755	5-4.1.5	Socket	576	3-8.1.8
	756	5-4.1.6	Soldered joint	515	3-6.1.5
Signal converters	–	5-4	Soldering		
Signal flow			– Joining, for example, by riveting, glueing, welding, brazing or ~	2823	13-4.3.23
– with alternative directions (half-duplex).....	250	2-7.1.8	Solenoid		
		6-4.3.3	– -operated brake applied at no-voltage.....	X652	4-4.5.2
– with one direction (simplex)	249	2-7.1.7	– -operated clutch, disengaged at no-voltage	X651	4-4.5.1
		6-4.3.2	– -operated valve	X2103	8-4.5.1.3
– with simultaneous ~ in both directions possible (full-duplex).....	251	2-7.1.9	Sound	3141	15-8.3.1
		6-4.3.4	– (acoustic) alarm	3068	15-4.3.18
Signal processing			– detector.....	X3133	15-8.5.3
– Devices for analogue ~	–	5-12	– (letter symbol).....	3064	15-4.3.14
Signalling device			Spectacle blind		
– Acoustic ~	866	5-10.1.4	– in closed position	2044	7-5.1.18
Signalling devices	–	5-10	– in open position	2045	7-5.1.19
Silencer	2033	7-5.1.7	Speed	1069	6-7.3.1.19
Simplex			Spiral gravity		
– Direction of propagation, energy, or signal flow	249	2-7.1.7	– slide	X3808	14-4.5.8
		6-4.3.2	– (sliding) type	3833	14-4.3.15
Simplifications	–	2-11			
– Additional ~	–	3-9			
Single-acting diaphragm actuator	725	4-6.1.15			

Description	Registration number	Location (Part-subclause)
Spray nozzle	2037	7-5.1.11 11-4.1.2 12-4.1.10
Spray scrubber	X2621	12-4.5.21
Spring	2002	4-4.1.10 7-4.1.8
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Annex B (informative)

Index of graphical symbol registration numbers

This registration number index may be used to find a graphical symbol whose registration number is known.

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Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)	Description
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221	2-6.1.1	Constant force, motion, or flow	326	2-10.1.4	Permanent magnet
	9-4.3.2			12-4.3.6	Permanent-magnet type
	10-4.3.3		327	2-10.1.5	Bimetal
222	2-6.1.2	Constant force, motion, or flow	328	2-10.1.6	Material of other type
	9-4.3.3		341	2-11.1.1	One item only
	10-4.3.4		342	2-11.1.2	Two identical items
223	2-6.1.3	Approximately constant force, motion, or flow	343	2-11.1.3	Three identical items
224	2-6.1.4	Sinusoidal force, motion, or flow	344	2-11.1.4	Two or more identical items
	10-4.3.5		345	2-11.1.5	Two or more identical items
225	2-6.1.5	Pulse-shaped force, motion, or flow	401	3-4.1.1	Functional connection
	9-4.3.4			6-4.1.1	
	10-4.3.6		402	3-4.1.2	Mechanical link, shaft
226	2-6.1.6	Burst of sinusoidal flow	403	3-4.1.3	Mechanical link, shaft, wire
227	2-6.1.7	Saw-tooth shaped force, motion, or flow	404	3-4.1.4	Electrically insulating mechanical link, shaft, wire
228	2-6.1.8	Oscillating motion	405	3-4.1.5	Pipeline, duct
229	2-6.1.9	Positive-going pulse	406	3-4.1.6	Group of pipelines, ducts
230	2-6.1.10	Negative-going pulse	411	3-4.1.7	Non-guided, electromagnetic beam
231	2-6.1.11	Positive-going step	412	3-4.1.8	Planned pipeline, duct
232	2-6.1.12	Negative-going step	413	3-4.1.9	Group of planned pipelines, ducts
233	2-6.1.13	Stepping function	422	3-4.1.10	Pilot (control), drain, purge, or bleed line in fluid power systems
	10-4.3.7				Pure functional type
234	2-6.1.14	Analogue signal	431	3-4.3.1	
	6-4.3.5			6-4.3.1	
235	2-6.1.15	Digital signal	432	3-4.3.2	Capillary type
	6-4.3.6		433	3-4.3.3	Pneumatic type
236	2-6.1.16	Binary signal	434	3-4.3.4	Hydraulic type
	6-4.3.7		435	3-4.3.5	Electric type
241	2-7.1.1	Direction in general, except for energy and signal flow	442	3-4.3.6	Unidirectional information bus type
	14-4.3.2		443	3-4.3.7	Bidirectional information bus type
	15-10.3.3		444	3-4.3.8	Flexible type
242	2-7.1.2	Direction in general, except for energy and signal flow	445	3-4.3.10	Circular shape
			446	3-4.3.11	Rectangular shape
243	2-7.1.3	Working direction of hydraulic power	447	3-4.3.12	Ridged shape
244	2-7.1.4	Working direction of pneumatic power	448	3-4.3.13	Twisted pipeline, or duct
245	2-7.1.5	Alternative directions in general, except for energy, propagation, and signal flow	449	3-4.3.14	Cable
			450	3-4.3.15	Twisting of pipelines
	14-4.3.3		451	3-4.3.16	Internal connection
246	2-7.1.6	Alternative directions in general, except for energy, propagation, and signal flow	452	3-4.3.9	Flexible type
			501	3-5.1.1	Joint of connections
247	14-4.3.4	Bidirectional, simultaneously		6-4.1.2	
249	2-7.1.7	Direction of propagation, energy, or signal flow (simplex)	503	3-5.1.3	Closed end of pipeline or duct
	6-4.3.2		511	3-6.1.1	Flange coupling, flange pair
250	2-7.1.8	Alternative directions of propagation, energy, or signal flow (half-duplex)	512	3-6.1.2	Flexible coupling
	6-4.3.3		513	3-6.1.3	Clamped flanged coupling
251	2-7.1.9	Directions of propagation, energy, or signal flow, simultaneously in both directions possible (full-duplex)	514	3-6.1.4	Screwed joint
	6-4.3.4		515	3-6.1.5	Welded, brazed, or soldered joint
252	2-7.1.10	Transmission	516	3-6.1.6	Change of pipe dimension, pipe reducer
253	2-7.1.11	Reception	517	3-6.1.7	Blind flange pair
254	2-7.1.2	Circular motion, unspecified direction	518	3-6.1.8	End cap
	12-4.3.1		531	3-7.1.1	Expansion loop
255	2-7.1.13	Direction of circular motion	532	3-7.1.2	Expansion sleeve
	12-4.3.2		533	3-7.1.3	Expansion bellows
256	2-7.1.14	Alternative directions of circular motion	561	3-8.1.1	Port
261	2-7.3.1	Limit	563	3-8.1.2	Quick-release coupling element of male type
			564	3-8.1.3	Quick-release coupling element of female type

Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)	Description
565	3-8.1.4	Quick-release coupling element which fits into another coupling element of the same type	711	4-6.1.1	Plunger; tracer
566	3-8.1.5	Quick-release coupling element of male type with automatic closing	712	7-4.1.1	Roller
567	3-8.1.6	Quick-release coupling element of female type with automatic closing	713	4-6.1.2	
568	3-8.1.7	Quick-release coupling element which fits into another coupling element of the same type with automatic closing	714	7-4.1.2	Cam profile
576	3-8.1.8	Fixed portion of a connector pair; socket	715	4-6.1.3	Cam-operated actuator
577	3-8.1.9	Movable portion of a connector pair; plug	716	4-6.1.4	Fluid-level-operated actuator
601	3-9.1.1	Connection with <i>n</i> parallel, identical branches	717	4-6.1.5	Float type
602	3-9.1.2	Transition between multi-line and single-line representation	718	7-4.1.4	Fluid-level-operated actuator
603	3-9.1.3	Exit from or entrance into a bundle	719	4-6.1.6	Flow-target-operated actuator
651	4-4.1.6	Delay device	720	7-4.1.5	
652	6-6.3.1		721	4-6.1.7	Single-acting hydraulic actuator
653	4-4.1.7	Delay device	722	4-6.1.8	Single-acting pneumatic actuator
654	6-6.3.2		723	4-6.1.9	Double-acting hydraulic actuator
655	4-4.1.8	Delay device with delay in both directions	724	4-6.1.10	Double-acting pneumatic actuator
656	6-6.3.3		725	4-6.1.11	Double-acting hydraulic actuator with different active areas
657	4-4.1.9	Automatic return device	726	4-6.1.12	Double-acting pneumatic actuator with different active areas
658	6-6.3.4		727	4-6.1.13	Actuator in the form of a single-acting fluid cylinder
659	4-4.1.11	Detent for detaining in a discrete position	728	4-6.1.14	Actuator in the form of a double-acting fluid cylinder
660	6-6.3.5		729	4-6.1.15	Single-acting diaphragm actuator
661	4-4.1.12	Detent for detaining in a discrete position in disengaged position	730	4-6.1.16	Double-acting diaphragm actuator
662	4-4.1.13	Detent for detaining in a discrete position in engaged position	731	4-6.1.19	Actuator operating when a characteristic quantity passes a set value
663	4-4.1.14	Indication of position without detention	732	4-7.1.1	Actuating device
664	4-4.1.15	Detent for detaining in any position	733	5-4.1.1	Sensor
665	6-6.3.6		734	5-4.1.2	Sensor
666	4-4.1.16	Detent for detaining in any position; drift to the left permitted	735	15-8.1.1	
667	6-6.3.7		736	5-4.1.3	Signal converter, measuring transducer
668	4-4.1.17	Latching device	737	5-4.1.4	Measuring transducer
669	6-6.3.8		738	5-4.1.5	Signal converter, measuring transducer without connection between input and output circuits
670	4-4.1.18	Latching device in disengaged position	739	5-4.1.6	Signal converter, measuring transducer without connection between input and output circuits
671	4-4.1.19	Latching device in engaged position	740	5-4.1.7	Thermocouple
672	6-6.3.9		741	5-4.1.8	Tachometer generator
673	4-4.1.20	Blocking device	742	5-4.1.9	Measuring transducer utilizing the synchro effect
674	6-6.3.10		743	5-4.3.1.2	Displacer type
675	4-4.1.21	Trip-free mechanism	744	7-4.1.6	Displacer
676	4-4.1.22	Interlocking device	745	5-4.3.1.4	Orifice plate type
677	6-6.3.10		746	7-5.1.2	Orifice plate
678	4-5.1.1	Manual actuator	747	5-4.3.1.5	Flow nozzle type
679	4-5.1.2	Manual actuator operated by pushing	748	7-5.1.3	Flow nozzle
680	4-5.1.3	Manual actuator operated by pulling	749	5-4.3.1.6	Critical flow nozzle type
681	4-5.1.4	Manual actuator operated by pushing and pulling	750	7-5.1.4	Critical flow nozzle
682	4-5.1.5	Manual actuator operated by turning	751	5-4.3.1.7	Venturi tube type
683	4-5.1.6	Manual actuator in the form of a removable handle	752	7-5.1.5	Venturi element
684	4-5.1.7	Manual actuator in the form of a key	753	5-4.3.1.8	Flow elbow type
685	4-5.1.8	Manual actuator in the form of a lever	754	5-4.3.1.9	Variable area flow type
686	4-5.1.9	Manual actuator in the form of a pedal	755	5-4.3.1.10	Pitot tube type
687	4-5.1.10	Manual actuator in the form of a treadle	756	5-4.3.2.1	Rotatable stator type
688	4-5.1.11	Manual actuator with special shape for safety purpose	757	5-4.3.2.2	Controlling
689	4-5.1.12	Device for restricted access to actuator	758	5-4.3.2.3	Differential type
690	4-5.3.1	Indication of positions of a controlled element	759	5-4.3.2.4	Resolving/Receiver
691	4-5.3.2	Indication of positions of a controlled element	760	5-4.3.2.5	Torque measurement/Transformer
692	4-5.3.3	Indication of positions of a controlled element	761	5-4.3.2.6	Measuring transducer; transmitter
693	4-5.3.4	Indication of positions of a controlled element	762	5-5.1.1	Boss with well
694			763	5-5.1.2	Insertion pipe
695			764	5-5.1.3	Boss with insertion pipe
696			765	5-7.1.1	Thermometer
697			766	5-7.1.2	Indicating measuring instrument
698			767	5-7.1.3	Recording measuring instrument

Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)	Description
834	5-7.1.4	Integrating measuring instrument	2002	4-4.1.10	Spring
841	5-8.1.1	Counter		7-4.1.8	
842	5-8.1.2	Clock	2003	5-4.3.1.3	Membrane type; diaphragm type
843	5-8.1.3	Master clock		7-4.1.9	Membrane; diaphragm
851	5-9.1.1	Display unit	2004	7-4.1.10	Membrane; diaphragm
863	5-10.1.1	Mechanical indicator	2005	3-5.1.2	Joint of two mechanical parts permitting motion of the parts in two or more dimensions
864	5-10.1.2	Electromechanical indicator		7-4.1.11	
865	5-10.1.3	Electromechanical position indicator		7-4.1.12	Bearing
866	5-10.1.4	Acoustic signalling device	2006	7-4.1.12	
891	5-12.1.1	Amplifier	2007	7-4.1.13	Buffer head
892	5-12.1.2	Amplifier	2008	4-4.1.1	Mechanical gear pair
893	5-12.1.3	Amplifier with return channel		7-4.1.14	
894	5-12.1.4	Amplifier with return channel		4-4.1.2	Clutch, disengaged in unactuated state
895	5-12.1.5	Feedback controller	2009	7-4.1.15	
896	5-12.1.6	Feedback controller		4-4.1.3	Clutch, engaged in unactuated state
1011	6-5.1.1	Point of measurement	2010	7-4.1.16	
1021	6-6.1.1	Manual operation of a final controlling element	2011	4-4.1.4	Brake, disengaged in unactuated state
1022	6-6.1.2	Automatic operation of a final controlling element		7-4.1.17	
1041	6-7.1.1	Information processing function	2012	4-4.1.5	Brake, applied in unactuated state
1042	6-7.1.2	Information processing function performed by time-sharing		7-4.1.18	
1051	6-7.3.1.1	Alarming	2013	7-4.1.19	Wheel
1052	6-7.3.1.2	Displaying discrete state	2014	7-4.1.20	Ball
1053	6-7.3.1.3	Controlling	2015	7-4.1.21	Ball
1054	6-7.3.1.4	Density/Difference	2031	7-5.1.1	Restrictor
1055	6-7.3.1.5	Electric variable/Sensing	2032	7-5.1.6	Flow straightener
1056	6-7.3.1.6	Flow rate/Ratio, fraction	2033	7-5.1.7	Silencer
1057	6-7.3.1.7	Gauge, position, length/Viewing	2034	7-5.1.8	Viewing glass
1058	6-7.3.1.8	Hand	2035	7-5.1.9	Rupturing disc
1059	6-7.3.1.9	Indicating	2036	7-5.1.10	Flame arrestor
1060	6-7.3.1.10	Power/Scanning	2037	7-5.1.11	Spray nozzle
1061	6-7.3.1.11	Time/Time rate of change		11-4.1.2	
1062	6-7.3.1.12	Level	2038	12-4.1.10	
1063	6-7.3.1.13	Moisture, humidity/Momentarily		7-5.1.12	Siphon, anti-siphon trap
1064	6-7.3.1.14	User's choice	2039	15-10.3.5	
1065	6-7.3.1.15	User's choice	2040	7-5.1.13	Vent
1066	6-7.3.1.16	Pressure/Connection of test point	2041	7-5.1.14	Drain funnel
1067	6-7.3.1.17	Quality/Integral, total/Integrating, summing	2042	7-5.1.15	Stack
1068	6-7.3.1.18	Radiation/Registering, recording	2043	7-5.1.16	Pig receiver: launcher
1069	6-7.3.1.19	Speed, frequency/Switching	2044	7-5.1.17	Blind
1070	6-7.3.1.20	Temperature/Transmitting	2045	7-5.1.18	Spectacle blind in closed position
1071	6-7.3.1.21	Multi-variable/Multi-function	2046	7-5.1.19	Spectacle blind in open position
1072	6-7.3.1.22	User's choice/Impact on process by valve, pump, etc.	2061	7-6.1.1	Container, tank, cistern for atmospheric pressure
1073	6-7.3.1.23	Weight, force/Multiplying		15-10.3.6	
1074	6-7.3.1.24	Unclassified	2062	7-6.1.2	Pressure or vacuum vessel
1075	6-7.3.1.25	User's choice/Converting, computing	2063	7-6.1.3	Pressure or vacuum vessel
1076	6-7.3.1.26	Number of events, quantity/Emergency or safety acting	2064	7-6.1.4	Bunker
1081	6-7.3.2.1	High	2065	7-6.1.5	Open store
1082	6-7.3.2.2	Very high	2066	7-6.1.6	Shelf store
1083	6-7.3.2.3	Very high	2067	7-6.1.7	Barrel
1084	6-7.3.2.4	Extremely high	2068	7-6.1.8	Bag
1085	6-7.3.2.5	Extremely high	2101	8-4.1.1	Two-way valve
1086	6-7.3.2.6	Low	2102	8-4.1.2	Angled two-way valve
1087	6-7.3.2.7	Very low	2103	8-4.1.3	Three-way valve
1088	6-7.3.2.8	Very low	2104	8-4.1.4	Four-way valve
1089	6-7.3.2.9	Extremely low	2111	8-4.3.1.1	Non-return function; check function
1090	6-7.3.2.10	Extremely low		8-5.3.1	
1091	6-7.3.2.11	High or low	2112	8-4.3.1.2	Safety function
1101	6-7.3.4.1	Primary location in a central control room		8-5.3.2	
1102	6-7.3.4.2	Auxiliary location in a central control room	2113	8-4.3.1.7	L-bore in a three- or four-way valve
1103	6-7.3.4.3	Primary location in a local control room or on a local control panel	2114	8-4.3.1.8	T-bore in a three- or four-way valve
1104	6-7.3.4.4	Auxiliary location in a local control room or on a local control panel	2115	8-4.3.1.9	Double L-bore in a four-way valve
2001	7-4.1.7	Weight	2121	8-4.3.2.1	Globe type
			2122	8-4.3.2.2	Ball type
			2123	8-4.3.2.3	Plug type
			2124	8-4.3.2.4	Gate type
			2125	8-4.3.2.5	Needle type
			2126	8-4.3.2.6	Disc or butterfly type

Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)	Description
2127	8-4.3.2.7	Piston type, plunger type	2413	10-4.1.13	Hydraulic pump/motor acting as a pump with alternative directions of flow or as a motor with alternative directions of flow
2128	8-4.3.2.8	Diaphragm type	2414	10-4.1.14	Pneumatic pump/motor acting as a pump with alternative directions of flow or as a motor with alternative directions of flow
2129	8-4.3.2.9	Hose type	2415	10-4.1.15	Hydraulic semi-rotary motor
2130	8-4.3.2.10	Reduced bore	2416	10-4.1.16	Pneumatic semi-rotary motor
2131	8-4.3.2.11	Jacket	2431	10-5.1.1	Linear pneumatic-hydraulic converter
2151	8-5.1.1	Two- or three-way damper	2432	10-5.1.3	Linear pneumatic-hydraulic pressure intensifier
2161	8-6.1.1	Valve for fluid power systems	2434	10-5.1.5	Hydraulic rotary torque converter
2162	8-6.1.2	Seat of a non-return valve	2435	10-5.1.2	Continuous pneumatic-hydraulic converter
2163	8-6.1.3	Moving part of a non-return valve	2436	10-5.1.4	Continuous pneumatic-hydraulic intensifier
2171	8-6.3.1	Open flow path	2441	10-6.1.1	Single-acting hydraulic extension cylinder with single-ended piston rod
2172	8-6.3.2	Closed flow path	2442	10-6.1.5	Double-acting hydraulic cylinder with single-ended piston rod
2173	8-6.3.3	Closed flow path of a leak-free valve	2443	10-6.1.7	Single-acting hydraulic telescopic cylinder
2174	8-6.3.4	Flow to open air	2444	10-6.1.11	Cushion
2175	8-6.3.5	Infinite number of intermediate positions of a valve	2445	10-6.1.2	Single-acting pneumatic extension cylinder with single-acting piston rod
2176	8-6.3.6	Transitory position	2446	10-6.1.3	Single-acting hydraulic retraction cylinder with single-ended piston rod
2177	8-6.3.7	Affected area	2447	10-6.1.4	Single-acting pneumatic retraction cylinder with single-ended piston rod
2181	8-8.1.1	Self-operating release valve, steam trap or vent	2448	10-6.1.6	Double-acting pneumatic cylinder with single-ended piston rod
2301	9-4.1.1	Liquid pump	2449	10-6.1.8	Single-acting pneumatic telescopic cylinder
	15-10.3.7		2450	10-6.1.9	Double-acting hydraulic telescopic cylinder
2302	9-4.1.2	Gas pump, vacuum pump, compressor, fan	2451	10-6.1.10	Double-acting pneumatic telescopic cylinder
2303	9-4.1.3	Liquid pump with alternative directions of flow	2501	11-4.1.3	Heating or cooling coil
2304	9-4.1.4	Gas pump, compressor, fan with alternative directions of flow		11-7.3.6	Heat exchanger type
2321	9-4.3.5	Positive displacement type		12-4.3.7	
	10-4.3.8			15-10.3.8	
2322	9-4.3.6	Rotodynamic type	2502	11-4.1.4	Finned tube
	10-4.3.9		2511	11-5.1.1	Heat exchanger with straight tubes
2323	9-4.3.7	Turbo-molecular type	2512	11-5.1.2	Heat exchanger of floating type
2331	9-5.1.1	Ejector pump	2513	11-5.1.3	Heat exchanger with U-shaped tubes
2332	9-5.1.2	Diffusion pump	2514	11-5.1.4	Heat exchanger with coil-shaped tubes
2333	9-5.1.3	Diffusion-ejector pump	2515	11-5.1.5	Heat exchanger of double-pipe type
2334	9-5.1.4	Gas-lift pump	2516	11-5.1.6	Heat exchanger of plate type
2335	9-5.1.5	Entrapment pump	2517	11-5.1.7	Heat exchanger of spiral type
2336	9-5.1.6	Adsorption pump	2518	11-5.1.8	Regenerative pre-heater
2337	9-5.1.7	Getter pump	2521	11-6.1.1	Cooling tower
2338	9-5.1.8	Getter ion pump	2531	11-7.1.1	Boiler, steam generator
2339	9-5.1.9	Cryo pump	2532	11-7.1.2	Boiler with dome
2351	9-6.1.1	Electric liquid pump	2533	11-7.1.3	Furnace
2352	9-6.1.2	Electric induction liquid pump	2541	11-7.3.2	Fired type
2353	9-6.1.3	Electric induction liquid pump		12-4.3.9	
2401	10-4.1.1	Hydraulic pump		15-9.3.1	
2402	10-4.1.2	Pneumatic pump, compressor		15-10.3.9	
2403	10-4.1.3	Hydraulic pump with alternative directions of flow	2551	11-8.1.1	Heat pump, refrigerator, or freezer
2404	10-4.1.4	Pneumatic pump with alternative directions of flow	2571	11-9.1.1	Steam turbine
2405	5-4.3.1.11	Rotary type, turbine type	2572	11-9.1.2	Steam turbine with centre inlet
	10-4.1.5	Hydraulic motor	2573	11-9.1.3	Gas turbine
2406	10-4.1.6	Pneumatic motor	2574	11-9.1.4	Jet motor
2407	4-6.1.17	Actuator in the form of a hydraulic motor with alternative directions of flow	2575	11-9.1.5	Turbo-fan jet motor
	10-4.1.7	Hydraulic motor with alternative directions of flow	2581	11-10.1.1	Reciprocating steam engine
2408	4-6.1.18	Actuator in the form of a pneumatic motor with alternative directions of flow	2582	11-10.1.2	Internal combustion engine
	10-4.1.8	Pneumatic motor with alternative directions of flow	2583	11-10.1.3	External combustion engine
2409	10-4.1.9	Hydraulic pump/motor	2591	11-11.1.1	Flare
2410	10-4.1.10	Pneumatic pump/motor	2601	12-4.1.1	Device for separating
2411	10-4.1.11	Hydraulic pump/motor acting as a pump with one direction of flow and as a motor in the other direction of flow	2602	12-4.1.3	Screen or filter element
2412	10-4.1.12	Pneumatic pump/motor acting as a pump with one direction of flow and as a motor in the other direction of flow	2603	12-4.1.4	Bed filter element of fixed type

Regis- tration number	Location (Part- subclause)	Description	Regis- tration number	Location (Part- subclause)	Description
2604	12-4.1.5	Bed filter element of fluidized type	3056	15-4.3.6	Located on a tray, for example, pipelines, conductors, or cables; endpoints indicated
2605	12-4.1.6	Scraper	3057	15-4.3.7	Located on a tray, for example, pipelines, conductors, or cables; continuous
2606	12-4.1.7	Disc with knife	3058	15-4.3.8	Going to a storey above, for example, pipeline, cable, or conductor bundle
2607	12-4.1.8	Plate for separating	3059	15-4.3.9	Going to a storey below, for example, pipeline, cable, or conductor bundle
2608	12-4.1.9	Centrifuge rotor	3060	15-4.3.10	Going between a storey above and a storey below, for example, pipeline, cable, or conductor bundle
2621	12-4.3.3	Cyclonic type	3061	14-4.3.5	Slope, for example, of a pipeline
2622	12-4.3.10	Chemical type		15-4.3.11	
2623	12-4.3.11	Biological type	3062	15-4.3.12	Information
2624	12-4.3.12	Ion exchange type	3063	15-4.3.13	Blocking of electric current
2651	12-5.1.1	Purifier using conversion	3064	15-4.3.14	Sound
2661	12-5.3.1	Catalytic type	3065	15-4.3.15	Control
2671	12-6.1.1	Device for mixing	3066	15-4.3.16	Alarm
2672	12-6.1.2	Rotary mixing element	3067	15-4.3.17	Light alarm
2673	12-6.1.3	Static mixing element	3068	15-4.3.18	Sound (acoustic) alarm
2691	12-7.1.1	Air conditioner for pneumatic systems	3069	15-4.3.19	Vibrating (tactile) alarm
2801	13-4.3.1	Casting or moulding	3081	15-5.1.1	Connection box, junction box
2802	13-4.3.2	Material forming by forging	3082	15-5.1.2	Consumers terminal, service entrance equipment
2803	13-4.3.3	Material forming by pressing	3083	15-5.1.3	Distribution centre
2804	13-4.3.4	Material forming by bending or folding	3084	15-5.1.4	Enclosure
2805	13-4.3.5	Material forming by rolling	3085	15-5.1.5	Cross-connection device
2806	13-4.3.6	Material forming by extruding or pultruding	3086	15-5.1.6	Square-shaped access chamber, inspection well
2807	13-4.3.7	Heat treatment, for example, annealing or tempering	3087	15-5.1.7	Circular-shaped access chamber, inspection well
2808	13-4.3.8	Size reduction by crushing, breaking, or pulverization	3101	15-6.1	Outlet tap
2809	13-4.3.9	Size enlarging by sintering, agglomeration, coagulation, or flocculation	3102	15-6.2	Outlet tap in taphole
2810	13-4.3.10	Dividing material	3103	15-6.3	Outlet tap on wall
2811	13-4.3.11	Dividing by sawing	3104	15-6.4	Mixing outlet tap
2812	13-4.3.12	Dividing by shearing	3105	15-6.5	Mixing outlet tap in taphole
2814	13-4.3.14	Dividing by laser beam	3106	15-6.6	Mixing outlet tap on wall
2815	13-4.3.15	Boring, drilling	3107	15-6.7	Self-closing outlet tap
2816	13-4.3.16	Reaming	3108	15-6.8	Hand-held shower
2817	13-4.3.17	Planing	3109	15-6.9	Flushing valve with pipe interrupter
2818	13-4.3.18	Broaching	3121	15-7.1	Underground hydrant
2819	13-4.3.19	Tapping	3122	15-7.2	Above ground hydrant
2820	13-4.3.20	Threading	3123	15-7.3	Wall hydrant
2821	13-4.3.21	Milling	3124	15-7.4	First aid fire hose reel
2822	13-4.3.22	Turning	3132	15-8.1.2	Detector, pilot switch
2823	13-4.3.23	Joining, for example, by riveting, glueing, welding, brazing or soldering	3133	15-8.1.3	Electric window foil
2824	13-4.3.24	Surface treatment by removal of material, for example, by grinding, honing, polishing, or sanding	3134	15-8.1.4	Protection unit for potable water systems
2825	13-4.3.25	Surface treatment without removal of material, for example, by rolling	3141	15-8.3.1	Sound
2826	13-4.3.26	Calendering	3142	15-8.3.2	Fire
2827	13-4.3.27	Coating, for example, painting	3143	15-8.3.3	Smoke
2828	13-4.3.28	Sealing, for example, by caulking	3144	15-8.3.4	Dust
3001	15-4.1.1	Sleeve for penetration of construction, for example, a wall; wall duct	3151	15-9.3.2	Air conditioning
3002	15-4.1.2	Seal for penetration of construction, for example, a wall; sealed wall duct	3201	15-10.3.10	Heat pump type; temperature increase
3003	15-4.1.3	Seal for penetration of construction partitioning a space with different air pressure.	3202	15-10.3.11	Heat pump type; temperature decrease
3004	15-4.1.4	Anchor point	3203	15-10.3.12	Electric type
3005	15-4.1.5	Guide bracket, for example, for pipelines	3204	15-10.3.13	Sewage water
3051	15-4.3.1	Located underground, for example, pipeline, cable, or joint	3205	15-10.3.14	Salt
3052	15-4.3.2	Located underwater, for example, pipeline or cable	3206	15-10.3.15	Pond
3053	15-4.3.3	Located on poles, for example, pipeline, cable, or power line	3207	15-10.3.16	Waste
3054	15-4.3.4	Located in a circular duct or pipe, for example, conductors or cables	3801	14-4.1.1	Conveyor
3055	15-4.3.5	Located in a rectangular duct, for example, pipelines, conductors, or cables	3806	14-4.1.2	Feeding funnel, hopper
			3807	14-4.1.3	Vane feeder rotor
			3808	14-4.1.4	Turn table
			3821	14-4.3.6	Belt type
			3822	14-4.3.7	Belt type with scraper flights
			3823	14-4.3.8	Chain or wire driven type
			3824	14-4.3.9	Roller type
			3825	14-4.3.10	Ropeway type, overhead type

Regis- tration number	Location (Part- subclause)	Description
3828	14-4.3.11	Bucket type
3830	14-4.3.12	Screw type
3831	14-4.3.13	Vibration, vibrating type
	15-8.3.5	
3832	14-4.3.14	Gravity type
3833	14-4.3.15	Spiral gravity (sliding) type
3834	14-4.3.16	Escalator function
3841	14-5.1.1	Crane
3842	14-5.1.2	Lift, hoist
3843	14-5.1.3	Materials handling robot
3851	14-6.1.1	Mono-rail
3852	14-6.1.2	Double rail, railway track
3853	14-6.1.3	Traverser, traversing platform
3854	14-6.1.4	Track turntable
3855	14-6.1.5	Railway wagon tip, platform tip
3861	14-7.1.1	Industrial truck
3862	14-7.1.2	Fork lift truck
3863	14-7.1.3	Driverless, automatic fork lift truck, including remote controlled
3864	14-7.1.4	Container truck
3865	14-7.1.5	Wheel loader
3866	14-7.1.6	Log loader
3867	14-7.1.7	Bulldozer
3868	14-7.1.8	Lorry
3869	14-7.1.9	Covered lorry, van
3870	14-7.1.10	Tank truck
3871	14-7.1.11	Open railway wagon or open trailer
3872	14-7.1.12	Covered railway wagon or covered trailer
3873	14-7.1.13	Railway wagon or trailer for non-solid material
3874	14-7.1.14.	Railway tanker or trailer tanker
3875	14-7.1.15	Locomotive
3881	14-7.1.16	Cargo ship
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IEC	5-4.3.1.14	Conductive electrode type
IEC	5-4.3.1.16	Receiving ultrasonic type
IEC	5-4.3.1.12	Strain gauge type
IEC	5-4.3.1.15	Transmitting ultrasonic type
IEC	5-4.3.1.17	Transmitting and receiving ultrasonic type
IEC	5-4.3.1.18	Radioactive type
IEC	5-4.3.1.19	Optical type
IEC	5-4.3.1.20	Semiconductor type
IEC	11-7.3.1	Ionizing radiation type, nuclear type
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IEC	11-7.3.3	Electric heating element type
IEC	11-7.3.5	Electric induction type
IEC	12-4.3.8	Electro-thermal type
IEC	12-4.3.5	Electromagnetic type
IEC	12-4.3.4	Electrostatic type
IEC	13-4.3.13	Laser generator

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Annex C (informative)

Cross-reference index

This index of cross-references is intended to link those graphic symbols with registration numbers to corresponding items in other, existing ISO and IEC standards.

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101	02-01-01 to -03	5.3.2 to 5.3.5	3-3.1.1.1 3-3.1.2.1 3-3.3.1	4.5.0 5.3.0	1.3; 1.4	
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131	(10-11-01)					
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149	(08-04-12) (09-06-03)			(8.0.1)		
150	(09-06-06)					
151	(09-06-04)					
152	(09-06-05)					
153	(09-06-03)					
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301	02-01-04, 05	5.3.6				ISO 3753-4.7.1
321	02-97-03		3-3.3.3.4			
322	02-07-04		3-3.3.3.5			
325	02-07-02					
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450	03-01-08					
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603						IEC 61082-1-4.4.7.2
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