

ISO 14617-2:2025-04 (E)

Graphical symbols for diagrams - Part 2: Graphical symbols

Contents

Page

- Foreword.....ix
- Introduction.....xi
- 1 Scope 1
- 2 Normative references 1
- 3 Terms and definitions..... 1
- 4 General application symbols 2
 - 4.1 Components, devices, functional units, equipment, plants and functions.....2
 - 4.1.1 Basic symbols.....2
 - 4.1.2 Supplementary symbols.....2
 - 4.1.3 Symbol examples 4
 - 4.2 Variability..... 5
 - 4.2.1 Basic symbols..... 5
 - 4.2.2 Supplementary symbols..... 5
 - 4.2.3 Symbol examples 5
 - 4.3 Characteristics for force, motion, mass flow, magnetic flow and signals 6
 - 4.3.1 Basic symbols..... 6
 - 4.3.2 Supplementary symbols..... 7
 - 4.3.3 Symbol examples 7
 - 4.4 Directions 7
 - 4.4.1 Basic symbols..... 7
 - 4.4.2 Supplementary symbols..... 9
 - 4.4.3 Symbol examples 10
 - 4.5 Materials 12
 - 4.5.1 Basic symbols..... 12
 - 4.5.2 Supplementary symbols..... 12
 - 4.5.3 Symbol examples 12
 - 4.6 Simplifications 13
 - 4.6.1 Basic symbols..... 13
 - 4.6.2 Supplementary symbols..... 13
 - 4.6.3 Symbol examples 13
 - 4.7 General electrotechnical symbols 14
 - 4.7.1 Basic symbols..... 14
 - 4.7.2 Supplementary symbols..... 15
 - 4.7.3 Symbol examples 15
- 5 Connections and related devices (fluids)..... 15
 - 5.1 Connections, general 15
 - 5.1.1 Basic symbols..... 15
 - 5.1.2 Supplementary symbols..... 16
 - 5.1.3 Symbol examples 18
 - 5.2 Connection functional joints..... 19
 - 5.2.1 Basic symbols..... 19
 - 5.2.2 Supplementary symbols..... 19
 - 5.2.3 Symbol examples 19
 - 5.3 Connection devices 20
 - 5.3.1 Basic symbols..... 20

5.3.2	Supplementary symbols.....	22
5.3.3	Symbol examples	22
5.4	Connection, simplifications.....	22
5.4.1	Basic symbols	22
5.4.2	Supplementary symbols	23
5.4.3	Symbol examples.....	23
5.5	Couplings, quick release couplings.....	23
5.5.1	Basic symbols	23
5.5.2	Supplementary symbols	23
5.5.3	Symbol examples.....	23
5.6	Pipeline and duct elements	24
5.6.1	Basic symbols	24
5.6.2	Supplementary symbols	27
5.6.3	Symbol examples.....	27
5.7	Access chambers, inspection wells	28
5.7.1	Basic symbols	28
5.7.2	Supplementary symbols	29
5.7.3	Symbol examples.....	29
6	Fluid flow control.....	29
6.1	General purpose valves.....	29
6.1.1	Basic symbols	29
6.1.2	Supplementary symbols	30
6.1.3	Symbol examples.....	32
6.2	Dampers	37
6.2.1	Basic symbols	37
6.2.2	Supplementary symbols	37
6.2.3	Symbol examples.....	37
6.3	Valves with special functions.....	38
6.3.1	Basic symbols	38
6.3.2	Supplementary symbols	38
6.3.3	Symbol examples.....	38
6.4	Taps, showers, etc.	39
6.4.1	Basic symbols	39
6.4.2	Supplementary symbols	40
6.4.3	Symbol examples.....	40
6.5	Hydrants.....	40
6.5.1	Basic symbols	40
6.5.2	Supplementary symbols	40
6.5.3	Symbol examples.....	40
6.6	Safety devices other than valves.....	41
6.6.1	Basic symbols	41
6.6.2	Supplementary symbols	41
6.6.3	Symbol examples.....	41
7	Actuators	42
7.1	Basic elements.....	42
7.1.1	Basic symbols	42
7.1.2	Supplementary symbols	43
7.1.3	Symbol examples.....	43
7.2	Manually operated actuators.....	44
7.2.1	Basic symbols	44
7.2.2	Supplementary symbols	46
7.2.3	Symbol examples.....	46
7.3	Automatic actuators.....	46
7.3.1	Basic symbols	46
7.3.2	Supplementary symbols	48
7.3.3	Symbol examples.....	48

7.4	Complex actuators.....	48
7.4.1	Basic symbols.....	48
7.4.2	Supplementary symbols.....	49
7.4.3	Symbol examples.....	49
8	Fluid transport.....	50
8.1	Pumps, compressors and fans.....	50
8.1.1	Basic symbols.....	50
8.1.2	Supplementary symbols.....	50
8.1.3	Symbol examples.....	53
9	Fluid energy transfer.....	54
9.1	Heat exchangers, condensers.....	54
9.1.1	Basic symbols.....	54
9.1.2	Supplementary symbols.....	55
9.1.3	Symbol examples.....	55
9.2	Heat exchanger of specific design.....	56
9.2.1	Basic symbols.....	56
9.2.2	Supplementary symbols.....	57
9.2.3	Symbol examples.....	57
9.3	Cooling towers.....	57
9.3.1	Basic symbols.....	57
9.3.2	Supplementary symbols.....	58
9.3.3	Symbol examples.....	58
10	Fluid separation and mixing.....	59
10.1	Separation.....	59
10.1.1	Basic symbols.....	59
10.1.2	Supplementary symbols.....	59
10.1.3	Symbol examples.....	60
10.2	Mixing.....	64
10.2.1	Basic symbols.....	64
10.2.2	Supplementary symbols.....	65
10.2.3	Symbol examples.....	66
11	Fluid processing.....	67
11.1	Processing of liquid fluids by absorption, catalysis, conversion, thermics, etc.....	67
11.1.1	Basic symbols.....	67
11.1.2	Supplementary symbols.....	67
11.1.3	Symbol examples.....	69
12	Fluid power converters.....	69
12.1	Devices for conversion of mechanical energy to fluid energy and vice versa.....	69
12.1.1	Basic symbols.....	69
12.1.2	Supplementary symbols.....	70
12.1.3	Symbol examples.....	70
12.2	Devices for conversion of fluid mechanical energy by an intermediate fluid step.....	72
12.2.1	Basic symbols.....	72
12.2.2	Supplementary symbols.....	72
12.2.3	Symbol examples.....	72
12.3	Linear fluid motors, fluid cylinders.....	73
12.3.1	Basic symbols.....	73
12.3.2	Supplementary symbols.....	73
12.3.3	Symbol examples.....	73
13	Storage.....	74
13.1	Stationary storage devices.....	74

13.1.1	Basic symbols	74
13.1.2	Supplementary symbols	75
13.1.3	Symbol examples.....	76
13.2	Mobile storage devices.....	78
13.2.1	Basic symbols	78
13.2.2	Supplementary symbols	78
13.2.3	Symbol examples.....	78
13.3	Energy storage and expansion devices	78
13.3.1	Basic symbols	78
13.3.2	Supplementary symbols	79
13.3.3	Symbol examples.....	79
14	Material transport and flow control.....	79
14.1	Conveyors, feeders and associated devices.....	79
14.1.1	Basic symbols	79
14.1.2	Supplementary symbols	81
14.1.3	Symbol examples.....	82
14.2	Tracks and associated objects.....	84
14.2.1	Basic symbols	84
14.2.2	Supplementary symbols	84
14.2.3	Symbol examples.....	85
14.3	Handling objects, cranes, robots.....	85
14.3.1	Basic symbols	85
14.3.2	Supplementary symbols	85
14.3.3	Symbol examples.....	86
14.4	Mobile transport objects	86
14.4.1	Basic symbols	86
14.4.2	Supplementary symbols	88
14.4.3	Symbol examples.....	88
15	Material separation and mixing.....	88
15.1	Material separation and mixing.....	88
15.1.1	Basic symbols	88
15.1.2	Supplementary symbols	88
15.1.3	Symbol examples.....	89
15.2	Mixing.....	89
15.2.1	Basic symbols	89
15.2.2	Supplementary symbols	90
15.2.3	Symbol examples.....	90
16	Material processing.....	90
16.1	Solid material	90
16.1.1	Basic symbols	90
16.1.2	Supplementary symbols	93
16.1.3	Symbol examples.....	93
16.2	Bulk material, size reduction.....	93
16.2.1	Basic symbols	93
16.2.2	Supplementary symbols	93
16.2.3	Symbol examples.....	95
16.3	Forming, shaping, etc.....	95
16.3.1	Basic symbols	95
16.3.2	Supplementary symbols	96
16.3.3	Symbol examples.....	96
16.4	Thermal	97
16.4.1	Basic symbols	97
16.4.2	Supplementary symbols	97

16.4.3	Symbol examples	97
17	Energy conversion, boilers, turbines, motors, etc.	98
17.1	Boilers, steam generators, furnaces and hot air generators	98
17.1.1	Basic symbols	98
17.1.2	Supplementary symbols	99
17.1.3	Symbol examples	99
17.2	Steam turbines	100
17.2.1	Basic symbols	100
17.2.2	Supplementary symbols	100
17.2.3	Symbol examples	101
17.3	Combustion engines, reciprocating and rotary pistons, gas turbines	101
17.3.1	Basic symbols	101
17.3.2	Supplementary symbols	102
17.3.3	Symbol examples	102
17.4	Heat pumps, refrigerators and freezers, water heaters, air conditioners	103
17.4.1	Basic symbols	103
17.4.2	Supplementary symbols	103
17.4.3	Symbol examples	103
17.5	Electrical motors and generators	103
17.5.1	Basic symbols	103
17.5.2	Supplementary symbols	104
17.5.3	Symbol examples	104
17.6	Thermal energy consumers	104
17.6.1	Basic symbols	104
17.6.2	Supplementary symbols	104
17.6.3	Symbol examples	105
18	Mechanical transmission	105
18.1	Shafts, bearings	105
18.1.1	Basic symbols	105
18.1.2	Supplementary symbols	105
18.1.3	Symbol examples	105
18.2	Couplings, fixed, detachable and variable	105
18.2.1	Basic symbols	105
18.2.2	Supplementary symbols	106
18.2.3	Symbol examples	106
18.3	Gears, fixed ratio and variable ratio	106
18.3.1	Basic symbols	106
18.3.2	Supplementary symbols	107
18.3.3	Symbol examples	107
18.4	Brakes	107
18.4.1	Basic symbols	107
18.4.2	Supplementary symbols	108
18.4.3	Symbol examples	108
18.5	Belt and chain devices	108
18.5.1	Basic symbols	108
18.5.2	Supplementary symbols	109
18.5.3	Symbol examples	109
18.6	Miscellaneous mechanical devices	109
18.6.1	Basic symbols	109
18.6.2	Supplementary symbols	110
18.6.3	Symbol examples	110
19	Measurement and control devices	110
19.1	Sensors, signal converters and measuring transducers	110

19.1.1	Basic symbols	110
19.1.2	Supplementary symbols	111
19.1.3	Symbol examples.....	114
19.2	Fittings for sensors and measuring transducers	115
19.2.1	Basic symbols	115
19.2.2	Supplementary symbols	115
19.2.3	Symbol examples.....	115
19.3	Measuring instruments, meters.....	116
19.3.1	Basic symbols	116
19.3.2	Supplementary symbols	116
19.3.3	Symbol examples.....	116
19.4	Counting devices and clocks.....	117
19.4.1	Basic symbols	117
19.4.2	Supplementary symbols	118
19.4.3	Symbol examples.....	118
19.5	Devices for analogue signal processing	118
19.5.1	Basic symbols	118
19.5.2	Supplementary symbols	119
19.5.3	Symbol examples.....	119
19.6	Displays and other signalling processing.....	120
19.6.1	Basic symbols	120
19.6.2	Supplementary symbols	120
19.6.3	Symbol examples.....	120
20	Measurement and control functions	120
20.1	Process functions	120
20.1.1	Basic symbols	120
20.1.2	Supplementary symbols	121
20.1.3	Symbol examples.....	122
21	Vacuum technology	122
21.1	Vacuum pumps.....	122
21.1.1	Basic symbols	123
21.1.2	Supplementary symbols	123
21.1.3	Symbol examples.....	124
21.2	Vacuum gauges.....	125
21.2.1	Basic symbols	125
21.2.2	Supplementary symbols	125
21.2.3	Symbol examples.....	126
21.3	Vacuum components.....	127
21.3.1	Basic symbols	127
21.3.2	Supplementary symbols	127
21.3.3	Symbol examples.....	127
Annex A (normative)	Application rules for the symbols.....	129
Annex B (informative)	Symbols deleted from the previous edition of the ISO 14617 series	136
Annex C (informative)	Alphabetic index.....	219
Bibliography	236