

Table 5.4.1 — Final control element symbols

Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4.

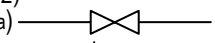

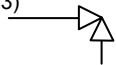

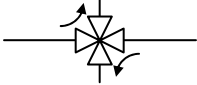
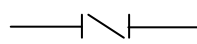
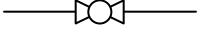

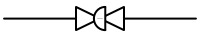

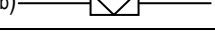


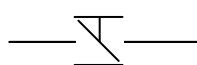
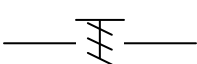
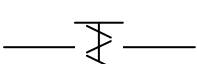
No	Symbol	Description
1	(1) (2) a)  b) 	<ul style="list-style-type: none"> • Generic two-way valve. • Straight globe valve. • Gate valve.
2	(2) (3) 	<ul style="list-style-type: none"> • Generic two-way angle valve. • Angle globe valve. • Safety angle valve.
3	(2) 	<ul style="list-style-type: none"> • Generic three-way valve. • Three-way globe valve. • Arrow indicates failure or unactuated flow path.
4	(2) 	<ul style="list-style-type: none"> • Generic four-way valve. • Four-way four-ported plug or ball valve. • Arrows indicates failure or unactuated flow paths.
5	(2) 	<ul style="list-style-type: none"> • Butterfly valve.
6	(2) 	<ul style="list-style-type: none"> • Ball valve.
7	(2) 	<ul style="list-style-type: none"> • Plug valve
8	(2) 	<ul style="list-style-type: none"> • Eccentric rotary disc valve.
9	(1) (2) a)  b) 	<ul style="list-style-type: none"> • Diaphragm valve.
10	(2) 	<ul style="list-style-type: none"> • Pinch valve.
11	(2) 	<ul style="list-style-type: none"> • Bellows sealed valve.
12	(2) 	<ul style="list-style-type: none"> • Generic damper. • Generic louver.
13	(2) 	<ul style="list-style-type: none"> • Parallel blade damper. • Parallel blade louver.
14	(2) 	<ul style="list-style-type: none"> • Opposed blade damper. • Opposed blade louver.

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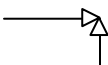
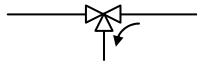
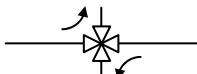



No	Symbol	Description
15	(4) 	<ul style="list-style-type: none"> Two-way on-off solenoid valve.
16	(4) 	<ul style="list-style-type: none"> Angle on-off solenoid valve.
17	(4) 	<ul style="list-style-type: none"> Three-way on-off solenoid valve. Arrow indicates de-energized flow path.
18	(4) 	<ul style="list-style-type: none"> Four-way plug or ball on-off solenoid valve. Arrows indicates de-energized flow paths.
19	(4) 	<ul style="list-style-type: none"> Four-way five-port on-off solenoid valve. Arrows indicates de-energized flow paths.
20	(5) 	<ul style="list-style-type: none"> Permanent magnet variable speed coupling.
21	(6) 	<ul style="list-style-type: none"> Electric motor.

Table 5.4.2 — Final control element actuator symbols

Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4






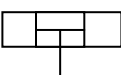
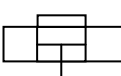




No	Symbol	Description
1	(7) 	<ul style="list-style-type: none"> Generic actuator. Spring-diaphragm actuator.
2	(7) 	<ul style="list-style-type: none"> Spring-diaphragm actuator with positioner.
3	(7) 	<ul style="list-style-type: none"> Pressure-balanced diaphragm actuator.
4	(7) 	<ul style="list-style-type: none"> Linear piston actuator. Single acting spring opposed Double acting.
5	(7) 	<ul style="list-style-type: none"> Linear piston actuator with positioner.
6	(7) 	<ul style="list-style-type: none"> Rotary piston actuator. May be single acting spring opposed or double acting.
7	(7) 	<ul style="list-style-type: none"> Rotary piston actuator with positioner.
8	(7) 	<ul style="list-style-type: none"> Bellows spring opposed actuator.
9	(7) 	<ul style="list-style-type: none"> Rotary motor operated actuator. Electric, pneumatic, or hydraulic. Linear or rotary action.
10	(7) 	<ul style="list-style-type: none"> Modulating solenoid actuator. Solenoid actuator for process on-off valve.
11	(7) 	<ul style="list-style-type: none"> Actuator with side-mounted handwheel.

Table 5.4.2 — Final control element actuator symbols

Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4











No	Symbol	Description
12	(7) 	<ul style="list-style-type: none"> Actuator with top-mounted handwheel.
13	(7) 	<ul style="list-style-type: none"> Manual actuator. Hand actuator.
14	(7) 	<ul style="list-style-type: none"> Electrohydraulic linear or rotary actuator.
15	(7) 	<ul style="list-style-type: none"> Actuator with manual actuated partial stroke test device.
16	(7) 	<ul style="list-style-type: none"> Actuator with remote actuated partial stroke test device.
17	(8) 	<ul style="list-style-type: none"> Automatic reset on-off solenoid actuator. Non-latching on-off solenoid actuator.
18	(8) 	<ul style="list-style-type: none"> Manual or remote reset on-off solenoid actuator. Latching on-off solenoid actuator.
19	(8) 	<ul style="list-style-type: none"> Manual and remote reset on-off solenoid actuator. Latching on-off solenoid actuator.
20	(9) 	<ul style="list-style-type: none"> Spring or weight actuated relief or safety valve actuator.
21	(9) 	<ul style="list-style-type: none"> Pilot actuated relief or safety valve actuator. Pilot pressure sensing line deleted if sensing is internal.

Table 5.4.3 — Self-actuated final control element symbol

Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4.

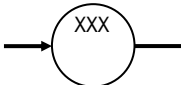
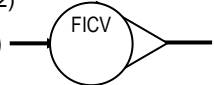
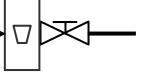
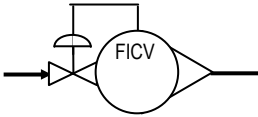
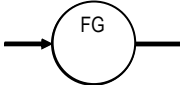
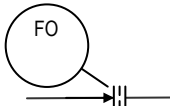
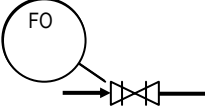
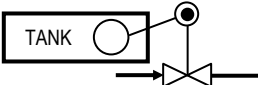
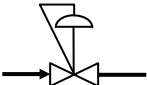
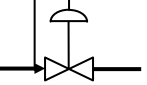
No	Symbol	Description
1		<ul style="list-style-type: none"> Automatic flow regulator. XXX = FCV without indicator. XXX = FICV with integral indicator.
2	<p>(1) (2)</p> <p>(a) </p> <p>(b) </p>	<ul style="list-style-type: none"> Variable area flowmeter with integral manual adjusting valve. Instrument tag bubble required with (b).
3		<ul style="list-style-type: none"> Constant flow regulator.
4		<ul style="list-style-type: none"> Flow sight glass. Type shall be noted if more than one type used.
5		<ul style="list-style-type: none"> Generic flow restriction. Single stage orifice plate as shown. Note required for multi-stage or capillary tube types.
6		<ul style="list-style-type: none"> Restriction orifice hole drilled in valve plug. Tag number shall be omitted if valve is otherwise identified.
7		<ul style="list-style-type: none"> Level regulator. Ball float and mechanical linkage.
8		<ul style="list-style-type: none"> Backpressure regulator. Internal pressure tap.
9		<ul style="list-style-type: none"> Backpressure regulator. External pressure tap.

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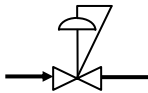
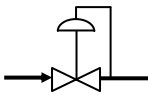
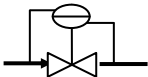
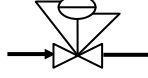
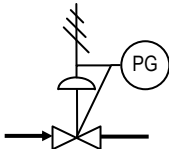
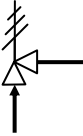
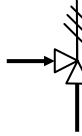
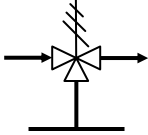
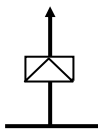
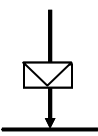
No	Symbol	Description
10		<ul style="list-style-type: none"> Pressure-reducing regulator. Internal pressure tap.
11		<ul style="list-style-type: none"> Pressure-reducing regulator. External pressure tap.
12		<ul style="list-style-type: none"> Differential pressure regulator. External pressure taps.
13		<ul style="list-style-type: none"> Differential pressure regulator. Internal pressure taps.
14		<ul style="list-style-type: none"> Pressure-reducing regulator w/ integral outlet pressure relief and pressure gauge.
15		<ul style="list-style-type: none"> Generic pressure safety valve. Pressure relief valve.
16		<ul style="list-style-type: none"> Generic vacuum safety valve. Vacuum relief valve.
17		<ul style="list-style-type: none"> Generic pressure - vacuum relief valve. Tank pressure - vacuum relief valve.
18		<ul style="list-style-type: none"> Pressure safety element. Pressure rupture disk. Pressure relief.
19		<ul style="list-style-type: none"> Pressure safety element. Vacuum rupture disk. Vacuum relief.

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Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4.

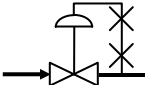
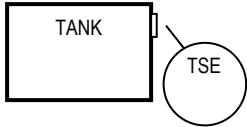
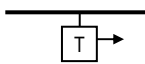
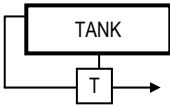










No	Symbol	Description
20		<ul style="list-style-type: none"> • Temperature regulator. • Filled thermal system.
21		<ul style="list-style-type: none"> • Thermal safety element. • Fusible plug or disk.
22		<ul style="list-style-type: none"> • Generic moisture trap. • Steam trap. • Note required for other trap types.
23		<ul style="list-style-type: none"> • Moisture trap with equalizing line.

Table 5.4.4 — Control valve failure and de-energized position indications

Note: Numbers in parentheses refer to explanatory notes in Clause 5.3.4.

No	Method A (1) (10)	Method B (1) (10)	Definition
1			<ul style="list-style-type: none"> Fail to open position.
2			<ul style="list-style-type: none"> Fail to closed position.
3			<ul style="list-style-type: none"> Fail locked in last position.
4			<ul style="list-style-type: none"> Fail at last position. Drift open.
5			<ul style="list-style-type: none"> Fail at last position. Drift closed.