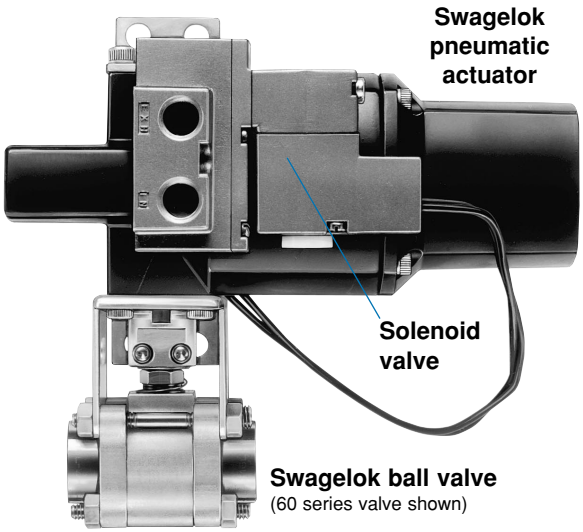
Solenoid Valves

For Electropneumatically Actuated Ball Valves

Features

An electropneumatically actuated ball valve-actuator assembly consists of:

- a Swagelok ball valve
- a Swagelok pneumatic actuator
- a solenoid valve for use with:
  - a spring-return pneumatic actuator (3-way, 2-position) or
  - double-acting pneumatic actuator (4-way, 2-position).



Technical Data

Actuation Pressure

25① to 150 psig (1.7 to 10.3 bar)

① 25 psig (1.7 bar) is the minimum requirement for the solenoid valve. See valve product catalogs for minimum actuator pressure requirements.

Temperature Range

0 to 120°F (–17 to 48°C)

Electrical Data

- NEMA type 4 solenoid enclosure
- General-purpose, class A coil, continuous duty, encapsulated
- 18 AWG lead wires, 18 in. (46 cm) long
- 1/2 in. female NPS electrical conduit connection (enclosure)
- 1/4 in. female NPT pneumatic ports

Materials of Construction

Component	Material
Solenoid body, spool, poppet	Aluminum
Spool O-ring	Buna N
Fasteners	Zinc-plated alloy steel
Lubricants	Silicone- and PTFE-based

Solenoid valves are assembled with brass Swagelok® fittings. Copper tubing is used with double-acting actuators.

Operating Modes

Air pressure is required to cycle the ball valve. See valve product catalogs for minimum actuator pressure requirements.

Actuator/ Solenoid Mode	Valve Position	
	Solenoid Energized	Solenoid De-energized
Normally closed spring-return actuator/ solenoid energized to open 90°①	Open	Closed
Normally open spring-return actuator/ solenoid energized to close 90°①	Closed	Open
Spring-return actuator/solenoid energized to switch 180°①	Opposite port	Initial position
Double-acting actuator/solenoid energized to open 90°②	Open	Closed
Double-acting actuator/solenoid energized to close 90°②	Closed	Open
Double-acting actuator/solenoid energized to switch 180°②	Opposite port	Initial position

Warning:

① **Following a significant loss of actuator air pressure, the ball valve will return to the solenoid de-energized position, whether the solenoid is energized or not.**

② **Following a significant loss of actuator air pressure, the ball valve may cycle.**

Swagelok®

Ordering Information

1. Select a 33, 40, 60, or 83 series valve ordering number from the product catalog.

   Example: SS-63TS8

2. Using the catalog, determine the actuator model. Add an actuator designator to the valve ordering number.

Valve Flow Pattern	Actuator Model	Designator
2-way (90° actuation)	131	-31
	133	-33
	135	-35
3-way (180° actuation)	151	-51
	153	-53
	155	-55

   Example: SS-63TS8**-33**

3. Determine the actuator/solenoid mode and add a designator to the valve ordering number.

Valve Flow Pattern	Actuator/ Solenoid Mode	Designator
2-way (90° actuation)	Normally closed spring-return actuator/solenoid energized to open①	C
	Normally open spring-return actuator/solenoid energized to close①	O
	Double-acting actuator/solenoid energized to open②	DC
	Double-acting actuator/solenoid energized to close②	DO
3-way (180° actuation)	Double-acting actuator/solenoid energized to switch②	D
	Spring-return actuator/solenoid energized to switch①	S

   Example: SS-63TS8-33**C**

4. Determine the solenoid voltage required for the solenoid valve and add a designator to the valve ordering number.

Solenoid Voltage	Designator
12 V (dc)	B
24 V (dc)	C
110, 120 V (ac)	D
220, 240 V (ac)	E

   Example: SS-63TS8-33C**B**

Options

UL-listed, CSA-certified, and explosion-proof solenoid valves are available. Contact your independent Swagelok sales and service representative for information.

Safe Product Selection
When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: Do not mix or interchange parts with those of other manufacturers.

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