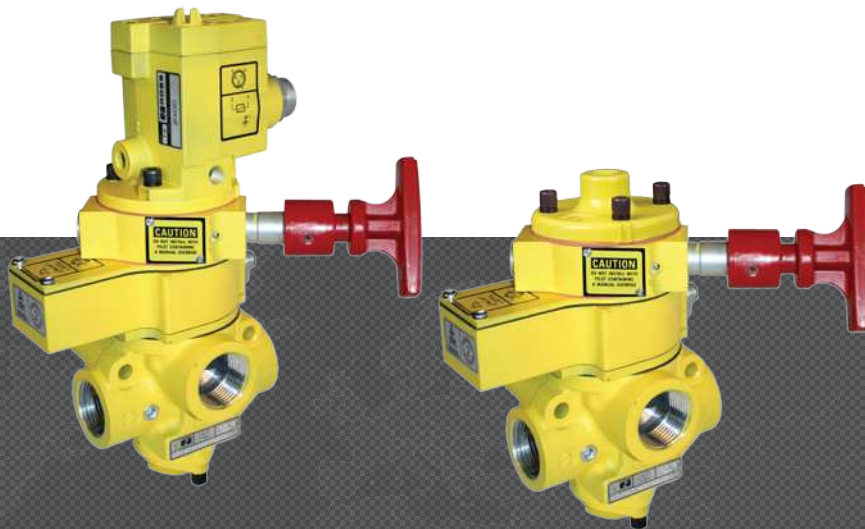




SAFE EXHAUST SV27 SERIES SENSING VALVES WITH L-O-X[®]

PRODUCT CATALOG



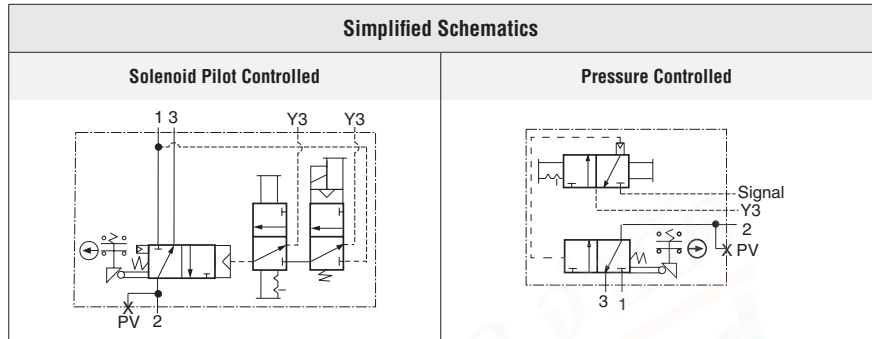
SV27 Sensing Valves with Manual Lockout L-O-X® Control

Product Overview



Lockout/Tagout Air Dump/Release Function

The SV27 Series Sensing Valve uses a safety-rated DPST (Double-Pole Single-Throw) switch to monitor the valve's operating position. The SV27 3/2 valve can be used for safe shut-off and exhaust functions for Category 2 applications with proper integration and monitoring. The feedback switch informs the controls that the valve internals have shifted properly.



Sensing Valves SV27 Series, based upon the proven 27 Series valve family, combine the tough, dirt tolerant characteristics of poppet technology with sensing for internal position and state.

Electrical feedback is provided via a positively-driven, safety-rated DPST (Double-Pole Single-Throw) switch with both normally open (NO) and normally closed (NC) contacts. For 3/4 and 1-1/4 bodies, the DPST switch is actuated whenever the valve is not in the normal home position. For size 2 body, the DPST switch is only actuated whenever the valve is in the normal home position.

Additional verification can be achieved by installing an optional visual pressure indicator or pressure switch into the 1/8 NPT pressure verification port (PV) for verification of pressure release.

These sensing valves are available in 3/2 normally closed functions with single solenoid pilot or pressure controlled pilot actuation.

VALVE FEATURES

Poppet Design	Poppet construction for near zero leakage Dirt tolerant, wear compensating poppet design for quick response and high flow capacity
Sensing	Senses internal position & state
Electrical Feedback	Electrical feedback via DPST switch (Double-Pole Single-Throw)
Locking Protection	Directly operated safety-rated force-guided positive-break status switch (DPST)
Lockout L-O-X® Control	Operated just like manual L-O-X® valve; the position of the red handle indicates instantaneous full flow pressurizing or exhausting capability.
Lockout Protection	L-O-X® design only allows the valve to be lockable in the OFF position
PTFE Seals	Fluorocarbon slipper seals for easy shifting, even after long periods of inactivity.
Diagnostic Coverage	A diagnostic coverage (DC) of 99% can be obtained by monitoring the safety switch status
Visible Pressure Indication Option	Includes integrated 1/8" sensor port for pressure verification with either a visual pop-up indicator or electrical pressure switch
Mounting	In-line
SISTEMA Library	Available for download at rosscontrols.com

NOTE: Per specifications and regulations, these products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.

STANDARD SPECIFICATIONS

GENERAL	Function		Safe Exhaust / Energy Isolation
	Construction Design		3/2 Valve; Poppet
	Actuation		Electrical Pneumatic
	Mounting	Type	Inline
		Orientation	Any, preferably vertical
	Connection		Threaded; G, NPT
Minimum Operation Frequency		Once per month, to ensure proper function	
OPERATING CONDITIONS	Temperature	Ambient	40° to 120°F (4° to 50°C)
		Media	40° to 175°F (4° to 80°C)
	Flow Media		Filtered air
	Operating Pressure		40 to 150 psig (2.8 to 10.3 bar)
Pilot Pressure		Must be equal to or greater than inlet pressure	
ELECTRICAL DATA	Switch Current/Voltage	Maximum	2.5 A/120 volts AC
		Minimum	50 mA/24 volts DC
	Switch Rating		Rated in excess of 15 million cycles; electrical life of switch varies with conditions and voltage
ELECTRICAL DATA FOR SOLENOID PILOT CONTROLLED VALVES	Solenoids		AC or DC power; rated for continuous duty
	Operating Voltage		24 volts DC 110-120 volts AC, 50/60 Hz 230-240 volts AC, 60 Hz
	Power Consumption (each solenoid)		24 V DC – 14 watts 110-120 V AC, 230 V AC – 87 VA inrush, 30 VA holding
CONSTRUCTION MATERIAL	Valve Body		Cast Aluminum
	Poppet		Acetal and Stainless Steel
	Spool (Lockout Valve)		Stainless Steel
	Seals		Buna-N; Fluorocarbon
	Manual Override (Solenoid Pilot Controlled)		Flush; rubber, non-locking
SAFETY DATA	Safety Integrity Level (SIL)		Certified by TÜV Rheinland in accordance to IEC 61508 and IEC 61511 safety integrity level 2 (SIL 2) and EN ISO 13849-1, PL c (with application specific diagnosis) in singular application with HFT = 0 and SIL 3 and PL e in redundant application with HFT≥1, for details see certificate.
	Functional Safety Data	Category	CAT 2, PL e
		B _{10D}	20,000,000
		PFH _D	2.35x10 ⁻⁷
		MTTF _D	98.15 (nop: 7360)
		DC (obtained by monitoring safety switch status)	99%
			ROSS recommends testing the switch function and sealing for load holding valves every 8 hours
Vibration/Impact Resistance		Calculated to DIN EN 60068-2-6.	

IMPORTANT NOTE: Please read carefully and thoroughly all of the CAUTIONS, WARNINGS on the inside back cover.

PRODUCT CREDENTIALS

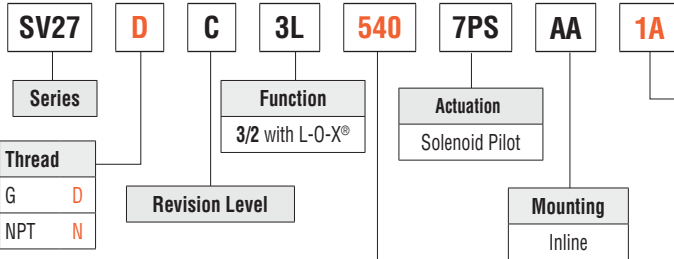
Safety Category	TÜV Rheinland of North America Certificate	CE Conformity Declaration	EAC Conformity Declaration	ISO Standard	CSA Certificate of Compliance	CRN Certification
	 Precisely Right.			ISO 13849-1:2015		Available for appropriately tested valves

Ordering Information

Solenoid Pilot Controlled Valves

Model Number Configurator

3-Way 2-Position Valves

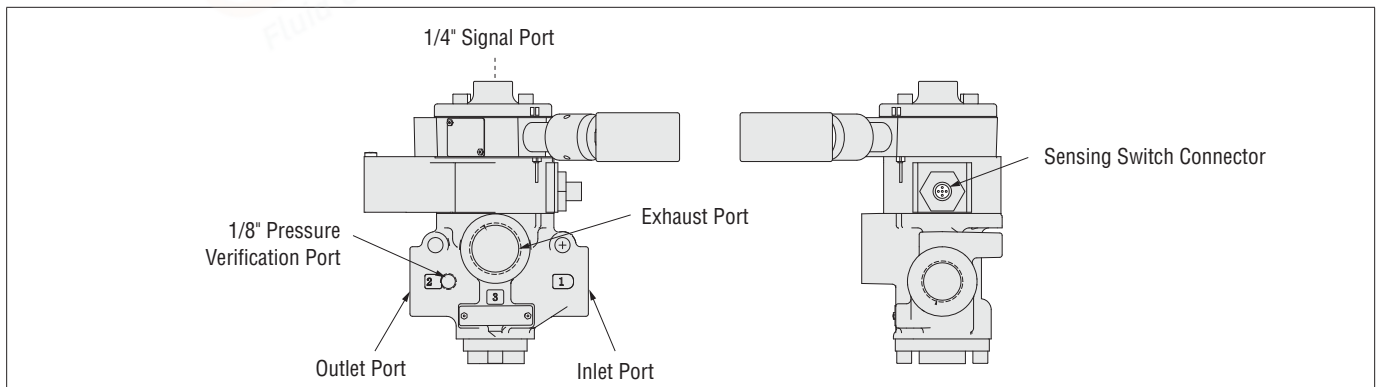


Voltage*	
24 volts DC	1D
110-120 volts AC, 50/60 Hz	1A
230-240 volts AC	2A

* For other voltages consult ROSS.

Body Size	Port Size			
	Inlet	Outlet	Exhaust	
3/4	1/2	1/2	1/2	540
	3/4	3/4	3/4	550
	1	1	1	560
1-1/4	1	1	1-1/2	760
	1-1/4	1-1/4	1-1/2	770
	1-1/2	1-1/2	1-1/2	780

Port Size		Flow C _v		Weight lb (Kg)
1, 2	3	1-2	2-3	
1/2	1/2	6.3	9.2	5.5 (2.5)
3/4	3/4	7.7	11	
1	1	8.0	12	
1	1-1/2	23	34	9.0 (4.0)
1-1/4	1-1/2	30	32	
1-1/2	1-1/2	30	32	



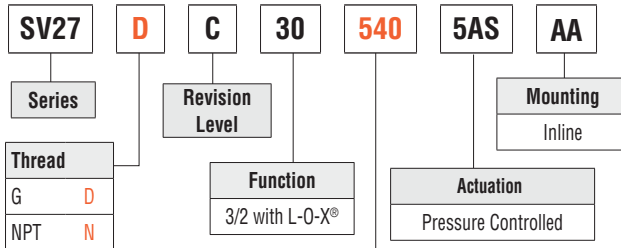
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Pressure Controlled Valves

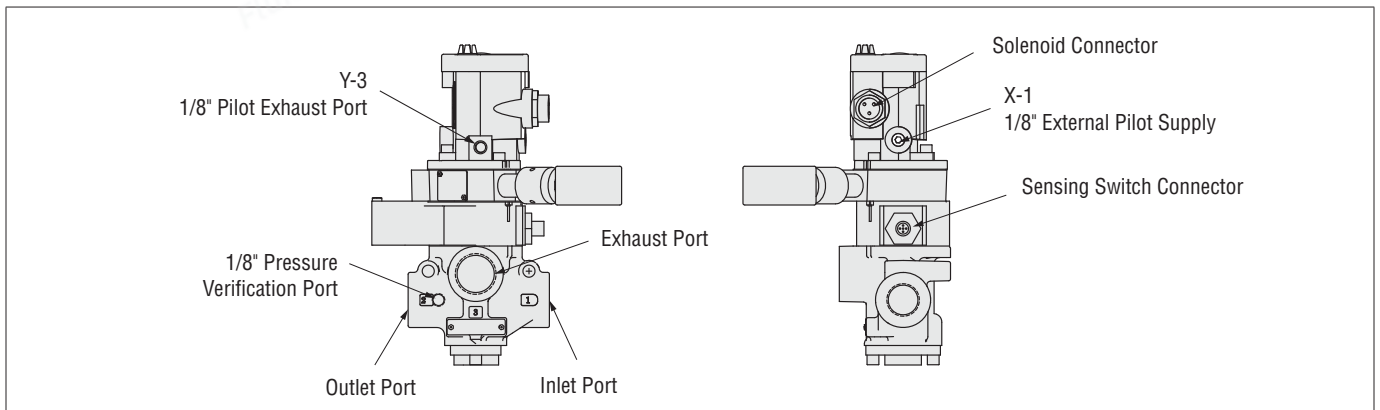
Model Number Configurator

3-Way 2-Position Valves



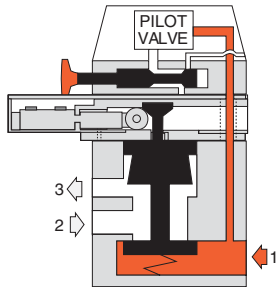
Body Size	Port Size			
	Inlet	Outlet	Exhaust	
3/4	1/2	1/2	1/2	540
	3/4	3/4	3/4	550
	1	1	1	560
1-1/4	1	1	1-1/2	760
	1-1/4	1-1/4	1-1/2	770
	1-1/2	1-1/2	1-1/2	780
2	1-1/2	1-1/2	2-1/2	980
	2	2	2-1/2	990
	2-1/2	2-1/2	2-1/2	995

Port Size		Flow C _v		Weight lb (Kg)
1, 2	3	1-2	2-3	
1/2	1	6.3	9.2	4.3 (2.0)
3/4	1	7.7	11	
1	1	8.0	12	
1	1-1/2	23	34	7.4 (3.4)
1-1/4	1-1/2	30	32	
1-1/2	1-1/2	30	32	



Valve Operation

Solenoid Pilot Controlled Valves

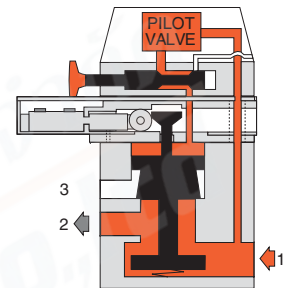


Pilot De-energized

With the solenoid pilot de-energized (regardless of the position of the L-O-X® handle) the inlet poppet remains closed. The outlet port is connected to the exhaust port so that pressure in the downstream lines is vented to atmosphere. The switch is in a de-actuated position.

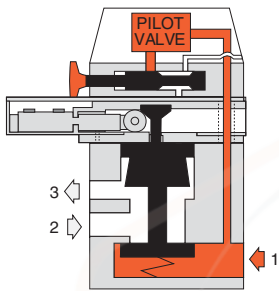
Pilot Energized

With the solenoid pilot energized and the L-O-X® control in the open position, air can flow from inlet to outlet port. The exhaust port is closed. The inlet poppet stem will cause the switch to be actuated indicating that the valve is open.



L-O-X® Valve Closed

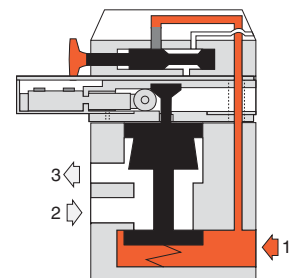
With the handle pushed inward, the L-O-X® control is closed, and air to the valve piston is cut off. This allows the inlet poppet to be closed by its spring and the pressure of the inlet air. The outlet is connected to exhaust so downstream pressure is vented. The switch is in a de-actuated position.



Pressure Controlled Valves

Valve Closed

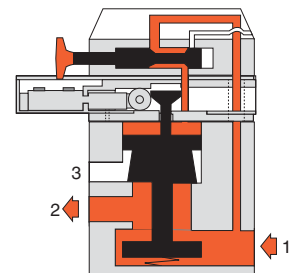
With a short push of the red handle inward the flow of supply air is blocked and downstream air is exhausted via the exhaust port. Air pressure on the inlet and exhaust poppets produces a large closing force. The L-O-X® valve should be padlocked in this position to prevent the handle from being pulled outward inadvertently when potential for human injury exists or servicing machinery. The switch is in a de-actuated position.



Valve Open

With the red handle pulled out, pilot air flows to the top of the actuating piston, causing it to open the inlet poppet. Supply air then flows freely from inlet to outlet, and the exhaust port is blocked. A detent keeps the L-O-X® handle in the open position. The handle is designed not to be locked in the open position, thereby allowing for quick shut-off when necessary.

The inlet poppet stem will cause the switch to be actuated indicating that the valve is open.



DIMENSIONS		Inches (mm)
Solenoid Pilot Controlled Valves		
Body Size 3/4		
Body Size 1 1/4		
Pressure Controlled Valves		
Body Size 3/4		
Body Size 1 1/4		
<p>For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats, visit www.rosscontrols.com.</p>		

Accessories & Options

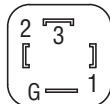
ENERGY RELEASE VERIFICATION

Visual Pressure Indicator	Verification Type	Installation Location	Indicator Type	Model Number	Port Thread
	Pneumatic	Pressure Sensing Port	Visual Pop-up Pin	988A30	1/8 NPT

Pressure Switch	Verification Type	Installation Location	Connector Type	Model Number	Port Thread	Factory Preset psi (bar)
	Electrical	Pressure Sensing Port or In-line Downstream	DIN EN 175301-803 Form A	586A86	1/8 NPT	5 (0.3) falling

Connectors Pinout

DIN EN 175301-803 Form A



- 1 - Common
- 2 - Normally Closed
- 3 - Normally Open
- G - Ground

ELECTRICAL CONNECTORS

Pre-wired Connector Kits for Solenoid Controlled Valves	Connection Type		Connector Type	Quantity	Cable		Length meters (feet)	Kit Number
					End 1	End 2		Without Light
	Solenoid & Sensing Switch	Solenoid	Sensing Switch	MINI, 3-pin (Female)	1	Connector	Flying leads	4 (13.1)
Solenoid		Sensing Switch	M12, 5-pin (Female)	1	Connector	Flying leads	10 (32.8)	2240H77

Pre-wired Connectors for Pressure Controlled Valves	Connection Type	Connector Type	Quantity	Cable		Length meters (feet)	Model Number
				End 1	End 2		Without Light
	Sensing Switch	M12, 5-pin (Female)	1	Connector	Flying Leads	4 (13.1)	2241H77
			1	Connector	Flying Leads	10 (32.8)	2242H77

Solenoid Connector Pinout	Sensing Switch Connector Pinout	
MINI, 3-pin	M12, 5-pin	
	<p>Valve Basic Size 3/4 & 1-1/4</p>	<p>Valve Basic Size 2</p>
Integrated Double-Pole Single-Throw Switch (DPST) Switch States Contact conditions during switch travel (0 to 6 mm).		
<p>Valve Basic Size 3/4 & 1-1/4</p>	<p>Valve Basic Size 2</p>	
The DPST switch is actuated whenever the valve is not in the normal home position.	The DPST switch is only actuated whenever the valve is in the normal home position.	



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SILENCERS

Silencers	Port Size	Thread Type	Model Number		Flow Avg. C _v	Pressure Range psig (bar)
			R/Rp Thread	NPT Thread		
	1/2	Male	D5500A4003	5500A4003	4.7	0-290 (0-20) maximum
	3/4	Male	D5500A5013	5500A5013	5.1	
			D5500A5003	5500A5003	12	
	1	Male	D5500A6003	5500A6003	15	
	1-1/4	Male	D5500A7013	5500A7013	16	
		Female	D5500A7001	5500A7001	24	
	1-1/2	Female	D5500A8001	5500A8001	30	

SOLENOID PILOT OPTIONS

Indicator Light Kits	Kit Number		
	24 V DC	110-120 V AC, 50-60 Hz	230 V AC, 50-60 Hz
	862K87-W	862K87-Z	862K87-Y

Manual Override Kits	Flush Button		Extended Button		Extended Button with Palm	
	Locking Type	Kit Number	Locking Type	Kit Number	Locking Type	Kit Number
	Non-Locking	790K87	Non-Locking	791K87	Non-Locking	984H87
	Locking	792K87				
Each of the buttons in the override kits is made of metal and is spring-returned. The locking type button, however, can be kept in the actuated position by turning the slot in the top of the button with a screwdriver.						

LOCKOUT DEVICE

Lockout Hasp	Valve Model Use	Model Number
	Lockout L-O-X®	356A30