



SAFE EXHAUST SENSING VALVES SV27 SERIES

PRODUCT CATALOG



Sensing Valves SV27 Series

Product Overview

Air/Dump Release Safety 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 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.



Solenoid Pilot Controlled	Pressure Controlled
	

Illustration examples.

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

Enhanced safety 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)
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	Inline
SISTEMA Library	Available for download at rosscontrols.com

PRODUCT CREDENTIALS

Performance Level Per ISO 13849-1:2015 	Safety Integrity Level Per IEC 2061:2001 	TÜV Rheinland Per ISO 9001:2015  Precisely Right.	Declaration of Conformity 	Certificate of Compliance 
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STANDARD SPECIFICATIONS

GENERAL	Function		3/2 Valve		
	Construction Design		Poppet		
	Actuation		Electrical – Solenoid Pilot Controlled		
			Pneumatic – Pressure Controlled		
	Mounting	Type	Inline		
		Orientation	Any, preferably vertical		
	Connection		Threaded; NPT, G		
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	Current Flow	Operating Voltage	Power Consumption (each solenoid)	
		DC	24 volts	14 watts	
		AC	110-120 volts, 50/60 Hz	87 VA inrush, 30 VA holding	
			230-240 volts, 60 Hz		
Rated for continuous duty					
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 Valves)		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%	
	Vibration/Impact Resistance		ROSS recommends testing the switch function and sealing for load holding valves every 8 hours		
		Calculated to DIN EN 60068-2-6.			

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

Ordering Information

Solenoid Pilot Controlled Valves

Model Number Configurator

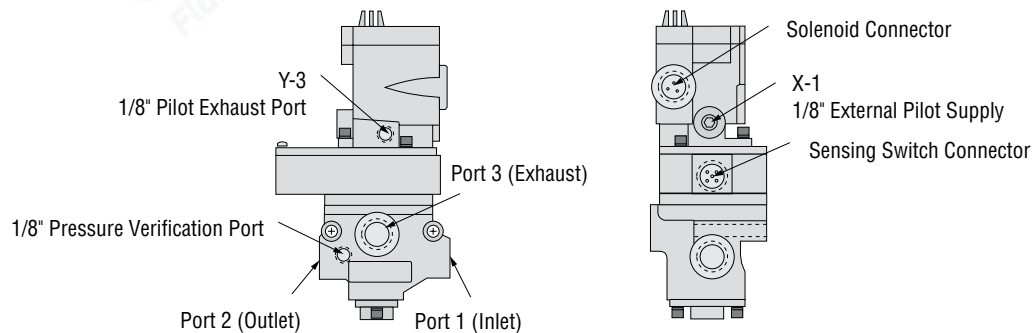
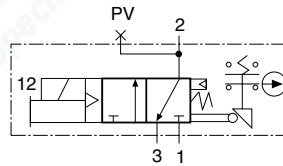
3-Way 2-Position Valves

SV27	D	C	30	540	7PS	AA	1A	
Series		Function		Actuation		Mounting		
NPT N		3/2		Solenoid Pilot		Inline		
G D		Revision Level						
Thread						Current	Voltage*	
NPT	N					DC	24 V	1D
G	D					AC	110 V, 50 Hz	1A
							120 V, 50/60 Hz	1A
							230 V, 50/60 Hz	2A
* For other voltages consult ROSS.								

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

Port Size		Flow Cv (l/min)		Weight lb (kg)
1, 2	3	1-2	2-3	
1/2	1	6.3 (6199)	9.2 (9053)	4.5 (2.0)
3/4	1	7.7 (7577)	11 (10824)	
1	1	8.0 (7872)	12 (11808)	
1-1/4	1-1/2	23 (22632)	34 (33456)	7.8 (3.5)
	1-1/2	30 (29520)	32 (31488)	
1-1/2	1-1/2	30 (29520)	31 (30504)	18.1 (8.2)
	2-1/2	68 (66912)	70 (68880)	
2	2-1/2	70 (68880)	70 (68880)	
2-1/2	2-1/2	70 (68880)	71 (69864)	

Valve Schematic



Pressure Controlled Valves

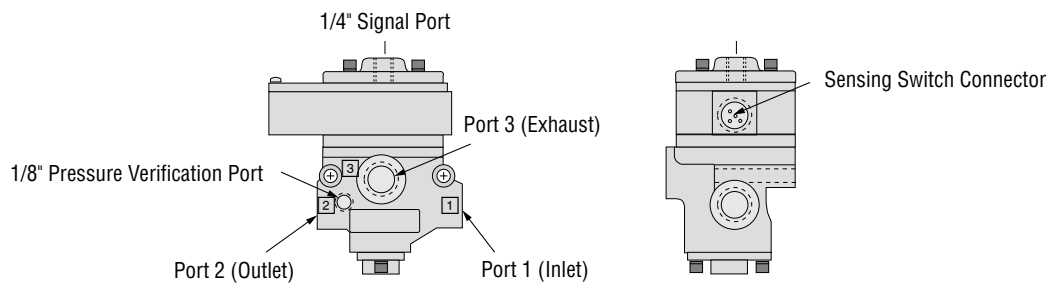
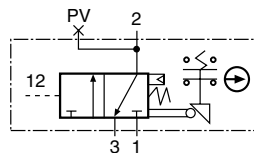
Model Number Configurator

3-Way 2-Position Valves

Series	SV27
Function	3/2
Mounting	Inline
Actuation	Pressure Controlled
Thread	NPT N G D
Revision Level	D
Body Size	3/4 1-1/4 2
Port Size	In-Out Exhaust
3/4	1/2 1 540 3/4 1 550 1 1 560
1-1/4	1 1-1/2 760 1-1/4 1-1/2 770 1-1/2 1-1/2 780
2	1-1/2 2-1/2 980 2 2-1/2 990 2-1/2 2-1/2 995

Port Size		Flow Cv (l/min)		Weight lb (kg)
1, 2	3	1-2	2-3	
1/2	1	6.3 (6199)	9.2 (9053)	3.3 (1.5)
3/4	1	7.7 (7577)	11 (10824)	
1	1	8.0 (7872)	12 (11808)	6.4 (2.9)
	1-1/2	23 (22632)	34 (33456)	
1-1/4	1-1/2	30 (29520)	32 (31488)	17.2 (7.8)
1-1/2	1-1/2	30 (29520)	31 (30504)	
	2	2-1/2	68 (66912)	70 (68880)
2-1/2		2-1/2	70 (68880)	70 (68880)
2-1/2	2-1/2	70 (68880)	71 (69864)	

Valve Schematic



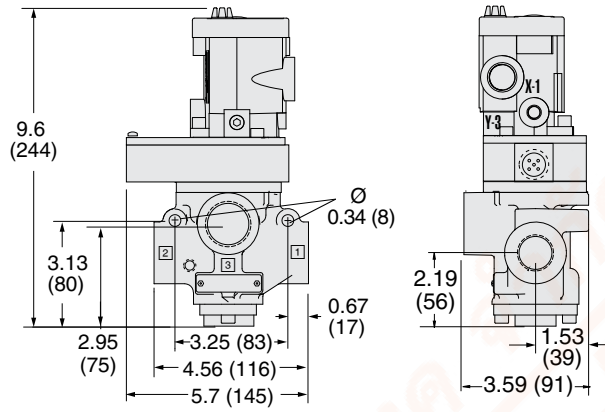
Valve Technical Data

Solenoid Pilot Controlled Valves

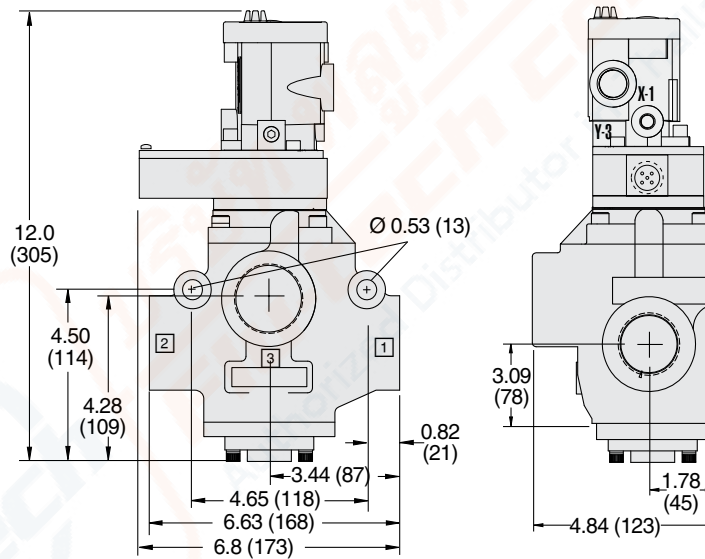
DIMENSIONS

Inches (mm)

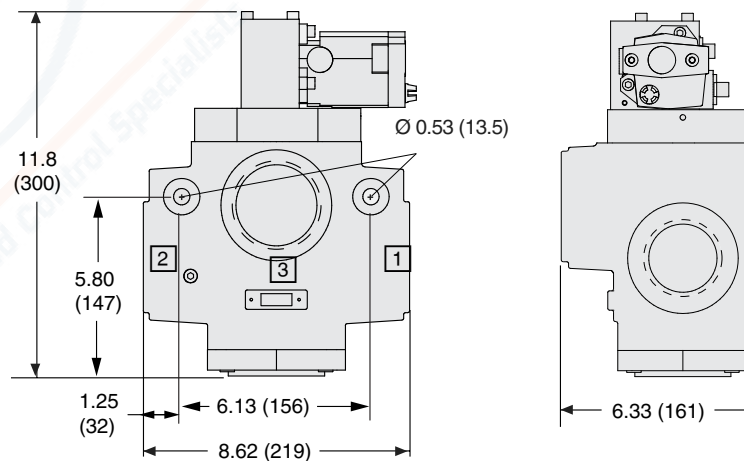
Body Size 3/4



Body Size 1-1/4



Body Size 2



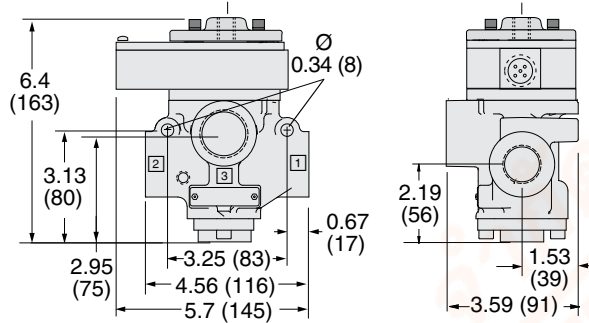
For additional information, and to assist you with piping and connectivity designs, our products are available in downloadable 2D drawings and 3D CAD models in a wide range of options including native formats, visit www.rosscontrols.com.

Pressure Controlled Valves

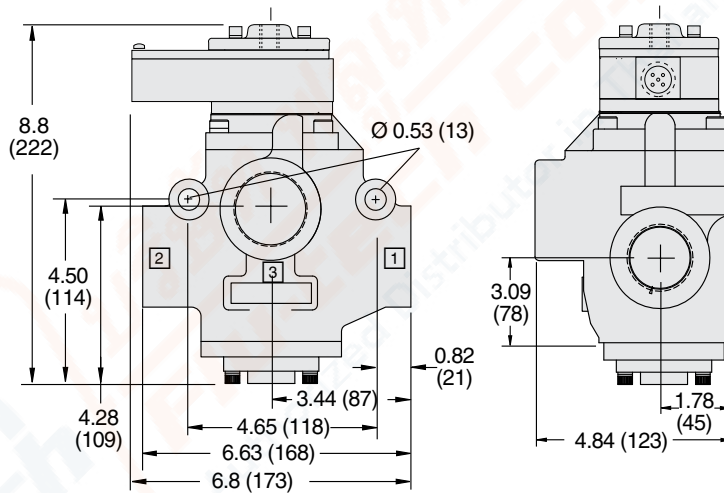
DIMENSIONS

Inches (mm)

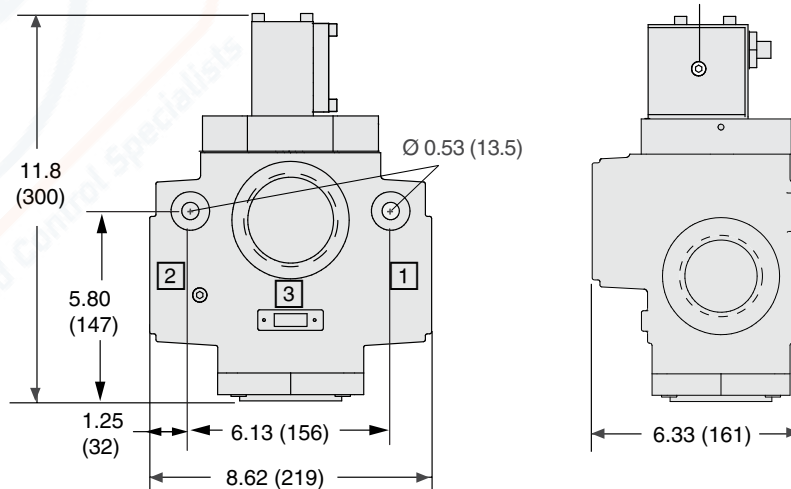
Body Size 3/4



Body Size 1-1/4



Body Size 2



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Accessories

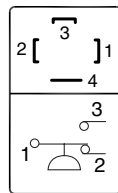
ENERGY RELEASE VERIFICATION

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 Downstream	DIN EN 175301-803 Form A	586A86	1/8 NPT	5 (0.3) falling

Pinout

DIN EN 175301-803 Form A

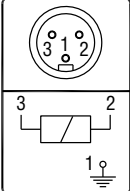
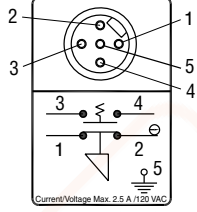
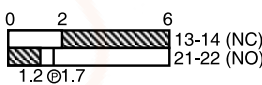
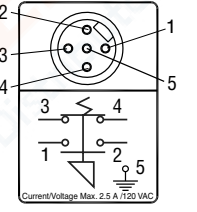
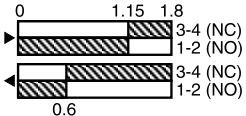


- 1 - Common
- 2 - Normally Closed
- 3 - Normally Open
- 4 - Ground (Not Used)

PREWIRED ELECTRICAL CONNECTORS

Prewired Connector Kits	Cable					Kit Number
	End 1	End 2	Length feet (meters)	Connection	Quantity Included	Without Light
	Connector	Cord				
	MINI, 3-pin	Flying leads	13.1 (4)	Solenoid	1	2239H77
M12, 5-pin	Sensing Switch					
MINI, 3-pin	Flying leads	32.8 (10)	Solenoid	1	2240H77	
M12, 5-pin						Sensing Switch

Prewired Connectors for Pressure Controlled Valves	Cable					Model Number	
	End 1	End 2	Connection	Length feet (meters)	Cord Diameter mm	Quantity Included	Without Light
	Connector	Cord					
	M12, 5-pin	Flying Leads	Sensing Switch	13.1 (4)	6	1	2241H77
32.8 (10)				10	1	2242H77	

Solenoid Connector Pinout	Sensing Switch Connector Pinout	
MINI, 3-pin	M12, 5-pin	
 <p>1 - Green/Yellow (Ground) 2 - Blue 3 - Brown</p>	<p style="text-align: center;">Valve Basic Size 3/4 & 1-1/4</p>  <p>1 - Brown 2 - White 3 - Blue 4 - Black 5 - Gray Current/Voltage Max. 2.5 A / 120 V AC</p> <p>Integrated Double-Pole Single-Throw Switch (DPST) Switch States Contact conditions during switch travel (0 to 6 mm).</p> <p>NC - Normally Closed NO - Normally Open</p>  <p>The DPST switch is actuated whenever the valve is not in the normal home position.</p>	<p style="text-align: center;">Valve Basic Size 2</p>  <p>1 - Brown 2 - White 3 - Blue 4 - Black 5 - Gray Current/Voltage Max. 2.5 A / 120 V AC</p> <p>Integrated Double-Pole Single-Throw Switch (DPST) Switch States Contact conditions during switch travel (0 to 6 mm).</p> <p>NC - Normally Closed NO - Normally Open</p>  <p>The DPST switch is only actuated whenever the valve is in the normal home position.</p>

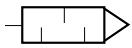
SOLENOID PILOT OPTIONS

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

Accessories

EXHAUST SILENCERS

Silencers	Material	Port Size	Thread Type	Model Number		Flow C _v (l/min)	Pressure Range psig (bar)
				NPT Thread	R/Rp Thread		
Aluminum		1	Male	5500A6003	D5500A6003	18 (17712)	0-290 (0-20) maximum
		1-1/2	Female	5500A8001	D5500A8001	39 (38376)	
		2-1/2	Female	5500A9002	D5500A9002	104 (102336)	

Port Size	Dimensions inches (mm)		Weight lb (kg)	Schematic
	Length	Hex Size		
1	5.4 (138)	2.0 (51)	0.9 (0.4)	
1-1/2	5.7 (144)	2.5 (64)	1.3 (0.6)	
2-1/2	5.7 (145)	4.0 (102)	2.9 (1.4)	

FEMALE SILENCER CONNECTORS

Hex Nipples	Material	Fitting Pipe Size	Thread Type	Model Number	
				NPT Thread	BSPT Thread
	Steel	1-1/2	Male - Male	488J27	122J39
	Stainless Steel	2-1/2	Male - Male	490J27	123J39



บริษัท ฟลูเทค จำกัด
FLU-TECH CO.,LTD

845/3-4 หมู่ 3 ถ.เทพารักษ์ ต.เทพารักษ์ อ.เมือง จ.สมุทรปราการ 10270
845/3-4, Mhoo 3, Theparak Rd., T. Theparak, A. Muang, Samut Prakan, 10270, Thailand
Tel. 02 384 6060, Fax. 02 384 5701 Email sales@flutech.co.th , www.flutech.co.th