SV-25 Valve Specifications
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All PacSeal Hydraulics' SV Directional Control Valves are designed with ShearFlo® metal-to-metal sealing technology. ShearFlo® sealing technology features:

- High cycle life and anti-wear design is suitable for critical service applications, including contaminated fluids.
- Leak proof, contaminant resistant metal-to-metal seal is accomplished by lapping and polishing hardened stainless steel sealing elements to exacting standards of finish and flatness.
- The sealing elements are spring preloaded and pressure energized, which maintains contact between the two sealing surfaces at all times.

All SV Valves are tested to PacSeal's strict quality control standards to ensure proper function and reliability. Every ShearFlo® sealing component in a repair kit is inspected to ensure trouble-free performance after field maintenance and repair.

PacSeal Hydraulics' rotary SV Directional Control Valves direct fluid flow to one or two cylinder ports, based on the selected rotor and detent combination, as specified in the "Valve Shift Options" table.

The SV valves' modular design accomodates various operator options (manual and remote with manual override) to suit the application at hand. The options available for manual operation are as follows:

- Detented (2 or 3-position)
- Spring Centered (3-position)
- Pin Lock Detent (3-position)

The remote operator options with manual override are available in pneumatic or hydraulic with 2 or 3 positions as follows:

- Actuator Cylinder bracket mounted to valve
- SVX Integral Actuator assembled atop the valve providing higher efficiency and immediate actuation

Various porting options provide further customization, as follows:

- Inline
- Bottom
- Subplate
- Manifold

General Specifications	
Port Size	1/4 in. NPT or SAE ORB
Working Pressure Options (Liquid)	3000 or 6000 psi
Working Pressure Options (Gas)	2000 or 4000 psi
Return Port Pressure	250 psi (Max)[1]
Proof Pressure	1.5X Working Pressure
Burst Pressure	2X Working Pressure
Cv Factor	0.95
Rated Flow	10 gpm
Temp Rating	-40 to 250°F
Fluid Media	Hydraulic oil or lubricated water[2]
Weight	See Installation Drawings
Materials	
ShearFlo Sealing Components (Rotor and Seal Rings)	400 Series SS Hardened[2]
Shaft	400 Series SS
Body	400 Series SS
Housing	Carbon Steel
Handle, Detent Disc and Spacers, Hardware	Plated Carbon Steel
O-rings	Buna-N (N), Viton (V), or EPR (E)
Backup Rings	Teflon

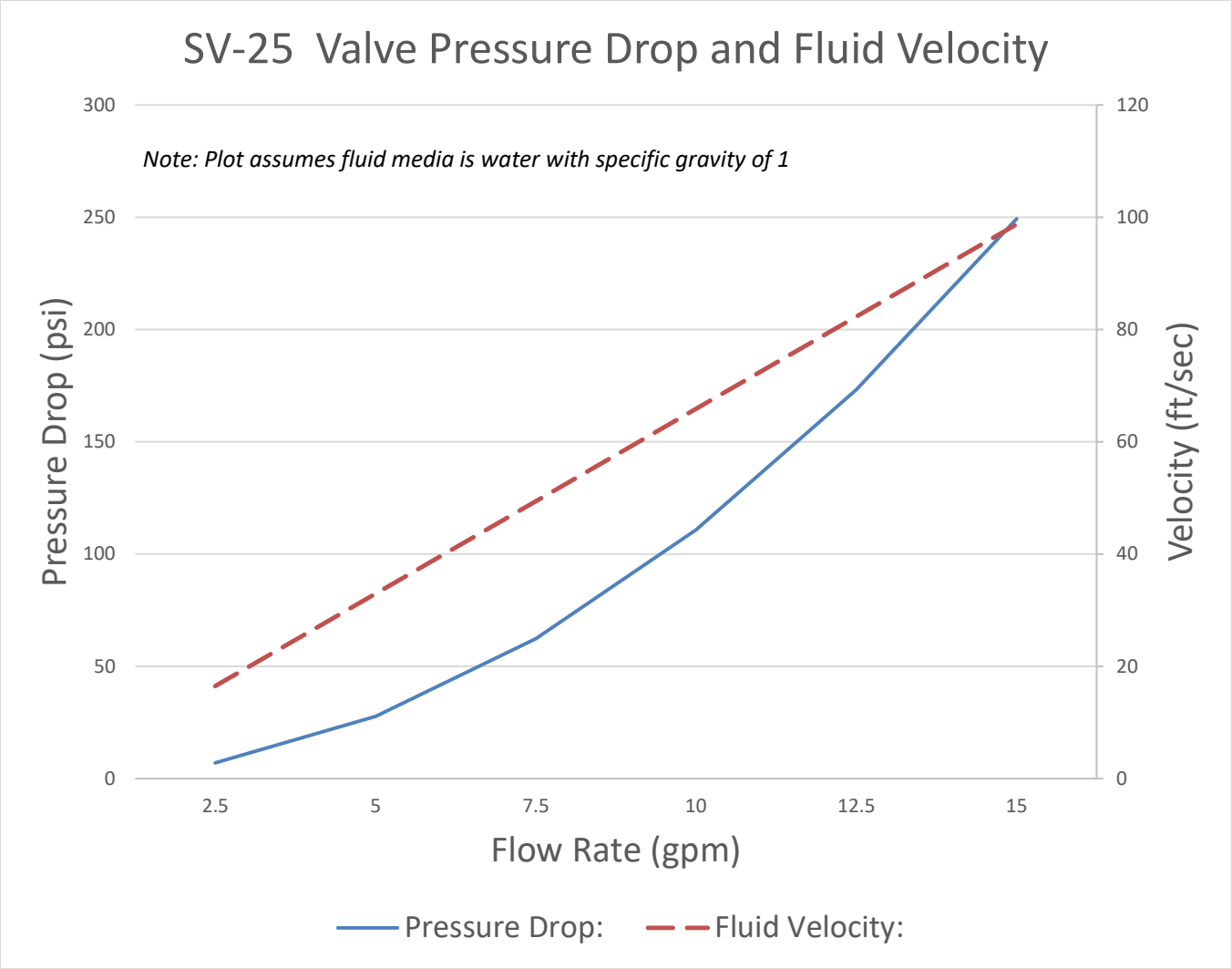
[1] *Full rated pressure (3000 or 6000 psi) with All Blocked Rotor option*

[2] *For water based media, special alloy seal rings may be required for optimum performance and durability - Contact PacSeal for details*

Valve Shift Options	
Detent Pattern	Valve Options
3-Position (4-way)	All Options
2-Position 90° (4-way)	All Options
2-Position 45° CW or CCW (3-way)	Selector, Manipulator, Open Center

Rotor Flow Options

Rotor Configuration	Center Position	CW or CCW Position
Manipulator	Cylinders drain to tank and pressure port blocked	Operates a cylinder port while the opposite port is returned to tank
Selector	Return port is open while cylinder and pressure ports are blocked	Operates a cylinder port while the opposite port is returned to tank
Bypass	Return port is open while cylinder and pressure ports are blocked	Operates a cylinder port while the opposite port is blocked
Open Center	Cylinder ports blocked while pressure and return ports are connected	Operates a cylinder port while the opposite port is returned to tank
All Blocked	All ports blocked. Case Drain Required	Operates a cylinder port while the opposite port is returned to tank



SV-25 Handle Torque (lb.-in.)

Rotor Type	At 1500 psi Supply Pressure	At 3000 psi Supply Pressure	At 5000 psi Supply Pressure	At 6000 psi Supply Pressure
Selector	15	26	39	47
*Bypass**	23	36	60	70

**Note: Higher torque is a result of having two supply pressures from C1 and C2*

Model Number Configurator

Basic Size	Port Size	Type of Ports	Pressure Rating	Port Location	Bolts	Rotor Flow Pattern	Valve/Actuator Postions	Actuation Type	Handle	O-Ring	Actuator Cylinder Orientation[2]	Nameplate Add-on
SV25-	**2** 1/4"	**N** NPT	**3** 3000	**I** Inline / Side	**S** Std Short	**S** Selector	**1** 3-Pos.	None (leave blank)	**M** Standard Manual	**N** Buna-N	None (leave blank)	**-0** Blank
		S SAE	**6** 6000	**B** Bottom	**L** Long	**O** Open Center	**2** -2 Pos. 90°	**A** Air	**R** Actuator Cylinder	**V** Viton	**L** Left Mount	
		M Manifold			**P** Panel Mount	**M** Manipulator	**3** 2-Pos. 45° CW	**H** Hydraulic	**S** Spring Centered	**E** EPR	**R** Right Mount	
		B Subplate[1]			**N** None[3]	**B** Bypass	**4** 2-Pos. 45° CCW		**L** Pin Lock Detent			
						A All Blocked[1]			**W** Wing Handle			
SVX25-	**2** 1/4"	**N** NPT	**3** 3000	**I** Inline / Side		**S** Selector	**1** 2-Pos. 90°	**A** Air - Direct Piloted	**S** Straight[5]	**N** Buna-N		**-0** Blank
		S SAE	**6** 6000	**B** Bottom		**O** Open Center	**2** 2-Pos. 45° CW	**H** Hydraulic - Direct Piloted	**W** Wing[5]	**V** Viton		
		M Manifold			N/A	**M** Manipulator	**3** 3-Pos. 90°	**R** Air - Solenoid Piloted	**N** Indicator[4]	**E** EPR	N/A	
		B Subplate[1]				**B** Bypass	**4** 3-Pos. 90° - Spring Centered	**U** Hydraulic - Solenoid Piloted				
						A All Blocked[1]	**5** 2-Pos. 45° CCW					
							6 2-Pos. 45° CW - Spring Centered					
							7 2-Pos. 45° CCW - Spring Centered					

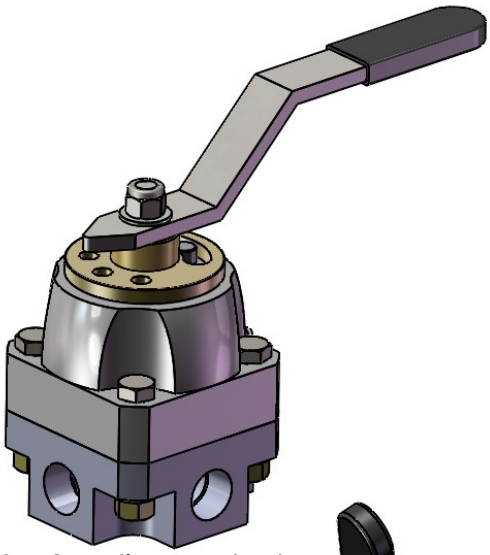
[1] *Not a standard Option*

[2] *Use only if Actuator Cylinder is selected*

Notes: [3] *For Manifold Mount Option*

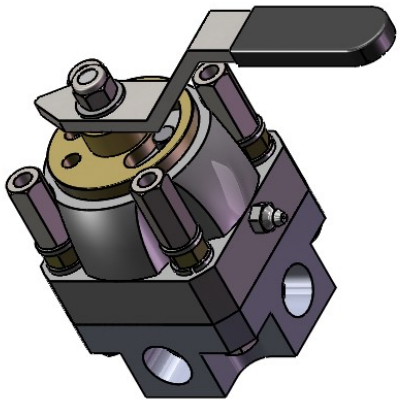
[4] *No manual override*

[5] *Manual override to center position (3rd position for 2-Pos SVX actuators)*



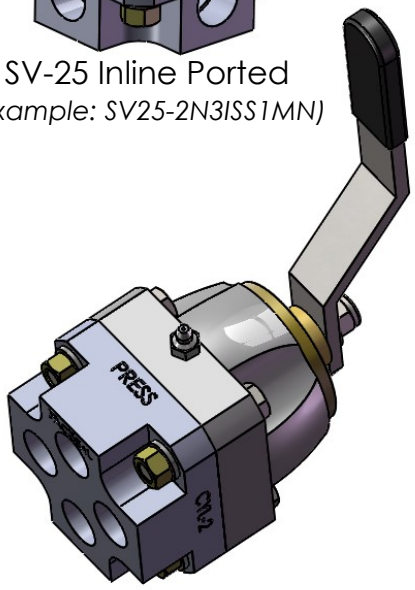
SV-25 Inline Ported

(Example: SV25-2N3ISS1MN)



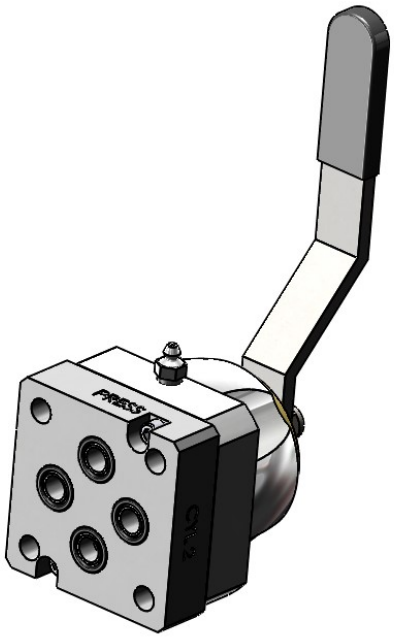
SV-25 Panel Mount

(Example: SV25-2N6IPS1MN)



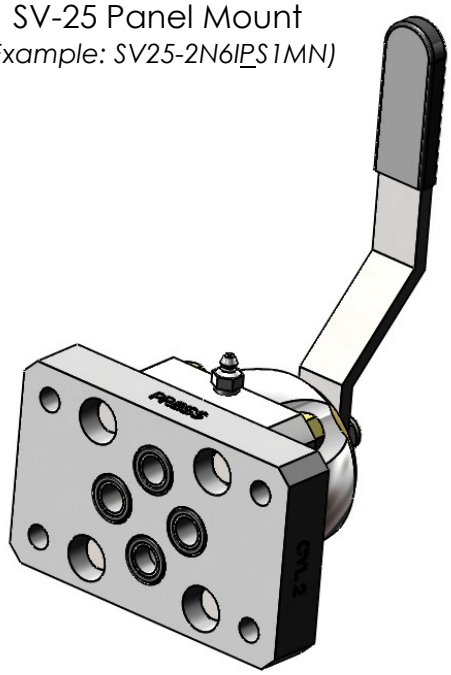
SV-25 Bottom Ported

(Example: SV25-2N3BSS1MN)



SV-25 Manifold Ported

(Example: SV25-2M3BSS1MN)



SV-25 Subplate Ported

(Example: SV25-2S3BSS1MN)

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TITLE **SV-25 Porting Configurations Overview**

SIZE **A** REV **2**

Model Number Configurator

Basic Size	Port Size	Type of Ports	Pressure Rating	Port Location	Bolts	Rotor Flow Pattern	Valve/Actuator Postions	Actuation Type	Handle	O-Ring	Actuator Cylinder Orientation[2]	Nameplate Add-on
SV25-	**2** 1/4"	**N** NPT	**3** 3000	**I** Inline / Side	**S** Std Short	**S** Selector	**1** 3-Pos.	None (leave blank)	**M** Standard Manual	**N** Buna-N	None (leave blank)	**-0** Blank
		S SAE	**6** 6000	**B** Bottom	**L** Long	**O** Open Center	**2** -2 Pos. 90°	**A** Air	**R** Actuator Cylinder	**V** Viton	**L** Left Mount	
		M Manifold			**P** Panel Mount	**M** Manipulator	**3** 2-Pos. 45° CW	**H** Hydraulic	**S** Spring Centered	**E** EPR	**R** Right Mount	
		B Subplate[1]			**N** None[3]	**B** Bypass	**4** 2-Pos. 45° CCW		**L** Pin Lock Detent			
						A All Blocked[1]			**W** Wing Handle			
SVX25-	**2** 1/4"	**N** NPT	**3** 3000	**I** Inline / Side		**S** Selector	**1** 2-Pos. 90°	**A** Air - Direct Piloted	**S** Straight[5]	**N** Buna-N		**-0** Blank
		S SAE	**6** 6000	**B** Bottom		**O** Open Center	**2** 2-Pos. 45° CW	**H** Hydraulic - Direct Piloted	**W** Wing[5]	**V** Viton		
		M Manifold			N/A	**M** Manipulator	**3** 3-Pos. 90°	**R** Air - Solenoid Piloted	**N** Indicator[4]	**E** EPR	N/A	
		B Subplate[1]				**B** Bypass	**4** 3-Pos. 90° - Spring Centered	**U** Hydraulic - Solenoid Piloted				
						A All Blocked[1]	**5** 2-Pos. 45° CCW					
							6 2-Pos. 45° CW - Spring Centered					
							7 2-Pos. 45° CCW - Spring Centered					

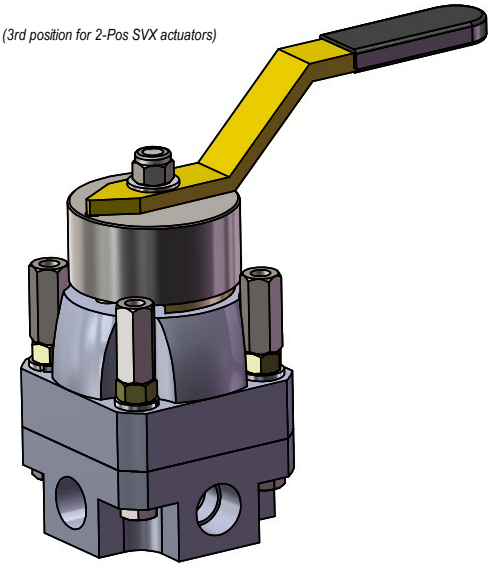
[1] *Not a standard Option*

[2] *Use only if Actuator Cylinder is selected*

Notes: [3] *For Manifold Mount Option*

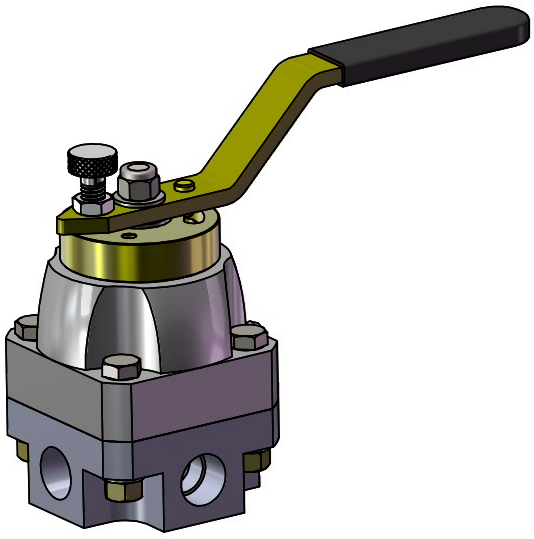
[4] *No manual override*

[5] *Manual override to center position (3rd position for 2-Pos SVX actuators)*



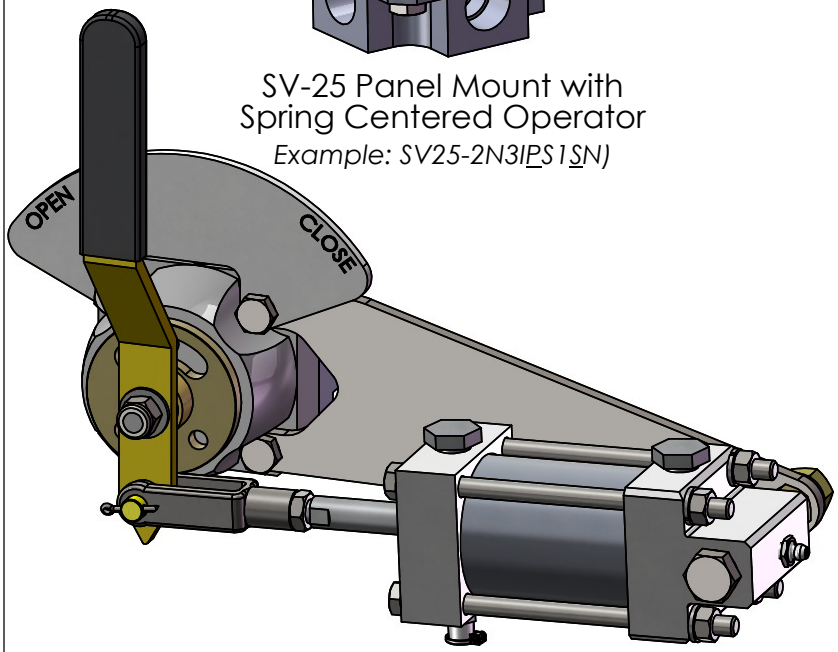
SV-25 Panel Mount with Spring Centered Operator

Example: SV25-2N3IPS1SN)



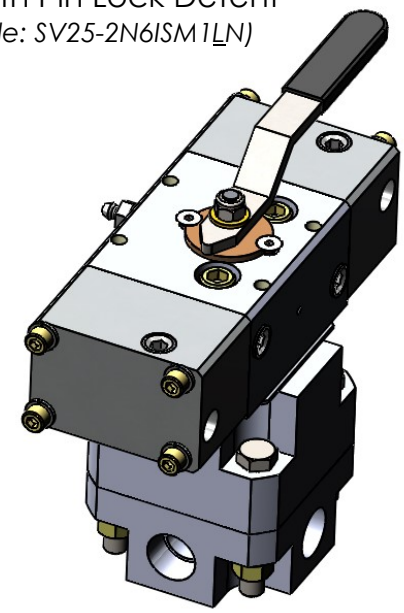
SV-25 with Pin Lock Detent

(Example: SV25-2N6ISM1LN)



SV-25 with Air Cylinder Actuator

(Example: SV25-2N3ISS1RN-AR0)



SVX-25 with 2 Pos. 90° Air Actuation

(Example: SVX25-2N3IS1ASN)

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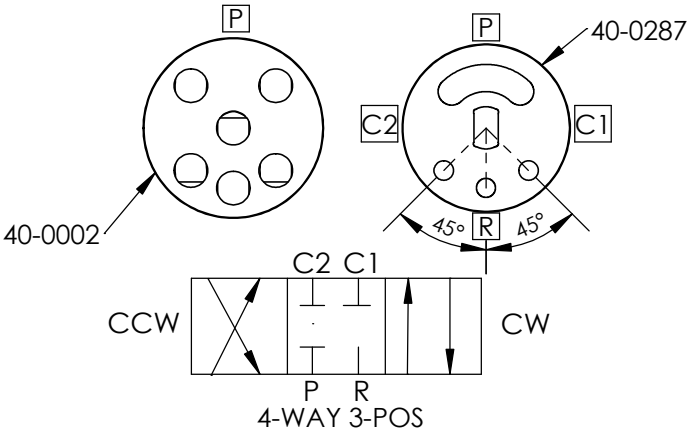
TITLE **SV-25 Operator Configurations Overview**

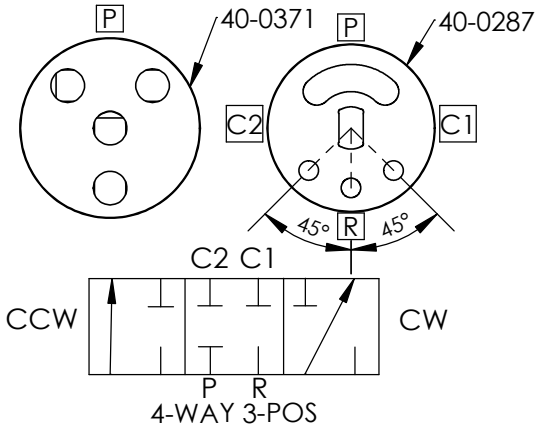
SIZE **A** REV **2**

Notes:

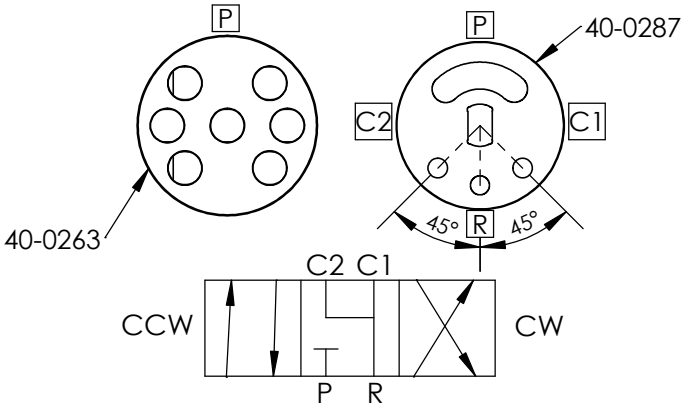
1. Rotor and Detent Disc Part No.'s displayed
2. Not a standard stock item



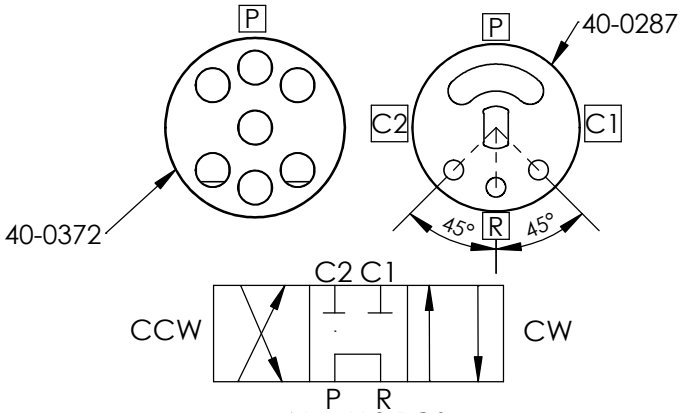
4-WAY 3-POS
SELECTOR
3 POS DETENT



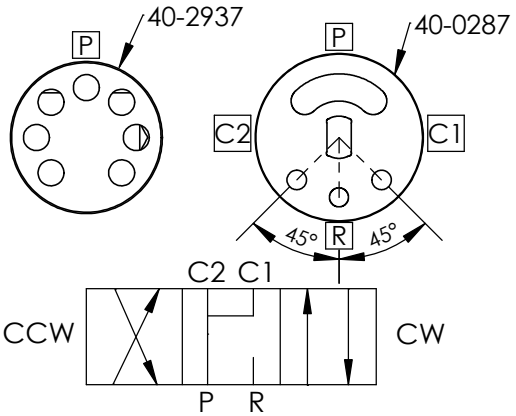
4-WAY 3-POS
BYPASS
3 POS DETENT



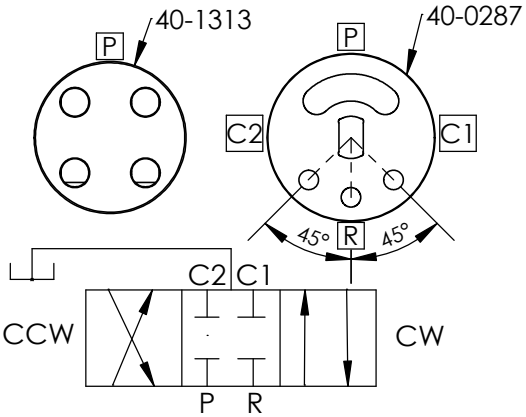
4-WAY 3-POS
MANIPULATOR
3 POS DETENT



4-WAY 3-POS
OPEN CENTER
3 POS DETENT



4-WAY 3-POS
2 CROSSOVER
3 POS DETENT



4-WAY 3-POS
2 ALL-BLOCKED
CASE DRAIN REQUIRED
3 POS DETENT

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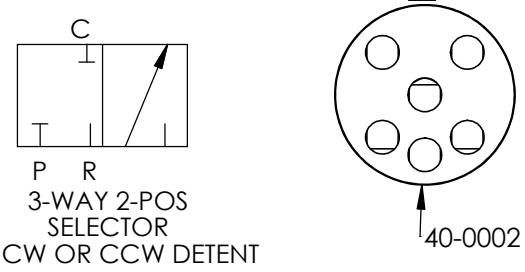
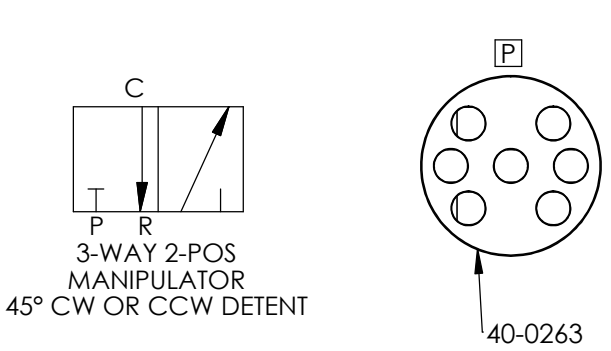
TITLE
SV-25 Rotor Flow and Detent Disc 3-Position Options

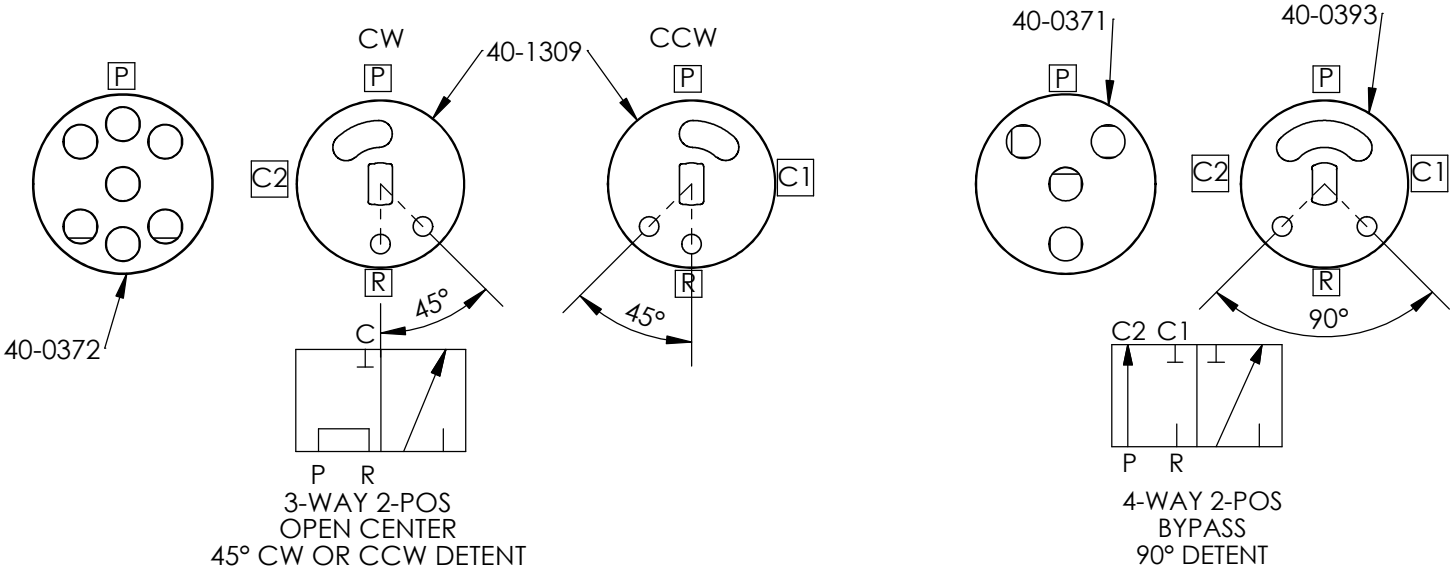
SIZE A | REV 2

Notes:

1. Rotor and Detent Disc Part No.'s displayed







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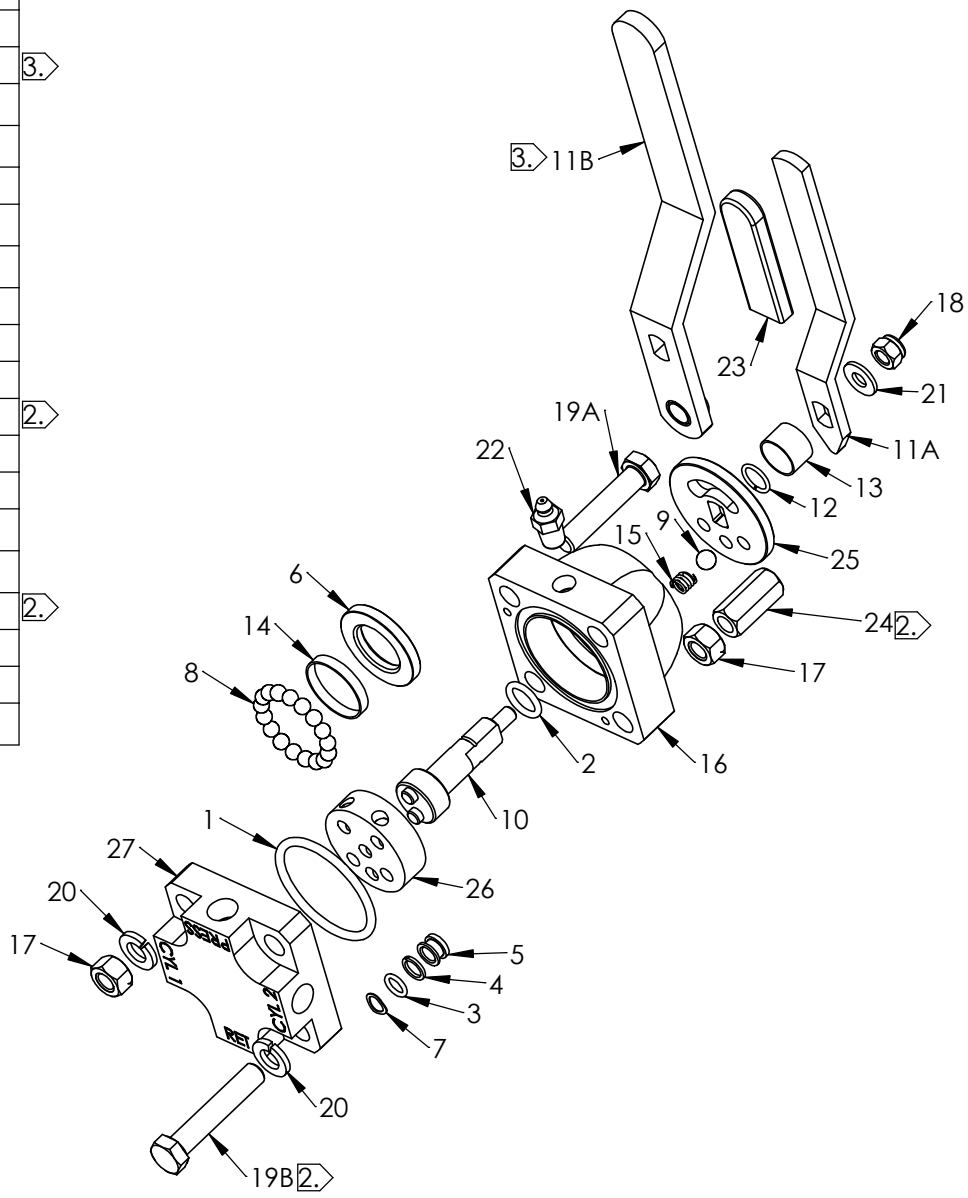
TITLE
SV-25 Rotor Flow and Detent Disc 2-Position Options

SIZE A | REV 2

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	
1	23-1330	O-Ring	1	
2	23-1337	O-Ring	1	
3	23-1338	O-Ring	3	
4	23-1339	Backup Ring	3	
5	40-0001	Seal Ring	3	
6	40-0003	Thrust Washer	1	
7	40-0028	Wave Spring	3	
8	40-0048	Ball, Bearing	17	
9	40-0259	Ball, Bearing	1	
10	40-0274	Shaft	1	
11A	40-0279	Handle, Manual	1	
11B	40-0648	Handle, Remote	1	3.
12	40-0290	Retaining Ring	1	
13	40-0293	Spacer, Handle	1	
14	40-0294	Ball Retainer	1	
15	40-0297	Spring	1	
16	40-0352	Housing	1	
17	50-0078	Hex Nut	4	
18	50-0091	Locknut	1	
19A	50-0097	Bolt	2	
19B	50-0098	Bolt	2	2.
20	50-0103	Lock Washer	4	
21	50-0106	Washer, Shaft	1	
22	50-0176	Grease Fitting	1	
23	50-0238	Grip, Handle	1	
24	50-0588	Nut, Panel Mount	2	2.
25	Note 4	Detent Disc	1	
26	Note 4	Rotor	1	
27	Note 5	Body	1	

Notes:
1. Standard Inline Ported SV-25 shown for illustration purposes. (Refer to Model Configuration for options.)
2. Panel Mount Option.
3. Remote Handle Option
4. See sheets 6-7 "Rotor and Detent Shift Options" for replacement parts.
5. See sheet 9 "SV-25 Porting Options" for Body option part numbers.
6. See sheets 10-14 for other operator and actuator options.
7. Contact PacSeal for Viton or EPR O-rings.
8. Refer to SV-25 Maintenance Instructions for more details.



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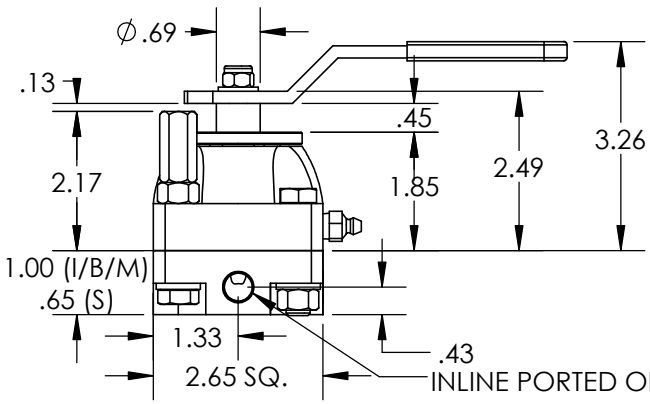
TITLE: **SV-25 General Assembly Overview**

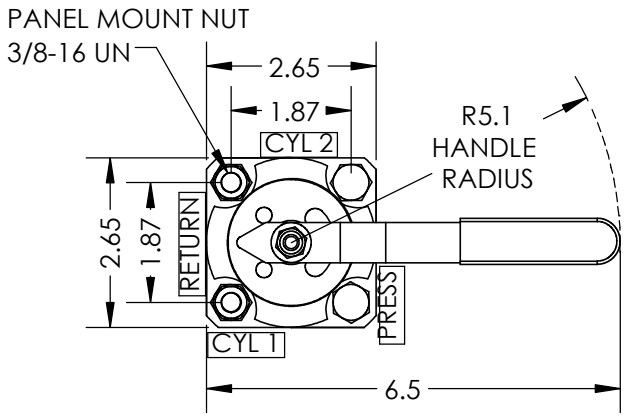
SIZE: A | REV: 2

NPT or SAE Inline Ported (I) with Manual Operator

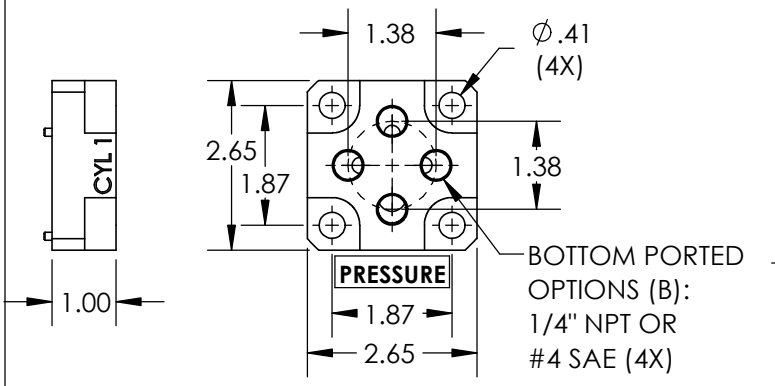
PANEL MOUNT DIMENSIONS

STANDARD BOLT DIMENSIONS

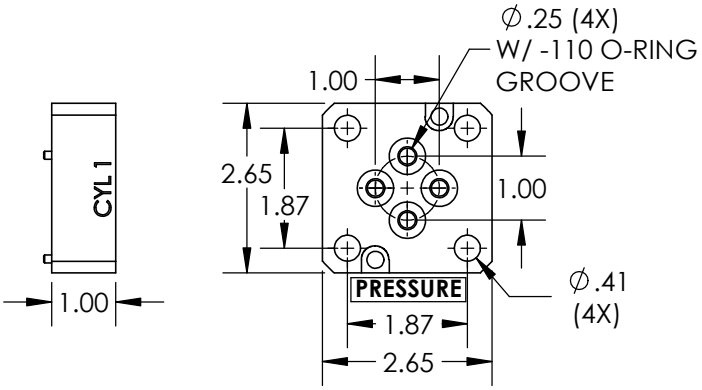




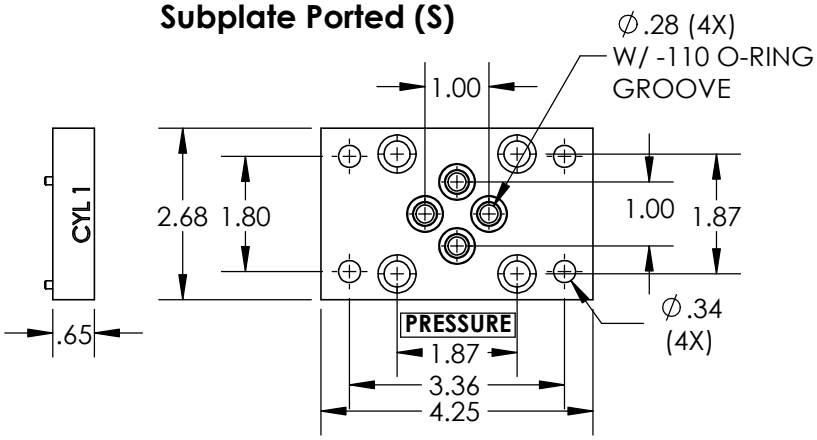
NPT or SAE Bottom Ported (B)



Manifold Ported (M)



Subplate Ported (S)



Body Option Part Numbers		
Body Type	NPT Body Part No.	SAE Body Part No.
Inline (I)	40-2310	40-2613
Bottom (B)	40-0988	40-1010
Manifold (M)	40-0641	
Subplate (S)	40-0930	

Weight (lb.) of Valve Porting Options	
Inline (I)	5
Bottom (B)	5
Manifold (M)	4
Subplate (S)	4

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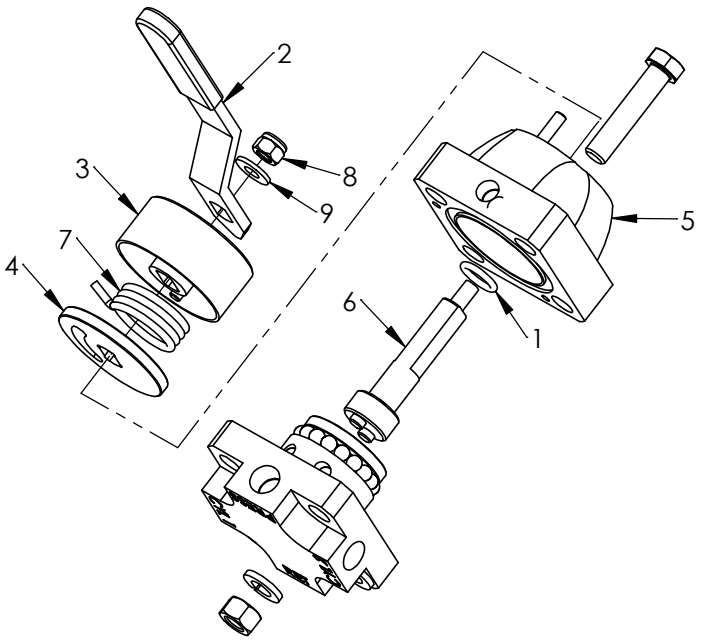
TITLE
SV-25 Porting Options with Manual Operator Installation Drawing

SIZE **A** | REV **2**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1337	O-Ring	1
2	40-0279	Handle	1
3	40-3997	Housing, Spring	1
4	40-3998	Detent Disc, Spring Centered	1
5	40-4004	Housing, Spring Centered	1
6	40-4010	Shaft, Spring Centered	1
7	40-4020	Torsion Spring, Spring Centered	1
8	50-0091	Locknut, Shaft	
9	50-0106	Washer, Shaft	1

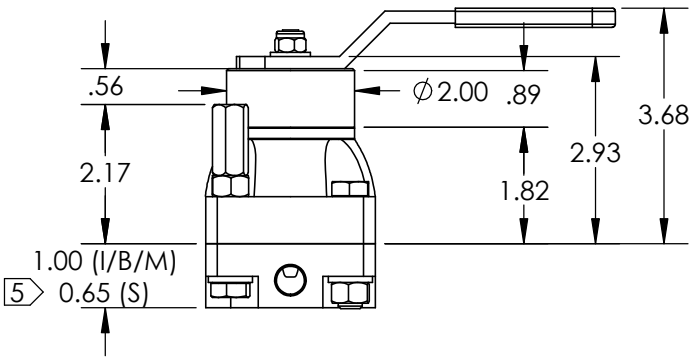
Notes:

1. Spring Centered operator centers the rotor after manual shifting.
2. Retrofitting an existing valve is not an option.
3. Working Pressure (Liquid) - 3000 psi
4. Working Pressure (Gas) - 2000 psi
5. See "SV-25 Porting Options with Manual Operator Installation Drawing" (Sheet 9) for other porting details.

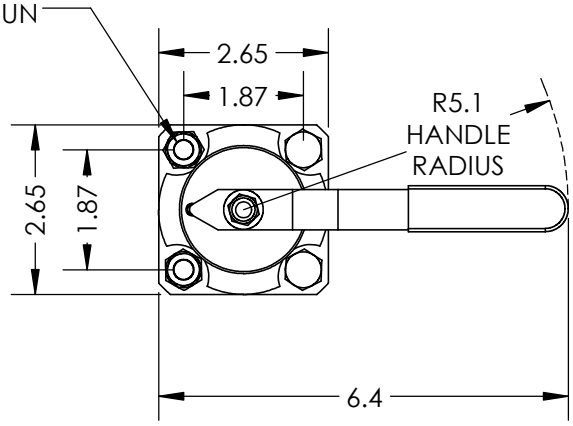


PANEL MOUNT DIMENSIONS

STANDARD BOLT DIMENSIONS



PANEL MOUNT NUT
3/8-16 UN



Weight (lb.) of Valve Porting Options	
Inline (I)	5
Bottom (B)	5
Manifold (M)	4
Subplate (S)	4

PACSEAL HYDRAULICS

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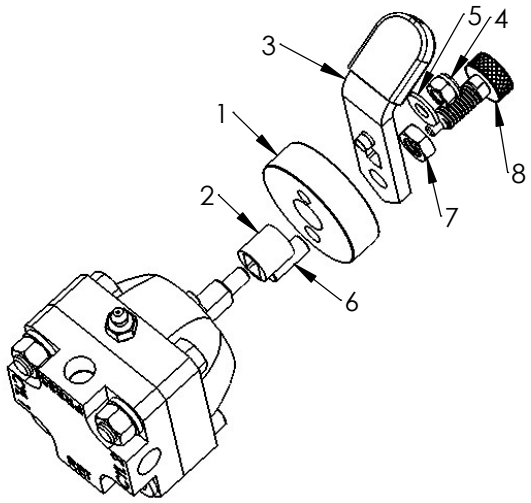
TITLE **SV-25 Spring Centered Operator Installation and Assembly Drawing**

SIZE **A** REV **2**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	40-3763	Detent Plate	1
2	40-3764	Spacer	1
3	40-3765	Handle Ass'y	1
4	50-0091	Locknut	1
5	50-0106	Washer, Shaft	1
6	50-0364	Dowel Pin	1
7	50-0535	Hex Jam Nut	1
8	50-0536	Retractable Spring Plunger	1

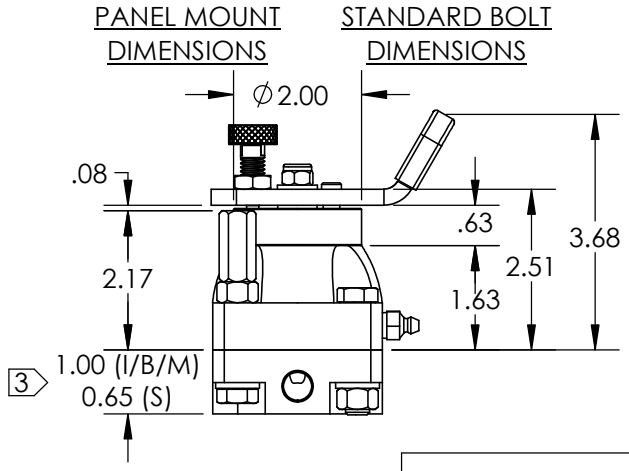


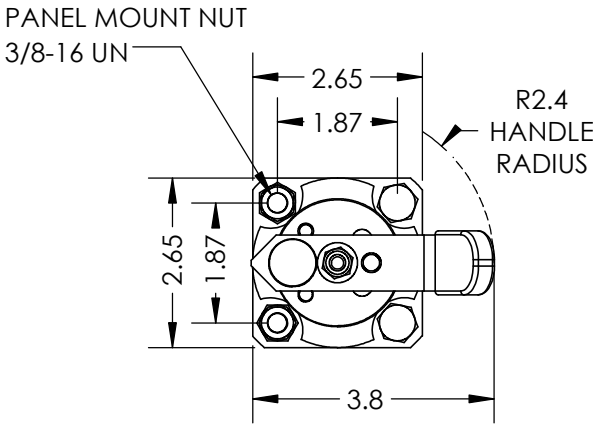
Notes:

1. Pin Lock Detent operator prevents accidental shifting and ensures two-handed operation.
2. Can easily be retrofitted in field - reference P/N 40-3762 for Pin Lock Detent Kit.
3. See "SV-25 Porting Options with Manual Operator Installation Drawing" (Sheet 9) for installation dimensions of other porting options.

2 **Conversion Instructions**:

1. Ensure that the valve is not receiving hydraulic pressure
2. Remove the existing Locknut, Washer, Handle, Detent Disc, Spring, and Ball
3. Add the Pin (6) to the empty hole
4. Align the Detent Plate (1) with the two pins to match the drawing
5. Insert the Spacer (2) into the Detent Plate (1)
6. Assemble the Handle (3) with its pin inside the slot
7. Add the Washer (5) then tighten the Locknut (4) to the Shaft
8. Thread the jam nut (7) to the top of the Retractable Spring Plunger (8)
9. Thread the Retractable Spring Plunger to the Handle until the plunger just makes contact with the bottom of the hole
10. Tighten the jam nut of the plunger to the handle
11. Dry test each position to ensure that the Retractable Spring Plunger is fully engaged in each hole





Weight (lb.) of Valve Porting Options	
Inline (I)	5
Bottom (B)	5
Manifold (M)	4
Subplate (S)	4

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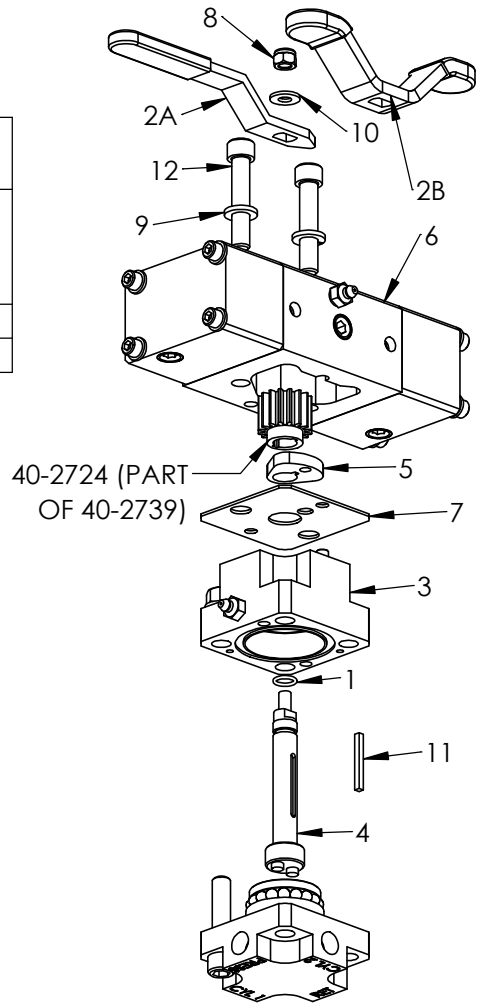
TITLE: **SV-25 Pin Lock Detent Operator Installation and Assembly Drawing**

SIZE: A | REV: 2

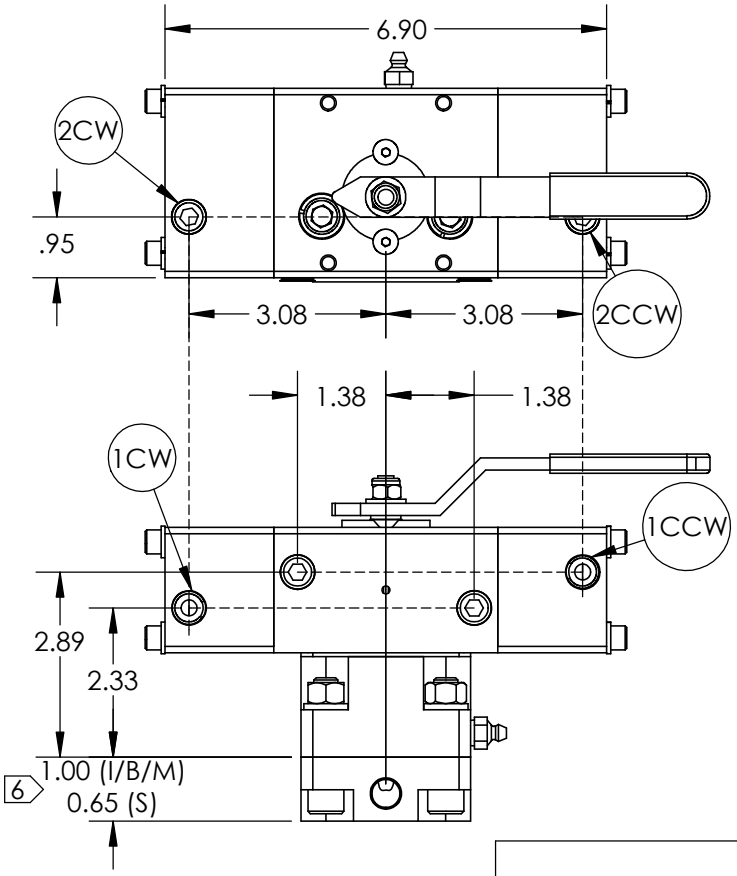
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1344	O-Ring	1
2A	40-0279	Straight Handle	1
2B	40-2803	Wing Handle	1
3	40-2716	Housing, SVx-25	1
4	40-2717	Shaft, SVx-25	1
5	40-2718	Detent, SVx-25	1
6	40-2739	Air Actuator Ass'y, SVx-25	1
7	40-2785	Aluminum Gasket	1
8	50-0091	Locknut	1
9	50-0103	Lock Washer	6
10	50-0106	Washer, Shaft	1
11	50-0444	Key	1
12	50-0527	Bolt	2

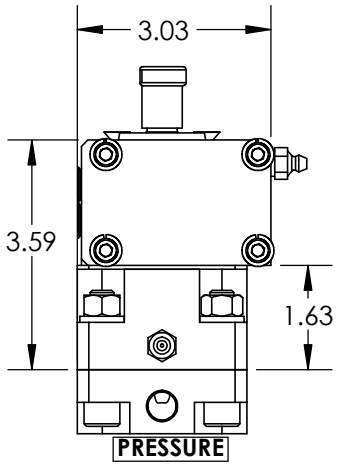
1/4 NPT Air Inlet Porting Location Options	
Clockwise (CW) Option #	Counter-clockwise (CCW) Option #
1CW	1CCW
2CW	2CCW



Notes:

1. Model displays SVX with 2-Position 90° Direct Air actuation.
2. Center (3rd) position is accomplished with manual override.
3. Air Actuator working pressure - 80 to 150 psi
4. Actuator material - Aluminum (anodized)
5. Retrofitting an existing valve is not an option.
6. See "SV-25 Porting Options with Manual Operator Installation Drawing" (Sheet 9) for other porting details.
7. Solenoid piloted porting option not shown.





Weight (lb.) of Valve Porting Options	
Inline (I)	8
Bottom (B)	8
Manifold (M)	7
Subplate (S)	7

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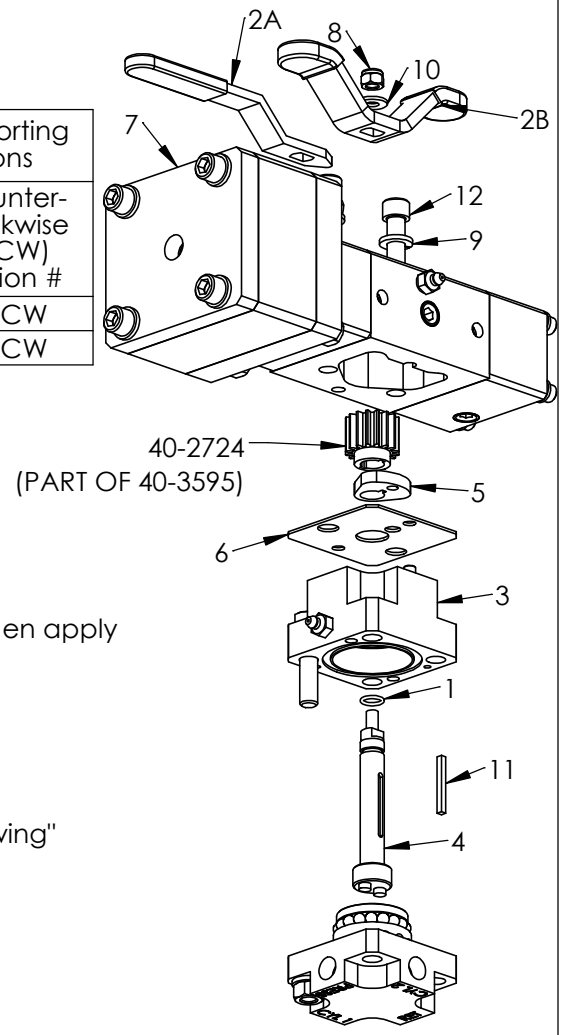
TITLE **SVX-25 2-Position 90° Air Actuation Installation and Assembly Drawing**

SIZE **A** REV **2**

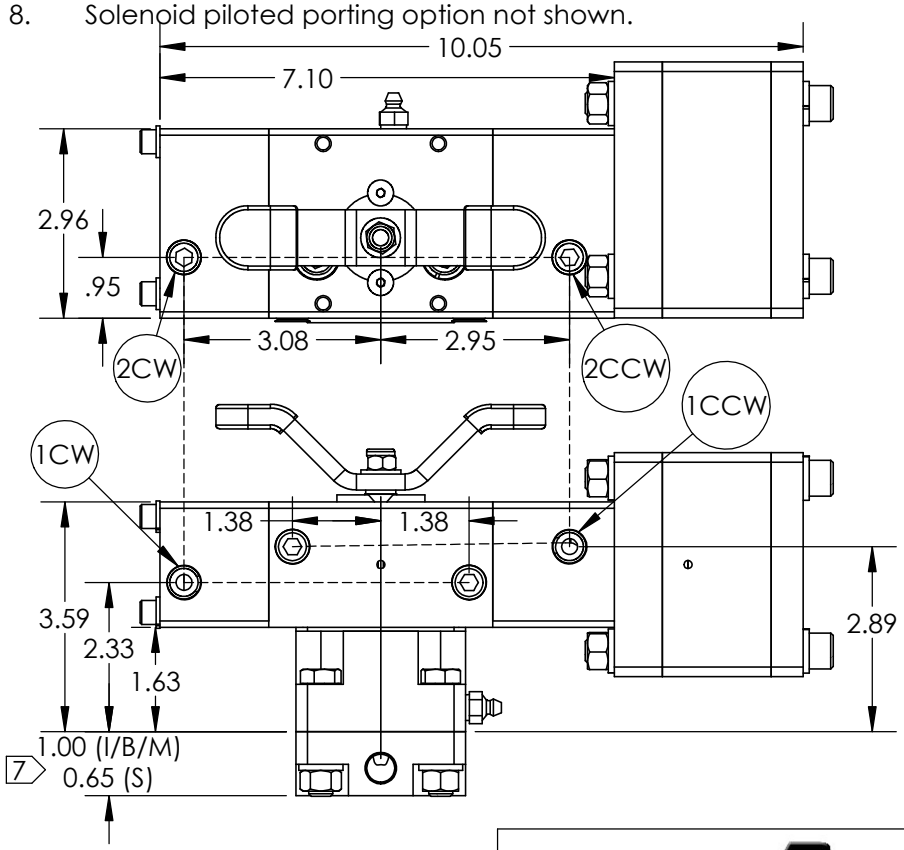
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1344	O-Ring	1
2A	40-0279	Straight Handle	1
2B	40-2803	Wing Handle	1
3	40-2716	Housing, SVx-25	1
4	40-2717	Shaft, SVx-25	1
5	40-2718	Detent, SVx-25	1
6	40-2785	Aluminum Gasket	1
7	40-3595	3-Position Air Actuator, SVX-25	1
8	50-0091	Locknut	1
9	50-0103	Lock Washer	6
10	50-0106	Washer, Shaft	1
11	50-0444	Key	1
12	50-0527	Bolt	2

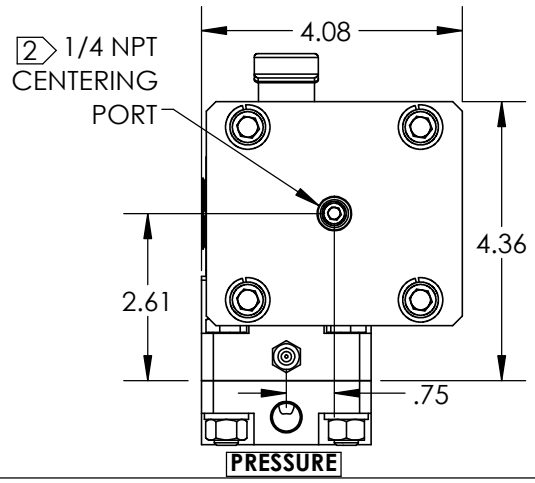
1/4 NPT Air Inlet Porting Location Options	
Clockwise (CW) Option #	Counter-clockwise (CCW) Option #
1CW	1CCW
2CW	2CCW



Notes:

1. Model displays SVX with 3-Position 90° Direct Air actuation.
2. For center position, first apply air pressure to "CENTERING PORT", then apply air pressure to a "CW" port.
3. For 2-position operation, apply air to "CW" and "CCW" ports only.
4. Air Actuator operating pressure - 80 to 150 psi
5. Actuator Material - Aluminum (anodized)
6. Retrofitting an existing valve is not an option.
7. See "SV-25 Porting Options with Manual Operator Installation Drawing" (Sheet 9) for other porting details.
8. Solenoid piloted porting option not shown.





Weight (lb.) of Valve Porting Options	
Inline (I)	13
Bottom (B)	13
Manifold (M)	12
Subplate (S)	12

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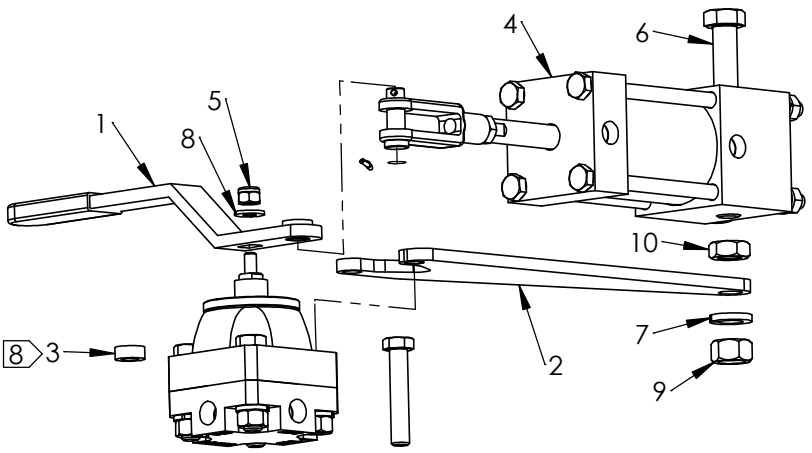
TITLE **SVX-25 3-Position 90° Air Actuation Installation and Assembly Drawing**

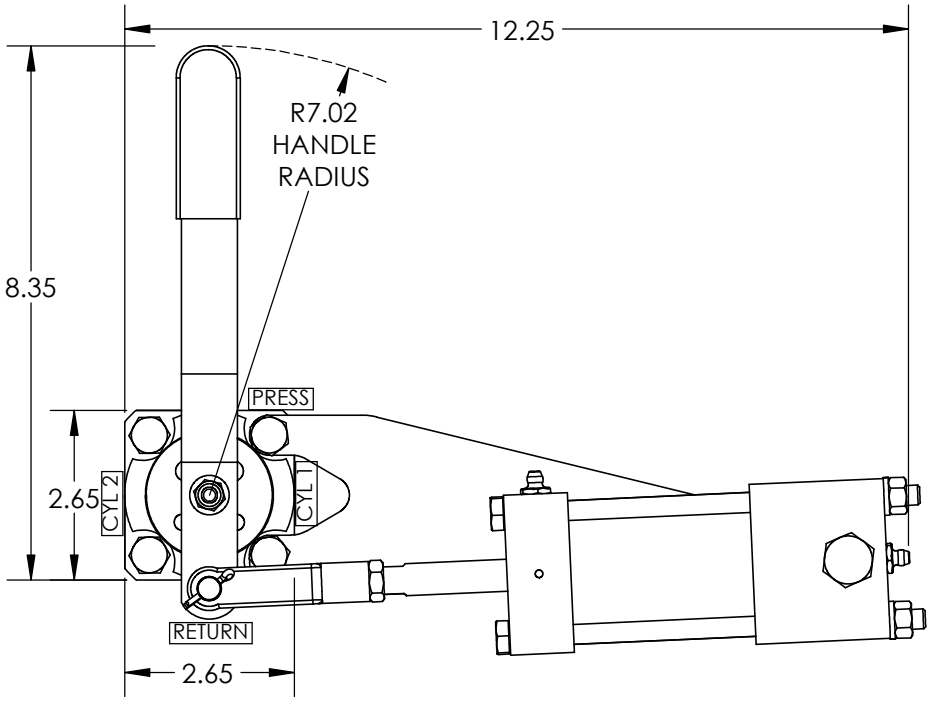
SIZE **A** | REV **2**

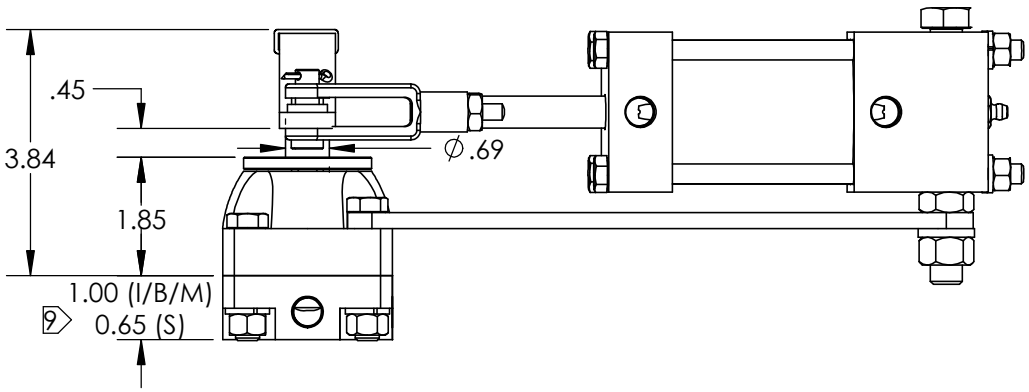
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	40-0648	Handle, Remote	1
2	40-2259	Air Cylinder Bracket	1
3	40-2616	Spacer	1
4	40-4191	Air Actuator Assembly, AAC-202	1
5	50-0091	Locknut	1
6	50-0100	Bolt	1
7	50-0104	Lock Washer	1
8	50-0106	Washer, Shaft	1
9	50-0110	Hex Nut	1
10	50-0394	Hex Jam Nut	1



Notes:

1. Model displays Right Mounted Air Cylinder Actuator
2. Cylinder Positions - 2
3. Cylinder Air working pressure - 80 to 150 psi
4. Cylinder Rating - 250 psi
5. Cylinder Stroke - 2.13 in.
6. Cylinder Bore/Rod - 2 X 1/2 in.
7. Actuator Material - Aluminum
8. Spacer is only necessary if a name plate is used.
9. See "SV-25 Porting Options with Manual Operator Installation Drawing" (Sheet 9) for installation dimensions of other porting options.





Weight (lb.) of Valve Porting Options	
Inline (I)	10
Bottom (B)	10
Manifold (M)	9
Subplate (S)	9

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TITLE: **SV-25 w/ Air Cylinder Actuator Installation and Assembly Drawing**

SIZE: A | REV: 2