

SV-150 Valve Specifications **Table of Contents**

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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 Sp	oecifications
Port Size	1-1/2 in. NPT or SAE ORB
Working Pressure Options (Liquid) Working Pressure	3000 or 5000 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	21.0
Rated Flow	180 gpm
Temp Rating	-40 to 250°F
El : 1 \ 4 !:	Hydraulic oil or
Fluid Media	lubricated water ²
Weight	See Installation Drawings
	erials
ShearFlo Sealing	Stainless Steel
Components (Rotor and Seal Rings)	Hardened ²
Shaft	Stainless Steel
Body	Stainless Steel
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	

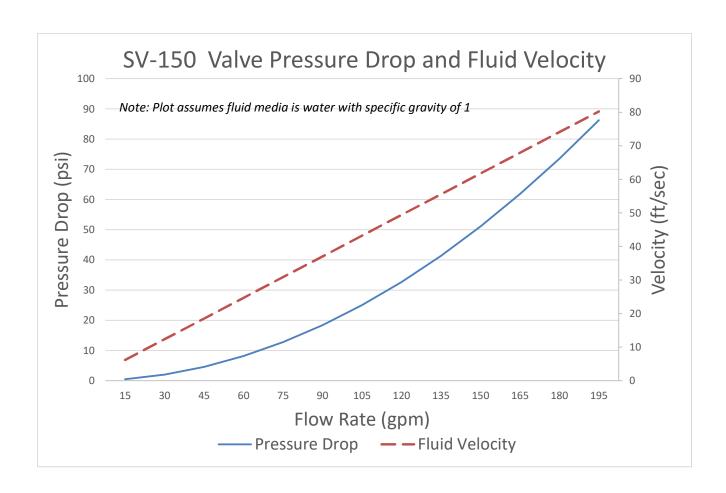
Full rated pressure (3000 or 6000 psi) with All Blocked Rotor option

For water based media, special alloy seal rings may be required - Contact PacSeal for details

Valve Shift Options			
<u>Detent Pattern</u>	<u>Valve Options</u>		
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						
<u>Rotor</u> <u>Configuration</u>	<u>Center Position</u>	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					

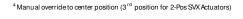




SV-150 Handle Torque (lbin.)						
Rotor Type	At 1500 psi Supply Pressure	At 3000 psi Supply Pressure	At 5000 psi Supply Pressure			
Selector	300	420	480			
Bypass*	550	720	900			

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

											34-130	Vaives
							Model Code	Configurator				
Basic Size	Port Size	Type of Ports	Pressure Rating (PSI)	Port Location	Bolts	Rotor Flow Pattern	Valve/Actuator Postions	Actuation Type	Handle	O-Ring	Actuator Cylinder Add-on	Nameplate Add-on
SV150-	12 1-1/2	N NPT S SAE M Manifold B Subplate ¹	3 3000 5 5000	I Inline / Side B Bottom	L Long	S Selector O Open Center M Manipulator B Bypass A All Blocked ¹	1 3-Pos. 2 2-Pos. 90° 3 2-Pos. 45° CW 4 2-Pos. 45° CCW	N/A(see add-on)	M Standard Manual R Actuator Cylinder L Pin Lock Detent W Wing Handle		None (leave empty) -AL Air Cylinder, Left Mounted -AR Air Cylinder, Right Mounted -HL Hyd. Cylinder, Left Mounted -HR Hyd. Cylinder, Right Mounted	None (leave empty) -0 Blank
SVX150	- 12 1-1/2	N NPT S SAE M Manifold B Subplate ¹	3 3000 5 5000	I Inline / Side B Bottom	N/A	S Selector O Open Center M Manipulator B Bypass A All Blocked ¹	1 2-Pos. 90° 2 2-Pos. 45° CW 5 2-Pos. 45° CCW 3 3-Pos. 90° 4 3-Pos. 90° - Sprir	A Air - Direct Piloted H Hydraulic - Direct Piloted R Air - Solenoid Piloted U Hydraulic - Solenoid Piloted g Centered ³	S Straight ⁴ W Wing ⁴ N Indicator ³	N Buna-N V Viton E EPR	N/A	None (leave empty) -0 Blank
Notes:	² For Mar	andard Option nifold Mount Opt	ion				6 2-Pos. 45° CW - S 7 2-Pos. 45° CCW -					



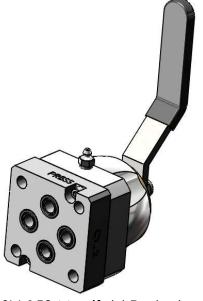


SV-150 Panel Mount

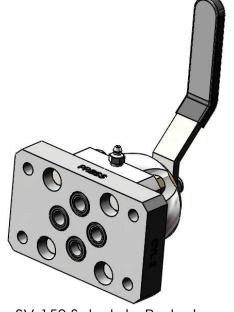
SV-150 Panel Mount (Example: SV150-12N5IPS1MN)



SV-150 Bottom Ported (Example: SV150-12N3<u>B</u>SS1MN)



SV-150 Manifold Ported (Example: SV150-12M3BSS1MN)



SV-150 Subplate Ported (Example: SV150-12<u>B</u>3<u>B</u>SS1MN)



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Porting
Configurations
Overview

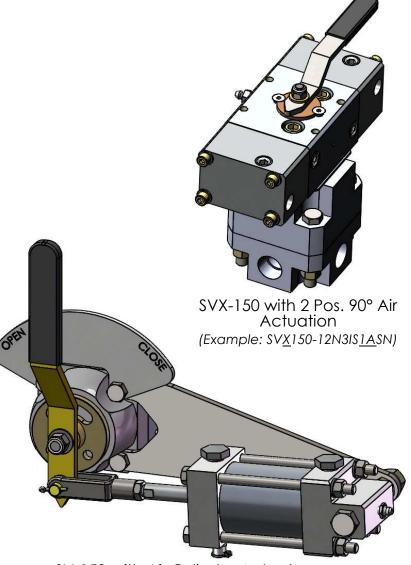
SIZE REV A 8 SHEET 4 OF 14

											34-130	V GIV C
							Model Code	Configurator				
Basic Size	Port Size	Type of Ports	Pressure Rating (PSI)	Port Location	Bolts	Rotor Flow Pattern	Valve/Actuator Postions	Actuation Type	Handle	O-Ring	Actuator Cylinder Add-on	Nameplate Add-on
SV150-	12 1-1/2'	" N NPT S SAE M Manifold B Subplate ¹	3 3000 5 5000	I Inline / Side B Bottom	L Long	S Selector O Open Center M Manipulator B Bypass A All Blocked ¹	1 3-Pos. 2 2-Pos. 90° 3 2-Pos. 45° CW 4 2-Pos. 45° CCW	N/A(see add-on)	M Standard Manual R Actuator Cylinder L Pin Lock Detent W Wing Handle		None (leave empty) -AL Air Cylinder, Left Mounted -AR Air Cylinder, Right Mounted -HL Hyd. Cylinder, Left Mounted -HR Hyd. Cylinder, Right Mounted	None (leave empty) -0 Blank
SVX150-	- 12 1-1/2'	" N NPT S SAE M Manifold B Subplate ¹	3 3000 5 5000	Inline / Side B Bottom	N/A	S Selector O Open Center M Manipulator B Bypass A All Blocked ¹	1 2-Pos. 90° 2 2-Pos. 45° CW 5 2-Pos. 45° CCW 3 3-Pos. 90° 4 3-Pos. 90° - Sprir	A Air - Direct Piloted H Hydraulic - Direct Piloted R Air - Solenoid Piloted U Hydraulic - Solenoid Piloted g Centered ³	S Straight ⁴ W Wing ⁴ N Indicator ³	N Buna-N V Viton E EPR	N/A	None (leave empty) -0 Blank
Notes:	² For Mar	andard Option nifold Mount Opt nual override	tion				6 2-Pos. 45° CW - S 7 2-Pos. 45° CCW -	· -				



⁴ Manual override to center position (3 rd position for 2-Pos SVX Actuators)

SV-150 with Pin Lock Detent (Example: SV150-12N5ISM1LN)



SV-150 with Air Cylinder Actuator (Example: SV150-12N3ISS1RN-AR0)



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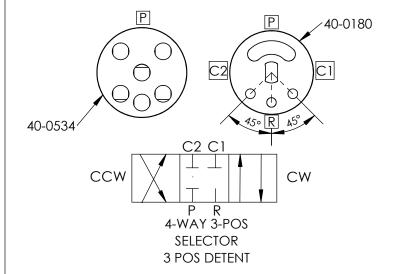
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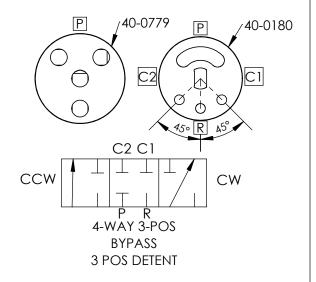
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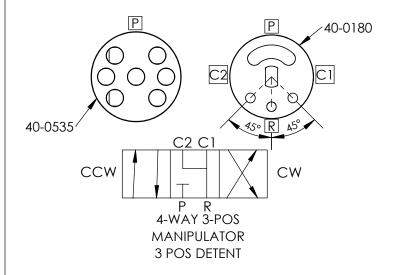
Operator
Configurations
Overview

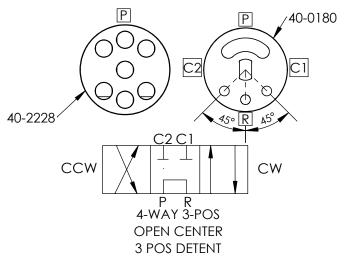
SIZE REV A 8 SHEET 5 OF 14

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











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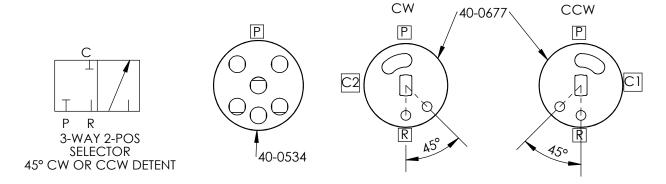
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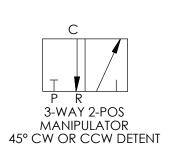
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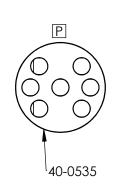
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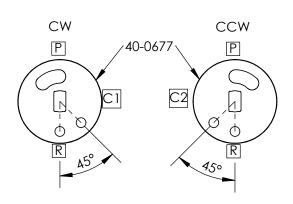
SV-150 Rotor Flow and Detent Disc 3-Position Options SIZE REV A 8 SHEET 6 OF 14

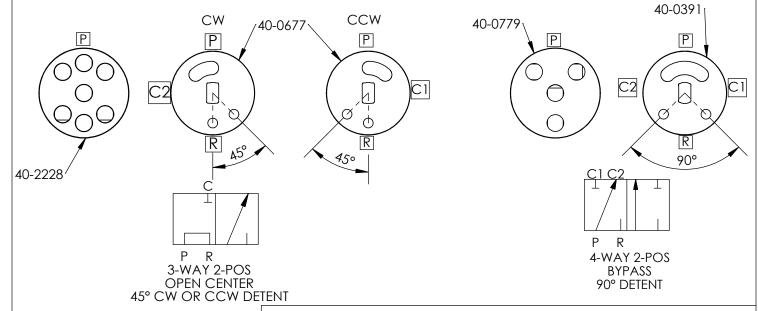
1. Rotor and Detent Disc Part No.'s displayed











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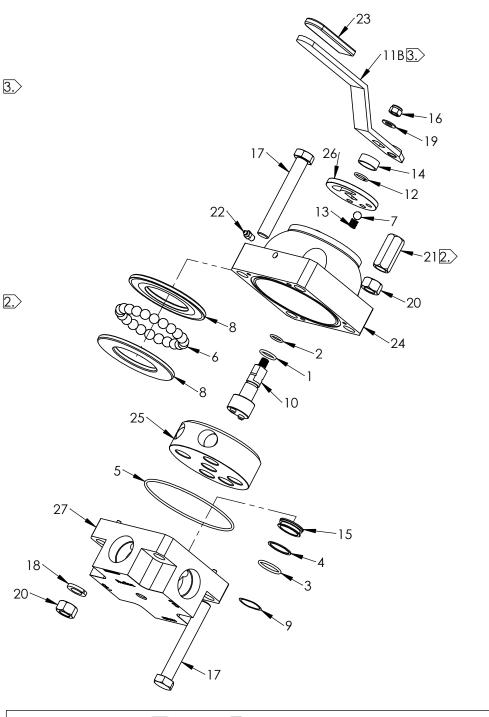
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TITLE

SV-150 Rotor Flow and Detent Disc 2-Position Options SIZE REV A 8 SHEET 7 OF 14

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	
1	23-1122	O-Ring	1	
2	23-1352	O-Ring	1	
3	23-1417	O-Ring	3	
4	23-1418	Backup Ring	3	
5	23-1419	O-Ring	1	
6	40-0092	Ball Bearing	22	
7	40-0174	Ball Bearing	1	
8	40-0226	Thrust Washer	2	
9	40-0239	Wave Spring	3	
10	40-0276	Shaft	1	
11B	40-0284	Handle, Remote	1	
12	40-0288	Retaining Ring	1	
13	40-0295	Spring	1	
14	40-0773	Spacer, Handle	1	
15A	40-2203	Seal Ring (3 ksi)	3	
15B	40-3272	Seal Ring (6 ksi)	3	
16	50-0093	Nut, Shaft	1	
17	50-0102	Bolt	4	
18	50-0105	Lock Washer	4	
19	50-0108	Washer, Shaft	1	
20	50-0111	Nut	4	
21	50-0116	Nut, Panel Mount	4	
22	50-0176	Grease Fitting	1	
23	50-0236	Grip, Handle	1	
24	40-0354	Housing	1	
25	Note 4	Rotor	1	
26	Note 4	Detent Disc	1	
27	Note 5	Body	1	

- 1. Standard Inline Ported SV-150 shown for illustration purposes. (Refer to Model Configuration for options.)
- Panel Mount Option.
- Remote Handle Option.
- See sheets 6-7 "Rotor and Detent Shift Options" for replacement parts. See sheet 9 "SV-150 Porting Options" for Body option part numbers.
- See sheets 10-14 for other operator and actuator options. Contact PacSeal for Viton or EPR O-rings.
- Refer to SV-150 Maintenance Instructions for more details.





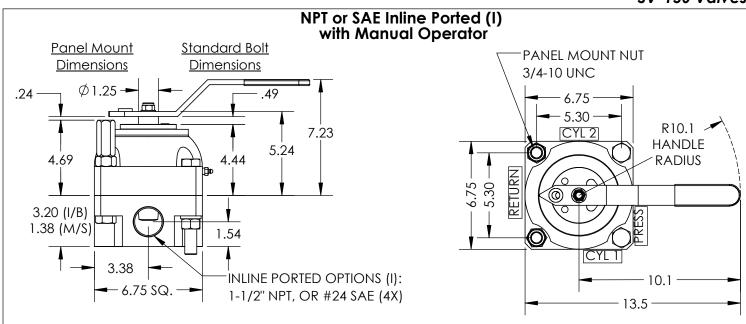
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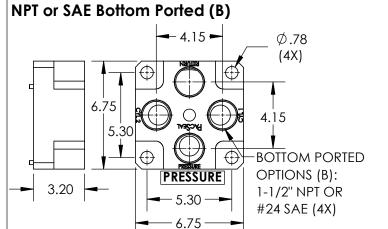
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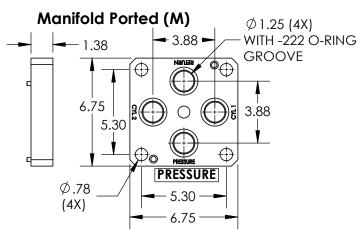
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TITLE SV-150 **General Assembly** Overview

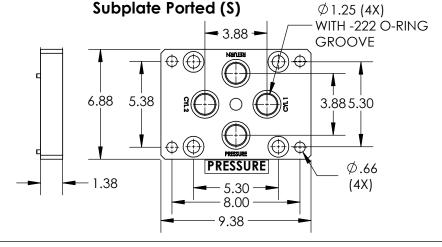
SIZE **REV** SHEET 8 OF 14







Body Option Part Numbers				
Body Type	NPT Body Part No.	SAE Body Part No.		
Inline (I)	40-2206	40-2333		
Bottom (B)	40-3759	N/A		
Manifold (M)	40-1	080		
Subplate (S)	40-3925			



Weight (lb.) of <i>N</i> Valve Porting (Manual Option
Inline (I)	65
Bottom (B)	65
Manifold (M)	54
Subplate (S)	76



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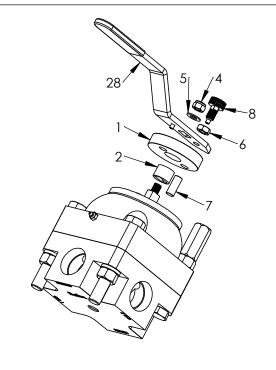
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SV-150 Porting Options with Manual Operator Installation Drawing

SIZE REV SHEET 9 OF 14

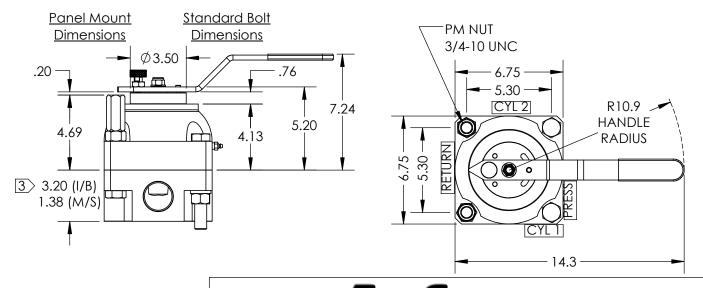
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	40-3635	Detent Plate	1
2	40-3637	Spacer	1
4	50-0093	Nut, Shaft	1
5	50-0108	Washer, Shaft	1
6	50-0394	Hex Jam Nut	1
7	50-0521	Dowel Pin	1
8	50-0542	Retractable Spring Plunger	1
28	40-3796	Handle Ass'y	1

- Pin Lock Detent operator prevents accidental shifting and ensures two-handed operation.
- 2> Can easily be retrofitted in field - reference P/N 40-3639 for Pin Lock Detent Kit.
- 3> See "SV-150 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 (7) to the empty hole
- Align the Detent Plate (1) with the two pins to match the drawing 4.
- Insert the Spacer (2) into the Detent Plate (1) 5.
- Assemble the Handle (3) with its pin inside the slot 6.
- 7. Add the Washer (5) then tighten the Locknut (4) to the Shaft
- Thread the jam nut (6) to the top of the Retractable Spring Plunger (8) 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
- Dry test each position to ensure that the Retractable Spring Plunger is fully engaged in each hole 11.



Weight (lb.) of each Valve Porting Option		
Inline (I)	66	
Bottom (B)	66	
Manifold (M)	55	
Subplate (S)	77	



TITLE SV-150 Pin Lock

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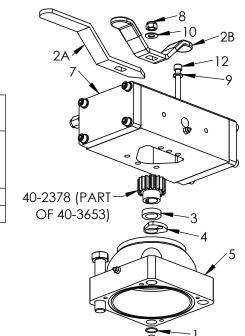
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Detent Operator ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE Installation and WRITTEN PERMISSION OF PacSeal IS PROHIBITED. **Assembly Drawing**

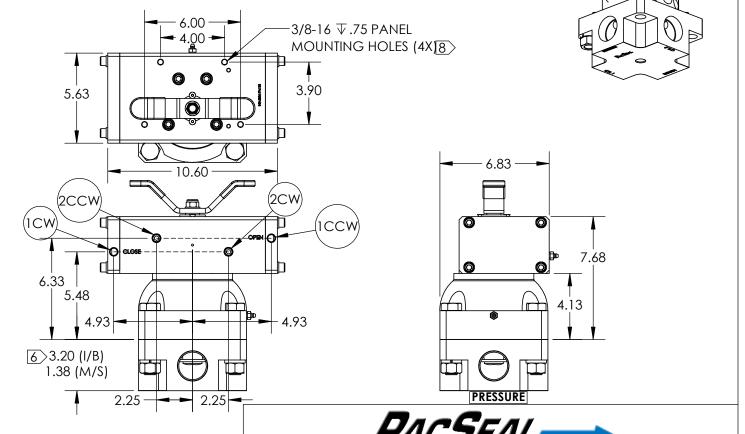
	SIZE	REV 8
l	SHEET	10 OF 14

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1326	O-Ring	1
2A	40-1447	Straight Handle	1
2B	40-2746	Wing Handle	1
3	40-2299	Shaft Bushing, SVx-150	1
4	40-2381	Detent, SVx-100	1
5	40-3110	Housing, SVx-150	1
6	40-3480	Shaft, SVx-150	1
7	40-3653	Air Actuator Assy, SVX-150	1
8	50-0093	Nut, Shaft	1
9	50-0103	Lock Washer	4
10	50-0108	Washer, Shaft	1
11	50-0507	Key	1
12	50-0526	Bolt	4

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



- 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.
- See "SV-150 Porting Options with Manual Operator Installation Drawing" (sheet 9) for installation dimensions of other porting options.
- 7. Solenoid piloted porting option not shown.
- Panel mounting holes provided for models released after September 2023.



Weight (lb.) of Valve Porting Options

Inline (I) 80

Bottom (B) 80

Manifold (M) 69

Subplate (S) 91

HYDRAULICS

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TITLE SVX-150 2-Position 90 Direct Air Actuation Installation and Assembly Drawing

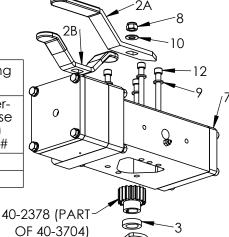
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	A	Ö
	CLIEE	
	SHEE	Г 11 OF 1

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1326	O-Ring	1
2A	40-1447	Straight Handle	1
2B	40-2746	Wing Handle	1
3	40-2299	Shaft Bushing, SVx-150	1
4	40-2381	Detent, SVx-100	1
5	40-3110	Housing, SVx-150	1
6	40-3480	Shaft, SVx-150	1
7	40-3704	3-Pos Air Actuator Assy, SVx-150	1
8	50-0093	Nut, Shaft	1
9	50-0103	Lock Washer	4
10	50-0108	Washer, Shaft	1
11	50-0507	Key	1
12	50-0526	Bolt	4
Notes:			

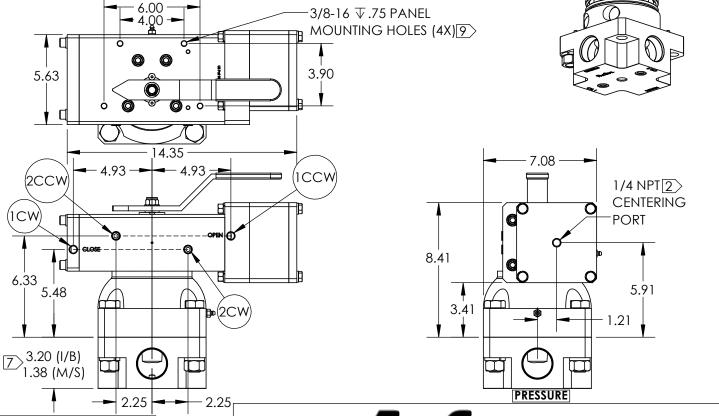
1/4 NPT Air Inlet Porting
Location Options

Clockwise (CW)
Option # (CCW)
Option #

1CW 1CCW
2CW 2CCW



- 1. Model displays SVX with 3-Position 90° Direct Air actuation.
- 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 working pressure 80 to 150 psi
- 5. Actuator material Aluminum (anodized)
- 6. Retrofitting an existing valve is not an option.
- See "SV-150 Porting Options with Manual Operator Installation Drawing" (sheet 9) for installation dimensions of other porting options.
- 8. Solenoid piloted porting option not shown.
- Panel mounting holes provided for models released after September 2023.



Weight (Ib.) of Valve Porting Options

Inline (I) 92

Bottom (B) 92

Manifold (M) 81

Subplate (S) 103

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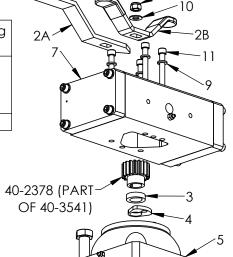
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TITLE SVX-150 3-Position 90°
Direct Air Actuation
Installation and
Assembly Drawing

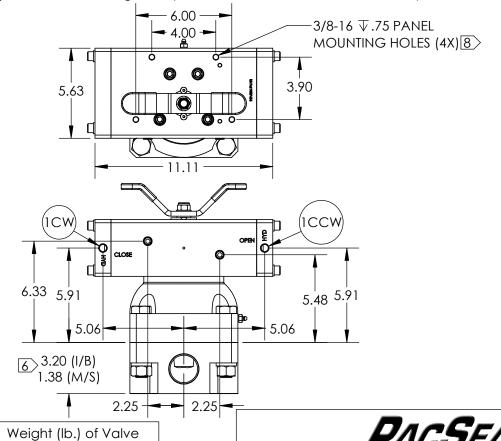
SIZE REV A 8 SHEET 12 OF 14

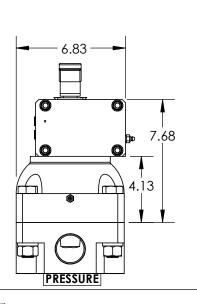
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	23-1326	O-Ring	1
2A	40-1447	Straight Handle	1
2B	40-2746	Wing Handle	1
3	40-2299	Shaft Bushing, SVx-150	1
4	40-2381	Detent, SVx-100	1
5	40-3110	Housing, SVx-150	1
6	40-3480	Shaft, SVx-150	1
7	40-3541	Actuator Assy	1
8	50-0093	Nut, Shaft	1
9	50-0103	Lock Washer	4
10	50-0108	Washer, Shaft	1
11	50-0229	Bolt	4
12	50-0507	Key	1

1/4 NPT Hyd. Inlet Porting Location Options		
Clockwise (CW) Option #	Counter- Clockwise (CCW) Option #	
1CW	1CCW	



- 1. Model displays SVX with 2-Position 90° Direct Hydraulic actuation.
- Center (3rd) position is accomplished with manual override. 2.
- 3. Hydraulic Actuator working pressure 800 to 1500 psi
- 4. Actuator material - Aluminum (anodized)
- 5. Retrofitting an existing valve is not an option.
- 6> See "SV-150 Porting Options with Manual Operator Installation Drawing" (sheet 9) for installation dimensions of other porting options.
- 7. Solenoid piloted porting option not shown.
- 8> Panel mounting holes provided for models released after September 2023.





Porting Options Inline (I) 80 Bottom (B) 80 69 Manifold (M)

Subplate (S)

91

Hydraulics

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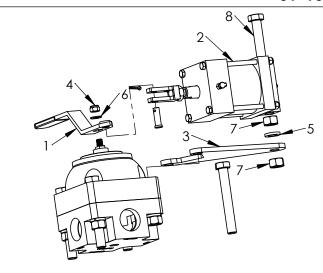
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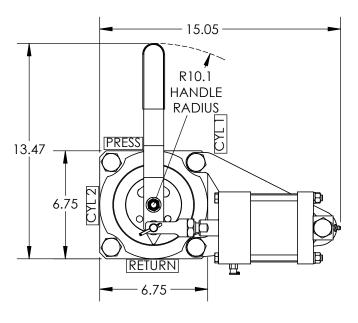
TITLE SVX-150 2-Position 90° **Direct Hydraulic Actuation Installation** and Assembly Drawing SHEET 13 OF 14

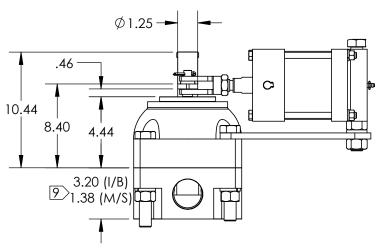
SIZE **REV**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	40-0284	Handle, Remote	1
2	40-1604	Air Actuator Cylinder Assembly, AAC-402	1
3	40-2307	Bracket	1
4	50-0093	Nut, Shaft	1
5	50-0105	Lock Washer	1
6	50-0108	Washer, Shaft	1
7	50-0111	Nut	2
8	50-0380	Bolt	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 4 x 1 in.
- 7. Actuator Material Aluminum (anodized)
- See "SV-150 Porting Options with Manual Operator Installation Drawing" (sheet 9) for installation dimensions of other porting options.







Weight (lb.) of Valve Porting Options		
Inline (I)	91	
Bottom (B)	91	
Manifold (M)	80	
Subplate (S)	102	



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TITLE

SV-150 Air Cylinder Actuator

SIZE	REV 8
SHEET	Г 14 OF 1