WHERE

PRECISION

DRIVES

PRODUCTION

SVX

SERVO DRIVEN AUGER STYLE DISPENSE VALVE

Precision Valve & Automation
Six Corporate Drive
Halfmoon, NY 12065

OWNER'S MANUAL

Rev. B

SVX

Servo Driven Auger Style Dispense Valve

Thank you for purchasing the SVX dispensing valve from PVA. Before attempting to operate the SVX, we recommend that you take a few minutes and read the following operation and setup manual. This will assist in familiarizing you with the product and ensure a successful installation.

As always, if any questions or problems arise, do not hesitate to contact PVA's Valve Service Department for support. This department can be reached at PVA headquarters via telephone or e-mail.

Again, thank you for your purchase, and we look forward to assisting you in the future as you continue to improve your dispensing processes.

Theory of Operation

The SVX uses a servo driven motor to rotate a lead screw inside the cartridge assembly to provide a form of positive displacement control over fluid flow. Typical applications include applying consistent bead patterns and dots of fluid where a high degree of accuracy is required. This valve is typically offered on a PVA dispense robot to be controlled through Pathmaster or Pathview software.

The SVX has a divorced design comprising of two major sections. These include:

1) Servo Motor Drive (upper section)
2) Fluid Section (Aluminum, Stainless steel and carbide portion)

The upper section is a servo drive motor used to accurately control the speed of the lead screw and degree of rotation in the forward and reverse direction. The standard Pathmaster and Pathview control package will allow for easy modifications to all parameters that will determine fluid flow rate, shot size, and suck back.

The fluid section houses a fluid cartridge made of an aluminum housing with a carbide insert. An auger style lead screw fits tightly inside the cartridge to feed fluid through to the dispense tip. The lead screw is connected directly to the servo motor and the rate at which it is turned inside the cartridge will determine fluid flow rate and dispense volume. With little wear between the cartridge and lead screw, this valve was originally designed to dispense filled and abrasive pastes and fluids.

Wetted parts on the SVX include:

- Stainless Steel
- Carbide
- Turctile

Valve Options

Fluid Cartridge

The SVX valve is available with a Fixed or Floating fluid cartridge. The Fixed cartridge is designed to hold a Luer-Lock style dispense needle. The Floating cartridge is designed to hold SMT style dispense needles including footed needles. A locking thumb screw is available to hold the Floating cartridge in place.

Below is a chart showing part numbers that are used to specify the available fluid cartridges.

Cartridge Style	Sub-Assembly Part Number
Fixed	30032A (30032ARH)
Floating	30030A (30030ARH)

Note: RH is added to the part number for Right Hand Mount assemblies

Lead Screw

The SVX valve is available with a variety of lead screw options to fit any application. These lead screws are designed with different depths on the threads to alter the amount of fluid volume that is transferred with each rotation.

Below is a chart showing part numbers that are used to specify the available fluid cartridges.

Lead Screw Style	Sub-Assembly Part Number	Markings	Application
Shallow Cut	30048A	One Ring	• Conductive/Non-Conductive Epoxy • Surface Mount Epoxy • Solder Paste • Underfill • Glob Top
Standard	30014A	No Ring	• Conductive/Non-Conductive Epoxy • Conductive Ink • Flux • Low Viscosity Material • Underfill
Deep	30068A	Two Rings	• Encapsulant • Surface Mount Epoxy • Thermal Grease • Silicone/RTV
Ultra Deep	30081A	Three Rings	• Glob Top • Dam & Fill • Industrial • Gasketing

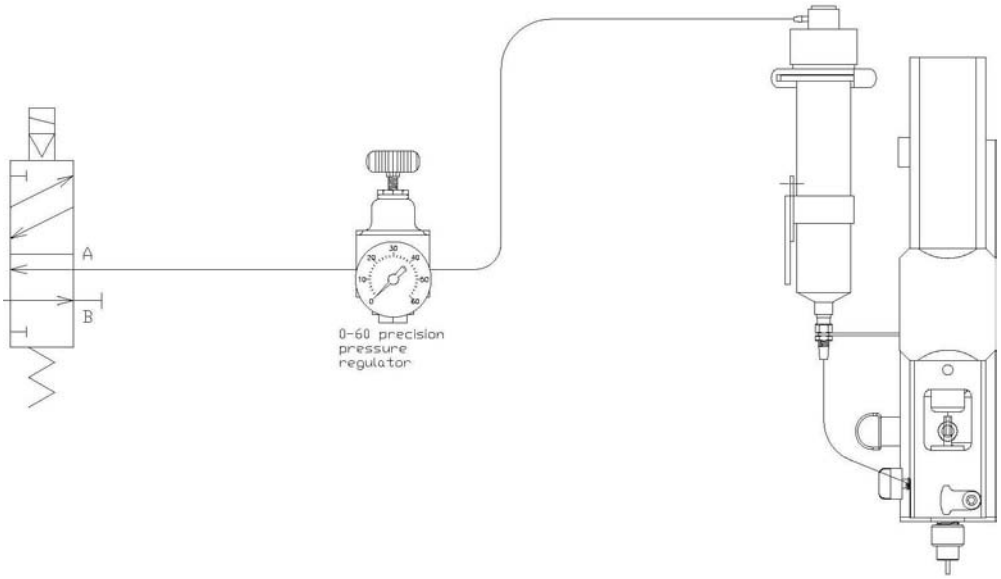
Additional fluid cartridges and lead screws are available. For more information, contact PVA's application engineering department 518-371-2684 x 2813.

Safety

Due to material contents being under pressure eye protection is required for operators. Refer to MSDS sheets on material being dispensed for other precautions.

Setup

The SVX requires a control package supplied internal to a PVA automated platform to operate with Pathmaster or Pathview software. Fluid is typically supplied to the SVX from a syringe mounted to the side arm and connected to the cartridge through a disposable feed tube. Fluid should be connected such that fluid pressure is supplied to the valve only when the auger is turning and relieved when it stops.



Tool Kit

PVA offers tools and cleaning accessories to maintain the SVX dispense valve.

Qty	Part Number	Description
1	31200H	*Disposable Cleaning Tools*
1	31205H	• Pipe Cleaners
1	31206H	• Q-Tips
1	31207H	• Cleaning Brushes, Nylon
		Maintenance Tools
1	30007A	• Spanner Nut Wrench, Black Delrin
1	31204H	• Allen Wrench Kit
1	B62-2048	• Silicone Grease
1	166A	• Pin Vise
1	01871	• Cleaning Drill, 30 & 31 Gauge
1	01864	• Cleaning Drill, 28 Gauge
1	01865	• Cleaning Drill, 27 Gauge
1	01866	• Cleaning Drill, 25 Gauge
1	01867	• Cleaning Drill, 23 Gauge
1	01868	• Cleaning Drill, 22 Gauge
1	01869	• Cleaning Drill, 21 Gauge
1	01870	• Cleaning Drill, 20 Gauge

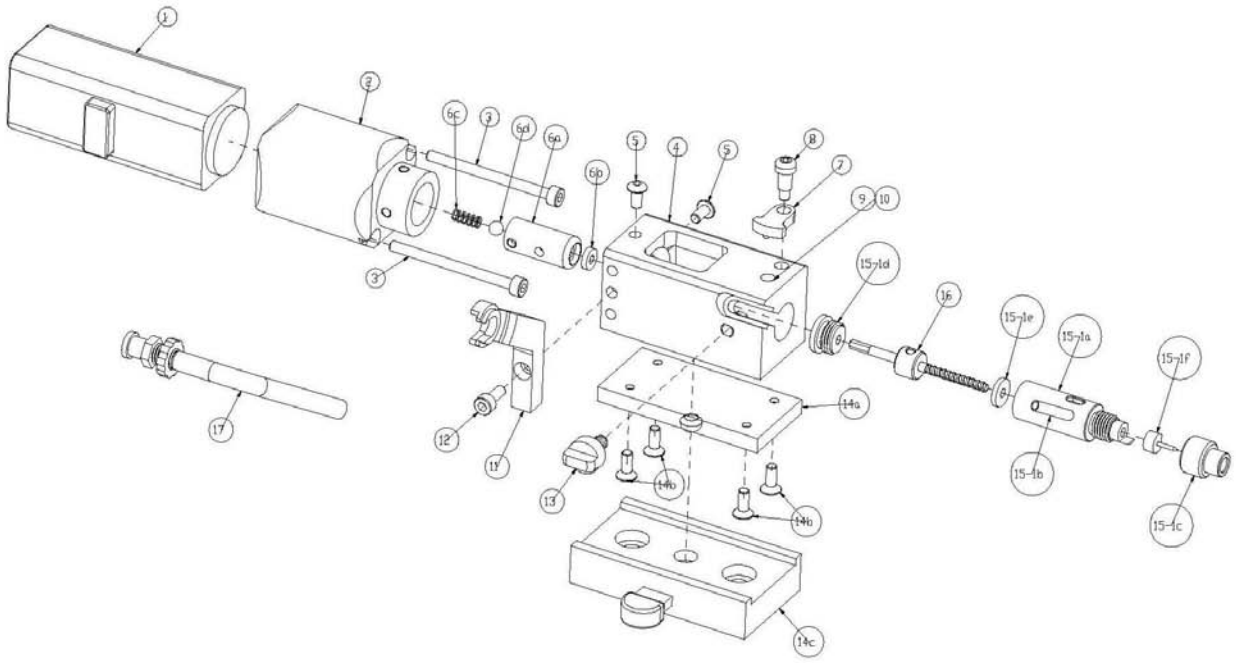
Operation

Refer to assembly drawing 112-4502 **(Floating cartridge) or** 112-4504 **(Fixed cartridge)** for part reference numbers.

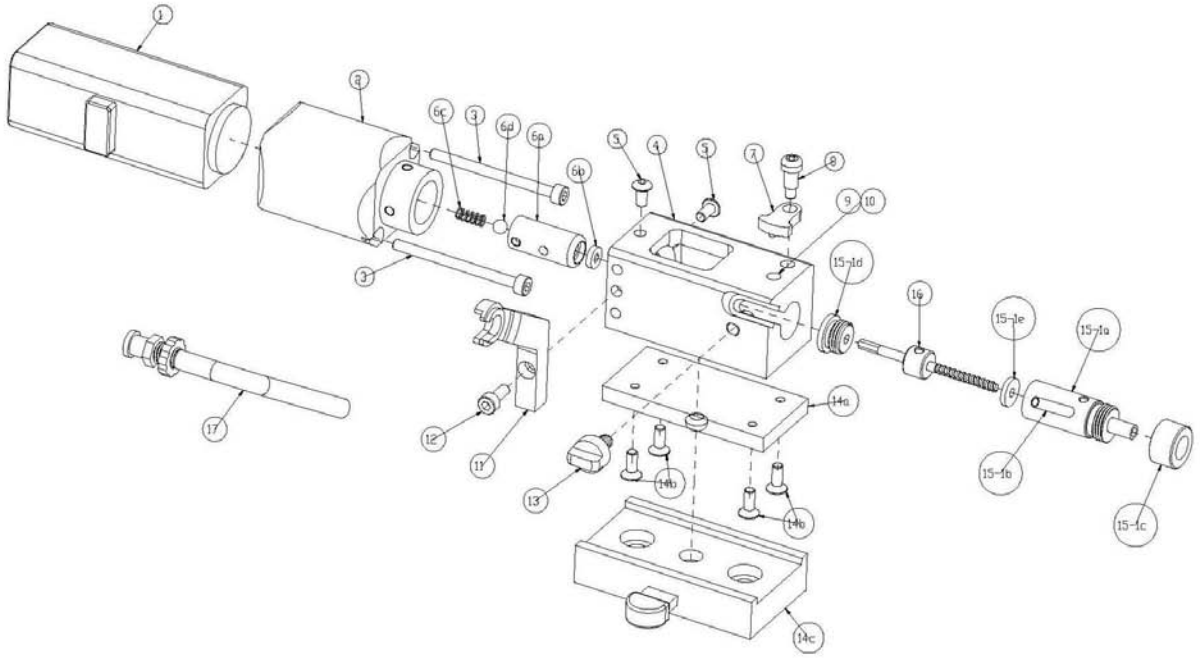
1) Connect the valve as outlined above in the **Setup** procedures.
2) Cycle the valve and make sure the coupling (6) spins in the forward direction during dispense and the reverse direction when it stops.
3) Connect the fluid delivery system such that air pressure is applied to the fluid only when the auger spins in the forward direction.
4) Set the motor speed to the desired flow rate.
5) Set the reverse speed to obtain a clean shutoff of fluid flow.

Note: Refer to **Troubleshooting** section for any problems.

112-4502 (Floating Cartridge Assembly)



112-4504 (Fixed Cartridge Assembly)



B12-2401

ITEM	DESCRIPTION	SYMBOL	QTY
	Assembly drawing – Needle	112-4502	Ref
	Assembly drawing – Luer Lock	112-4504	Ref
1	Motor	31108H	1
2	Transmission Mount	30029A	1
3	Socket Head Cap Screw, Transmission Mount to Motor	31003H	2
4	Pump Housing	30001A	1
5	Button Head Cap Screws, gear box to Pump Housing	31004H	2
6	***Coupling Sub-Assembly***	30040A	1
6a	• Coupling	30021A	
6b	• Coupling Insert, Red Turcite	30039A	
6c	• Spring	31010H	

6d	• Brass Ball	31009H	
7	Lock Actuator, Left Handed	30003A	1
8	Button Head Shoulder Screw, Lock Actuator to Housing	31006H	1
9	Lock Actuator Pin	30004A	1
10	Spring for lock Pin	31011H	1
11	Syringe Adapter Arm	30178A	1
12	Socket Head Cap Screw, Syringe Adapter Arm to Housing	31002H	1
13	Red Thumb Cap Cartridge Locking Knob	31015A	1
14	***Back Plate Assembly, Left Hand Mount***	30044A	1
14a	• Mounting Back Plate (plate to housing)		1
14b	• Flat Head Screws, Phillips Head, Back Pate to Housing		4
14c	• Mounting Plate with quick release lever		1
15	***Cartridge Options***		1
15-1	**Floating Cartridge Sub-Assembly, Carbide, Custom Needles**	30030A	
15-1a	• Cartridge Housing	-	
15-1b	• Material Inlet Feed Tube, S.S.	-	
15-1c	• Cartridge Lock Nut for Needle	30024A	
15-1d	• Spanner Nut, Red Turcite	30008A	
15-1e	• Lead Screw Washer, Red Turcite	30009A	
15-1f	• Needle	-	
15-2	**Fixed Cartridge Sub-Assembly, Carbide, Luer Lock**	30032A	
15-2a	• Cartridge Housing	-	
15-2b	• Material Inlet Feed Tube, S.S.	-	
15-2c	• Cartridge Lock Nut for Luer Lock Needle	30247A	
15-2d	• Spanner Nut, Red Turcite	30008A	
15-2e	• Lead Screw Washer, Red Turcite	30009A	
16	***Lead Screw Options***		1
16a	Lead Screw Sub-Assembly, Standard Cut	30014A	
16b	Lead Screw Sub-Assembly, Shallow Cut	30048A	
16c	Lead Screw Sub-Assembly, Deep Cut	30068A	
16d	Lead Screw Sub-Assembly, Ultra Deep Cut	30081A	
17	***Feed Tube Assembly, (Luer adapter with locknut and tubing)***		1
17a	• Clear Silicone Tube	B62-2314	
17b	• UV Safe Black Silicone Tube	B62-2315	

Periodic Maintenance

- Refer to SVX Disassembly_Cleaning_Assembly Instruction document.

Troubleshooting

Problem	Possible Cause	Corrective Action
Valve does not cycle	- Motor not connected properly - Cured material in fluid section - Valve Speed set to 0.	- Check motor connections - Disassemble valve and clean - Adjust the valve speed to the appropriate setting
Material leaks from valve tip	- Fluid pressure too high - Not enough reverse on auger	- Decrease inlet fluid pressure - Increase reverse time on auger
Valve leaks from mid-section	- Seal is worn	- Replace Seal
Valve does not dispense anything	- Fluid pressure is too low - Cured material in fluid section	- Increase fluid pressure - Disassemble valve and clean
Air bubbles in fluid	- Valve not properly purged - Problem with fluid delivery system	- Cycle valve open to purge air - Diagnose and repair.
Dispense rate too fast	- Motor speed set too high - Fluid pressure set too high - Incorrect Auger installed	- Decrease motor speed - Decrease fluid air pressure - Switch to shallow or standard auger
Dispense rate too slow	- Motor speed set too low - Fluid pressure set too low - Incorrect Auger installed	- Increase motor speed - Increase fluid air pressure - Switch to a higher flow auger

PVA Warranty Policy

PVA warrants the enclosed product against defects in material or workmanship on all components for one year from the date of shipment.

The warranty does not extend to components damaged due to misuse, negligence, or installation and operation that is not in accordance with the recommended factory instructions. Unauthorized repair or modification of the enclosed product, and/or the use of spare parts not directly obtained from PVA (or from factory authorized dealers) will void all warranties.

All PVA warranties extend only to the original purchaser. Third party warranty claims will not be honored at any time.

Prior to returning a product for a warranty claim, a return authorization must be obtained from PVA's customer service department. Authorization will be issued either via the telephone, facsimile, or in writing upon your request.

To qualify as a valid warranty claim, the defective product must be returned to the factory during the warranty period. Upon return, PVA will repair (or replace) all components found to be defective in material or workmanship.

(Retain this for your records)

Product Information:

PRODUCT: _____

SERIAL NUMBER: _____

DATE OF PURCHASE: _____