

**SV200**

**SERVO DRIVEN AUGER STYLE  
DISPENSE VALVE**

**Version: B12-3079**

**Operation Manual**



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# **SV200**

## **Servo Driven Auger Style Dispense Valve**

Thank you for purchasing the SV200 dispensing valve from PVA. Before attempting to operate the SV200, 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 SV200 uses a servo driven motor to rotate an auger inside the luer adapter of the valve 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. With the quick release function of this valve, the motor and auger assembly can be quickly removed from the luer adapter to clean the wetted section. This valve is typically supplied with an SVC100 controller which is used to program auger speed, dispense time, reverse time, and air pressure.

The SV200 has a divorced design comprising of two major sections. These include:

- 1) Servo Motor Drive (upper section)
- 2) Fluid Section (Red anodized aluminum and stainless steel)

The upper section is a servo drive motor used to accurately control the speed of the auger screw and time that it rotates in the forward and reverse direction. The SCV100 controller has a digital display to select and program all parameters that will determine fluid flow rate, shot size, and suck back.

The fluid section uses an aluminum retainer to house a stainless steel luer adapter which acts as the fluid chamber. A screw type auger fits tightly inside to feed fluid through to the dispense tip. The auger is connected directly to the servo motor and the rate at which it is turned inside the luer adapter will determine fluid flow rate and dispense volume. With little wear between the luer adapter and auger, this valve was originally designed to dispense filled and abrasive pastes and fluids.

Wetted parts on the SV200 include:

- 304 stainless steel
- Aluminum, Red Anodized
- Viton, standard

## Valve Options

The SV200 valve is available with a different thread pitch on the stainless steel auger for high, medium, and low flow applications. Different size syringe mount inserts are also available to support various diameter syringe barrels. A 30cc syringe adapter support bracket is standard with the valve and inserts can be added for additional support.

### Auger Options

### Valve Part #

8-Pitch (standard)

SV200-08

16-Pitch

SV200-16

### Syringe Support Insert

### Insert Part Number

10cc Syringe

114-4139

5cc Syringe

114-4140

3cc Syringe

114-4141

1cc Syringe

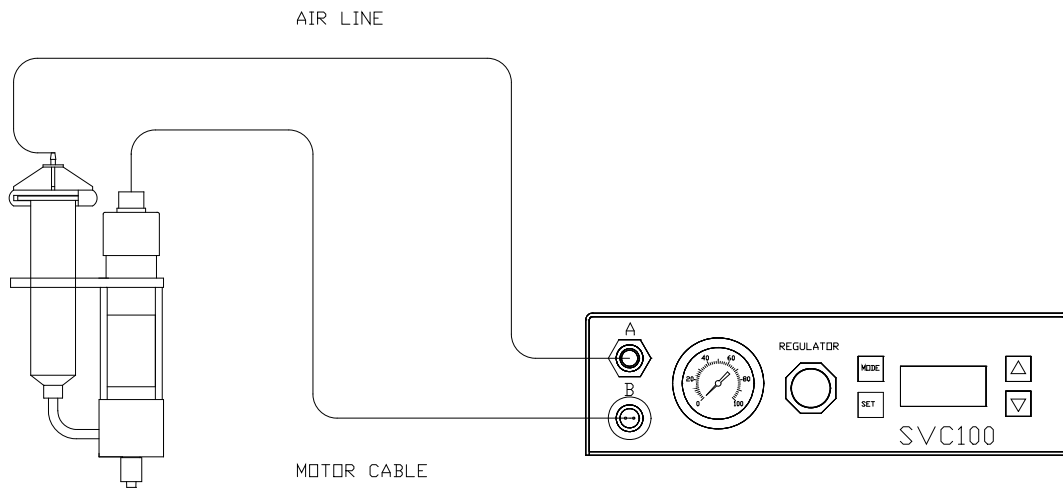
114-4142

## 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

Each SV200 auger valve requires an SVC100 controller for operation. A two pin motor cable (23) is used to connect the controller and the valve to transfer the signal used to rotate the auger. A second air output on the controller is used to supply air pressure to the syringe of fluid only when the auger is spinning in the forward direction. Fluid is typically supplied to the valve from a syringe mounted directly to the valve using the disposable feed tube (20). PVA offers universal syringe air adapters that will connect the syringe to the 5/32"od tube air output of the controller.



## Tool Kit

PVA offers standard tool kits for all dispensing valves. The tool kit for the SV200 is part number **B12-3419**, which includes all necessary tools and lubricating grease to perform maintenance on this dispense valve:

**B12-3419** Includes:

Qty	Part Number	Description
1	0266244	8" Adjustable Wrench
2	V004	0.9 mm Allen Key
1	6958A21	1.5 mm Allen Key
1	7122A38	0.050" Allen Key
1	26559	1/16" Allen Key
1	26563	3/32" Allen Key
1	9570K71	Hook and Pick Set
1	B62-2048	Silicone Lubricant for O-Ring
1	114-5375	Press Tool

## Operation

Refer to assembly drawing **112-4396** for part reference numbers.

- 1) Connect the valve to the controller as outlined above in the **Setup** procedures.
- 2) Cycle the valve and make sure the flexible coupling (17) and auger (14) spin in the forward direction during dispense and the reverse direction when it stops.
- 3) Connect the syringe to the valve using the feed tube connector (20).
- 4) Mount a universal air cap to the syringe and connect the air line to the 5/32" tube quick connect on the SVC100 controller.
- 5) Cycle the valve to the dispense position to feed material through the luer adapter and purge all air.
- 6) Set the syringe air pressure to feed fluid to the auger.
- 7) Adjust the motor speed to the desired flow rate.
- 8) Adjust the reverse time to obtain a clean shutoff of fluid flow.

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

## Periodic Maintenance

The o-ring (18) mounted on the auger will need to be replaced as wear occurs.

## End of Day Cleaning & Maintenance

The SV200 valve is designed with a quick connect feature to allow ease of cleaning and disassembly of the wetted section of the valve on a daily basis. A spare parts kit, part # **SV2-08-SP or SV2-16-SP**, is available with all the normal wear parts included.

- 1) Begin disassembly by disconnecting the motor cable (23) and syringe air adapter from the valve assembly.
- 2) Disconnect the syringe of fluid from the feed tube (20).
- 3) Remove the feed tube (20) from the fluid body (1) and discard.  
Note: The tapered plastic fitting of the feed tube is press fit into the fluid body.
- 4) Hold the valve body in one hand and press the disconnect bar (7) into the fluid body (1) using your thumb. At the same time using your other hand, grab the top of the servo motor (16) and pull the motor with coupling (17) and auger (14) assembly out of the fluid section to completely remove it from the valve.  
Note: There will be a spring force against the disconnect bar to force it away from the fluid body.
- 5) Using a cloth, clean all material from the auger (14).
- 6) Then using a q-tip or other cleaning utensil wipe the luer adapter (15) and fluid body (1) clean of all material.
- 7) Once the valve is clean it can be reassembled by again in one hand, hold the fluid section and press the disconnect bar (7) into the fluid body (1). Once depressed, the motor, coupling, and auger (16, 17, 14) assembly can be inserted back into the fluid body.
- 8) Once the motor assembly (16, 17, 14) has been seated on the inside bottom of the fluid body (1) the disconnect bar can be released to lock the assembly in place.  
Note: You may need to press & wiggle the motor in place to allow the disconnect bar to retract locking the assembly in place.

## Complete Valve Disassembly

Cleaning and rebuilding the entire valve will be required from time to time. A spare parts kit, part # **SV2-08-SP or SV2-16-SP** is available with all the normal wear parts included.

- 1) Begin disassembly by disconnecting the motor cable (23) and syringe air adapter from the valve assembly.
- 2) Disconnect the syringe of fluid from the feed tube (20).
- 3) Remove the feed tube (20) from the fluid body (1) and discard.  
Note: The tapered plastic fitting of the feed tube is press fit into the fluid body.

- 4) Hold the valve body in one hand and press the disconnect bar (7) into the fluid body (1) using your thumb. At the same time using your other hand, grab the top of the servo motor (16) and pull the motor with coupling (17) and auger (14) assembly out of the fluid section to completely remove it from the valve.  
Note: There will be a spring force against the disconnect bar to force it away from the fluid body.
- 5) Using a cloth, clean all material from the auger (14).
- 6) Then using a q-tip or other cleaning utensil wipe the luer adapter (15) and fluid body (1) clean of all material.
- 7) Using a 0.9 mm Allen Key loosen the set screws of the flexible coupling (17) to remove the auger (14) from the coupling then the coupling from the motor (16).
- 8) Using a Pick, remove the Viton o-ring (18) from the auger.
- 9) Then using a 1.5mm Allen Key, remove the 3 machine screws (19) that secure the motor collar (4) to the motor (16) to separate those sections.
- 10) To disassemble the valve body, first use a 3/32" Allen Key to unthread and remove the 4 machine screws (12) that secure the syringe holder (8) to the standoffs (9) to remove the syringe holder.
- 11) Next, use an adjustable wrench to unthread and remove the standoffs (9) from the fluid body (1).
- 12) To remove the luer adapter, use a press and press tool. First place the press tool (114-5375) on the inside of the fluid body (1) on top of the luer adapter (15) and push the luer adapter out of the fluid body.
- 13) If necessary, use a 0.050" Allen Key to unthread and remove the four machine screws (11) from the valve body to remove the two quick disconnect covers (6) and remove the components of the quick release mechanism.

## **Assembly Instructions**

### **General**

- The o-ring (18) must be lubricated with a small amount of silicone grease.
- A small amount of removable thread locker should be applied to the male threads of the standoffs (9) and the male threads of the lock knobs (5).

## Motor & Auger Assembly

1. Place the motor mount plate (4) onto the bottom of the servo motor (16) and assemble using three machine screws (12) tightening with a 1.5 mm Allen key.
2. Thread the lock knobs (5) into the motor mount plate (4).
3. Slide the flexible coupling (17) onto the shaft of the servo motor (16) then use the 0.9 mm Allen key to tighten the two set screws on the flexible coupling to secure it in place.  
Note: Be sure one of the set screws are secured to the flat of the servo motor shaft.
4. Mount the o-ring (18) onto the auger (14) by sliding it over the top, non-threaded portion of the auger.  
Note: Do not slide the o-ring over the threads of the auger.
5. Insert the top, non threaded portion of the auger (14) into the coupling (17) and secure it in place by tightening the two set screws using a 0.9 mm Allen key.  
Note: be sure one of the set screws are secured to the flat of the servo motor shaft.

## Fluid Body Assembly

1. Using a press and press tool (114-5375), place the press tool into the male side of the luer adapter (15), align the inlet hole of the luer adapter to the inlet hole of the fluid body (1) and press the two pieces together until the luer is inserted all the way to the hard stop.  
Note: After assembly, look through the inlet hole of the fluid body to verify the holes are aligned properly.
2. Thread the four standoffs (9) into the fluid body (1) and tighten using an adjustable wrench.
3. Place the syringe support (8) onto the standoffs (9) with the countersink away from the standoffs and assemble using four machine screws (12) tightening with a 3/32" Allen key.  
Note: The bracket should extend out on the same face as the port of the fluid body
4. Assemble the quick release assembly by first placing the release lock right (2) component onto the fluid body (1) then inserting the spring (13) in place. Then while holding the spring in place, assemble the quick disconnect cover (6) onto the assembly and secure with the machine screws (11) using a 0.050" Allen Key to tighten.
5. Repeat step 4 on the left side of the valve with the release lock left (3), spring (13), quick disconnect cover (6), and machine screws (11).
6. Place the disconnect bar (7) in between the two release lock levers (2, 3) and secure the assembly with the two machine screws (10) using a 1/16" Allen Key to tighten.



## Assemble Sections

- 1) Hold the fluid section in one hand then press the disconnect bar (7) into the fluid body (1) using your thumb. Once depressed, the motor, coupling, and auger (16, 17, 14) assembly can be inserted through the syringe support bracket (8) and back into the fluid body.
- 2) Once the motor assembly (16, 17, 14) has been seated on the inside bottom of the fluid body (1) the disconnect bar can be released to lock the assembly in place.  
Note: You may need to press & wiggle the motor in place to allow the disconnect bar to retract locking the assembly in place.

## Spare Parts

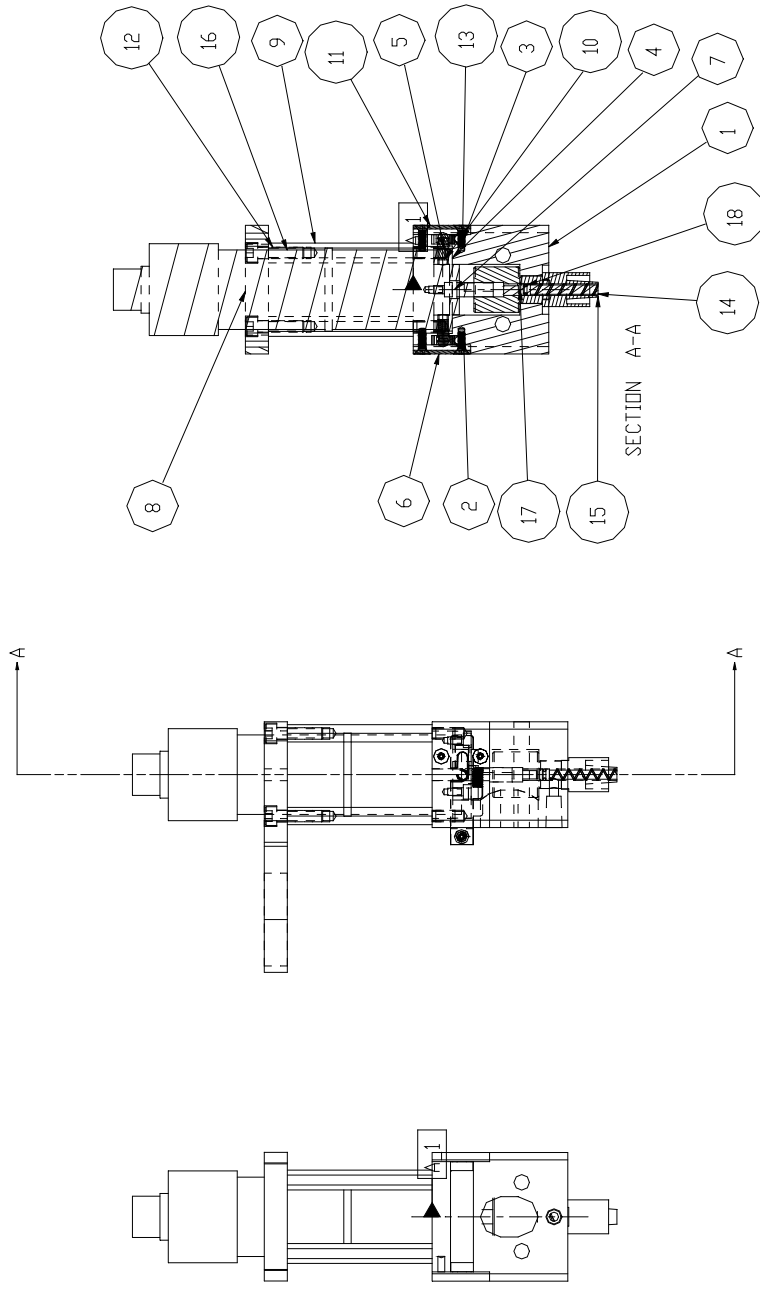
PVA offers standard spare parts kits for all dispensing valves. These kits are stocked for immediate shipment and allow replacement of all wearable parts of the valve.

The spare parts kit for the SV200, product number **SV2-08-SP** or **SV2-16-SP**, include the following components:

The **08** or **16** are used to specify the auger type.

Kit Includes:

Qty	Part Number	Description
1		Auger Pitch
-	114-2514	8 pitch
-	V503-16	16 pitch
1	V504	Luer Adapter
3	V511	O-Ring
5	V507	Feed Tube
2	V004	Allen Key, 0.9 mm



REV	REVISION DESCRIPTION	DRN BY	DATE	DESIGN REV	REVISION DESCRIPTION	DRN BY	DATE	DESIGN	MATERIAL:
A	ORIGINAL DESIGN	DFL	12/21/11	DFL					PVA
									TITLE: SV200
									DWG#: 112-4396
									QTY: - SHEET: 1 OF 1 REV: A

UNLESS OTHERWISE SPECIFIED  
 DIMENSIONS ARE TO BE  
 IN INCHES ± .005  
 SURFACE FINISH  
 UNLESS OTHERWISE SPECIFIED  
 SURFACE FINISH  
 UNLESS OTHERWISE SPECIFIED

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**BILL OF MATERIALS FOR SV200 (B12-3079)**

Refer to Drawing #112-4396

<b>Item</b>	<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
1	214-3131	Fluid Body, Aluminum	1
2	214-3139	Release Lock, Right	1
3	214-3142	Release Lock, Left	1
4	214-3145	Coupling Collar	1
5	214-3149	Lock Knob	2
6	214-3153	Quick Disconnect Cover	2
7	214-3161	Disconnect Bar	1
8	214-3163	Syringe Support Bracket, 30cc	1
9	214-3210	Standoff	4
10	SHCS 1-72 x 0.25	Socket Head Cap Screw	2
11	FHCS 1-72 x 0.25	Flat Head Cap Screw	4
12	SH5-40x0.375	Socket Head Cap Screw	4
13	V-92	Spring	2
14	114-2514	Auger, 8-pitch	1
15	V504	Luer Adapter	1
16	B12-3403	Servo Motor	1
17	V506	Flexible Coupling	1
18	V511	O-Ring, Viton	1
19	M2 x 6	Socket Head Cap Screw	3
	<b>Accessory Kit Supplied with Valve</b>		
20	V507	Feed Tube	5
21	V511	O-Ring, Viton	3
22	V004	Allen Key	2
23	VC108	Motor Cable	1

## Troubleshooting

<b>Problem</b>	<b>Possible Cause</b>	<b>Corrective Action</b>
Valve does not cycle	- Motor not connected properly - Cured material in fluid section	- Check motor connections - Disassemble valve and clean
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	- O-ring is worn	- Replace O-ring
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 - Air bubbles in syringe - Reverse time set too high	- Cycle valve open to purge air - Remove air from syringe - Reduce reverse time
Dispense rate too fast	- Motor speed set too high	- Decrease motor speed
Dispense rate too slow	- Motor speed set too low	- Increase motor speed

## **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: \_\_\_\_\_