



WHERE
PRECISION
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MV600 Series Metering Valve

Version: 112-10423

OWNER'S MANUAL

Rev A

Precision Valve & Automation
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Halfmoon, NY 12065
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1. Introduction

Before you operate this system, read the operation and setup manual. This will help you to become familiar with the product and ensure successful operation.

If any questions or problems arise, contact PVA’s Technical Support department.

1.1 PVA Contact Information

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1.2 Document History

Revision	Revision Date	Reason for Changes
REV A	January 2018	Initial release, version 112-10423

NOTE: All photographs and CAD model representations in this document are a “general representation” of the valve and its components. The actual appearance of the valve and its components can differ based upon customer specific configuration.

1.3 Safety

Certain warning symbols are affixed to the machine and correspond to notations in this manual. Before operating the system, identify these warning labels and read the notices described below. Not all labels may be used on any specific system.



Always wear approved safety glasses when you operate or work with spray or dispense valves.



Before you operate the system, read and understand the manuals provided with the unit.



Never put hands or tools in areas with this symbol when the machine is in operation. A dangerous condition may exist.



Read and understand the manuals provided with the unit before any repairs or maintenance is done. Only a qualified individual should do service.



Use caution when there are pressurized vessels. Find and repair any leaks immediately. Always wear appropriate safety equipment when you work with pressurized vessels or vessels that contain chemicals.



Shear hazard from moving parts. Avoid contact.

1.4 Personal Protective Equipment

Operators must use eye protection because material contents are under pressure. Always wear gloves when handling materials and solvents. Refer to MSDS sheets on the material being dispensed for other precautions and recommended solvents.

1.5 Waste Disposal

Dispose of all used parts and materials in accordance with local laws and regulations.

2. Technical Specifications

Table 1: MV600 Series Technical Specifications

Weight	4.6 lbs. (2.08 kg.)
Overall Dimensions	10.90"(277mm) x 1.50"(38mm) x 3.20"(81mm)
Wetted Components	Stainless Steel, Kalrez®, Teflon® Polyurethane
Fluid inlet	1/4" MNPT
Fluid Outlet	Male luer lock adapter
Fluid volume range	0.10cc – 0.80cc per cycle
Recommended viscosity range	10,000cps – 5,000,000 cps
Inlet fluid pressure	30psi – 3,200psi
Outlet fluid pressure	4,000psi. Maximum generated on outlet
Operating air pressure	80psi. <i>(Can be operated between 50psi – 100psi)</i>
Operating air ports	10-32 female threaded ports <i>(supplied air fittings for 5/32" od tube)</i>
Operating equipment	2-Position 4-Way air solenoid valve
Optional equipment	24vdc Reed switch <i>(Quantity 2)</i>
Mounting dimensions	Refer to drawing 112-10423

3. Theory of Operation

The MV600 is a rod displacement style, positive displacement metering head with two integral check valves to control the flow of material into and out of the valve. A spring loaded check valve mounted to the metering cylinder act's as the inlet check valve and the SB300 series rear closing dispense valve acts as the outlet check valve.

The metering chamber houses a rod and cylinder combination to meter a specific amount of material to be dispensed. A micrometer in the upper air section is adjusted to set the travel distance of the rod thus setting the chamber volume that will displace a specific fluid volume during each cycle. During fill, the SB300 dispense valve will stay closed as fluid pressure is used to push the piston upward until it reaches the micrometer "hard stop". An air port on the metering chamber is available for refill assist to pull fluid into the metering section faster. Once filled, air pressure is simultaneously applied to the SB300 to cycle it open and the air section of the metering chamber to drive the rod down and force fluid out of the valve. A second air port is located on the metering chamber to double the pressure used to drive the rod down to dispense.

A stroke adjustment in the air section of the SB300 can be used to control the amount of suck back to prevent dripping and stringing with thicker fluids.

4. Setup

The MV600 requires a 2-position, 4-way air solenoid valve to actuate the air section. The valve should be operated with clean, dry air between 50-100psi. Two #10-32 threaded air ports are located on the air section of the SB300 valve and three #10-32 ports are located on air section of the metering chamber. The port located on the side of the SB300 is air to close the valve. The port located on the top of the stroke adjustment is air to open the valve. The air supply connected to the stroke adjustment of the SB300 should be tied to the highest and lowest port on the air section of the metering chamber. The middle port of the metering chamber can be tied to the port on the side of the SB300 to provide refill assist. Quick connect air fittings are typically supplied with the MV600 to fit 5/32" tubing. Note that the valve should be normally in the closed position. Flow control air fittings can be used to control the speed of refill and dispense of fluid.

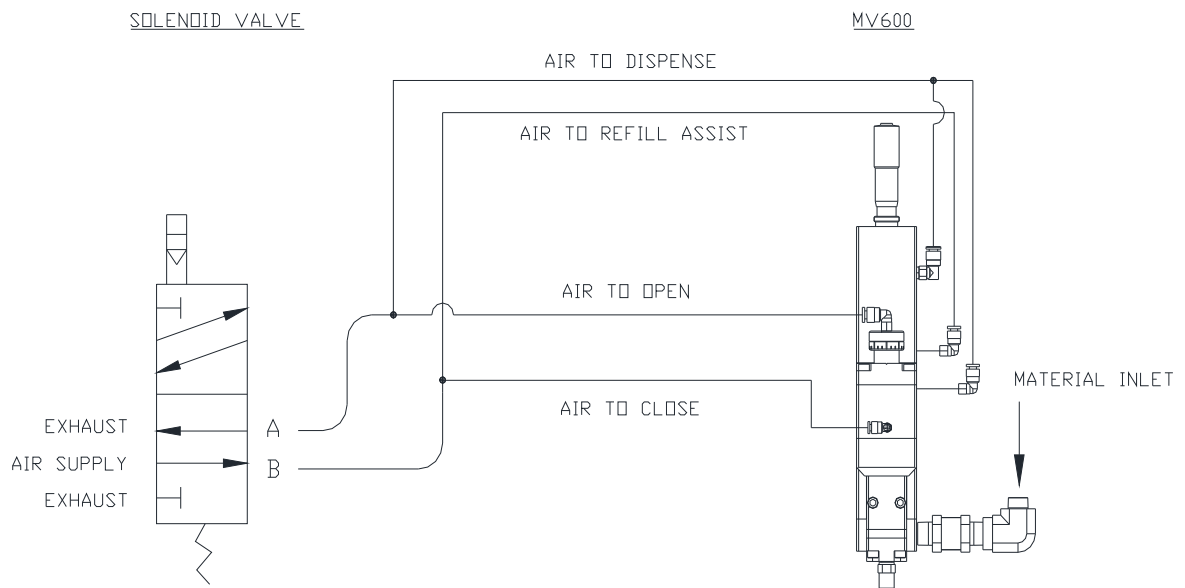
Fluid is supplied to the MV600 through the 1/4" mnpt inlet check valve located on the inlet of the metering cylinder.

4.1 Pneumatic Schematic

There are three different options when connecting pneumatic to the MV600 series valve. The SB300 series outlet valve must always be connected to the solenoid but the metering cylinder contains two ports which can be used to drive fluid to dispense and one port which can be used to assist refilling fluid in the metering cylinder.

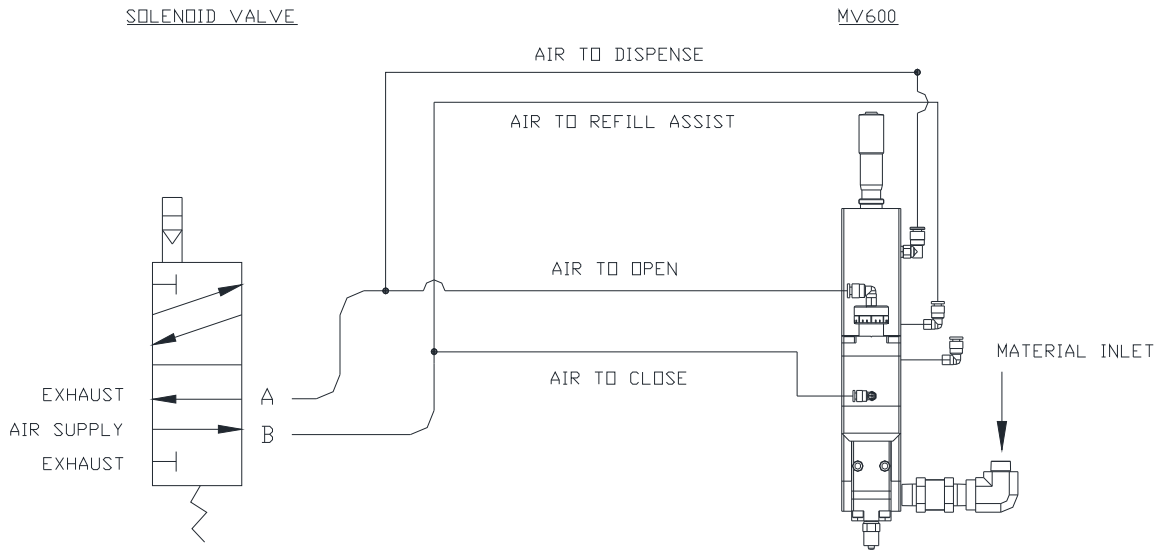
Option 1: Used for highest viscosity fluids. Both dispense ports are connected providing a 40:1 ratio mechanical advantage for dispense pressure. Refill assist port is connected to pull fluid into the metering chamber faster.

Table 2: Pneumatic Schematic – Dual Air Dispense & Refill Assist



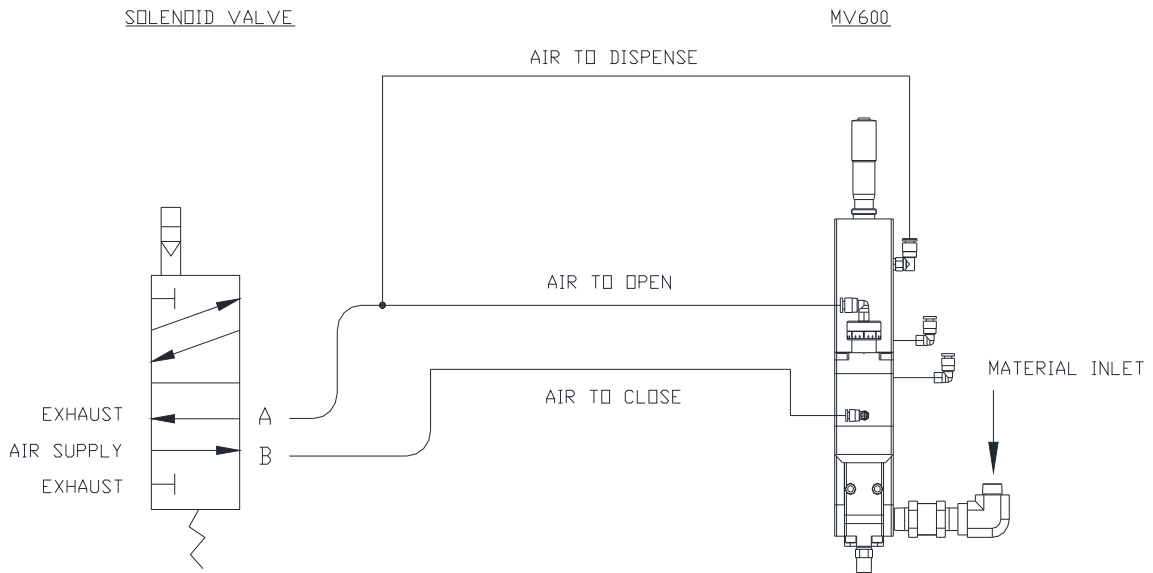
Option 2: Used for medium viscosity fluids. One dispense port is connected providing a 20:1 ratio mechanical advantage for dispense pressure. Refill assist port is connected to pull fluid into the metering chamber faster.

Table 3: Pneumatic Schematic – Single Air Dispense & Refill Assist



Option 3: Used for lower viscosity fluids. One dispense port is connected providing a 20:1 ratio mechanical advantage for dispense pressure. No refill assist is used.

Table 4: Pneumatic Schematic – Single Air Dispense & No Refill Assist



5. Operation

NOTE: Refer to Table 2, 3, or 4 (Section 4.1)

NOTE: Use only compatible solvents and materials or the seals and O-rings will be damaged.

5.1 Connect Pneumatics

1. Connect air lines from solenoid to valve as shown in Table 2, 3, or 4 depending on the type of configuration that fits the application.
2. Supply air pressure to solenoid valve and regulate between 50-100 psi.
(Note: 80psi. optimal air pressure setting)
3. Turn the micrometer of the metering piston counter-clockwise until the #3 can be seen on the inside dial
4. Cycle valve several times. Make sure the piston can be heard hitting the micrometer and the rod of the SB300 can be seen going up and down.

5.2 Bleed Valve

1. Connect fluid delivery system to valve.
2. Pressurize fluid and adjust above minimum operating range.
3. Cycle valve several times using a 1-2 second delay in between filling and dispensing until fluid can be seen at luer lock outlet.
4. Continue cycling valve until all air is removed from the system and a steady flow of fluid can be seen coming from the valve outlet.

5.3 Valve Settings

1. Fluid pressure to valve inlet will determine piston refill time. Increasing fluid pressure will allow the metering chamber to fill at a faster rate.
2. Connecting the solenoid to the refill assist port as shown in table 2 or 3 to pull fluid in faster and decrease fill time.
3. Connect the solenoid to both air dispense ports as shown in table 2 in order to build the maximum amount of pressure to dispense fluid and decrease dispense time.
4. Turning the micrometer counter-clockwise will increase the volume and turning it counter-clockwise will decrease the fluid volume.

Note: After each adjustment, cycle the valve one to dispense and check new volume.

Note: Valve should be cycled to the open position when adjusting the micrometer so the piston is not being forced against the micrometer.

5. Once the desired volume is achieved, turn the color of the micrometer to lock it in place.
6. Use the stroke adjustment of the SB300 regulate the amount of travel of the rod and set the amount of suck back at the end of each cycle. Turning the stroke adjustment counter-clockwise will increase the amount of suck back and turning it clockwise will decrease the amount of suck back.

Note: If the stroke adjustment is turned down too low then the SB300 will not close and fluid will continue to leak from valve.

7. Once the desired rate and volume is achieved, attach a luer lock dispense nozzle to the outlet of the valve and recheck settings.

5.4 Shutdown

At the end of the day it's recommended to remove the luer lock dispense tip and replace it with a luer lock plug, then remove inlet fluid pressure to valve.

6. Periodic Maintenance

Interval	Action
Daily	<ul style="list-style-type: none"> Examine the material outlet for contamination and cured material. Clean cured material if necessary. Examine any packing seals for leaking.
Weekly	<ul style="list-style-type: none"> Examine fluid reservoirs or pumps for signs of cured or dried material.

6.1 Necessary Tool Kit

PVA offers a standard kit of all tools necessary to maintain valve.

Tool Kit part number: **B12-04287**

Quantity	Part Number	Description
2	0266244	8" Adjustable Wrench
1	26569	9/64" Allen Key
1	26571	5/32" Allen Key
2	26563	3/32" Allen Key
1	26559	1/16" Allen Key
1	5516A18	Tweezers
1	B62-2048	2.5cc Silicone Lubricant
1	9570K71	Hook & Pick Set
1	0266255	Pliers
2	53085A61	Soft Plastic Covers for Pliers
1	MM115	Removable Thread Locker
1	TT-14	Teflon Tape, ¼"
1	5415A61	Snap Ring Pliers
1	PB135/2	Flat Head Screwdriver
1	PT17184	Micrometer Adjust Wrench
1		Special Tool

6.2 Spare Parts Kit

PVA offers a standard kit of all wearable items to rebuild the valve.

Spare parts kit, part number: **112-10423-SP**

Quantity	Part Number	Description
1	Lip Seal, Molythane	01525
1	Lip Seal, Molythane	12500187
1	Lip Seal, Molythane	12500250-250B
1	98410A117	Snap Ring, 0.338" id
1	VLV-014B	O-Ring, Buna
1	VLV-008B	O-Ring, Buna
1	VLV-024B	O-Ring, Buna
1	VLV-214B	O-Ring, Buna
2	VLV-016V	O-Ring, Viton
1	VLV-014V	O-Ring, Viton
1	VLV-009B	O-Ring, Buna
1	VLV-010B	O-Ring, Buna
1	VLV-011K	O-Ring, Kalrez
1	VLV-022B	O-Ring, Buna
1	VLV-109K	O-Ring, Kalrez
2	VLV-212B	O-Ring, Buna
1	VLV-010K	O-Ring, Kalrez
1	VLV-015K	O-Ring, Kalrez
1	4 COS-10-SS	Spring, 10psi Crack

7. Routine Cleaning and Disassembly

Prior to disassembly, turn off fluid & air pressure to the valve and remove all fluid feed and air lines from the valve. Discard any damaged or worn components and replace from the spare parts kit as necessary.

7.1 Disassemble Sections

For part reference, refer to drawing: **112-10423**

1. Using a 9/64" Allen Key, remove two machine screws (3) and separate the SB300 (2) from the metering cylinder (1).

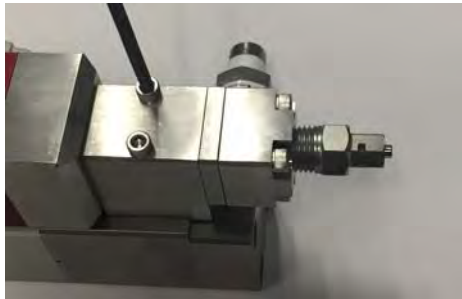


Figure 1: Remove Screws & Separate Sections

2. Using an adjustable wrench, unthread and remove the inlet check valve (4).



Figure 2: Remove Check Valve

- Using two adjustable wrenches, separate the check valve (4) and remove the spring loaded piston assembly.



Figure 3: Separate Check Valve

7.2 Disassemble Metering Cylinder

For part reference, refer to drawing: **112-08449**

- Using a 5/32" Allen Key, remove the four machine screws (17) and separate the upper air body (2) from the cylinder stop (4).

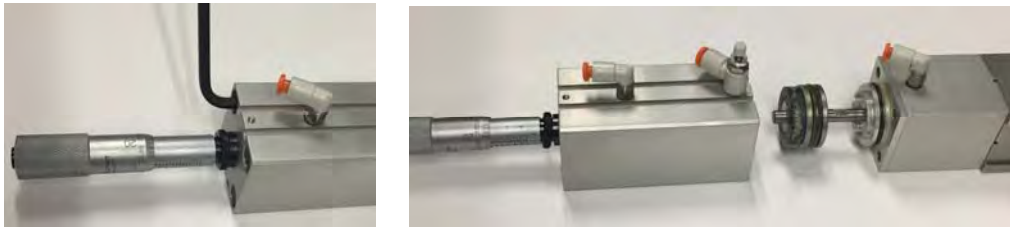


Figure 4: Remove Screws & Separate Sections

- Using a 1/16" Allen Key, loosen the set screw (9) that secures the micrometer (11) in place.

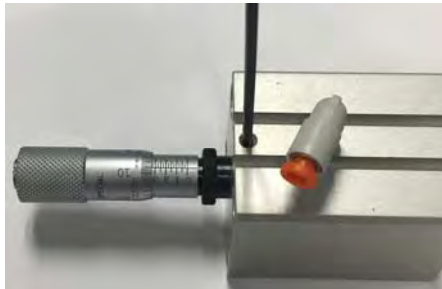


Figure 5: Loosen Set Screw

- Using pliers with soft grip covers unthread and remove the micrometer (11) from the upper air body (2) and remove the O-Ring (18).



Figure 6: Remove Micrometer

- Pull the piston assembly (1, 3, 4) out of the lower air body (5).



Figure 7: Remove Piston

- Using pliers with soft grip covers hold the upper piston assembly (3) and turn the metering piston (1) by hand separate the assembly from the cylinder stop (4).



Figure 8: Separate Piston Assembly

- Using a pick, remove the O-ring (19) from the cylinder stop (4) then remove O-rings (21) from the outside of the cylinder stop and O-rings (23) from the pistons (1,3).

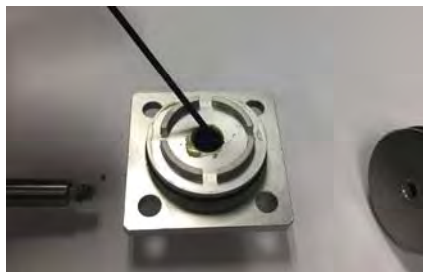


Figure 9: Remove O-Rings

- Using a 5/32" Allen key, remove the four machine screws (16) that connect the fluid body (6) to the metering cylinder (7) lower air body (5).



Figure 10: Remove Screws

- Separate the sections and remove O-ring (20) from the metering cylinder (7) and O-Ring (22) from the fluid body (6).

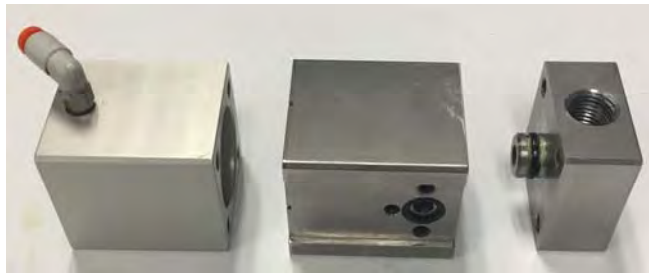


Figure 11: Separate Section & Remove O-Rings

- Using the special tool, loosen and remove the seal stop (8).



Figure 12: Remove Seal Stop

- Using a pick, remove the lip seal (10) from the metering cylinder (7).

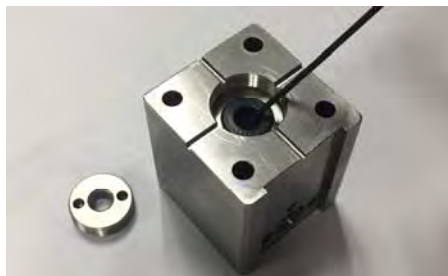


Figure 13: Remove Lip Seal

7.3 Disassemble SB300 Section

For part reference, refer to drawing: **112-10424**

1. Using an adjustable wrench unthread and remove the luer adapter (25).

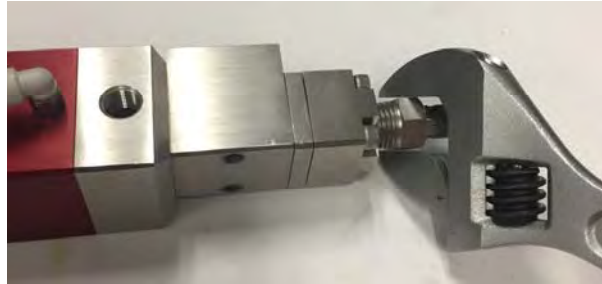


Figure 14: Remove Luer Adapter

2. Using a 9/64" Allen Key, remove the four machine screws (23) located on the end cap (22).

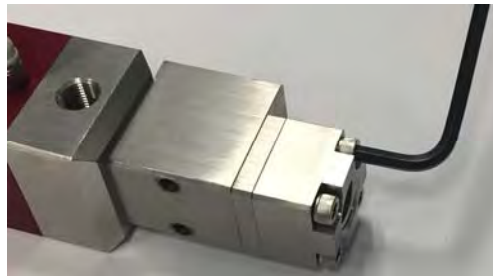


Figure 15: Loosen Screws

3. Pull the end cap (22) away from the valve and remove the O-Ring (24).



Figure 16: Separate Sections

- Pull the seal plate (6) away from the valve and remove the O-Ring (21), lip seal (14), and washer (16).



Figure 17: Separate Sections

- Using a 9/64" Allen Key, remove the four machine screws (9) on the air cap (3).

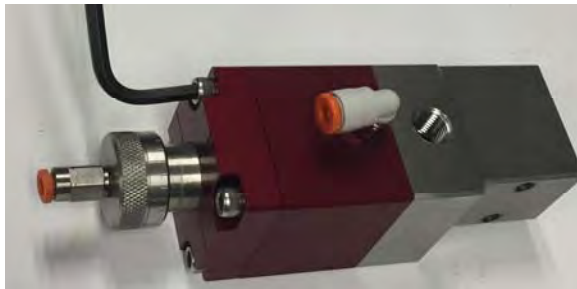


Figure 18: Loosen Screws

- Pull the air cap (3) away from the air cylinder (2).

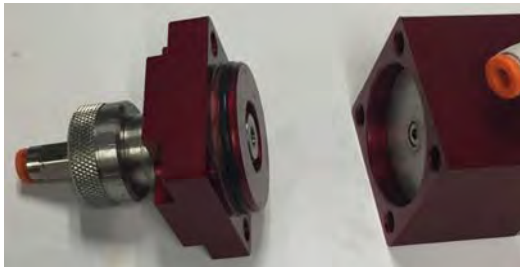


Figure 19: Separate Sections

- Using snap ring pliers remove the snap ring (13) from the stroke adjust (7).



Figure 20: Remove Snap Ring

8. Unthread and remove the stroke adjust (7) from the air cap (3) and remove two O-Rings (17, 19).



Figure 21: Separate Stroke Adjust

9. Pull the air cylinder (2) away from the separation body (1), completely removing the needle (10).

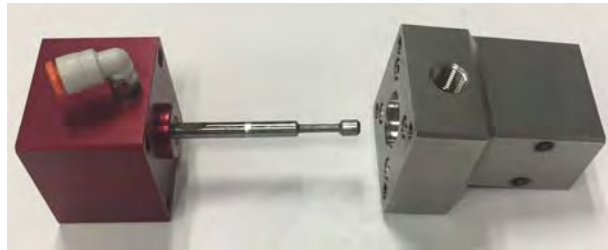


Figure 22: Separate Sections

10. Push the needle & piston assembly (4, 10) out of the air cylinder (2) then remove the spring (11) and O-ring (18).



Figure 23: Separate Piston Assembly

11. To separate the needle (10) and piston (4), use an adjustable wrench and 3/32" Allen key to remove the machine screw (12). Remove O-ring (20).



Figure 24: Separate Piston & Needle

- Using a 3/32" Allen Key, remove four machine screws (8) that secure the separation body (1) to the fluid body (5).



Figure 25: Loosen Screws

- Pull the separation body (1) away from the fluid body (5). Use a pick to remove the lip seal (15) and remove the O-ring (21) and washer (16).



Figure 26: Separate Sections

8. Assembly Instructions

For Assembly of valve, lubricate all O-rings with the lubricant provided in the tool kit, or comparable lubricant. Use removable thread locker supplied in the tool kit, or comparable thread locker on the male thread of the upper piston (3) for assembly to the metering piston (1).

8.1 Assemble Metering Cylinder

For part reference, refer to drawing: **112-08449**

- Insert lip seal (10) into metering cylinder (7) with O-ring facing down.

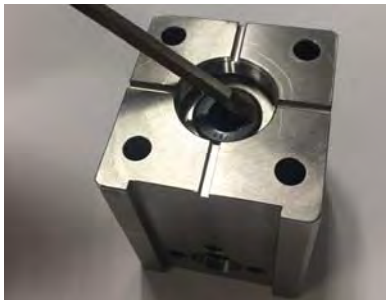


Figure 27: Insert Lip Seal

2. Thread the seal stop (8) into the metering cylinder (7) and tighten using the special tool.



Figure 28: Assemble Seal Stop

3. Mount O-ring (22) onto fluid body (6).



Figure 29: Mount O-Ring

4. Mount the fluid body (6) and lower air body (5) to each side of the metering cylinder (7) and assemble using four machine screws (16). Use a 5/32" Allen key to tighten. **Note: Be sure fluid inlet and air port are located on same face.**



Figure 30: Assemble Sections

5. Mount one O-ring (19) onto the inside groove of the cylinder stop (4) and two O-rings (21) onto the outside grooves of the cylinder stop.



Figure 31: Assemble O-Rings

6. Mount one O-ring (23) onto the upper Piston (3) and a second O-ring (23) onto the Metering Piston (1).



Figure 32: Assemble O-Rings

7. Slide the upper piston (3) through the cylinder stop (4).



Figure 33: Assemble Piston

8. Apply a small amount of removable thread locker to the male threads of the upper piston (3) and assemble it to the metering piston (1). Use soft grip pliers to hold the upper piston and tighten the metering piston by hand.



Figure 34: Assemble Piston

9. Push the piston assembly into the lower section until the cylinder stop (4) sits flush against the lower air body (5).



Figure 35: Assemble Sections

- Place O-ring (18) onto the shaft of the micrometer (11) then thread the micrometer into the upper air body (2). Tightening with soft grip pliers.



Figure 36: Assemble Micrometer

- Using a 1/16" Allen key, tighten set screw (9) against the micrometer (11).



Figure 37: Tighten Set Screw

- Mount the upper air body assembly (2) onto the lower section and assemble with four machine screws (17), using a 5/32" Allen key to tighten.



Figure 38: Assemble Micrometer

- Place O-ring (20) onto the outlet of the metering cylinder groove(7).

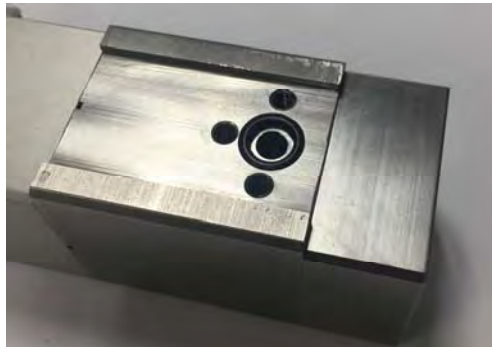


Figure 39: Assemble O-Ring

8.2 Assemble SB300 Section

For part reference, refer to drawing: **112-10424**

1. Insert lip seal (15) into separation body (1).

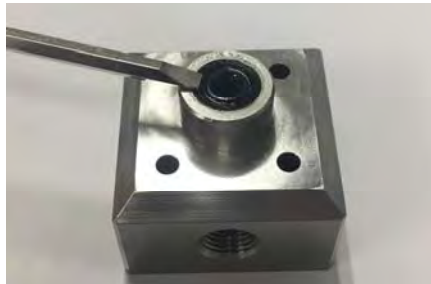


Figure 40: Assemble Lip Seal

2. Place a washer (16) on the inside groove of the fluid body (5) then place O-ring (21) on the outer groove.

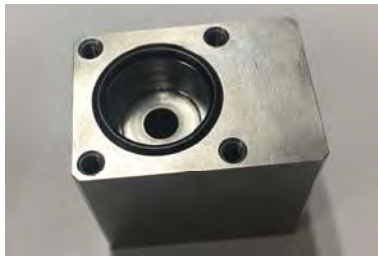


Figure 41: Assemble O-Ring & Washer

3. Assemble the separation body (1) onto the fluid body (5) and secure using four machine screws (8). Use a 3/32" Allen key to tighten.



Figure 42: Assemble Sections

4. Mount an O-ring (20) onto the piston (4) and assemble the needle (10) to the piston with machine screw (12). Use an adjustable wrench and 3/32" Allen key to tighten.



Figure 43: Assemble Piston

5. Insert the spring (11) into the air cylinder (2).

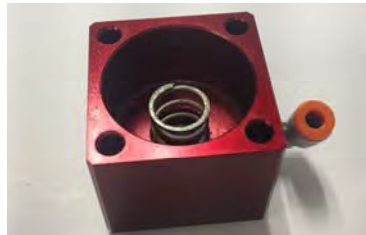


Figure 44: Assemble Spring

6. Insert the piston assembly (4, 10) into the air cylinder (2) then place the O-ring (18) onto the needle (10) and slide it up to the groove of the air cylinder.

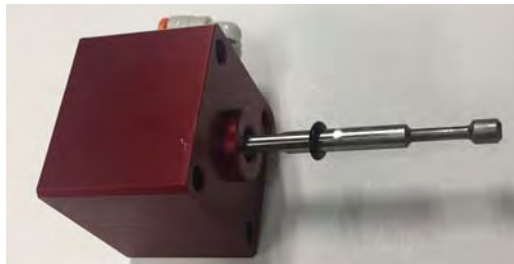


Figure 45: Assemble Sections

7. Assemble the piston & air cylinder to the lower section of the valve.



Figure 46: Assemble Sections

8. Mount O-ring (17) onto stroke adjust (7) and mount O-ring (19) onto air cap (3).

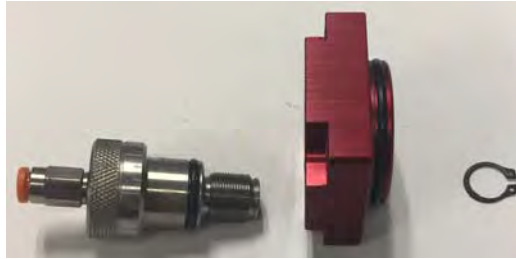


Figure 47: Assemble O-Rings

9. Thread the stroke adjust (7) into the air cap (3) then mount a snap ring (13) onto the stroke adjust using the snap ring pliers.



Figure 48: Assemble Stroke Adjust

10. Place the air cap (3) assembly onto the air cylinder (2) then assemble using four machine screws (9), tightening with a 9/64" Allen key.

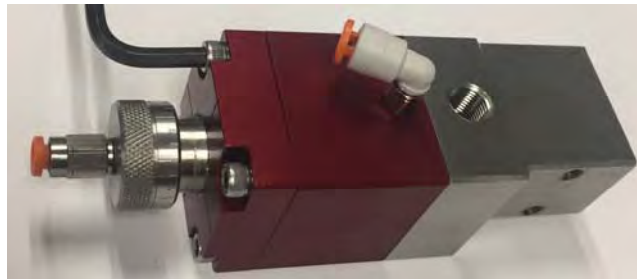


Figure 49: Tighten Screws

11. Place the lip seal (14) into the seal plate (6) with O-ring facing out.

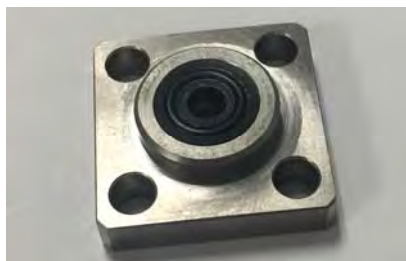


Figure 50: Assemble Lip Seal

- Place the washer (16) into the inside groove of the fluid body (5) then place the O-ring (21) into the outer groove of the fluid body.

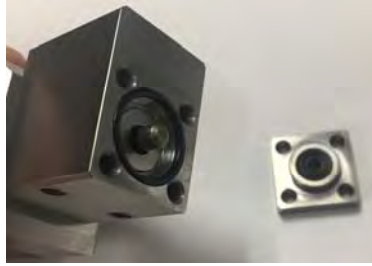


Figure 51: Assemble Washer & O-Ring

- Press the seal plate (6) onto the fluid body (5).



Figure 52: Assemble Seal Plate

- Place an O-ring (24) into the groove of the end cap (22).

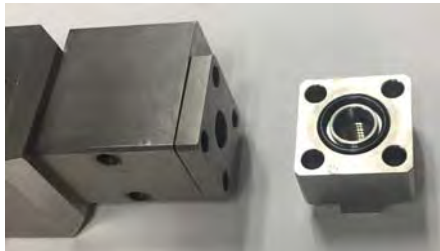


Figure 53: Assemble O-Ring

- Mount the end cap (22) onto the seal plate (6) and assemble using four machine screws (23). Use a 9/64" Allen key to tighten.



Figure 54: Tighten Screws

16. Add Teflon tape to the male threads of the luer adapter (25) then thread the luer adapter onto the end cap (22) using an adjustable wrench to tighten.



Figure 55: Assemble Luer Adapter

8.3 Assemble Sections

For part reference, refer to drawing: **112-10423**

1. Add Teflon tape to the male threads of the inlet check valve (4) and thread it into the metering cylinder (1) using an adjustable wrench to tighten.

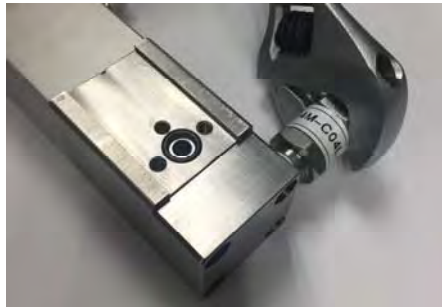


Figure 56: Tighten Check Valve

2. Mount the SB300 section (2) onto the metering cylinder section (1) and assemble with two machine screws (3) tightening with a 9/64" Allen key.

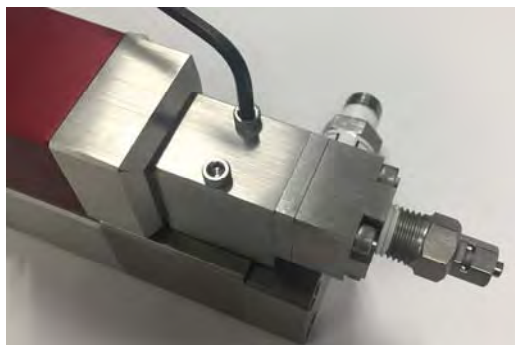


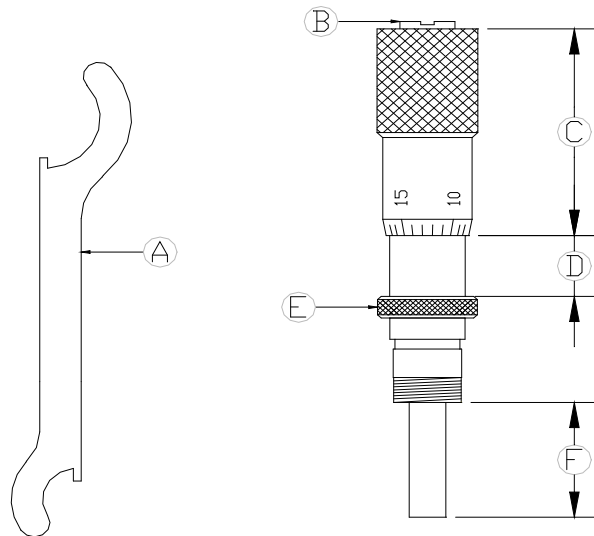
Figure 57: Assemble Sections

9. Zero out Micrometer

Once the valve is assembled it will be necessary to zero out the micrometer.

1. Using the micrometer wrench (A), insert the inside tip of the small end into the orifice of the midsection (D) and rotate it clockwise until the numbered centerline is on a side that can most easily be viewed by the operator.
2. Turn the dial (C) clockwise until the end (F) bottoms out on the valve piston.
3. Using soft tip pliers, hold the knurled end of the dial (C) tightly and loosen the screw (B) using a flat head screw driver. Note: Loosen the screw 3-4 turns only. It is not necessary to fully remove the screw.
4. Using a soft dead blow hammer, tap the dial (C) of the micrometer adjust to unlock it from the mid section (D). The dial will now spin freely.
5. Rotate the dial (C) to align the zero mark of the dial with the numbered centerline of the midsection (D), press down firmly to secure the dial in place.
6. Hold the dial (C) securely in one hand maintaining alignment with the zero mark and numbered centerline, then carefully tighten the screw (B) using the flat head screw driver to lock the micrometer adjustment.

Table 5: Micrometer



10. Optional Accessories

Options are available with the MV600-0.8 series valve to improve a process.

10.1 Reed Switch

Reed switches can be added to the air portion of the metering cylinder to detect the location of the piston in the up and down position as it reads a magnet on the air piston. The 24vdc reed switch can be adjusted up/down and tightened in place with a small screwdriver. When the reed switch is set to the level of the magnet/piston the LED indicator will turn red.

Part Number: D-A93

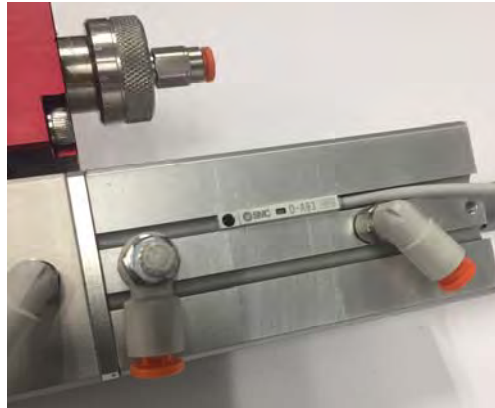


Figure 58: Reed Switch

11. Troubleshooting

Troubleshooting Problem	Possible Cause	Corrective Action
Valve does not cycle	<ul style="list-style-type: none"> Air pressure to air section is too low Material is cured in the valve O-rings were not lubricated when valve was assembled 	<ul style="list-style-type: none"> Increase air pressure to 60-100 psi Disassemble and clean the valve Disassemble the valve, lubricate the O-rings and seals, and assemble the valve again
Valve does not dispense material	<ul style="list-style-type: none"> The fluid pressure is too low Material is cured in the fluid section Micrometer setting too low 	<ul style="list-style-type: none"> Increase the fluid pressure Disassemble and clean the valve Increase micrometer setting
Valve leaks from the tip	<ul style="list-style-type: none"> Lip Seal of SB300 worn There is air trapped in the fluid section Suck back set too low 	<ul style="list-style-type: none"> Replace parts as necessary Cycle valve until all air is released Turn stroke adjust of suck back counter-clockwise
Dispense rate too fast	<ul style="list-style-type: none"> Metering cylinder pressure too high 	<ul style="list-style-type: none"> Reduce pressure on metering cylinder
Dispense rate too slow	<ul style="list-style-type: none"> Metering cylinder pressure too low 	<ul style="list-style-type: none"> Increase pressure on metering cylinder
There are air bubbles in fluid	<ul style="list-style-type: none"> Valve was not correctly bled There is a problem with the Fluid delivery system 	<ul style="list-style-type: none"> Do the complete bled procedure, flip the valve upside down and cycle until the air is released Diagnose and repair

12. Warranty

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 are 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 Technical Support 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: _____

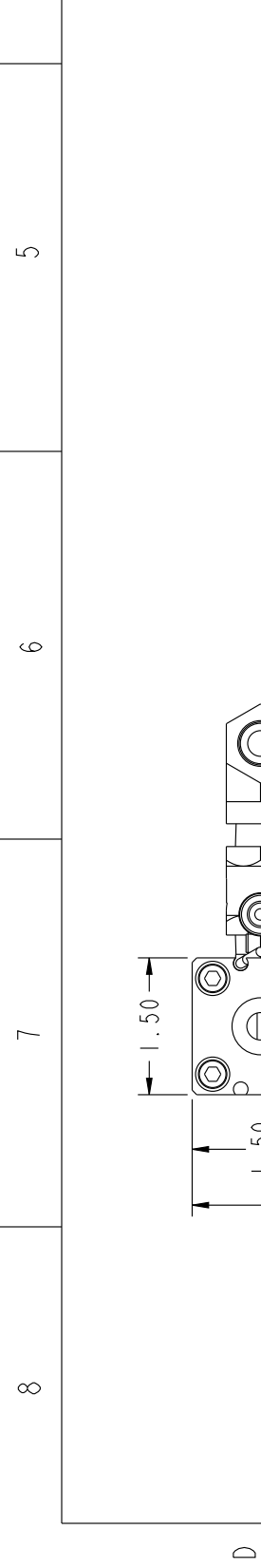
DATE OF PURCHASE: _____

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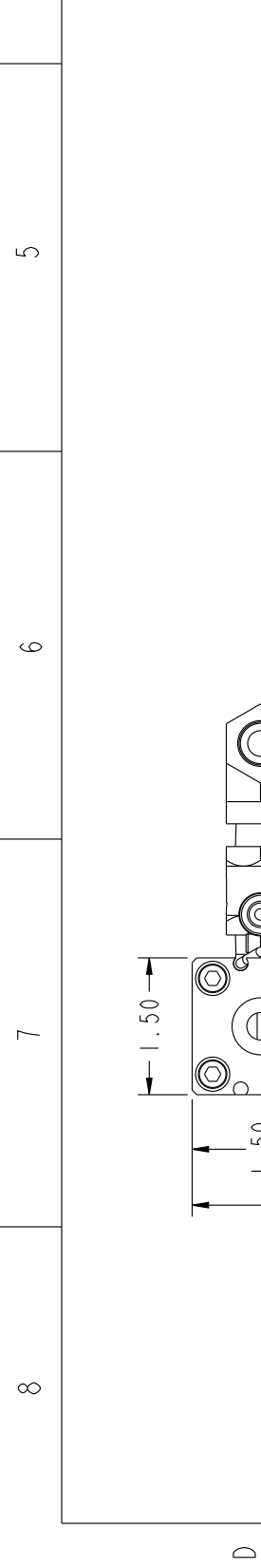
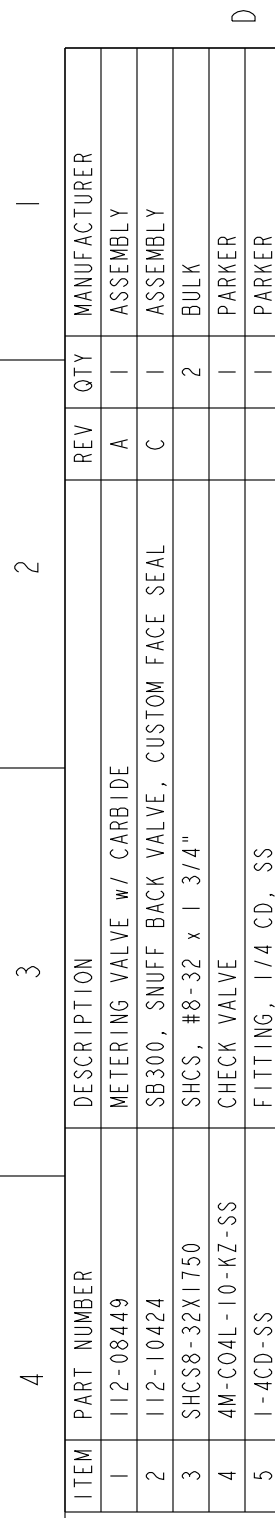
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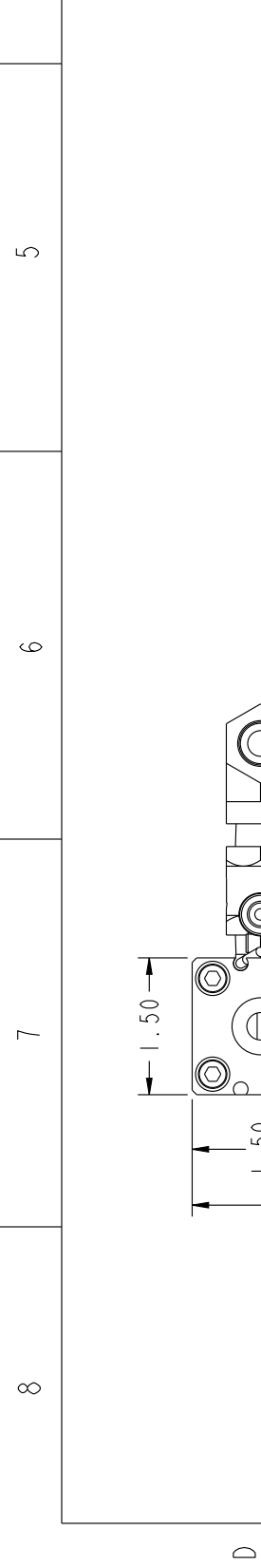
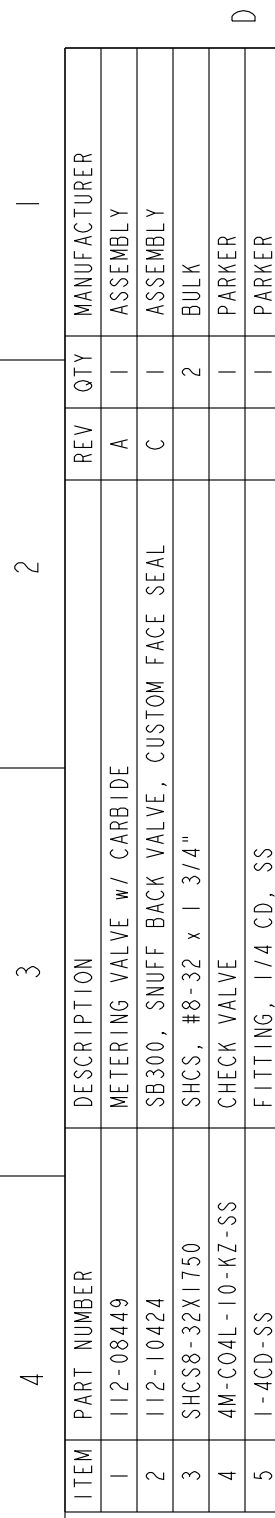
ITEM	PART NUMBER	DESCRIPTION	REV	QTY	MANUFACTURER
1	112-08449	METERING VALVE w/ CARBIDE	A	1	ASSEMBLY
2	112-10424	SB300, SNUFF BACK VALVE, CUSTOM FACE SEAL	C	1	ASSEMBLY
3	SHCS8-32X1750	SHCS, #8-32 x 1 3/4"		2	BULK
4	4M-CO4L-10-KZ-SS	CHECK VALVE		1	PARKER
5	1-4CD-SS	FITTING, 1/4 CD, SS		1	PARKER



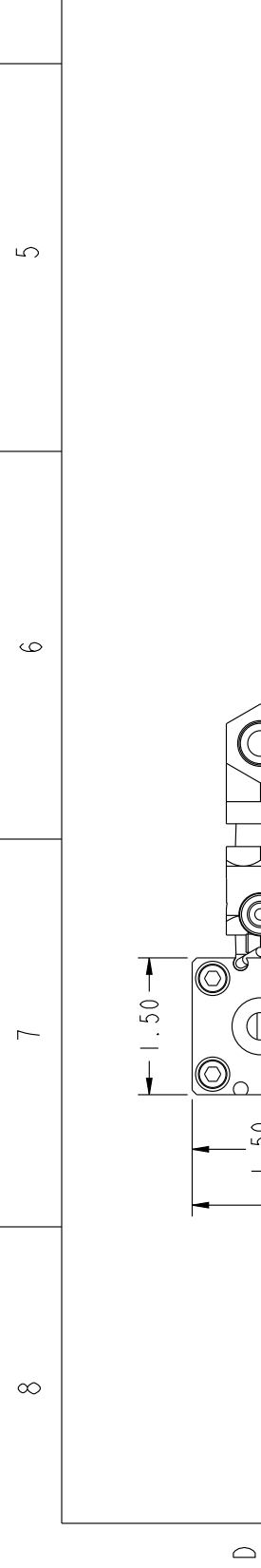
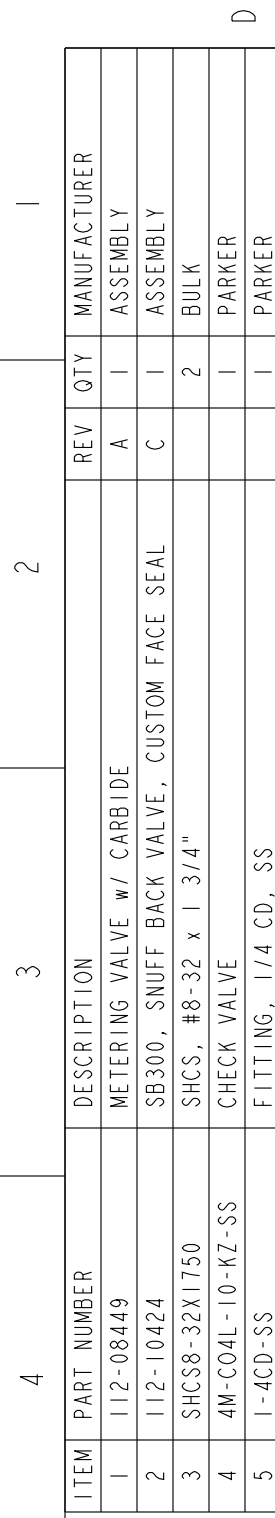
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C



B

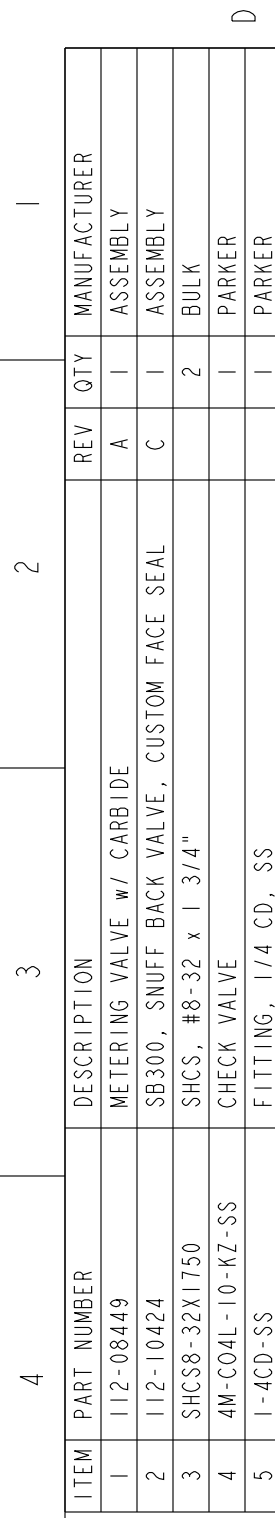


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REV	REVISION DESCRIPTION	DWN BY	DATE	DESIGN	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
A	ORIGINAL	DER	10/26/16	JA	DECIMAL X ± 0.1 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005
B	UPDATED CHECK VALVE, WAS 100psi	DER	2/1/18	JA	ANGULAR ± 0.5° SURFACE FINISH 64
C					
D					
E					
F					

CAD GENERATED DRAWING
DO NOT MANUALLY
UPDATE OR SCALE
ALL DIMENSIONS APPLY BEFORE
SURFACE TREATMENT
(i.e., ANODIZE, PLATING)
MATERIAL:
SEE BOM TABLE
PART FINISH:
N/A

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One Musfang Drive
Cohoes, NY 12047

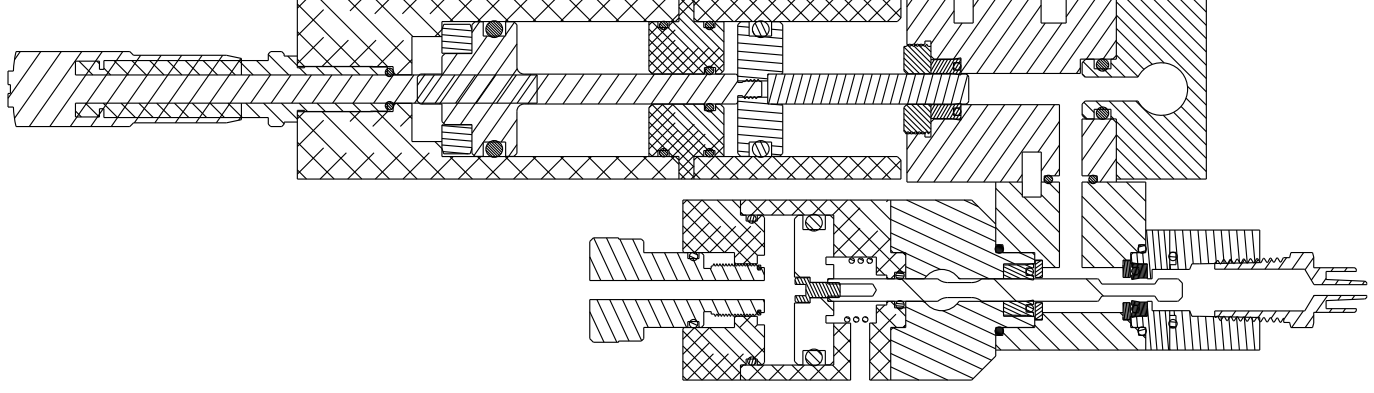
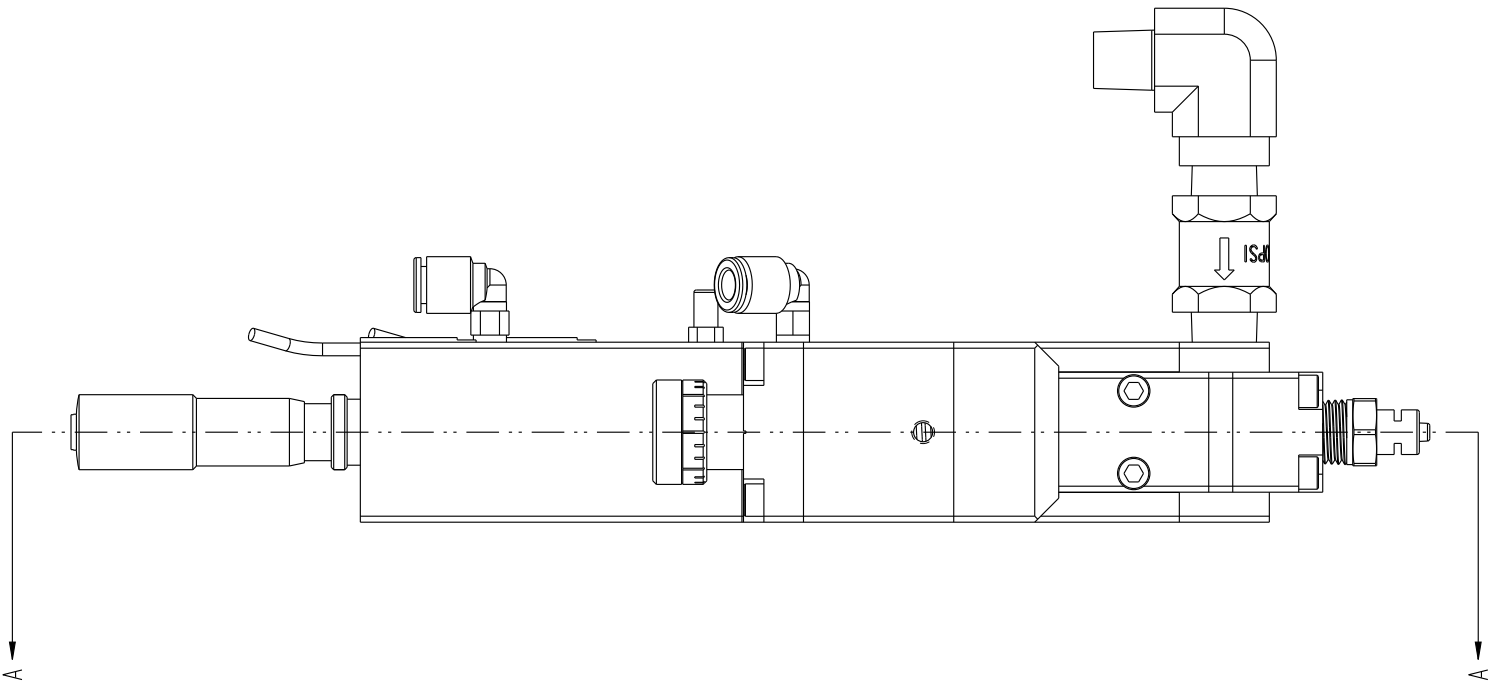
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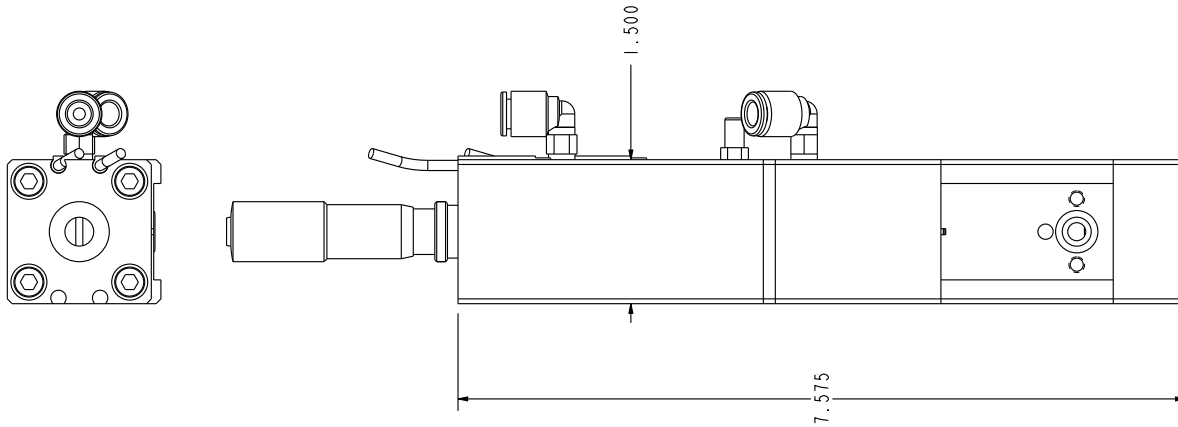
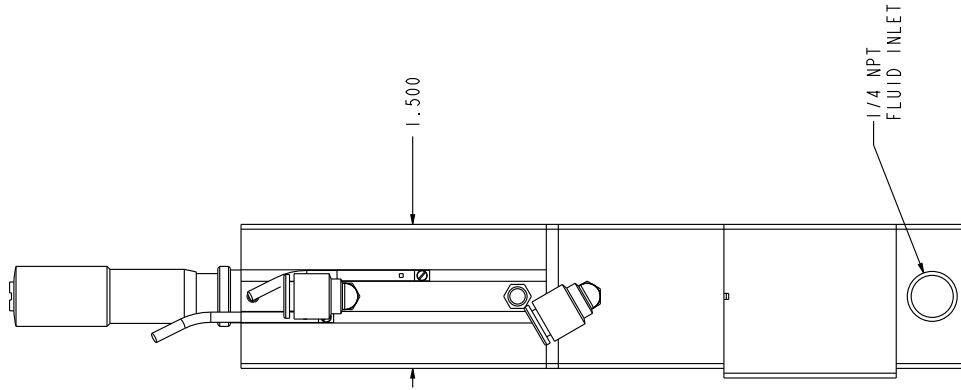
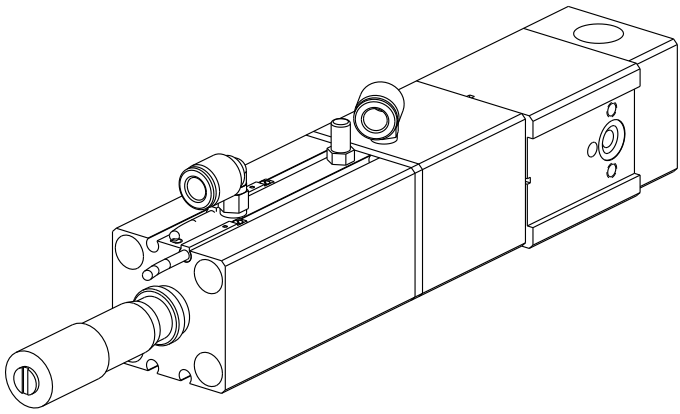
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8 7 6 5 4 3 2 1

SECTION A-A



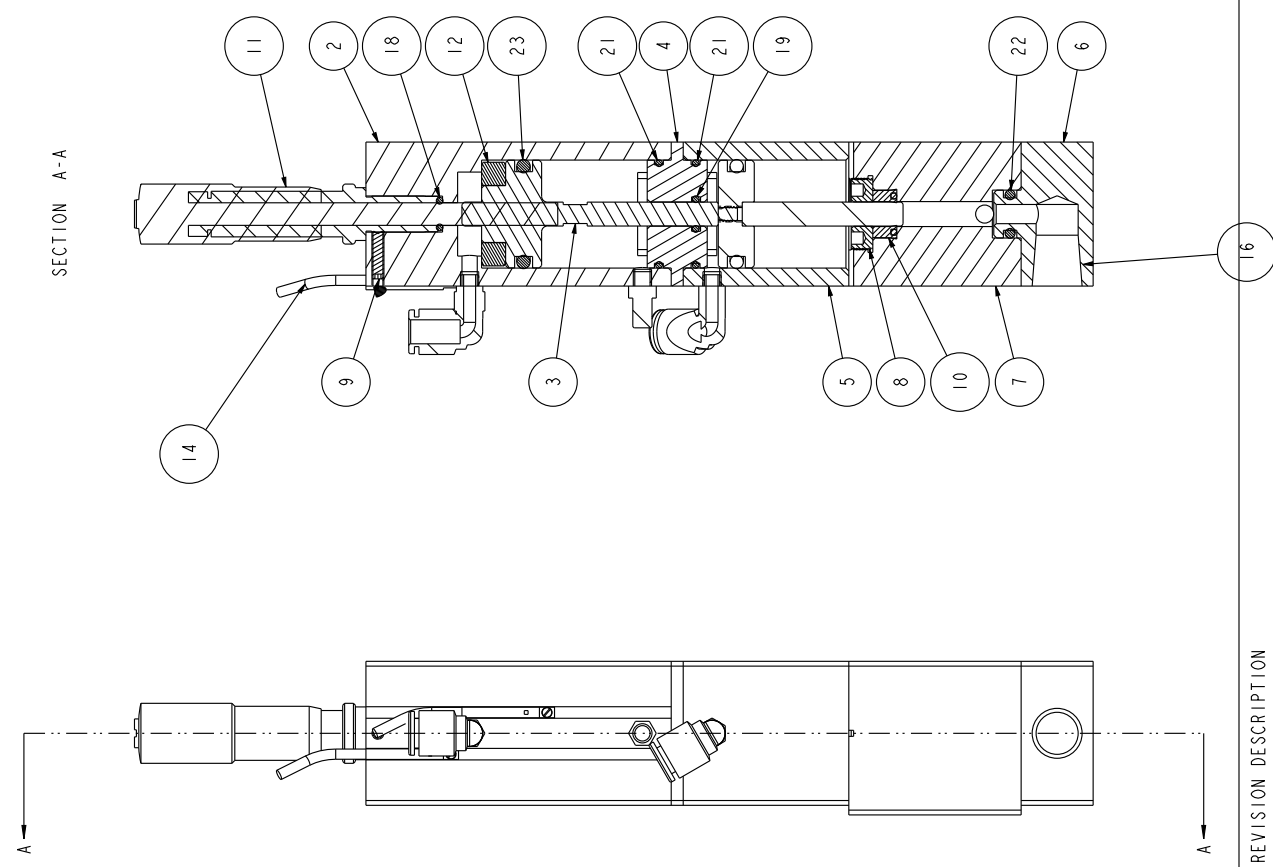
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C								
D								
E					ANGULAR ± 0.5°	SEE BOM TABLE		
F					SURFACE FINISH 64	PART FINISH: N/A		
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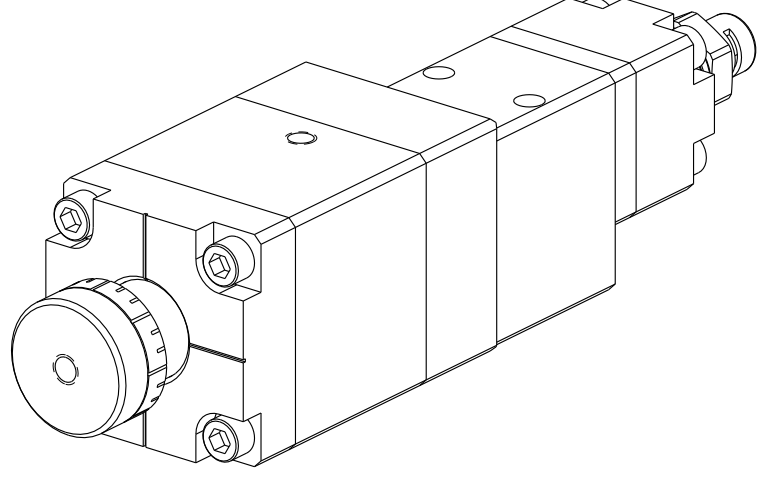
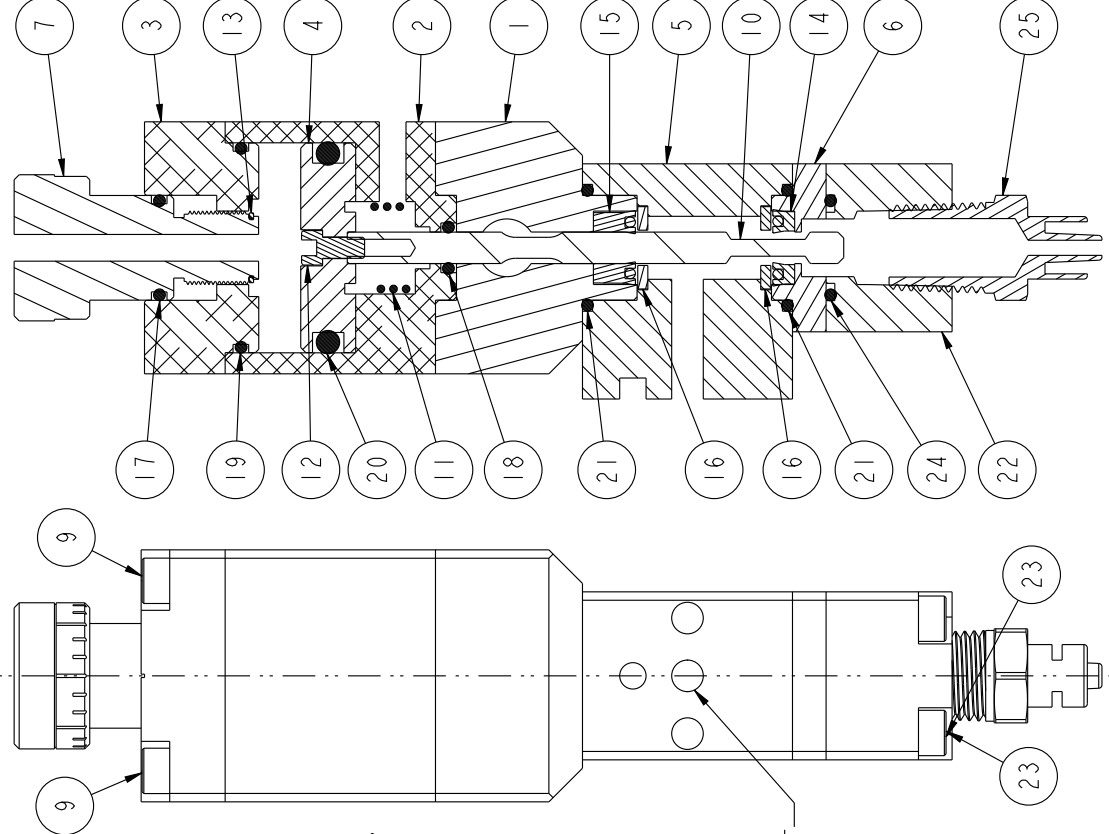
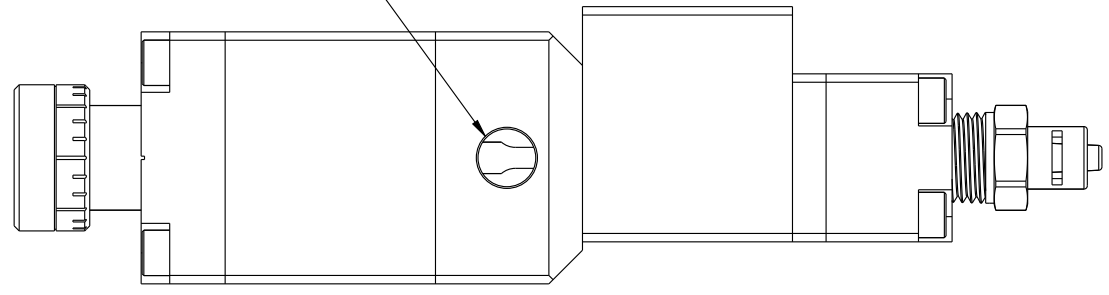
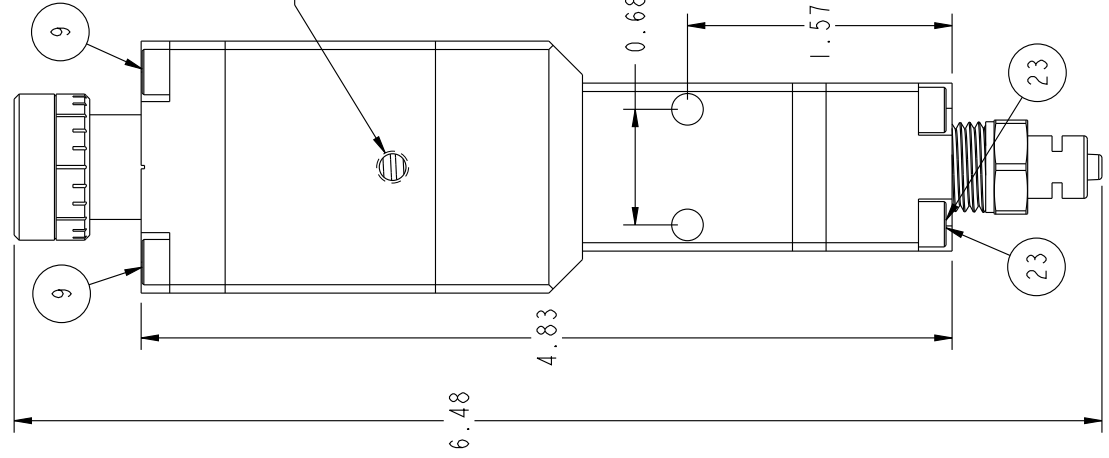
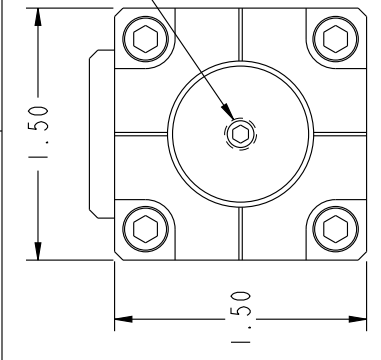
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A	ORIGINAL DESIGN	RJB	03 JUL 14	RJB	DECIMAL ± 0.2 .XX ± 0.005 .XXX ± 0.0005	METERING VALVE w/ CARBIDE	Precision Valve & Automation One Mustang Drive Cohoes, NY 12047
B					ANGULAR ± 0.5°	MATERIAL:	DRAWING NUMBER:
C						SEE BOM TABLE	112-08449
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E						N/A	1 OF 2
F							REV: A

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REF #	PART NUMBER	REV	DESCRIPTION	QTY	MATERIAL	S/P KIT
1	112-07859	A	METERING PISTON	1	CARBIDE / 303 SST	
2	114-9706	A	UPPER AIR BODY	1	ALUMINUM	
3	114-9708	C	UPPER PISTON	1	303 SST	
4	114-9709	A	CYLINDER STOP	1	ALUMINUM	
5	114-9712	A	LOWER AIR BODY	1	ALUMINUM	
6	114-9714	B	FLUID BODY	1	303 SST	
7	114-9890	C	METERING CYLINDER	1	303 SS	
8	114-9891	A	SEAL STOP	1	300 SERIES SST	
9	01515		SET SCREW, #5-40 X 0.50"	1	COLD ROLLED STEEL 1018	
10	12500250-250B		LIP SEAL	1	MOLYTHANE	*
11	263L-38TN		MICROMETER HEAD	1		
12	5856K4		MAGNET	1	FERRITE	
13	8226T11		MUFFLER	1	BRASS	
14	D-A93Z		SMC REED SWITCH, LED	2		
15	K02L07-32		1/4" TUBE x #10-32, ELBOW	2		
16	SHCS10-32X2500		SHCS, #10-32 x 2 1/2"	4	18-8 SS	
17	SHCS10-32X3000		SHCS, #10-32 x 3"	4	18-8 SS	
18	VLV-009-B		O-RING, -009, BUNA-N	1	BUNA-N	*
19	VLV-010-B		O-RING, -010, BUNA-N	1	BUNA-N	*
20	VLV-011-K		O-RING, -011, KALREZ	1	KALREZ	*
21	VLV-022-B		O-RING, -022, BUNA-N	2	BUNA-N	*
22	VLV-109-K		O-RING, -109, KALREZ	1	KALREZ	*
23	VLV-212-B		O-RING, -212, BUNA-N	2	BUNA-N	*



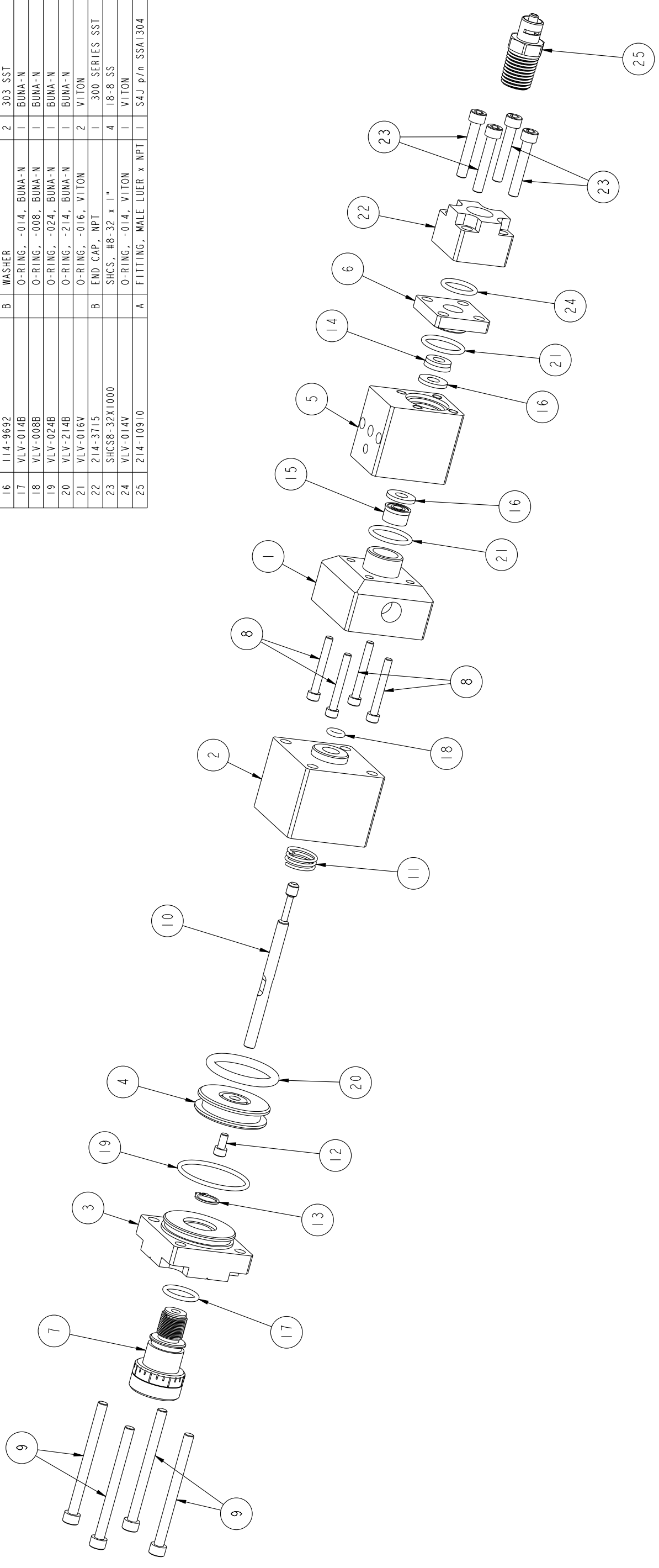
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B							
C							
D							
E							
F							
MATERIAL: SEE BOM TABLE PART FINISH: N/A DRAWING NUMBER: 112-08449 SHEET: 2 OF 2 REV: A							



REF #	PART NUMBER	REV	DESCRIPTION	QTY	MATERIAL	S/P KIT
1	214-09688	A	SEPARATION BODY	1	303 SS	
2	214-09685	B	AIR CYLINDER	1	ALUMINUM	
3	214-09687	A	AIR CAP	1	ALUMINUM	
4	214-10921	A	PISTON	1	303 SS	
5	214-14513	A	FLUID BODY, FACE SEAL	1	303 STAINLESS STEEL	
6	114-9685	C	SEAL PLATE	1	303 SST	
7	214-3710	A	STROKE ADJUST	1	300 SERIES SST	
8	SHCS5-40X1000	A	SHCS, #5-40 x 1"	4	18-8 SS	
9	SHCS8-32X2000	A	SHCS, #8-32 x 2"	4	SEE NOTE	
10	214-3376	A	NEEDLE	1	A2 TOOL STEEL	
11	V056		SPRING	1	SS	
12	SHCS5-40X250		SHCS, #5-40 x 1/4"	1	18-8 SS	
13	98410A117		SNAP RING, 0.338" ID	1		
14	12500187		LIP SEAL	1	URETHANE/VITON	*
15	01525		LIP SEAL	1	MOLYTHANE	*
16	114-9692	B	WASHER	2	303 SST	
17	VLV-014B		O-RING, -.014, BUNA-N	1	BUNA-N	*
18	VLV-008B		O-RING, -.008, BUNA-N	1	BUNA-N	*
19	VLV-024B		O-RING, -.024, BUNA-N	1	BUNA-N	*
20	VLV-214B		O-RING, -.214, BUNA-N	1	BUNA-N	*
21	VLV-016V		O-RING, -.016, VITON	2	VITON	*
22	214-3715	B	END CAP, NPT	1	300 SERIES SST	
23	SHCS8-32X1000		SHCS, #8-32 x 1"	4	18-8 SS	
24	VLV-014V		O-RING, -.014, VITON	1	VITON	*
25	214-10910	A	FITTING, MALE LUER x NPT	1	S4J p/n SSA1304	*

REV	REVISION DESCRIPTION	DWN BY	DATE	DESIGN	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE OR SCALE	This document, including the information contained herein, is the property of Precision Valve & Automation. It is delivered on the express condition that it not be used, disclosed, or reproduced in whole or in part, for any purpose without the written consent of PRECISION VALVE & AUTOMATION, INC.	
A	ORIGINAL DESIGN	DER	10/26/16	JA	DECIMAL X ± 0.1 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005	ALL DIMENSIONS APPLY BEFORE SURFACE TREATMENT (i.e., ANODIZE, PLATING)	MATERIAL: SEE BOM TABLE	Precision Valve & Automation One Musfang Drive Cohoes, NY 12047
B	CORRECTED PISTON PART, WAS 214-09686	DER	12/28/17	JA				
C	SWITCHED LUER ADAPTER	DER	2/1/18	JA				
D								DESCRIPTION: SB300, SNUFF BACK VALVE, CUSTOM FACE SEAL
E					ANGULAR ± 0.5° SURFACE FINISH 64			SCALE: 7:8
F					PART FINISH N/A			SHEET: 1 OF 2
								DRAWING NUMBER: 112-10424
								REV: C

REF #	PART NUMBER	REV	DESCRIPTION	QTY	MATERIAL	S/P KIT
1	214-09688	A	SEPARATION BODY	1	303 SS	
2	214-09685	B	AIR CYLINDER	1	ALUMINUM	
3	214-09687	A	AIR CAP	1	ALUMINUM	
4	214-10921	A	PISTON	1	303 SS	
5	214-14513	A	FLUID BODY, FACE SEAL	1	303 STAINLESS STEEL	
6	114-9685	C	SEAL PLATE	1	303 SST	
7	214-3710	A	STROKE ADJUST	1	300 SERIES SST	
8	SHCS5-40X1000		SHCS, #5-40 x 1"	4	18-8 SS	
9	SHCS8-32X2000		SHCS, #8-32 x 2"	4	SEE NOTE	
10	214-3376	A	NEEDLE	1	A2 TOOL STEEL	
11	V056		SPRING	1	SS	
12	SHCS5-40X250		SHCS, #5-40 x 1/4"	1	18-8 SS	
13	98410A117		SNAP RING, 0.338" ID	1		
14	12500187		LIP SEAL	1	URETHANE/VITON	*
15	01525		LIP SEAL	1	MOLYTHANE	*
16	114-9692	B	WASHER	2	303 SST	
17	VLV-014B		O-RING, -.014, BUNA-N	1	BUNA-N	*
18	VLV-008B		O-RING, -.008, BUNA-N	1	BUNA-N	*
19	VLV-024B		O-RING, -.024, BUNA-N	1	BUNA-N	*
20	VLV-214B		O-RING, -.214, BUNA-N	1	BUNA-N	*
21	VLV-016V		O-RING, -.016, VITON	2	VITON	*
22	214-3715	B	END CAP, NPT	1	300 SERIES SST	
23	SHCS8-32X1000		SHCS, #8-32 x 1"	4	18-8 SS	
24	VLV-014V		O-RING, -.014, VITON	1	VITON	*
25	214-10910	A	FITTING, MALE LUER x NPT	1	S4J p/n SSA1304	



REV	REVISION DESCRIPTION	DWN BY	DATE	DESIGN	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE OR SCALE	THIS DOCUMENT, INCLUDING THE INFORMATION CONTAINED HEREIN, IS THE PROPERTY OF PRECISION VALVE & AUTOMATION, INC. IT IS DELIVERED ON AN "AS IS" BASIS AND IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF PRECISION VALVE & AUTOMATION, INC.	DESCRIPTION:	SCALE:	SHEET:	DRAWING NUMBER:	REV:
A	ORIGINAL DESIGN	DER	10/26/16	JA	DECIMAL .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 .XXXX ± 0.0005	ALL DIMENSIONS APPLY BEFORE SURFACE TREATMENT (i.e., ANODIZE, PLATING)		Precision Valve & Automation One Mustang Drive Cohoes, NY 12047	9:16	2 OF 2	112-10424	C
B	CORRECTED PISTON PART, WAS 214-09686	DER	12/28/17	JA								
C	SWITCHED LUER ADAPTER	DER	2/1/18	JA								
D												
E					ANGULAR ± 0.5°	SEE BOM TABLE						
F					SURFACE FINISH 64	PART FINISH: N/A						