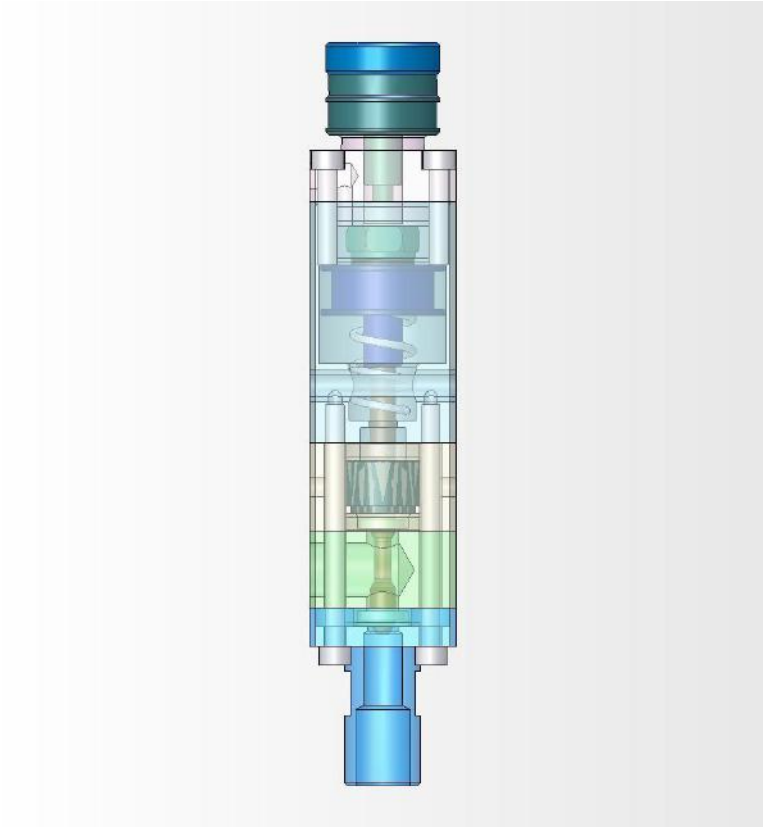
DISPENSING VALVE

MODEL VMS400

◀INSTRUCTION MANUAL▶



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1. INTRODUCTION

The VMS400 is a multipurpose mini-spool pneumatic valve, which can dispense low to high viscosity materials.

The VMS400 has a maximum material pressure is 50kgf/cm^2.

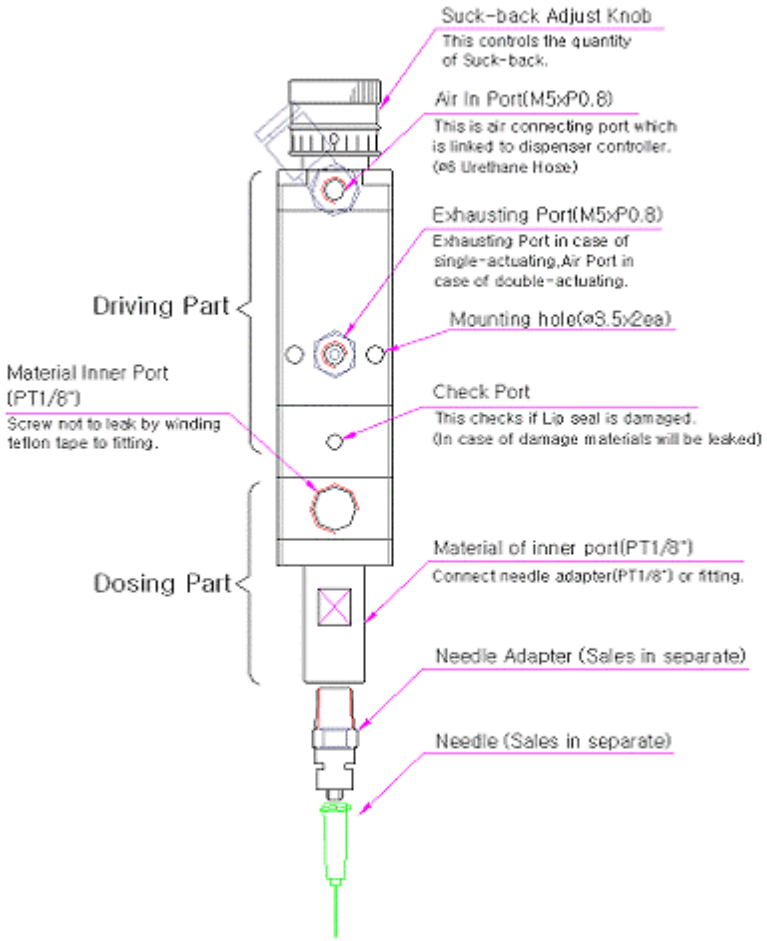
The VMS400 has a "Suck-back effect" that eliminates lumping at the end of needle after dispensing.

The Lip Seal and Spool are coated in Tin to increase valve life.

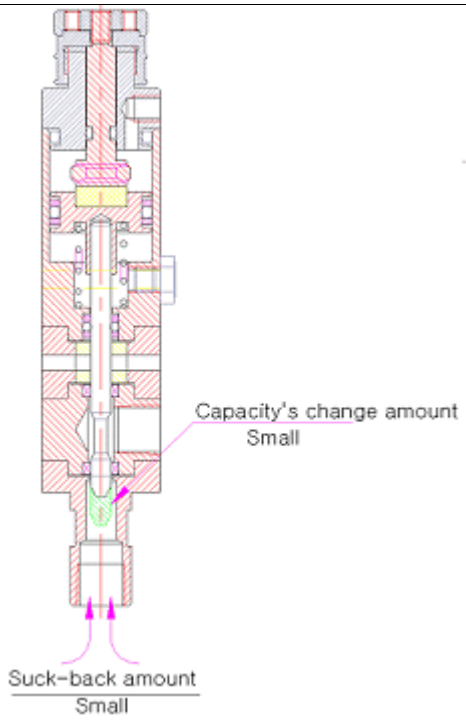
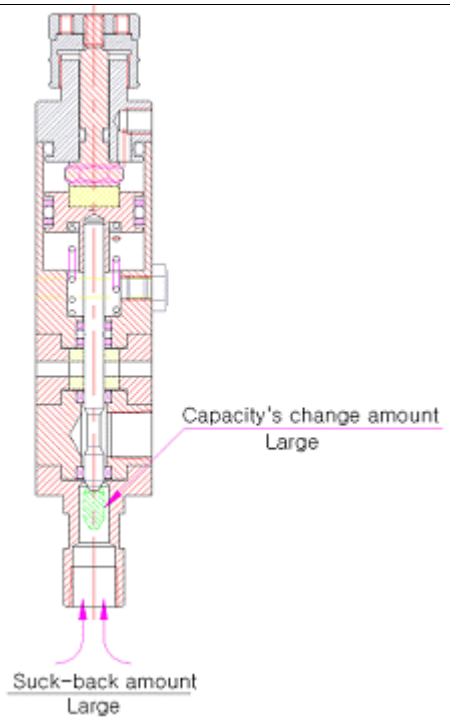
2. SPECIFICATIONS

Operating Air Pressure	4.0~6.0kgf/cm^2
Material Pressure	Max 50kgf/cm^2
Cycle Rate	400cycles/min
Flow Rate (KV value)	5.0ℓ/min
Valve Type	Spool
Weight	255g
Driving Part Materials	Cylinder Body: SUS303 Spool Assy: SUS303 (PISTON) SUS420 (Spool): Tin Coating CAP: AL (Hard coated)
Dosing Part Materials	Check Body: SUS303 Valve Chamber: SUS303 Chamber Cap: SUS303 Seal: UHMW-PE Lip Seal
Connecting Ports	Air Input: M5*P0.8 ø6 Urethane Exhaust Port: M5*P0.8 Material In Port: PT 1/8" Material Out Port: PT 1/8"

3. EXPLANATION OF PARTS



4. OPERATION PRINCIPLES

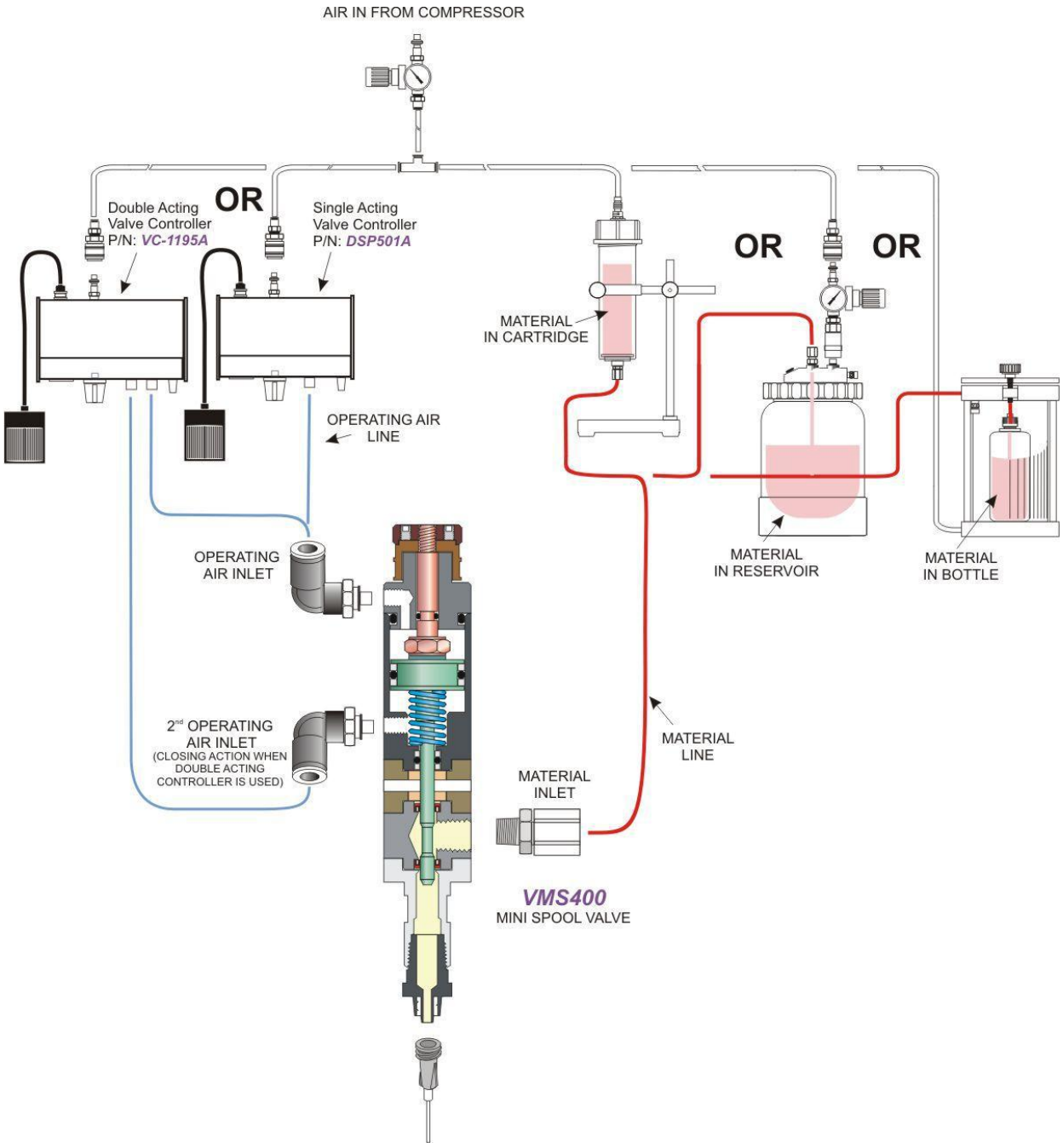
Suck-back: small	Suck-back: large
	
If you rotate the Suck-back Knob clockwise, the change in the spool's position between dispensing and resting is smaller. This decreases the amount of suck-back because of a lower negative pressure.	If you rotate the Suck-back Knob counter-clockwise (max. 2 rotations), the change in the spool's position between dispensing and resting is larger. This increases the amount of suck-back because of a higher negative pressure.
The amount of suck-back is changed by controlling the Suck-back knob and affected by the material's viscosity and the thickness of the needle.	

*Adjust the amount of suck-back while dispensing the material.

5. OPERATING PROCEDURE

5-1. Setup

▶example for general installation



5-1-1)

Firmly fasten the valve by using the mounting hole (2-ø3.5-D, pitch16).

5-1-2)

Connect the air hose (ø4urethane) to the Air In Port.

⚠**Notice**

If the valve uses a built-in spring to close, it is classified as a single-actuating valve. If the closing speed of a single-actuating valve is too slow, replace it with a double-actuating valve (if dispensing at a high speed or if the dispensing speed is low because of a high viscosity material).
(refer to 5-1.Setup)

5-1-3)

Connect the liquid supply fitting and tubing to the Material In Port (PT1/8").
Connect a tip of desired thickness to the Material Out Port (PT1/8").

5-1-4)

The Suck-back effect occurs when the valve is closed. After dispensing (when the front of the valve frees itself from lip seal), suck-back is caused by the change in capacity when the spool returns to its original position. The amount of Suck-back can be controlled with the suck-back control knob, located on top of the valve.

Suck-back control Knob	Clockwise.	Suck-back decreases
	Counter-clockwise.	Suck-back increases

5-1-5)

It's possible to change the position of the Air In Port and the Material In Port with a 90˚ pitch as long as it is mounted in the proper position.

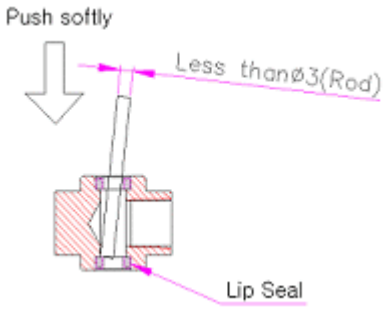
5-2. Maintenance

5-2-1) Washing

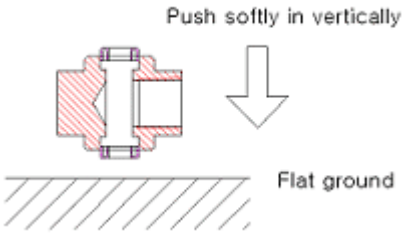
① Wash valve thoroughly after using if the dispensed material has tendency to cure or has the possibility to damage the dosing part of the valve.
② Dispense all material from the pressure container, liquid supply hose and dosing part of the valve until only air comes out.
③ Remove material from the inside of the valve by using a small amount of the proper solvent.
④ Use pressurized air to remove the solvent from the valve, and repeat as needed until the valve is clean.

5-2-2) Disassembly

① If the valve has to be disassembled for cleaning or replacing a part, please refer to "7.Exploded View & Parts List".
② Remove the chamber cap by unscrewing the 4 bolts using a #2.5 L-wrench/Hex-key
③ Disassemble the chamber first, then the check body from the bottom up to the dispensing section.
④ Take extra care when removing and handling the lip seals.



(Disassembly)



(Assembly)

5-2-3) Assembly

① Insert the 2 lip seals into the chamber (refer to the "Disassembly" picture above).

⚠**Notice**

Be careful to insert the lip seals properly.

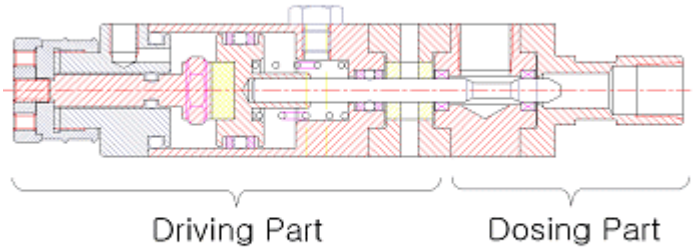
② Insert the Cylinder Body first, then the Chamber, and finally the Chamber Cap.
③ Screw in the 4 bolts after checking the direction of Chamber's Material Out Port.

5-3. Other Information

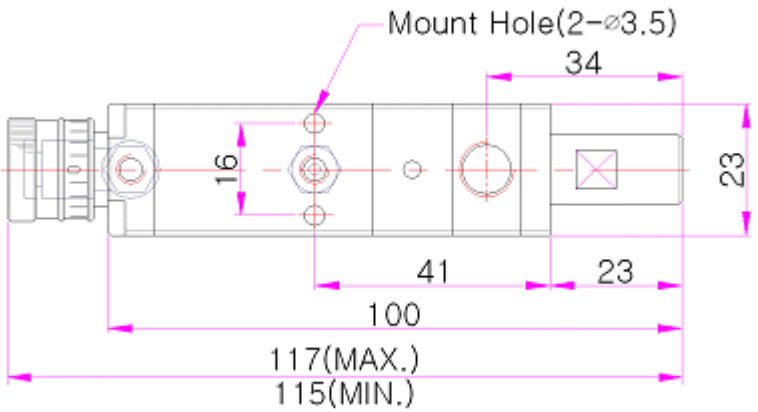
① When assembling or disassembling, be careful not to damage the lip seal's diameter or spool.
② The function of the Suck-back control knob is to regulate the amount of air sucked in after dispensing. You can control the amount dispensed through material supply pressure, dispensing time, or a combination of the two.
③ Check to make sure that there are no air bubbles in the material or in the Material In Line. If there are air bubbles, turn the valve upside-down and purge the valve of material until the air bubbles are removed.

6. SECTIONAL DRAWING & DIMENSION

▶ Cross-sectional View

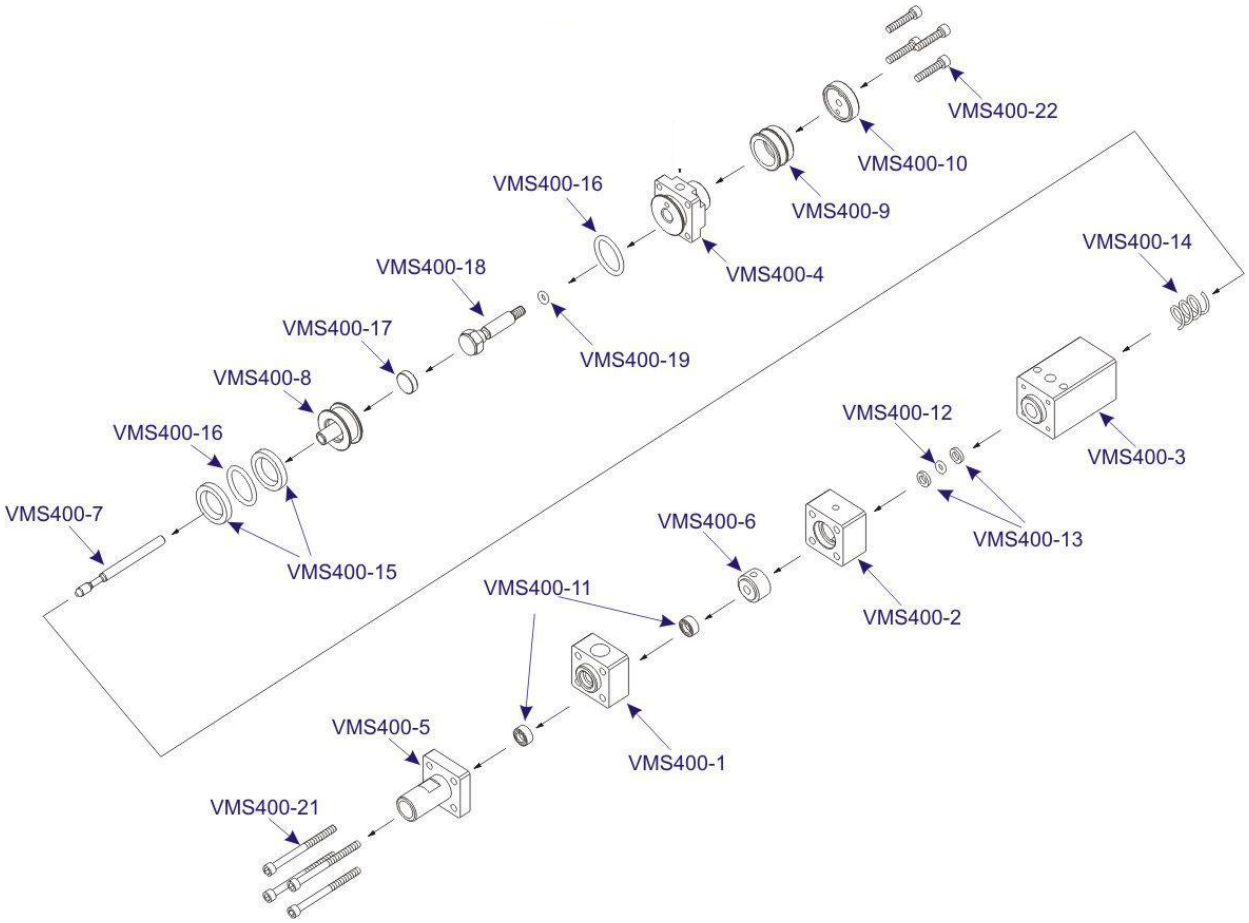


▶ Dimensions



7. EXPLODED VIEW & PARTS LIST

▸ Exploded View



Part Number	Description	Q'TY	Part Number	Description	Q'TY
VMS400-1	CHAMBER	1	VMS400-12	O-RING (P4)(NBR)	1
VMS400-2	CHECK BODY	1	VMS400-13	BACK UP RING	2
VMS400-3	CYLINDER BODY	1	VMS400-14	SPRING	1
VMS400-4	CYLINDER CAP	1	VMS400-15	BACK UP RING	2
VMS400-5	CHAMBER CAP	1	VMS400-16	O-RING (P16)(NBR)	1
VMS400-6	BUSH	1	VMS400-17	DAMPER	1
VMS400-7	SPOOL	1	VMS400-18	STOPPER	1
VMS400-8	PISTON	1	VMS400-19	O-RING (P3)(NBR)	1
VMS400-9	STROKE ADJUST KNOB	1	561964	ELBOW FITTING	1
VMS400-10	STROKE ADJUST NUT	1	VMS400-21	BOLT (M3*35)	4
VMS400-11	LIP SEAL	2	VMS400-22	BOLT (M3*10)	4

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