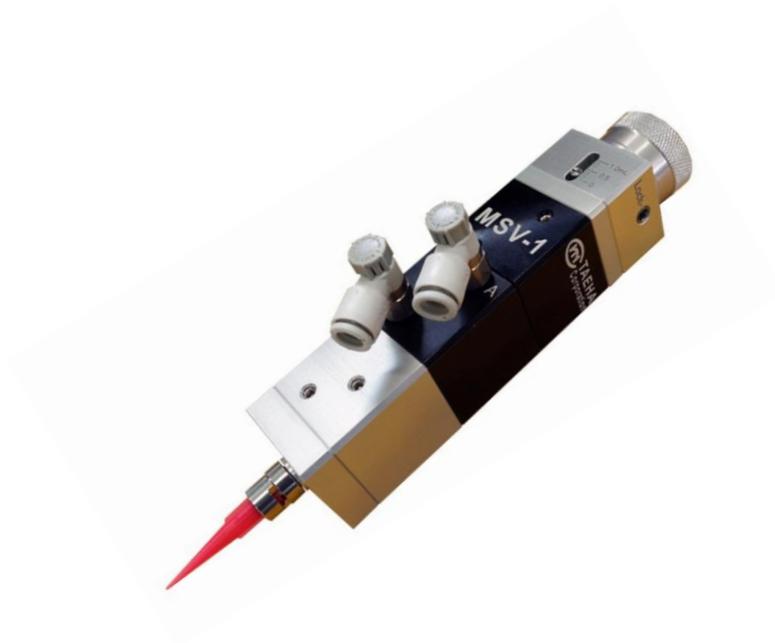


[MSV-1 USER MANUAL]



 **TAEHA** Corporation

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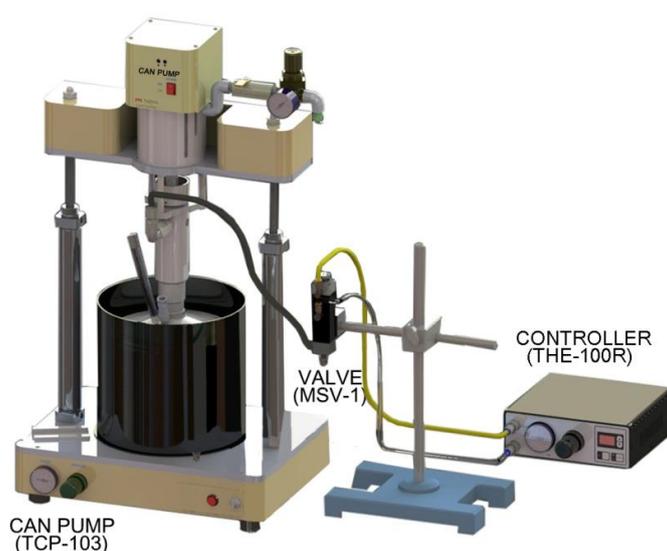
1. Overview

The MSV-1 (metering spool valve) is a valve with a complex structure designed to discharge precise quantities of high-viscosity materials by combining a measuring chamber and a spool valve.

Although the structure is complex, it has been simplified, making it easy to control and handle the discharge volume.

In addition, the durability has been further improved through the adoption of a special seal.

The MSV-1 has a spool structure, so there is no liquid condensation at the end of the needle due to the suck-back function. This makes it a valve with excellent quantitative characteristics and long-term durability that allows for the use of high-viscosity materials.



2. Standard Specifications

Valve Structure	Volumetric spool valve	
Range of Discharge Volume	Min. 0.02 ~ Max. 1.00 (cc)	
Accuracy of Discharge Volume	±0.5%	
Application Viscosity	1~1,000,000 (cps)	
Operational Air Pressure	4~7 kf/cm ²	
Material Supply Pressure	Min.	25 kgf/cm ²
	Max	150 kg/cm ²
Maximum Number of Operation Cycles	100 cycles/min (20 kgf/cm ² , under the condition of 0.1 cc) *Varies according to discharge volume and material supply pressure	
Material-Contacting Unit Material	Chamber: AL2011, Plunger: SUS303F Seal: O-Ring (FKM), Lip Seal: UHMW-PE	
Material of Driving Unit	Cylinder: AL2011, Spool: SUS303F (Hard Chrome) Seal: O-Ring (FKM), Lip Seal: UHMW-PE	
Material Inlet	G1/8"	
Material Outlet	Luer Lock (Option: G1/8")	
Size	□28x140 (mm)	
Weight	350g	



[MSV-1]

3. Name and Description of Each Part

① **Adjust knob**
One-time shot amount can be adjusted.
(Adjust range : 0.02 ~ 1.00cc)

② **Adjust screw & Stopper pin**
Shows the volume stored in the
metering chamber.

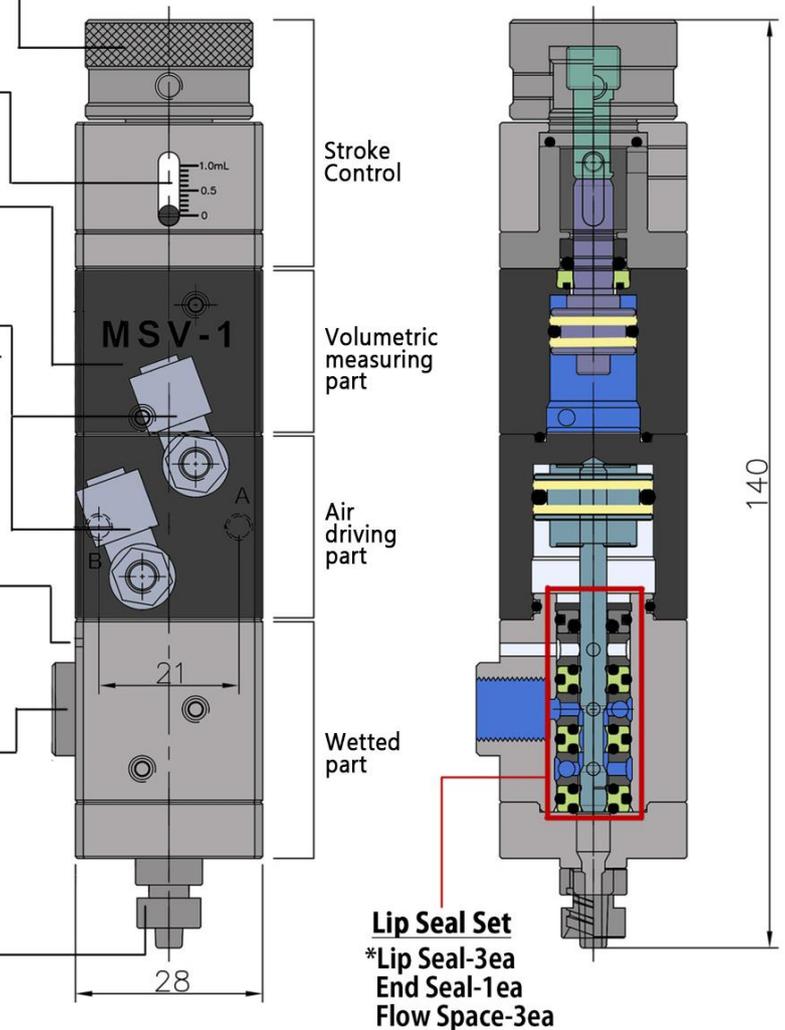
③ **Adjust screw & Stopper pin**
Space to store one-time shot amount.
(Volume : 0 ~ 1cc)

④ **Valve driving part**
Air supply port for double-acting controller
(Ø6 air hose)
- A port air supply : shot
- B port air supply : close

⑤ **Check hole**
Leak occurs at the end of lip seal life.
(Replace lip seal set.)

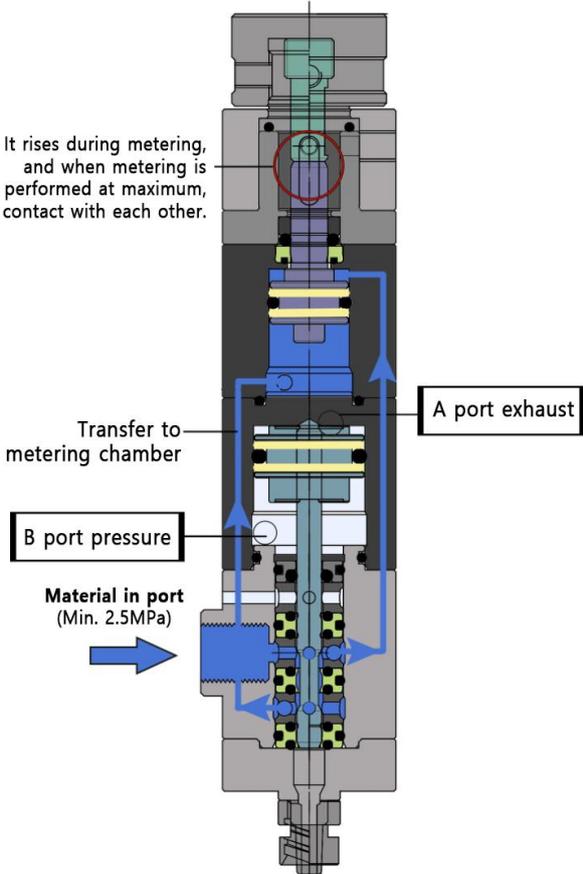
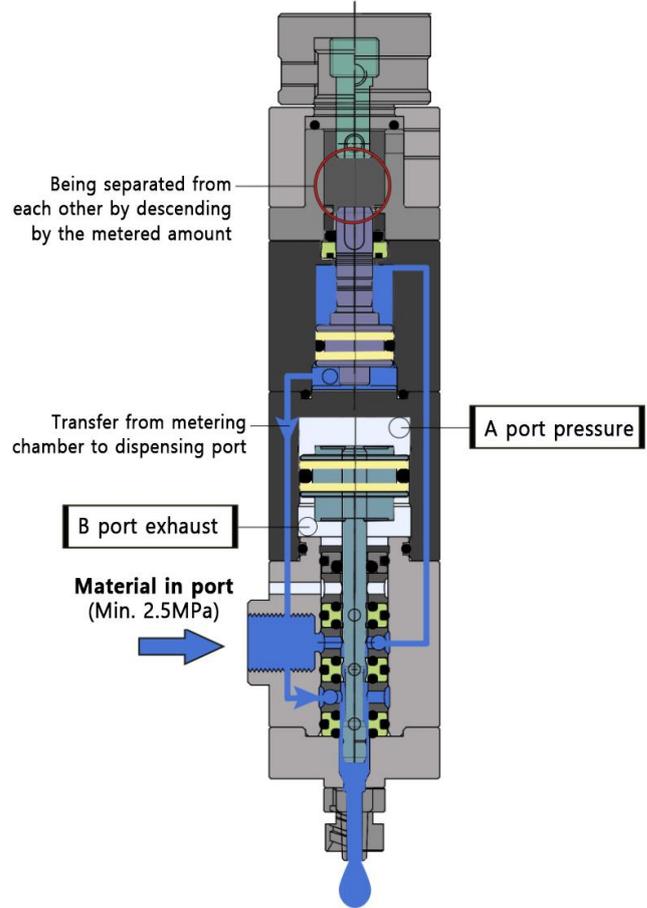
⑥ **Material in port (BSPT 1/8")**
Fitting connection to prevent material leak.
- Material supply pressure
: Min. 2.5MPa, Max. 15.0MPa

⑦ **Material out port**
Standard : Luer lock
Option : BSPT 1/8"



4. Description of Operation

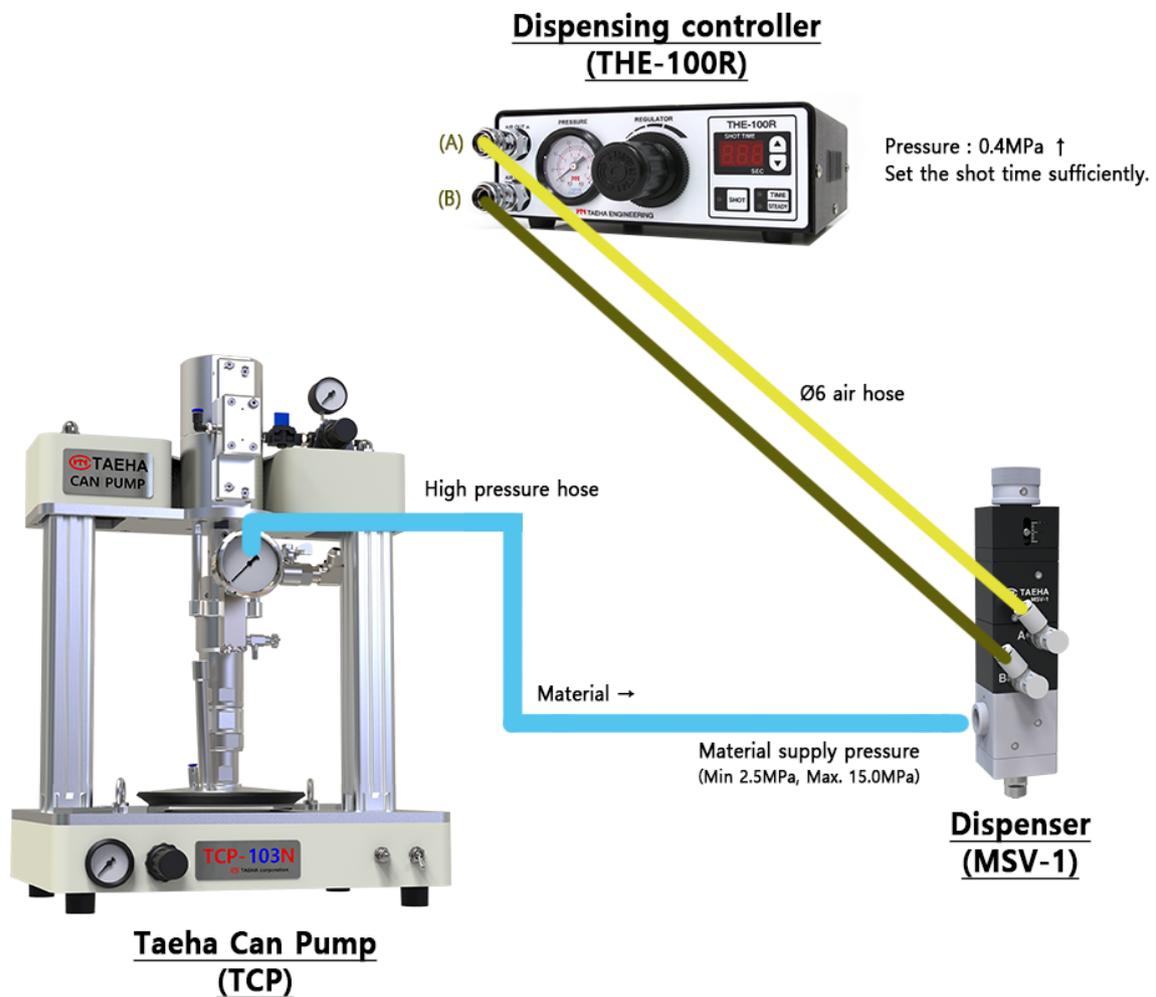
MSV-1 The complex structure valve consists of one valve for measuring and discharging.

Description of Operation During Measuring	Description of Operation During Discharge
<p>· When the piston of the air driving unit is on the top (Pressure on the valve actuation port "B") Material is measured into the measuring chamber in the amount set in the volumetric metering unit at the material-in port (minimum material supply pressure 20 kgf/cm²).</p>  <p><Material movement path during measuring> (Valve closed)</p> <ul style="list-style-type: none"> ◆ The measuring speed is proportional to the material supply pressure, and the larger the displacement of the "A" port of the air driving unit is, the faster it is. ※ Measuring is not possible if the material supply pressure is less than 15 kgf/cm². 	<p>· When the piston of the air driving unit is at the bottom (Pressure on the valve actuation port "A") As the valve spool descends, the measuring chamber line is switched to the discharge line, and the material is discharged in the amount set in the volumetric metering part.</p>  <p><Material movement path during measuring> (Valve open)</p> <ul style="list-style-type: none"> ◆ The discharge speed is proportional to the material supply pressure, and the larger the displacement of the "B" port of the air driving unit is, the faster it is.

5. How to Use

5-1. Installation

<General installation example>



5-1-1) Use the mounting hole (2-M4, DP8.0, Pitch21) on the rear of the valve to attach it firmly.

5-1-2) Connect the air hose (ø6) for driving between the controller and the valve in the same direction as the "A" and "B" port direction.

(Caution) · Set the air pressure for valve operation to 4.0 kgf/cm² or higher.

- Set the discharge time for long enough that the measured amount can be discharged sufficiently.

5-1-3) For the connection between the material supply device and the valve, use hoses and fittings sufficient for internal pressure.

5-1-4) Set the supply pressure so that the supply pressure from the material supply device to the valve is sufficient.

5-2. Settings

5-2-1) Remove air bubbles from the measuring chamber for a fixed quantity discharge.

<How to remove air bubbles>

- ① Set it at full stroke so that the scale of adjustment knob becomes 1 mL.
- ② Repeat measuring (more than three times) → Remove the air inside the initial measuring chamber by repeating the discharge operation.
- ③ After removing the air, measure the desired discharge volume while the valve is open.
(Make sure to fix the locking screw)

5-2-2) Adjust the discharge flow rate and suction amount (flow rate).

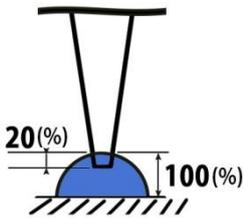
How to Set the Discharge Flow Rate	How to Set the Suction Amount (Flow Rate)
Turn the "B" port speed controller <ul style="list-style-type: none"> · Clockwise (lock) → The shot speed decreases. · Counterclockwise (open) → The shot speed increases. 	Turn the "A" port speed controller <ul style="list-style-type: none"> · Clockwise (lock) → The suction amount (flow rate) decreases. · Counterclockwise (open) → The suction amount (flow rate) increases.
Operate the speed controller by raising and rotating the knob. After setting, press the knob to fix the value.	

5-2-3) Set the adjustment knob to the desired discharge volume.

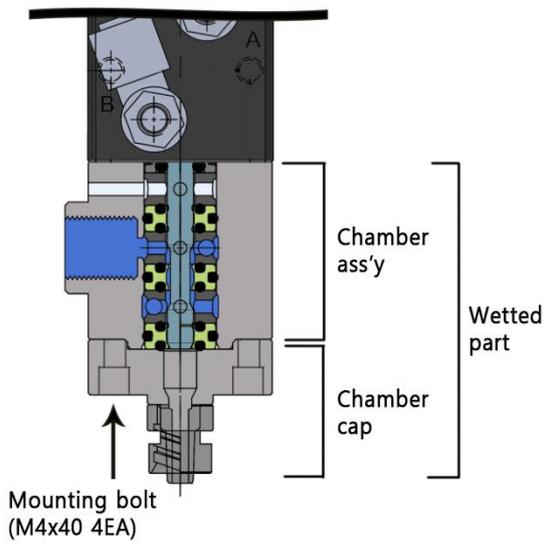
<How to set the discharge volume>

- ※ When measuring the adjustment knob (when the valve is closed), it cannot be operated.
- ① Release the locking screw.
 - ② Set the valve to the desired scale by adjusting the adjustment knob while the valve is discharged (with the valve open).
 - ③ Fix the adjustment knob firmly with the locking screw.

5-3. Trouble shooting

No.	Problem	Review Points	Actions
①	Discharge volume is not uniform	<ul style="list-style-type: none"> Measuring → Discharging Check whether sufficient time is secured for one cycle of operation 	<ul style="list-style-type: none"> Increase material supply pressure Secure sufficient discharge time Secure enough time for measuring Set the operating speed of the valve properly
		<ul style="list-style-type: none"> Check whether the suction amount is appropriate after discharge 	
		<ul style="list-style-type: none"> Check whether the clearance between the point of the needle end and the discharge surface is appropriate 	<ul style="list-style-type: none"> Adjust the discharge height. 
②	Material leakage occurs in the check hole	<ul style="list-style-type: none"> Material supply pressure is higher than the specification 	<ul style="list-style-type: none"> Reduce the material supply pressure
		<ul style="list-style-type: none"> Wear of lip seal "A" (3 PCS) or seal housing (1 PC) 	<ul style="list-style-type: none"> Replace lip seal "A" and seal housing (replace the chamber ass'y part of the material-contacting unit).
③	Adjustment knob is out of control	<ul style="list-style-type: none"> Check whether the locking screw is disassembled 	<ul style="list-style-type: none"> Replace the locking screw.
		<ul style="list-style-type: none"> Check the condition of the valve during measuring (whether the valve is closed) 	<ul style="list-style-type: none"> Refer to <How to set the discharge volume> in 5-2-3)

5-4. Material Contacting Unit (How to Replace the Chamber Set)



※ The chamber ass'y consists of the chamber and lip seal "A" (3 PCS), flow space (3 PCS), and end seal (1 PC).

It is difficult to disassemble or assemble the device at the site, so it is assembled before leaving the factory.

Therefore, it is not possible to purchase separate parts.

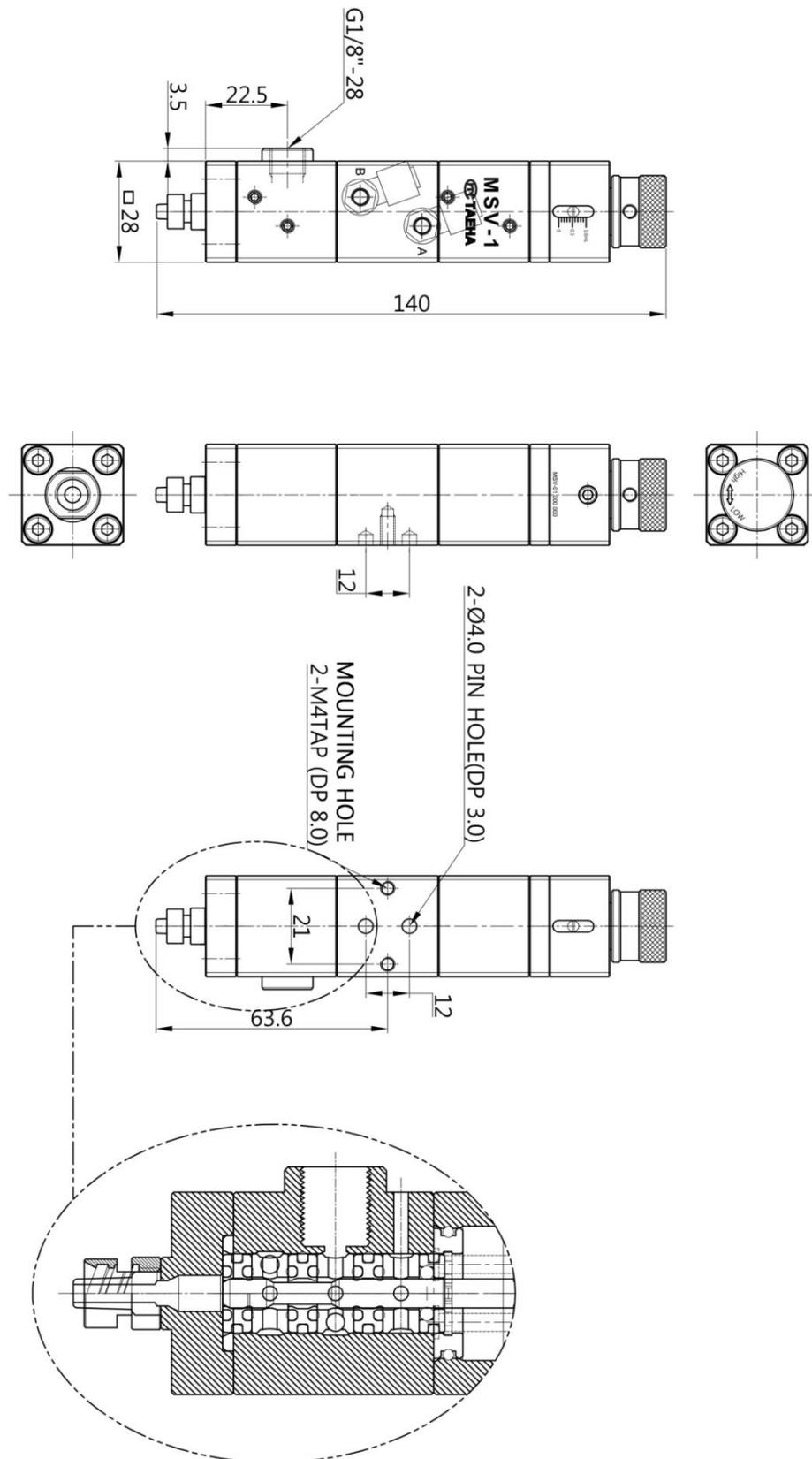
- ① Disassemble the 4 mounting bolts (PCS).
- ② Replace them with the new chamber Ass'y.

※

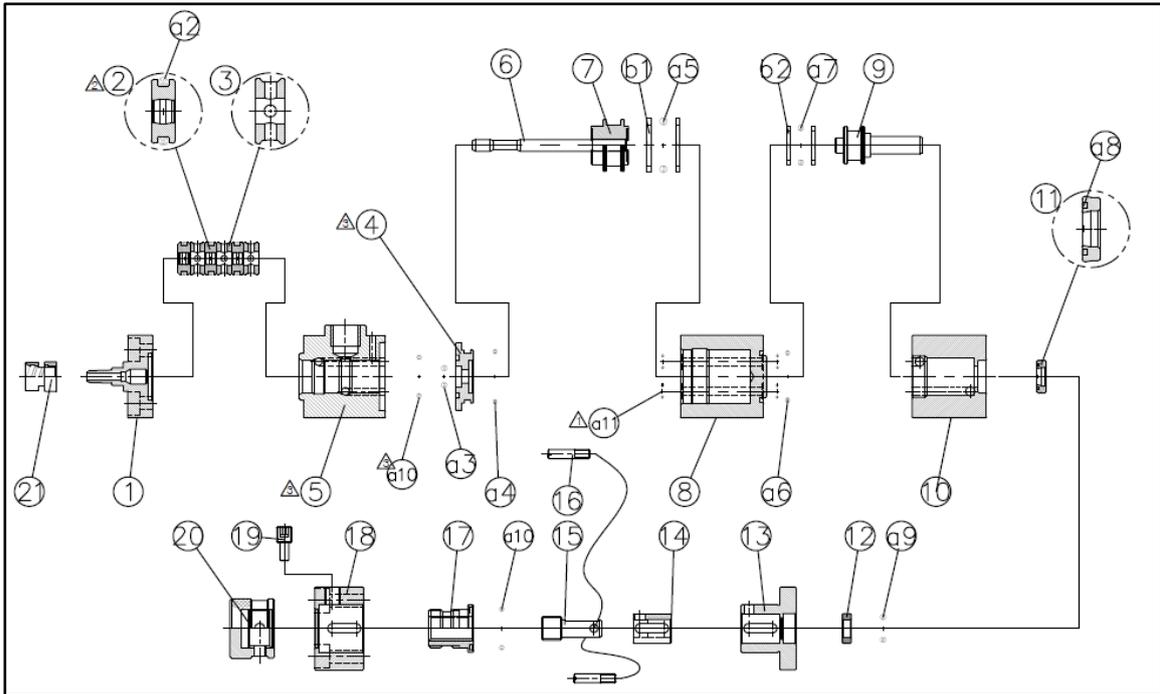
When reassembling, assemble the spool and chamber ass'y in a straight line.

- ③ Tighten the mounting bolts firmly.

6. Structure Map and Appearance Diagram



7. Exploded View and List of Parts



PARTS NO.	PARTS NAME	Q'TY	비고	PARTS NO.	PARTS NAME	Q'TY	비고
1	Chamber_cap	1		a2	O_ring (S9)	3	FKM
2	Lip_seal_Ø4.0 "A"	3	UHMW-PE	a3	O_ring (P4)	1	FKM
3	Distance_piece	3		a4	O_ring (S16)	1	FKM
4	Chamber_inner_cap	1		a5	O_ring (P614)	1	FKM
5	Chamber	1		a6	O_ring (S15)	1	FKM
6	Spool	1		a7	O_ring (P10)	1	FKM
7	Piston	1		a8	O_ring (SS7)	1	FKM
8	Cylinder	1		a9	O_ring (P6)	1	FKM
9	Plunger	1		a10	O_ring (S12)	2	FKM
10	Storage_body	1		a11	O_ring (SS3)	4	FKM
11	Lip_seal_Ø6.0	1	UHMW-PE	b1	Backup_ring(P14)	2	PTFE
12	Bushing_Ø6.0	1	PTFE	b2	Backup_ring(P10)	2	PTFE
13	Indicator_body "A"	1		c1	SUS_ball (1/8")	4	SUS
14	Adjust_sleeve	1		c2	Bolt (M4 x 50mm)	4	SUS
15	Adjust_screw	1		c3	Bolt (M4 x 40mm)	4	SUS
16	Stopper_pin	2		c4	Set_screw (M4 x 5mm)	4	SUS
17	Adjust_nut	1					
18	Indicator_body "B"	1					
19	Locking_screw	1					
20	Adjust_knob	1					
21	Luer_lock_collar	1					

If you have any questions regarding the above, please contact us.

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