Doc. No. AV*-OME0061-A

Operation Manual

PRODUCT NAME

Soft Start-up Valve

MODEL / Series / Product Number

AV2000
AV3000
AV4000
AV5000

SMC Corporation

Contents

	Page
1. Safety Instructions	2~6
2. Characteristics	7
3. Specifications	7~8
4. How to Order	9
5. Working principle	10
6. Failure and countermeasure	11
7. Parts list	12
8. Disassembly	13
9. Dimensions	14

Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

*1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1:Robots
etc.

Danger	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
Warning	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
Caution	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Safety Instructions

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing industries.
Use in non-manufacturing industries is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

Limited warranty and Disclaimer/Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

Caution on Design

⚠Warning

1. Actuator drive
When using solenoid valve or actuator in the outlet side of this product, implement appropriate measures to prevent potential danger caused by actuator operation.

2. Holding pressure
Since the valve might have slight interal leakage, it is not suitable for holding pressure in a tank or another vessel for a long period of time.

3. Maintenance space
Allow the sufficient space for maintenance and inspection.

Selection

⚠Warning

1. Confirm the specifications.
The products presented in this catalog are designed only for use in compressed air systems. Do not operate at pressures or temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to specifications.)

2.Extended periods of continuous energization
If a valve will be continuously energized for an extended period of time, the temperature of the valve will increase due to the heat generated by the coil assembly. This will likely adversely affect the performance of the valve. Therefore, if the valve is to be energized for periods of longer than 30 minutes at a time, we advise using the valve with DC specification type which is lower power consumption.

3. Operation of closed center solenoid valves
Even if this product is used for closed center solenoid valves or actuator with a load factor of more then 50%, jumping (stick-slip phenomenon) cannot be prevented.

4. Using a regulator in the outlet side
When mounting a regulator in the outlet side (A port side), use a residual pressure relief regulator (AR25K to 40K) or a check type regulator. With a standard regulator (AR10 to 60), the outlet side pressure may not be released when this valve is exhausted.

5. Operation of solenoid valves in the outlet side
To operate solenoid valves mounted on this product's outlet side (A port side), first confirm that the outlet side's pressure (P_A) has increased to become equal to the inlet side's pressure (P_P).

6. Operation
The residual pressure release function of this product is for emergency use only; therefore, avoid the operation in the same manner as ordinary 3 port valves.

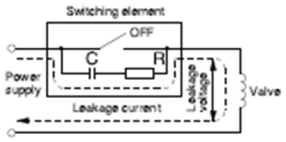
7. Using a lubricator
If mounting a lubricator, mount it on the inlet side (P port side), of this product. If mounted on the outlet side (A port side), back flow of oil will occur and may spurt out of the valve's R port.

8. Operation for air blowing
This product cannot be operated for air blowing due to the mechanism that switches the main valve to be fully open after the outlet side's pressure increases to approximately 1/2 of the inlet side.

Selection

⚠Caution

1. Voltage leakage
Particularly when using a C-R element (surge voltage suppressor) for protection of the switching element, use cation that leakage voltage will increase due to leakage current flowing through the C-R element, etc.



AC coil is 20% or less of rated voltage.
DC coil is 3% or less of rated voltage.

2. Low temperature operation
Although the valve can be operated at temperature as low as 0°C, measures should be taken to avoid solidifying or freezing drainage and moisture, etc.

Mounting

⚠Warning

1. If air leakage increases or equipment does not operate properly, stop operation.
After mounting or maintenance, etc., connect the compressed air and power supplies, and perform appropriate function and leakage tests to confirm that the unit is mounted properly.

2. Operation manual
Mount and operate the product after reading the manual carefully and understanding its contents. Also keep the manual in a place where it can be referred to as necessary.

3. Painting and coating
Warnings or specifications printed or labeled on a product should not be erased, removed or covered up.
Furthermore, please contact SMC before painting the resin parts, as this may cause adverse effects depending on the solvent.

Adjustment

⚠Caution

1. To perform the initial speed adjustment of a outlet side actuator, supply air from this valve's inlet side and turn ON the pilot valve. Then, rotate the needle counterclockwise from the fully closed position.

Piping

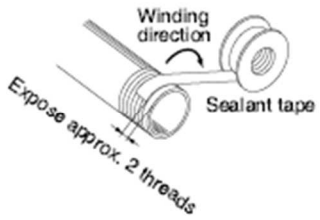
⚠Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out by air (flushed) or washed to eliminate cutting chips, cutting oil, and other debris from the pipe inside.

2. Winding of sealant tape

When screwing piping or fittings into ports, ensure that chips from the pipe threads or sealing material do not enter the piping. Also, if sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



3. Tighten threads with the proper tightening torque.

When screwing fittings into valves, tighten with the torques given below.

Tightening Torque when Piping

Connection threads	Proper tightening torque (N·m)
Rc 1/4	12 to 14
Rc 3/8	22 to 24
Rc 1/2	28 to 30
Rc 3/4	28 to 30
Rc 1	36 to 38

4. Piping to products

When piping to products, avoid making an error of supply port, etc., by referring to the operation manuals.

5. F.R.L. module combination

When connecting to a modular F.R.L. combinations (AC20 to 60), select one of the spacers, which are included. (Refer to page 941 for details.) However, modular combinations with AC40-06 are not possible.

Furthermore, connect soft start-up valves to the outlet side of the F.R.L. combination.

6. Inlet side piping conditions

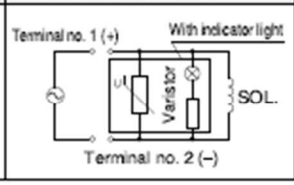
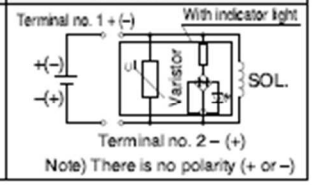
The nominal size of the piping material's or equipment's bore should be equal to or larger than the soft start-up valve's port size. The composite effective area of the inlet side's (P port side's) piping or equipment should be equal to or larger than the values below.

Model	Composite effective area (mm^2)
AV2000	5
AV3000	22
AV4000	35
AV5000	50

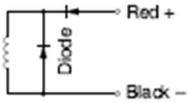
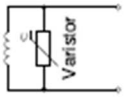
When the piping is restricted or the supply pressure is insufficient, the main valve will not switch and air leakage may occur from the R port.

Light/Surge Voltage Suppressor

⚠Caution

Voltage	AC and 100 VDC	24 VDC or less
Electrical circuit		

●Type G: Lead wire comes directly from the solenoid part. Connect it with the power source. Grommet with DC voltage surge voltage suppressor has polarity. Connect red lead wire to + (positive) side and black to – (negative) side.

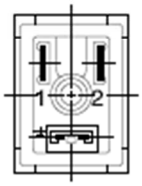
Surge voltage suppressor	
DC	AC
	

Electrical Connection

⚠Caution

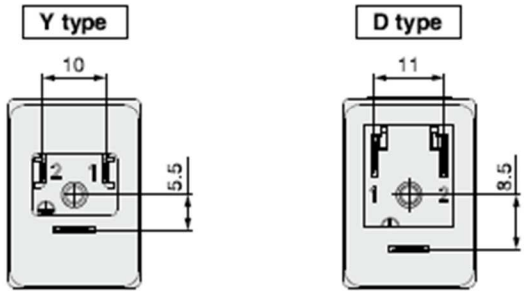
The DIN terminal is no polarity (+, –).

DIN terminal



DIN (EN175301-803) Terminal

Y type DIN terminal corresponds to the DIN connector with terminal pitch 10 mm, which complies with EN175301-803B. Since the terminal pitch is different from the D type DIN connector, these two types are not interchangeable.



⚠Warning

1. Use clean air.
Do not use compressed air which contains chemicals, synthetic oils containing organic solvents, salts or corrosive gases, etc., as this can cause damage or malfunction.

⚠Caution

1. Install air filters.
Install air filters close to valves at their upstream side. A filtration degree of 5 μm or less should be selected.

2. Implement countermeasures by installing after-cooler or air dryer, or water separator, etc.
The air including excess drain may result in a malfunction of valves and other pneumatic equipment. Implement countermeasures by installing after-cooler or air dryer, or water separator, etc.

Operating Environment

⚠Warning

1. Do not use valves in such environments where corrosive gases, chemicals, or brine or water or steam is airborne, or where valves can be directly exposed to any of those.

2. Do not use in an explosive environment.

3. Do not use in locations influenced by vibrations or impacts.

4. A protective cover, etc., should be used to shield valves from direct sunlight.

5. Shield valves from radiated heat generated by nearby heat sources.

6. Take suitable protective measures in locations where there are contacts with water droplets, oil, or welding spatter, etc.

7. In a dusty environment or when valve switching noise is intrusive, install a silencer in the R port to prevent dust from entering, and to reduce noise.

Lubrication

⚠Caution

1. The valve has been lubricated for life at the factory, and does not require any further lubrication.

2. Use turbine oil Class 1, ISO VG32 (with no additives), if lubricated. Besides, if the lubrication is suspended halfway, the original lubricant will be lost and may result in a malfunction. Be sure to keep lubricating continuously.

Note) Refer to SMC's website for details about each manufacturer's brand name of class 1 turbine oil (no additive) ISO VG32. Additionally, please contact SMC for details about class 2 turbine oil (with additives) ISO VG32.

⚠Warning

1. Perform maintenance and inspection as shown in the operation manual.
If handled improperly, damage may occur in machine or equipment or an operational error may result in.

2. Equipment removal and supply/exhaust of compressed air
When equipment is removed, first confirm that measures are implemented to prevent dropping of workpiece and runaway of equipment, etc. Then cut the supply pressure and power, and exhaust all compressed air from the system using its residual pressure release function.

3. Low frequency operation
Valves should be switched at least once every 30 days to prevent malfunction. (Use caution regarding the air supply.)

4. Manual override operation
When the manual override is operated, connected equipment will be actuated.
Confirm the safety before operating.

⚠Caution

1. Drain removal
Remove drain from air filters periodically.

How to Find the Flow Rate (At air temperature of 20°C)

Choke flow: $(P_2 + 0.1)/(P_1 + 0.1) \leq 0.5$

$$Q = 120 \times S \times (P_1 + 0.1) \times \sqrt{\frac{293}{273 + t}}$$

Subsonic flow: when $(P_2 + 0.1)/(P_1 + 0.1) > 0.5$

$$Q = 240 \times S \times \sqrt{(P_1 - P_2)(P_2 + 0.1)} \times \sqrt{\frac{293}{273 + t}}$$

Q: Air flow rate [L/min (ANR)]
S: Effective area (mm^2)
P_1: Inlet pressure [MPa]
P_2: Outlet pressure [MPa]
t: Air temperature [°C]

Note 1) Formulas above are applied to pneumatics only.

2.Characteristics

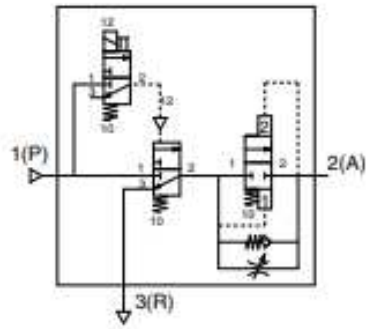
Start-up valve for low-speed air supply to gradually raise initial pressure in an air system and for quick exhaust by cutting off air supply.

3.Specifications

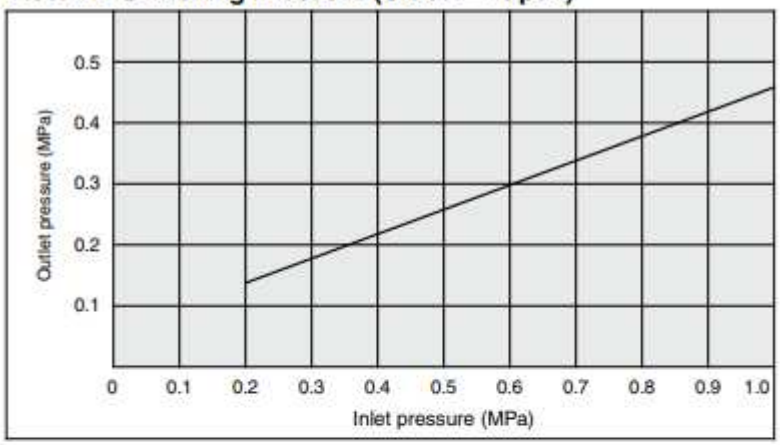
Model			AV2000	AV3000	AV4000	AV5000	
Port size			1/4	3/8	1/2	3/4	1
Proof pressure			1.5 MPa				
Operating pressure range			0.2 to 1 MPa				
Pressure gauge port size			1/8				
Ambient and fluid temperature			0 to 60°C (1)				
Effective area (mm^2)		1(P) → 2(A)	20	37	61	113	122
		2(A) → 3(R)	24	49	76	132	141
Weight (kg)			0.27	0.48	0.74	1.60	1.54
Electrical specifications	Rated coil voltage		100, 200, 110 to 120, 220 VAC (50/60 Hz), 240 VAC (50/60 Hz) 12, 24 VDC				
	Allowable voltage fluctuation		–15 to +10% of rated voltage				
	Coil insulation type		Equivalent to B type (130°C)				
	Apparent power (Current consumption) AC	Inrush	5.6 VA (50 Hz), 5.0 VA (60 Hz)				
		Energized	3.4 VA (2.1 W)/50 Hz, 2.3 VA (1.5 W)/60 Hz				
	Current consumption DC		1.8 W				
	Electrical entry		Grommet, Type D DIN terminal, Type Y DIN terminal				
	Option specifications		Indicator light/Surge voltage suppressor (2)				
Pilot valve manual override			Non-locking push type (Flush), Locking type (Tool required), Locking type (Lever)				

Note 1) Use dry air when operating at a low temperature.
Note 2) The grommet type is equipped with a surge voltage suppressor (direct coupling type lead wire), but not an indicator light.

Symbol

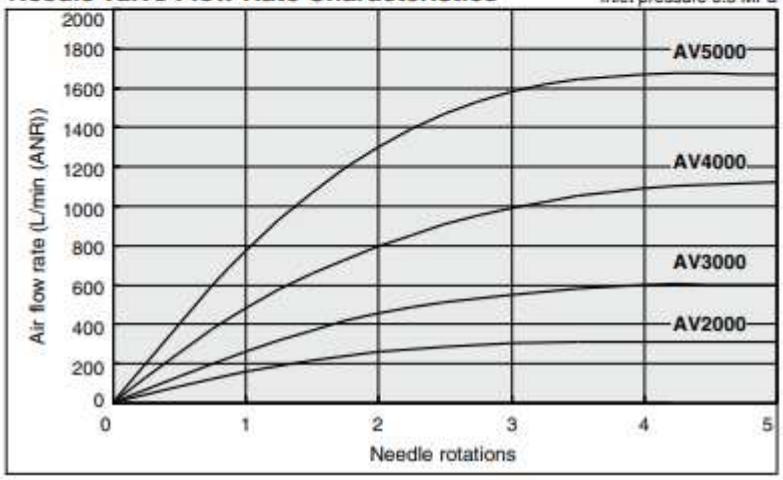


Piston B Switching Pressure (Close → Open)



Needle Valve Flow Rate Characteristics

Inlet pressure 0.5 MPa



4.How to Order

AV 20 00 – [ ] 02 [ ] – 1 G [ ] [ ] – [ ] – [ ]

Soft start-up valve

Body size

20	1/4
30	3/8
40	1/2
50	3/4, 1

Thread type

Nil	Rc
F	G
N	NPT

Port size

02	1/4 (AV2000 only)
03	3/8 (AV3000 only)
04	1/2 (AV4000 only)
06	3/4 (AV5000 only)
10	1 (AV5000 only)

Option

Nil	None
G	With pressure gauge

Coil rated voltat

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 to 120 VAC (50/60 Hz)
4	220 VAC (50/60 Hz)
5	24 VDC
6	12 VDC
7	240VAC (50/60 Hz)

For other rated voltages, please consult with SMC.

Light/Surge voltage suppressor

Nil	None
S	With surge voltage suppressor (Grommet type only)
Z	With light/surge voltage suppressor (Not possible with grommet type)

Manual override

Nil: Non-locking push type (Flush)	B: Locking type (Tool required)	C: Locking type (Lever)
		

Flow direction

Nil	Left to right
R	Right to left

CE/UKCA-compliant

Nil	—
Q	CE/UKCA-Compliant Note 2)

Note 2) "G", grommet is not available.

Electrical entry

	CE/UKCA-compliant
G: Grommet Note 1) 	—
D: Type D DIN terminal (With connector) 	●
DO: Type D DIN terminal (Without connector)	●
Y: Type Y DIN terminal (With connector) 	●
YO: Type Y DIN terminal (Without connector)	●

Note 1) The grommet type can have a surge voltage suppressor (direct coupling type lead wire), but without indicator light.

How to Order Pilot Valve Assembly

SF4 – 1 G [ ] [ ] – 80 – [ ] – [ ]

Rated coil voltage

1	100 VAC (50/60 Hz)
2	200 VAC (50/60 Hz)
3	110 to 120 VAC (50/60 Hz)
4	220 VAC (50/60 Hz)
5	24 VDC
6	12 VDC
7	240 VAC (50/60 Hz)

For other rated voltages, please consult with SMC.

Soft start-up valve

CE/UKCA-compliant

Nil	—
Q	CE/UKCA-Compliant Note 2)

Note 2) "G", grommet is not available.

Flow direction

Nil	Left to right
R	Right to left

Electrical entry

		CE/UKCA-compliant
G	Grommet Note 1)	—
D	Type D DIN terminal (With connector)	●
Y	Type Y DIN terminal (With connector)	●
DO	Type D DIN terminal (Without connector)	●
YO	Type Y DIN terminal (Without connector)	●

Note 1) The grommet type can have a surge voltage suppressor (direct coupling type lead wire), but without indicator light.

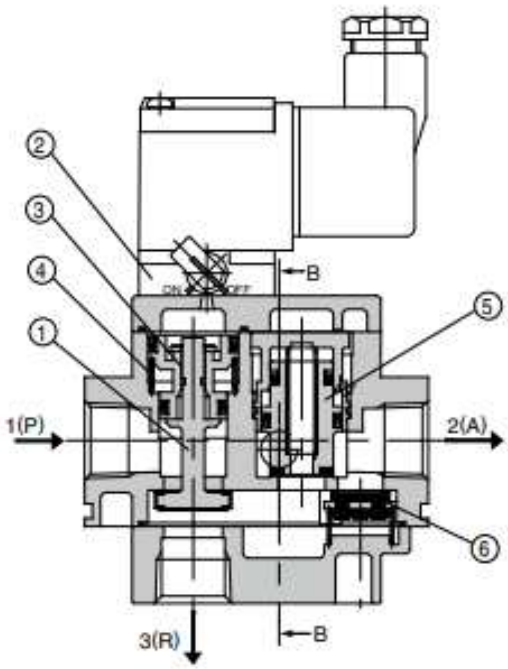
Manual override

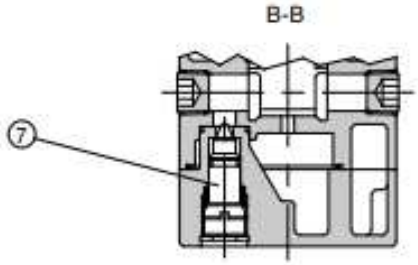
Nil	Non-locking push type (Flush type)
B	Locking type (Tool required)
C	Locking type (Lever type)

Light/Surge voltage suppressor

Nil	None
S	With surge voltage suppressor (Grommet type only)
Z	With light/surge voltage suppressor (Not possible with grommet type)

5. Working principle



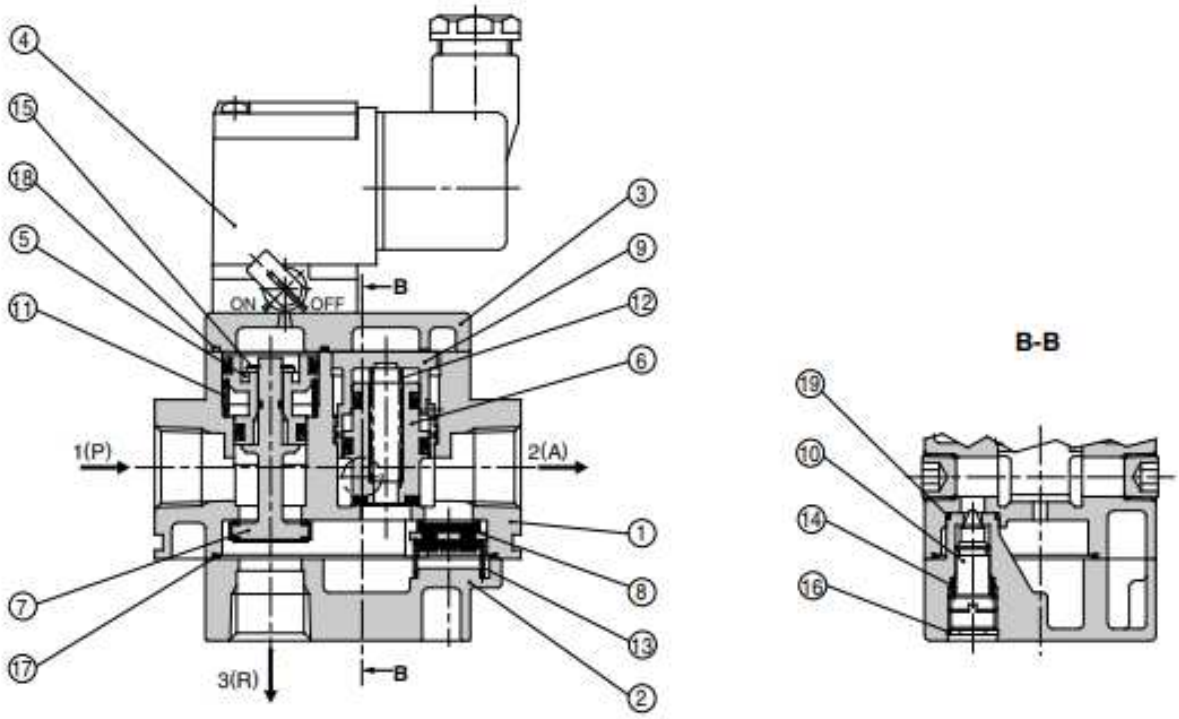


Working condition	Pilot valve	Pressure conditions	Working description	Pressure time chart (Meter-out control) example	Cylinder drive circuit (Meter-out control) example
Low speed supply	ON	1/2 PP > PA	When pilot valve ② is turned ON by energization or manual override, the pilot air pushes piston A ③ and main valve ① downward and opens main valve ① while R port closes simultaneously. The air from P portmoves to needle valve ⑦ , where its flow is adjusted, and flows to A port. The meter-in control of needle valve ⑦ slowly moves the cylinder from Ⓐ to Ⓑ.	Initial Operation Return Stroke Pressure stroke PP Cylinder movement with fixed orifice PA PR (Atmospheric pressure) Time Ⓐ Ⓑ Ⓒ Ⓓ	PP 1(P) PA 2(A) 3(R)
High speed supply		1/2 PP ≤ PA	When 1/2 PP ≤ PA after the cylinder reaches Ⓑ, piston B ⑤ fully opens and PA increases rapidly as shown from Ⓒ to Ⓓ and becomes the same pressure as PP.		PP 1(P) PA 2(A) 3(R)
Normal operation		PP = PA	Since piston B ⑤ holds the fully open condition, during normal operation the cylinder's speed will be controlled by the usual meter-out control.		
Quick exhaust	OFF	—	When pilot valve ② is turned OFF, spring ④ pushes piston A ③ and main valve ① upward and opens R port while shutting off the air supply from P port. The pressure difference generated at this time lets the check valve ⑥ open and the residual pressure on the A port side is quickly exhausted from R port.		PP 1(P) PA 2(A) 3(R)

6. Failure and countermeasure

Power supply of pilot valve	Phenomenon	Cause	Countermeasure
OFF	Air leaks from R port.	1.The inclusion of foreign body onto sheet side of the main valve. 2.Damage on rubber lining of the main valve. 3.Damage of valve spring. 4.Damage of stopper ring of piston A fixed part.	1.Please wash the sheet side of the main valve. 2.Please exchange the main valve assembly. 3.Please exchange the valve spring. 4.Please exchange stopper ring.
	The residual pressure is not exhausted.	1.The manual of the pilot valve is in the status of turning on. 2.Failure of pilot valve. 3.Damage of valve spring. 4.Damage of stopper ring of piston A fixed part.	1.Please turn off the manual. 2.Please exchange the pilot valve assembly. 3.Please exchange the valve spring. 4.Please exchange stopper ring.
ON	The main valve is not turned on. (There is no leakage from R port)	1. Decrease in operating pressure. 2.Failure of pilot valve.	1.Please use the operating pressure within the range of 0.2-1MPa. 2.Please exchange the pilot valve assembly.
	The main valve is not turned on. (There is a large amount of leakage from R port)	1.Decrease in operating pressure. 2.Air supply ability shortage on supply side (P or 1 port side) (A synthetic stress area is a small)	1.Please use the operating pressure within the range of 0.2-1MPa. 2.Please review piping and the equipment on the first side referring to ⑥ of the piping notes.
	It is an air leakage (small amount) from R port.	1. The inclusion of foreign body onto sheet surface of main valve. 2. Damage on rubber lining of main valve.	1.Please wash the sheet side of the main valve. 2.Please exchange the main valve assembly.
	The modulating flow by the switching operation ON/OFF by the needle cannot be done. (Air leaks to A port even if the needle is all closes.)	1. Damage in check valve spring. 2.The inclusion of foreign body on sheet side of check valve. 3. Damage of check valve. 4.Damage of piston spring. 5.The inclusion of foreign body onto sheet side of piston B. 6.Damage on rubber lining of piston B.	1.Please exchange the check valve spring. 2.Please wash the sheet side of check valve. 3.Please exchange check valve. 4.Please exchange the piston spring. 5.Please wash the sheet side of piston B. 6.Please exchange piston B assembly.
	Piston B does not change.	1.There is external Leak from connected piping and the equipment on the second side (A port). 2. The inclusion of foreign body to sliding area of piston B. 3. Shrinkage of piston guide.	1Please stop Leak after investigating piping and the equipment on secondary side. 2.The foreign body must be removed after decomposition, and grease must be applied more. Moreover, please exchange piston B assembly if necessary. 3.Please exchange the piston guide.

7. Parts list



Component Parts

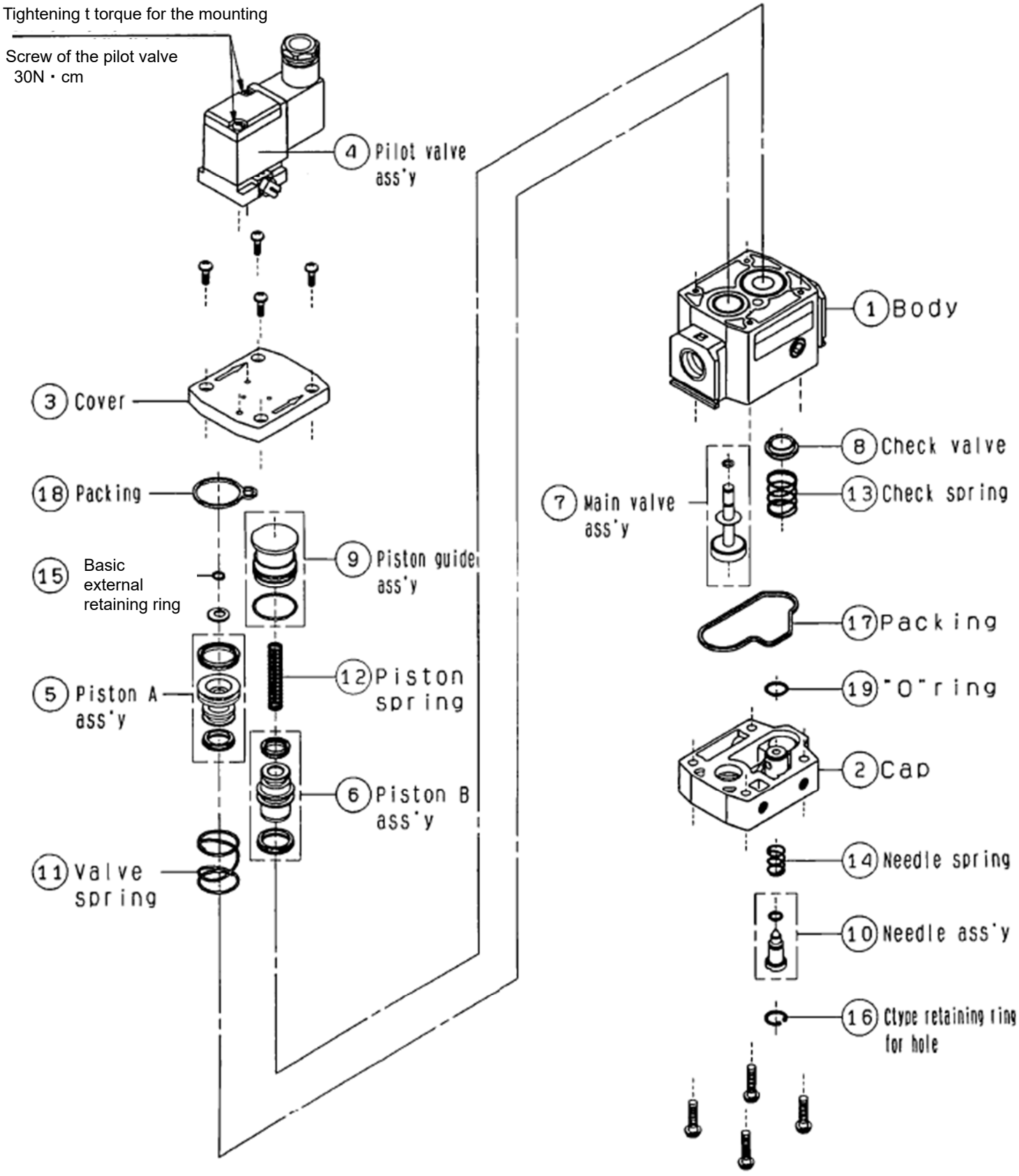
No.	Description	Material
1	**Body**	Aluminum die-casted
2	**Cap**	Aluminum die-casted
3	**Cover**	Aluminum die-casted

Replacement Parts

No.	Description	Material	Part no.			
			AV2000	**AV3000**	**AV4000**	**AV5000**
4	**Pilot valve assembly**	——	SF4-□-80(-Q)*1			
5	**Piston A assembly**	POM, NBR	P424204A	P424304A	P424404A	P424504A
6	**Piston B assembly**	Brass, HNBR, NBR	P424205A	P424305A	P424405A	P424505A
7	**Main valve assembly**	Brass, HNBR, NBR	P424206A	P424306A	P424406A	P424506A
8	**Check valve**	Brass, HNBR	P424207-30	P424307-30	P424407-30	P424507-30
9	**Piston guide assembly**	POM, NBR	P424208A	P424308A	P424408A	P424508A
10	**Needle assembly**	Brass, NBR	P424209A	P424309A	P424409A	P424509A
11	**Valve spring**	Steel wire	P424211	P424311	P424411	P424511
12	**Piston spring**	Stainless steel	P424212	P424312	P424412	P424512
13	**Check spring**	Stainless steel	P424213	P424313	P424413	P424513
14	**Needle spring**	Steel wire	P424214	P424314	P424414	—
15	**Type C retaining ring for shaft**	Tool steel *2	FL00083	FL00007	FL00022	FL00025
16	**Type C retaining ring for hole**	Tool steel	FQ00003	FQ00004	FG00003	FG00005
17	**Seal**	NBR	P424210	P424310	P424410	P424510
18	**Seal**	NBR	P424218	P424315	P424415	P424514
19	**O-ring**	NBR	KA00001	KA00004	KA00116	KA02247

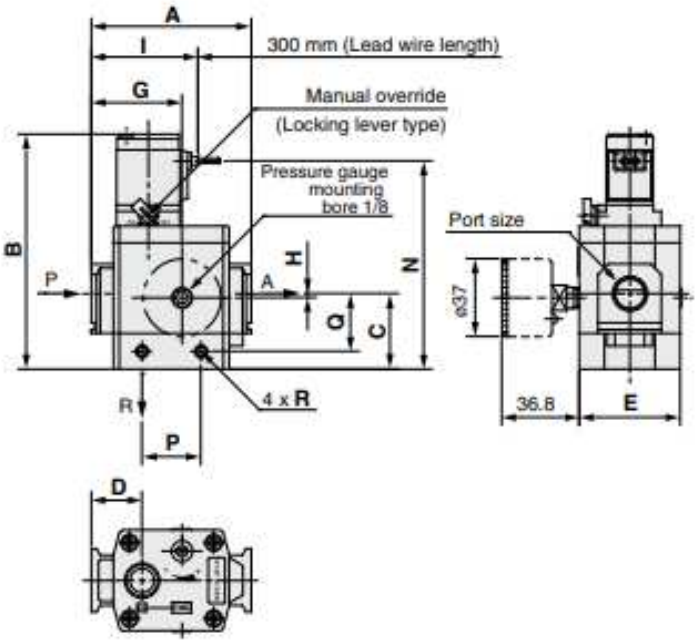
*1 For "How to Order" pilot valve assembly.
*2 Stainless steel for the AV4000

8. Disassembly

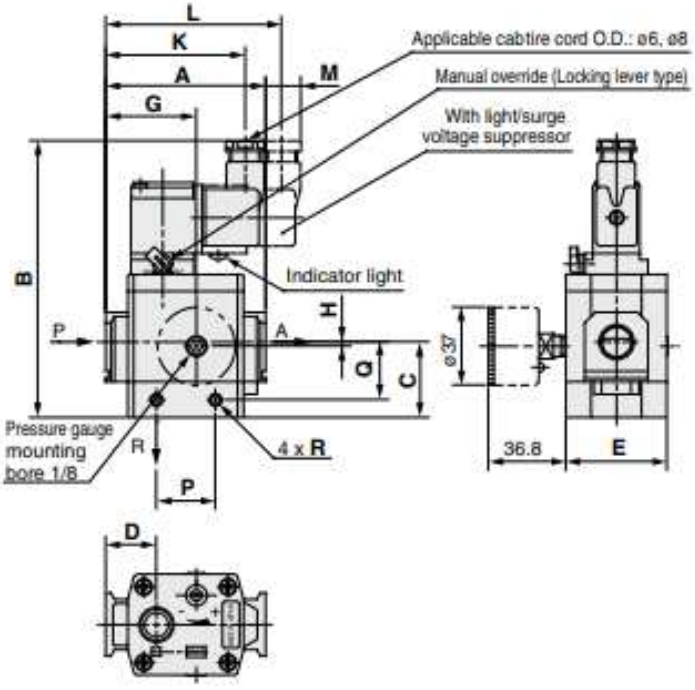


9. Dimensions

Grommet: AV□00-□-□G, GS



DIN terminal: AV□00-□-□D, DZ
DIN terminal for European use: AV□00-□-□Y, YZ



Model	Port size	A	B	C	D	E	G	H	I	K	L	M	N	P	Q	R
AV2000-□02-□G□	1/4	66	105	31	22	40	38	0	47.5	—	—	—	93	29	23.5	M4 x 0.7 Depth 4.5
AV2000-□02-□GS□																
AV2000-□02-□D□	1/4	66	125	31	22	40	38	0	—	65.5	—	6	—	29	23.5	M4 x 0.7 Depth 4.5
AV2000-□02-□DZ□										—	80.5	23				
AV2000-□02-□Y□	1/4	66	125	31	22	40	38	0	—	67.5	—	10.5	—	29	23.5	M4 x 0.7 Depth 4.5
AV2000-□02-□YZ□										—	84.5	27.5				
AV3000-□03-□G□	3/8	76	112	36	24	48	43	2	50.5	—	—	—	100	28	27.5	M5 x 0.8 Depth 5
AV3000-□03-□GS□																
AV3000-□03-□D□	3/8	76	132	36	24	48	43	2	—	66.5	—	—	—	28	27.5	M5 x 0.8 Depth 5
AV3000-□03-□DZ□										—	83.5	16				
AV3000-□03-□Y□	3/8	76	132	36	24	48	43	2	—	70.5	—	3.5	—	28	27.5	M5 x 0.8 Depth 5
AV3000-□03-□YZ□										—	87.5	20.5				
AV4000-□04-□G□	1/2	98	127	47	32	52	57	3	62.5	—	—	—	115	42	37	M6 x 1 Depth 6
AV4000-□04-□GS□																
AV4000-□04-□D□	1/2	98	147	47	32	52	57	3	—	78.5	—	—	—	42	37	M6 x 1 Depth 6
AV4000-□04-□DZ□										—	95.5	6				
AV4000-□04-□Y□	1/2	98	147	47	32	52	57	3	—	82.5	—	—	—	42	37	M6 x 1 Depth 6
AV4000-□04-□YZ□										—	99.5	10.5				
AV5000-□$\frac{06}{10}$-□G□	3/4, 1	128	155	59	39	74	77	0	74	—	—	—	143	50	46	M6 x 1 Depth 7.5
AV5000-□$\frac{06}{10}$-□GS□																
AV5000-□$\frac{06}{10}$-□D□	3/4, 1	128	175	59	39	74	77	0	—	90	—	—	—	50	46	M6 x 1 Depth 7.5
AV5000-□$\frac{06}{10}$-□DZ□										—	107	—				
AV5000-□$\frac{06}{10}$-□Y□	3/4, 1	128	175	59	39	74	77	0	—	94	—	—	—	50	46	M6 x 1 Depth 7.5
AV5000-□$\frac{06}{10}$-□YZ□										—	111	—				

Revision history		
A	Complete revision	2024.11

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