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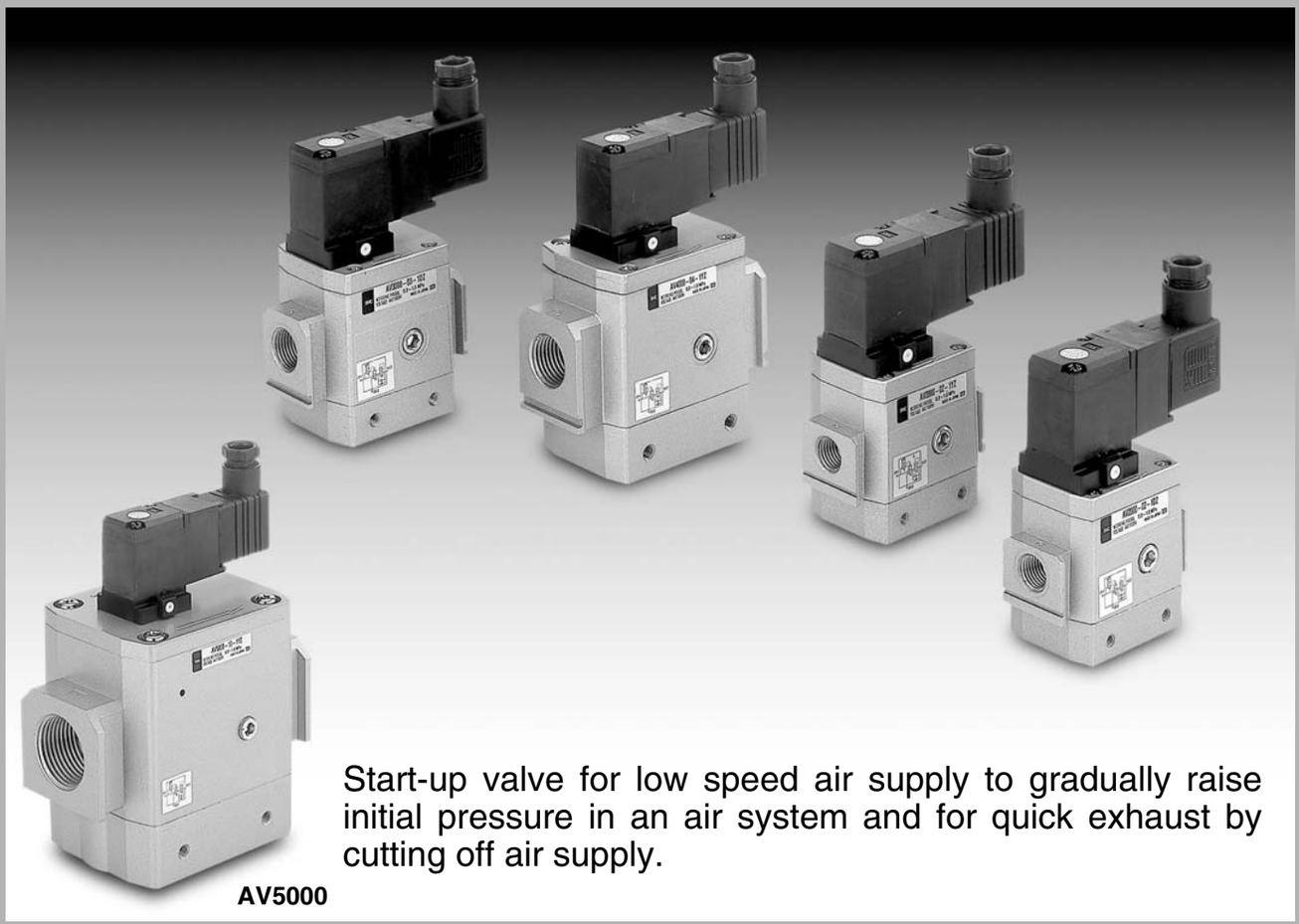
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Find the *SMC AV2000-NO2-5DZ-X260* at our website: *Click HERE*

Soft Start-up Valve

Series AV2000/3000/4000/5000



AV5000

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.

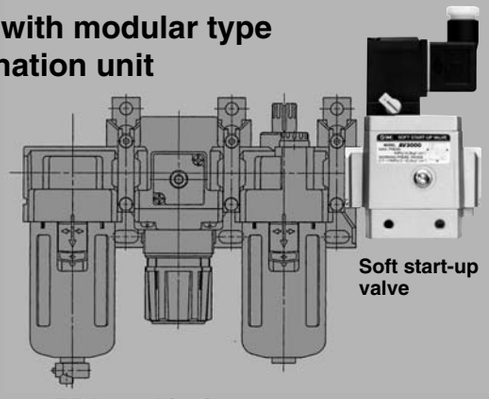
Large effective area (mm²)

AV2000/ 20 (Body size: 1/4)
AV3000/ 37 (Body size: 3/8)
AV4000/ 61 (Body size: 1/2)
AV5000/ 113 (Body size: 3/4)
AV5000/ 122 (Body size: 1)

With supply/exhaust function by manual operation

Low power consumption

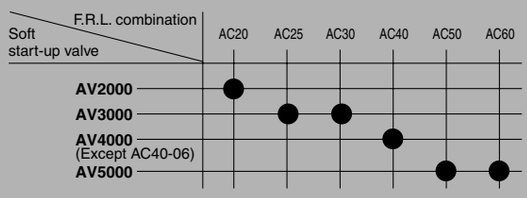
Connectable with modular type F.R.L. combination unit



Soft start-up valve

F.R.L. combination

Combination with F.R.L. unit



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Soft Start-up Valve
AV2000/3000/4000/5000

CE

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

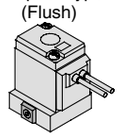
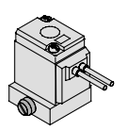
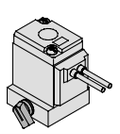
Coil rated voltage

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	240VAC (50/60 Hz)
9	Other

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

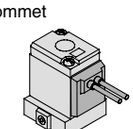
Nil: Non-locking push type (Flush)	**B:** Locking type (Tool required)	**C**: Locking type (Lever)
		

Flow direction

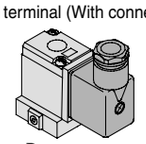
Nil	Left to right
R	Right to left

Electrical entry

G: Grommet

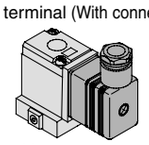


D: Type D
DIN terminal (With connector)



DO: Type D
DIN terminal (Without connector)

Y: Type Y
DIN terminal (With connector)



YO: Type Y
DIN terminal (Without connector)

How to Order Pilot Valve Assembly

SF4 – **1** **G** □ □ – □ **80**

Soft start-up valve

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)
9	Other

Flow direction

Nil	Left to right
R	Right to left

Manual override

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

Electrical entry

G	Grommet
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)

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)

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

TÜV approved product
(Conforms to standards necessary to satisfy EC directives.)

Series AV has received approval from TÜV Rheinland, an EC Notified Body (EC authorization number 0197), for conformity to DIN VDE0580: 1994 Standards.

Please consult with SMC for details when ordering TÜV approved products because of restrictions regarding product model, voltage specification, and electrical entry, etc.

SMC

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Type D DIN terminal



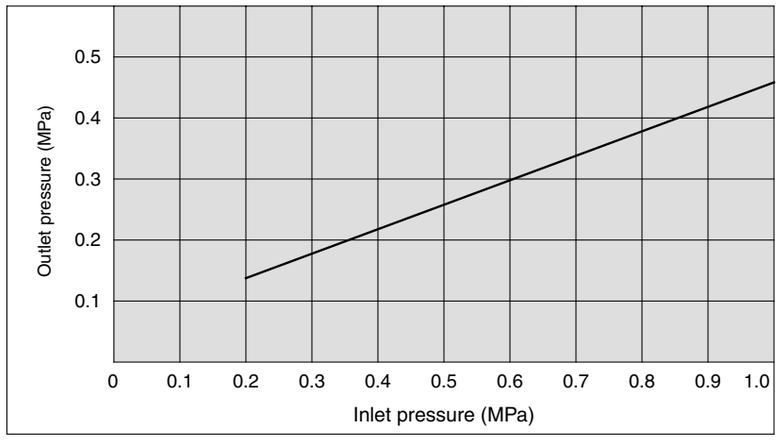
Type Y DIN terminal

Specifications

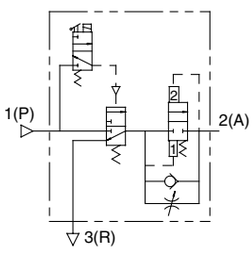
Model		AV2000	AV3000	AV4000	AV5000	
Port size		1/4	3/8	1/2	3/4	1
Proof pressure		1.5 MPa				
Operating pressure range		0.2 to 1 MPa				
Pressure gauge port size		1/8				
Ambient and fluid temperature		0 to 60°C (1)				
Effective area (mm^2)	1(P) → 2(A)	20	37	61	113	122
	2(A) → 3(R)	24	49	76	132	141
Mass (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.

Piston B Switching Pressure (Close → Open)

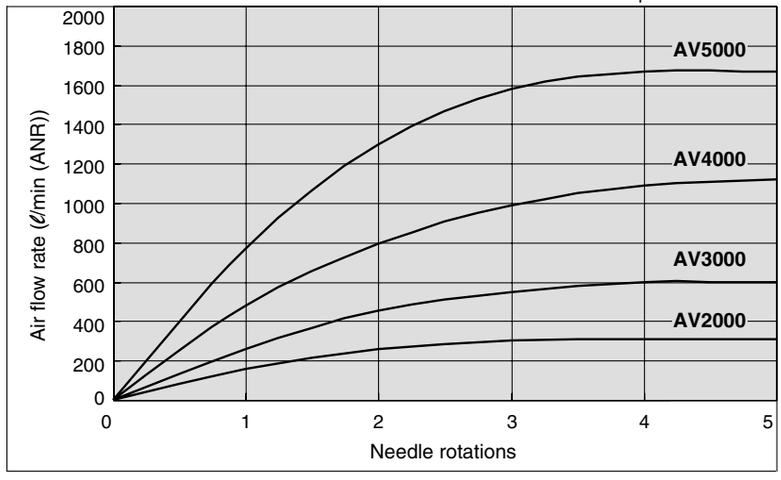


JIS Symbol



Needle Valve Flow Characteristics

Inlet pressure 0.5 MPa



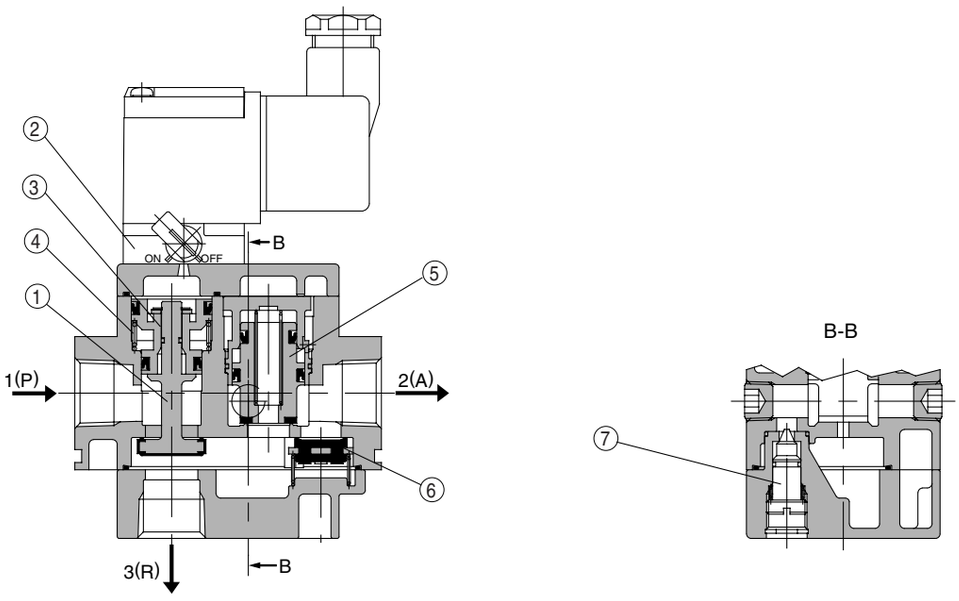
Accessory/Pressure Gauge

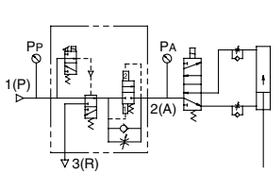
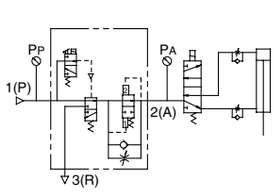
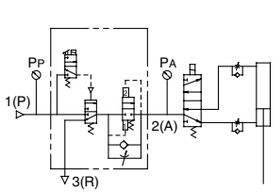
Description	Pressure gauge
Part no.	G36-10-01
Pressure range	1 MPa

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Working Principle

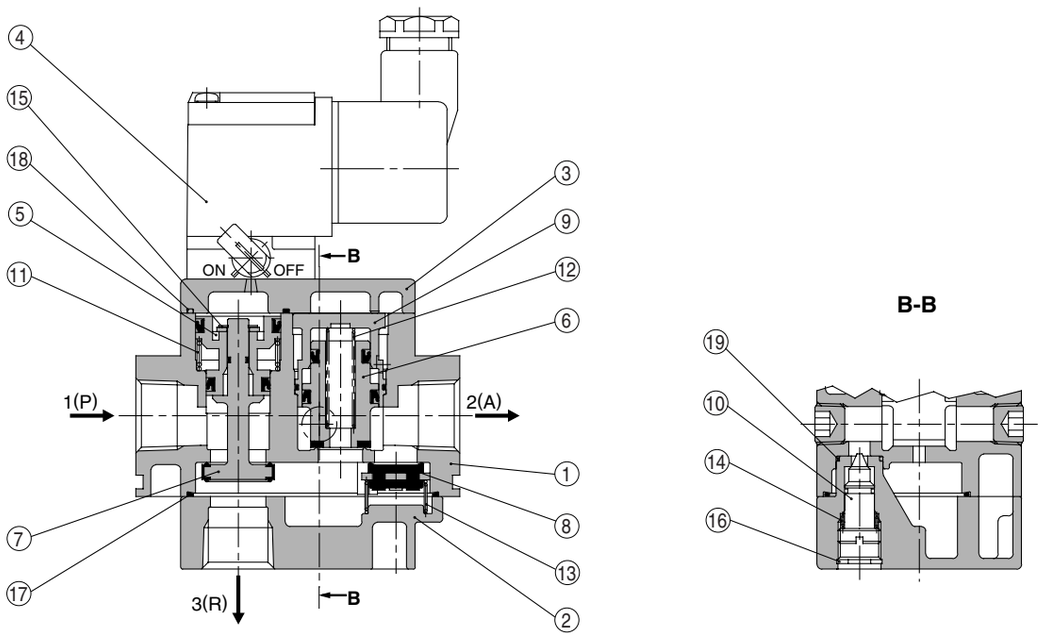


Working condition	Pilot valve	Pressure conditions	Working description	Pressure time chart (Meter-out control) example	Cylinder drive circuit (Meter-out control) example
Low speed supply	ON	1/2 $P_P > P_A$	When pilot valve ② is turned ON by energization or manual override, the pilot air pushes piston A ③ and main valve ① downward and opens main valve ① while R port closes simultaneously. The air from P port moves 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 P_P Cylinder movement with fixed orifice Ⓑ Ⓓ P_A Ⓒ P_R (Atmospheric pressure) Ⓐ Time	
High speed supply		1/2 $P_P \leq P_A$	When 1/2 $P_P \leq P_A$ after the cylinder reaches Ⓑ, piston B ⑤ fully opens and P_A increases rapidly as shown from Ⓒ to Ⓓ and becomes the same pressure as P_P.		
Normal operation		1/2 $P_P \cong P_A$	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.		

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Construction



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*1			
5	**Piston A assembly**	POM, NBR	P424204A	P424304A	P424404A	P424504A
6	**Piston B assembly**	Brass, NBR (HNBR)	P424205A	P424305A	P424405A	P424505A
7	**Main valve assembly**	Brass, NBR (HNBR)	P424206A	P424306A	P424406A	P424506A
8	**Check valve**	Brass, NBR (HNBR)	P424207	P424307	P424407	P424507
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	G-5	STW-5	STW-8	STW-10
16	**Type C retaining ring for hole**	Tool steel	0-9	0-10	RTW-12	RTW-15
17	**Seal**	NBR	P424210	P424310	P424410	P424510
18	**Seal**	NBR	P424218	P424315	P424415	P424514
19	**O-ring**	NBR	10 x 8 x 1	11 x 9 x 1	12.5 x 9.5 x 1.5	16.5 x 12.5 x 2

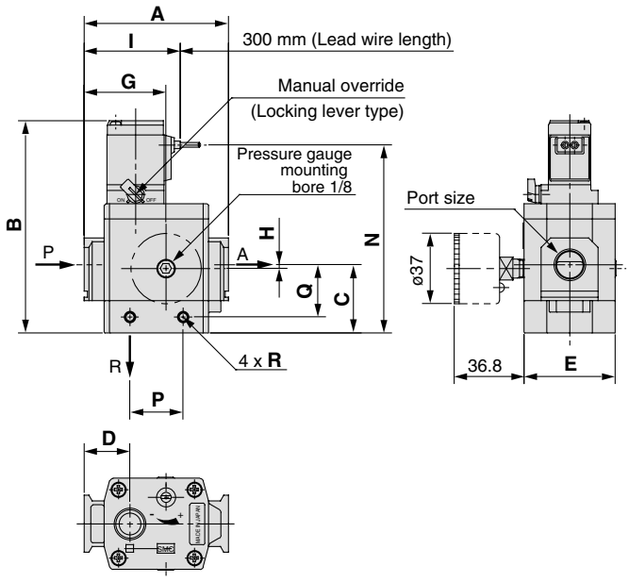
*1 For “How to Order” pilot valve assembly, refer to page 436.

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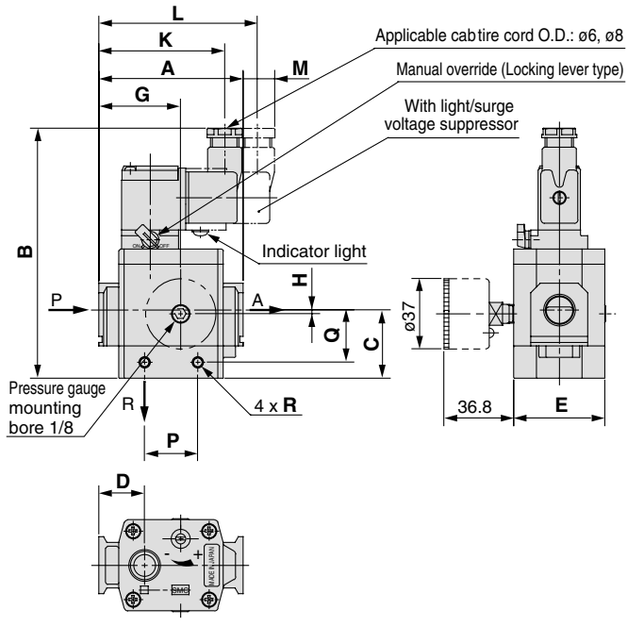
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Dimensions

Grommet: AV□00-□-□G, GS



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



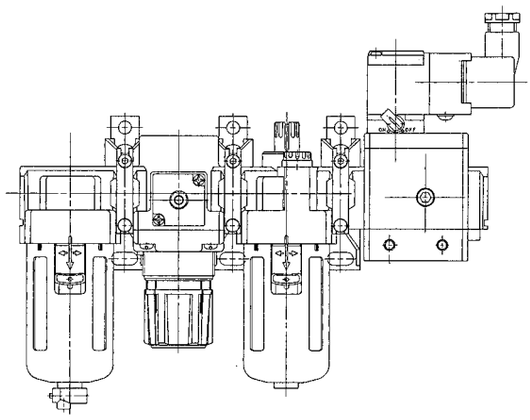
Model	Port size	A	B	C	D	E	G	H	I	K	L	M	N	P	Q	R
AV2000-□02-□G□	1/4	66	105	31	22	40	38	0	47.5	—	—	—	93	29	23.5	M4 x 0.7 Depth 4.5
AV2000-□02-□GS□																
AV2000-□02-□D□	1/4	66	125	31	22	40	38	0	—	65.5	—	6	—	29	23.5	M4 x 0.7 Depth 4.5
AV2000-□02-□DZ□										—	80.5	23				
AV2000-□02-□Y□	1/4	66	125	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-□ 06/10-□G□	3/4, 1	128	155	59	39	74	77	0	74	—	—	—	143	50	46	M6 x 1 Depth 7.5
AV5000-□ 06/10-□GS□																
AV5000-□ 06/10-□D□	3/4, 1	128	175	59	39	74	77	0	—	90	—	—	—	50	46	M6 x 1 Depth 7.5
AV5000-□ 06/10-□DZ□										—	107	—				
AV5000-□ 06/10-□Y□	3/4, 1	128	175	59	39	74	77	0	—	94	—	—	—	50	46	M6 x 1 Depth 7.5
AV5000-□ 06/10-□YZ□										—	111	—				

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Connecting Spacer for Modular Style F.R.L. Unit

Select one of the spacers below when connecting to an F.R.L. combination unit (AC20 to AC60).
(Spacers must be ordered separately.)



Spacer



Y200



Y400

Model	Applicable model
Y200	AV2000
Y300	AV3000
Y400	AV4000
Y600	AV5000

Spacer with bracket



Y200T



Y400T

Model	Applicable model
Y200T	AV2000
Y300T	AV3000
Y400T	AV4000
Y600T	AV5000

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Series AV2000/3000/4000/5000
Specific Product Precautions 1

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 287 to 291 for F.R.L. Precautions.

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.) Please contact SMC if using for other fluids than compressed air.

2. Extended periods of continuous energization
Please contact SMC if valves will be continuously energized for extended periods of time.

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.

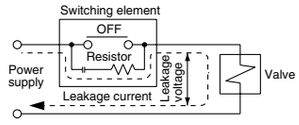
7. Using a lubricator
If mounting a lubricator, mount it on the inlet side (P port side), of this product. If mounted on the outlet side (A port side), back flow of oil will occur and may spurt out of the valve's R port.

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. Instruction 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.

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Series AV2000/3000/4000/5000
Specific Product Precautions 2

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 287 to 291 for F.R.L. Precautions.

Piping

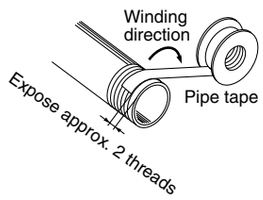
⚠ Caution

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. How to wrap a pipe tape

When connecting pipes and fittings, etc., ensure that cutting chips and sealing materials from the pipe threads should not get inside the valve. When a pipe tape is used, leave 1.5 to 2 thread ridges exposed at the end of the pipe.



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 instruction 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 441 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

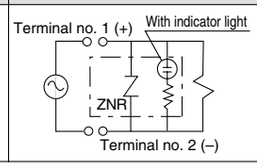
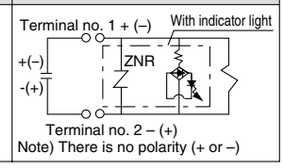
The nominal size of the piping material's or equipment's bore should be equal to or larger than the soft start-up valve's port size. The composite effective area of the inlet side's (P port side's) piping or equipment should be equal to or larger than the values below.

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		

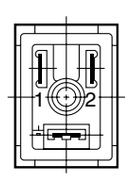
Note) There is no polarity (+ or –)

Electrical Connection

⚠ Caution

The internal connection of the DIN terminal is as shown below, connect to the power supply side as shown.

DIN terminal



Terminal	1	2
DIN terminal	+	–

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.

Refer to the brand name table given below for lubricants by each company, comforming to turbine oil Class 1 (with no additives), ISO VG32.

Turbine Oil Class 1 (With no additives), ISO VG32

Viscosity classification cSt (40°C)	ISO viscosity grade	32
Idemitsu Kosan Co.,Ltd.		Turbine oil P-32
Nippon Mitsubishi Oil Corp.		Turbine oil 32, Mitsubishi Turbine 32
Cosmo Oil Co.,Ltd.		Cosmo turbine 32
Japan Energy Corp.		Kyodo turbine 32

Viscosity classification cSt (40°C)	ISO viscosity grade	32
Kygnus Oil Co.		Turbine oil 32
Kyushu Oil Co.		Stork turbine 32
Showa Shell Sekiyu K.K.		Turbine 32
Tonengeneral Sekiyu K.K.		General R turbine 32
Fuji Kosan Co.,Ltd.		Fucoal turbine 32

Please contact SMC regarding turbine oil Class 2 (with additives), ISO VG32.

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Series AV2000/3000/4000/5000
Specific Product Precautions 3

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 287 to 291 for F.R.L. Precautions.

Air Supply

⚠ 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.

Maintenance

⚠ Warning

1. Perform maintenance and inspection as shown in the instruction 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.

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Related Products

Conforming to OSHA Standard

Pressure Relief 3-Port Valve with Locking Hole

VHS 20/30/40/50

Manually operated valve can be used to prevent accidents caused by residual pressure in pneumatic lines.



The supply/exhaust status of the air flow can be verified at a glance in the indicating window.

SUP : Supply
EXH : Exhaust

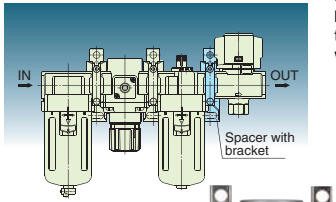
Can prevent accidents due to inadvertent air supply.

When in the exhaust position, the valve may be padlock secured. Prevents accidental start-ups while personnel are cleaning or servicing equipment.



OSHA standard (Occupational Safety and Health Administration Department of Labor)

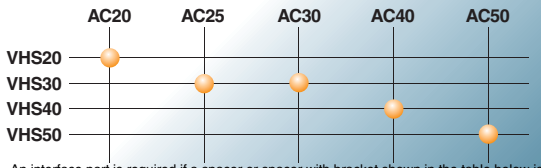
For safety control, OSHA rule requires energy sources for certain equipment be turned off or disconnected and that the device either be locked or labelled with a warning tag.





Combination with a modular style FRL

Combination with a modular style FRL is possible.



An interface part is required if a spacer or spacer with bracket shown in the table below is attached to a modular FRL.

Pressure relief 3-port valve	Interface P/N	Spacer with bracket P/N	Applicable air preparation equipment
VHS20	Y200	Y200T	AC20
VHS30	Y300	Y300T	AC25, AC30
VHS40	Y400	Y400T	AC40
VHS40-06	Y500	Y500T	AC40-06
VHS50	Y600	Y600T	AC50, AC60 Note)

Note) Although connection to AC60 is possible, the flow rate may decrease due to the mounting position.

Locations in North America

- Atlanta
- Austin
- Boston
- Charlotte
- Chicago
- Cincinnati
- Cleveland
- Dallas
- Detroit
- Indianapolis [M]
- Los Angeles [M]
- Milwaukee
- Minneapolis
- Montreal
- Nashville
- New Jersey
- Phoenix
- Portland
- Richmond
- Rochester
- San Francisco
- St. Louis
- Tampa
- Toronto [M]
- Vancouver
- Windsor

[M] = Manufacturing

Locations Worldwide!

The Americas

- Argentina
- Bolivia
- Brazil
- Canada
- Chile
- Mexico
- U.S.A.
- Venezuela

Europe

- Austria
- Bulgaria
- Croatia
- Czech
- Denmark
- Estonia
- Finland
- France
- Germany
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Netherlands
- Norway
- Poland
- Romania
- Russia
- Slovakia
- Slovenia
- Sweden
- Spain/Portugal
- Switzerland
- U.K.

Asia

- China
- Hong Kong
- India
- Japan
- Malaysia
- Philippines
- South Korea
- Singapore
- Taiwan
- Thailand

Oceania

- Australia
- New Zealand

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www.smcusa.com

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Ontario L5N 7J6 Canada
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Nov06-JBS25M-LA



Soft Start Up Valve With Lock Out



Series AVL2000/3000/4000/5000

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Soft start up valve with lock out

● Large effective area ● Low power consumption
● Manual/Manual solenoid lock out ● Modular design

AVL2000/3000/4000/5000

O.S.H.A compliant-lockable soft start valve. Gradual increase of supply pressure and rapid exhaust of system air when the supply is shut off.

How to Order

AVL **20** **00** – **F** **02** **G** – **5** **DZM** – **R**

Soft start valve with lock out

Body size

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

Port thread

Nil	Rc
N	NPT
F	G

Port size

02	1/4 (AVL2000)
03	3/8 (AVL3000)
04	1/2 (AVL4000)
06	3/4 (AVL5000)
10	1 (AVL5000)

Option

Nil	No gauge
G	Pressure gauge(Unit: MPa)
P	Pressure gauge (Unit: MPa, psi)

Rated coil voltage

Nil	Manual lockout
1	100VAC (50/60Hz)
2	200VAC (50/60Hz)
3	110 to 120VAC (50/60Hz)
4	220VAC (50/60Hz)
5	24VDC
6	12VDC
9	Others

Electric entry

Nil	Manual lockout
D	D type DIN connector
DZ	D type DIN connector with indicator light & suppressor
DZM	D type DIN connector with M12 connector, indicator light & surge voltage suppressor

Air direction

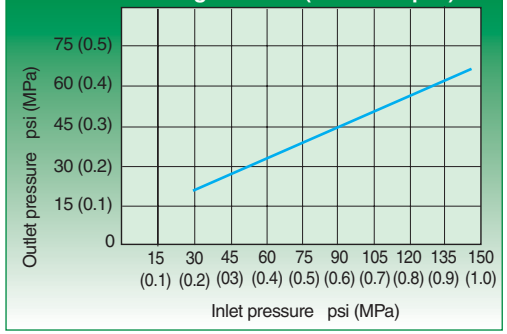
Nil	Left to Right
R	Right to Left



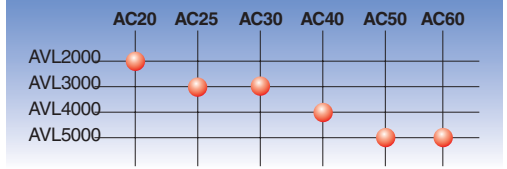
Specifications

Model			AV2000	AV3000	AV4000	AV5000	
Port size			1/4	3/8	1/2	3/4	1
Proof pressure			225psi (1.5MPa)				
Operating pressure range			30 to 150psi (0.2 to 1MPa)				
Ambient and fluid temperature			32 to 140°F (0 to 60°C)				
Effective area (mm²)	1(P) to 2(A)		20	37	61	113	122
	2(A) to 3(R)		24	49	76	132	141
Weight manual/solenoid (Kg/lb)			0.64 (1.14)	0.74 (1.63)	1.00 (2.21)	1.90 (4.19)	1.84 (4.06)
Weight manual (Kg/lb)			0.52 (1.15)	0.62 (1.37)	0.88 (1.94)	1.78 (3.93)	1.72 (3.79)
Electrical specification	Rated coil voltage		100, 200, 110 to 120, 220VAC (50/60Hz), 12, 24VDC				
	Allowable voltage fluctuation		–15% to +10% of rated voltage				
	Coil insulation type		Equivalent to B type [266°F (130°C)]				
	Current consumption	AC Inrush	5.6V (50Hz), 5.0VA (60Hz)				
		AC Energized	3.4VA (2.1W) 50Hz, 2.3VA (1.5W) 60Hz				
	Current consumption DC		1.8W				
	Electric entry		Type D DIN Terminal, M12 connector				
	Optional specification		Indicator light/Surge voltage suppressor				

Piston B Switching Pressure (Close to Open)

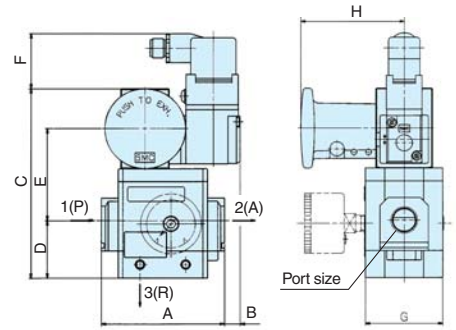


Combination with a modular style FRL is possible.



Dimension AVL2000 to AVL5000 (mm)

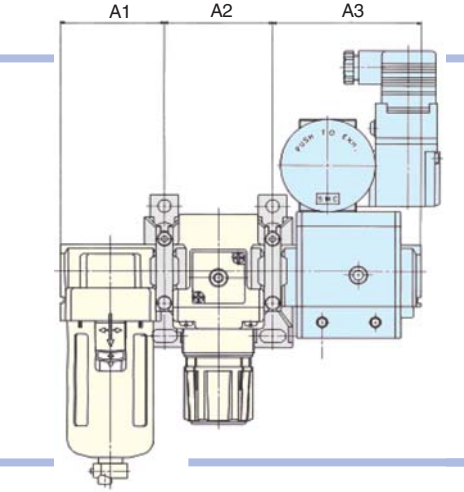
Model	Port size	A	B	C	D	E	F	G	H
AVL2000-*02	1/4	67	–	111	31	55	–	40	64 (Max. 73)
AVL2000-*02-*DZM	1/4	67	20.5	111	31	55	34	40	64 (Max. 73)
AVL3000-*03	3/8	76	–	118	36	57	–	48	64 (Max. 73)
AVL3000-*03-*DZM	3/8	76	12.5	118	36	57	34	48	64 (Max. 73)
AVL4000-*04	1/2	98	–	133	47	61	–	52	64 (Max. 73)
AVL4000-*04-*DZM	1/2	98	–	133	47	61	34	52	64 (Max. 73)
AVL5000-*06 to 10	3/4 & 1	128	–	161	59	77	–	74	64 (Max. 73)
AVL5000-*06 to 10-*DZM	3/4 & 1	128	–	161	59	77	34	74	64 (Max. 73)



AVL2000 push button protrudes by 1mm over the body.

Dimension AC20* to AC60* (mm)

Model	A1	A2	A3
AC20*	41.5	43	67.5
AC25*	55	57	78
AC30*	55	57	78
AC40*	72.5	75	100.5
AC50*	93	96	131
AC55*	98	96	131
AC60*	98	101	131



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