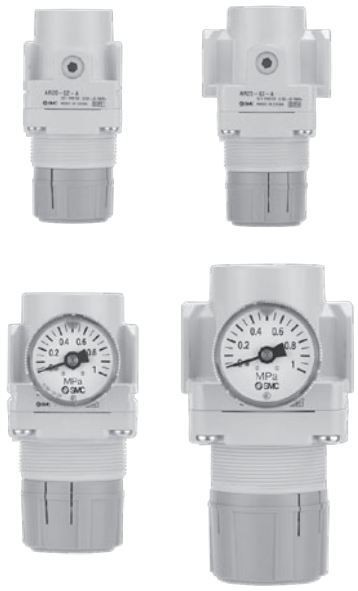
Modular Type Regulators

Series AR

Regulator Series AR



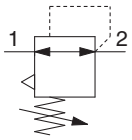
P.45 to 50

Model	Port size	Options
AR20-A	1/8, 1/4	Bracket Round type pressure gauge With set nut (for panel mount)*
AR25-A	1/4, 3/8	
AR30-A		
AR40-A	1/4, 3/8, 1/2	
AR40-06-A	3/4	

* Not interchangeable with existing AR Series.

Regulator
AR20-A to AR40-A

JIS Symbol
Regulator




AR20-A


AR30-A

How to Order

AR **30** – ❶ **03** **BG** – ❺ **-A**
❶ ❷ ❸ ❹ ❺

- Option/Semi-standard: Select one each for **a** to **g**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) AR30-03BG-1N-A

			Symbol	Description	❶ Body size 20	25	30	40
❷	Thread type		**Nil**	Rc	●	●	●	●
			N	NPT	●	●	●	●
			F	G	●	●	●	●
			+					
❸	Port size		**01**	1/8	●	—	—	—
			02	1/4	●	●	●	●
			03	3/8	—	●	●	●
			04	1/2	—	—	—	●
			06	3/4	—	—	—	●
			+					
❹	Option Note 1)	**a** Mounting	**Nil**	Without mounting option	●	●	●	●
			B Note 2)	With bracket	●	●	●	●
			H	With set nut (for panel fitting) Note 3)	●	●	●	●
			+					
		b Pressure gauge Note 4)	**Nil**	Without pressure gauge	●	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●	●
			M	Round type pressure gauge (with color zone)	●	●	●	●
			+					
❺	Semi-standard	**c** Set pressure Note 5)	**Nil**	0.05 to 0.7 MPa setting	●	●	●	●
			1	0.02 to 0.2 MPa setting	●	●	●	●
			+					
		d Exhaust mechanism	**Nil**	Relieving type	●	●	●	●
			N	Non-relieving type	●	●	●	●
			+					
		e Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●
			+					
		f Knob	**Nil**	Downward	●	●	●	●
			Y	Upward	●	●	●	●
			+					
		g Pressure unit	**Nil**	Name plate and pressure gauge in imperial units: MPa	●	●	●	●
			Z Note 6)	Name plate and pressure gauge in imperial units: psi	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)

Note 1) Option B, G, H, M are not assembled and supplied loose at the time of shipment.
Note 2) Assembly of a bracket and set nuts.
Note 3) Only for AR20-A to 40-A.
Note 4) When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.7 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
Note 5) Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
Note 6) For thread type: NPT.
This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)
Round pressure gauge (with color zone): Cannot be used with M. Available by request for special.
Note 7) □: For thread type: NPT only

Standard Specifications

Model	AR20-A	AR25-A	AR30-A	AR40-A	AR40-06-A
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4
Pressure gauge port size	1/8				
Fluid	Air				
Ambient and fluid temperature	– 5 to 60°C (with no freezing)				
Proof pressure	1.5 MPa				
Maximum operating pressure	1.0 MPa				
Set pressure range	0.05 to 0.7 MPa				
Construction	Relieving type				
Weight (kg)	0.17	0.19	0.34	0.58	0.60

Options/Part No.

Optional specifications			Model				
			AR20-A	AR25-A	AR30-A	AR40-A	AR40-06-A
Bracket assembly Note 1)			AR22P-270AS	AR27P-270AS	AR32P-270AS	AR42P-270AS	AR42P-270AS
Set nut			AR22P-260S	AR22P-260S	AR32P-260S	AR42P-260S	AR42P-260S
Pressure gauge	Round type Note 2)	Standard	G36-10-□01			G46-10-□01	
		0.02 to 0.2 MPa setting	G36-4-□01			G46-4-□01	
	Round type (with color zone) Note 2)	Standard	G36-10-□01-L			G46-10-□01-L	
		0.02 to 0.2 MPa setting	G36-4-□01-L			G46-4-□01-L	

Note 1) Assembly of a bracket and set nuts
Note 2) □ in part numbers for a round pressure gauge indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the connection thread NPT and pressure gauge supply for psi unit specifications.

⚠ Specific Product Precautions

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Please download it via our website, http://www.smcworld.com

Selection

⚠ Warning

1. Although exhaust of the residual pressure to the inlet side is possible when eliminating the inlet pressure, exhaust is not possible when the set pressure is 0.15 MPa or less. Use the regulator with backflow function.

Maintenance

⚠ Warning

1. When using the regulator between a solenoid valve and an actuator, check the pressure gauge periodically. Sudden pressure fluctuations may shorten the durability of the pressure gauge. A digital pressure gauge is recommended for such situation or as deemed necessary.

Mounting and Adjustment

⚠ Warning

1. Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.
2. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).

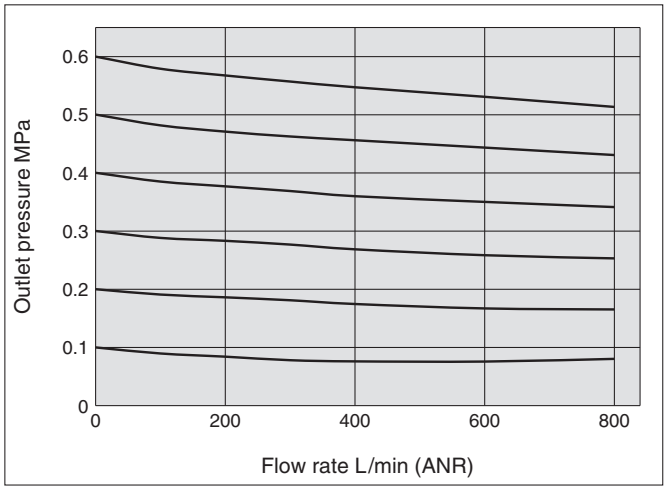
2. Pulsation will be generated when the difference between the inlet and the outlet pressure is large. In this case, reduce the pressure difference between the inlet and the outlet. Consult SMC if the pulsation problem is not resolved.

Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

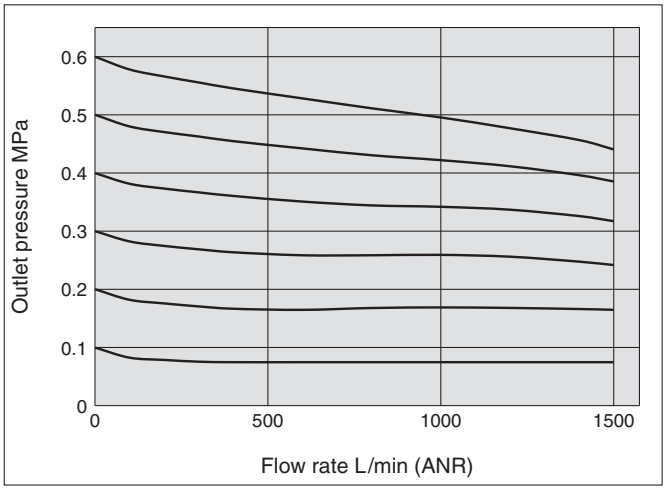
AR20-A

Rc 1/4



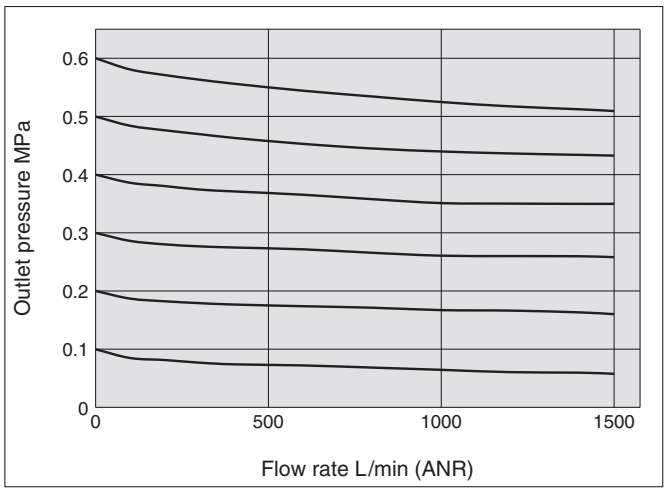
AR25-A

Rc 3/8



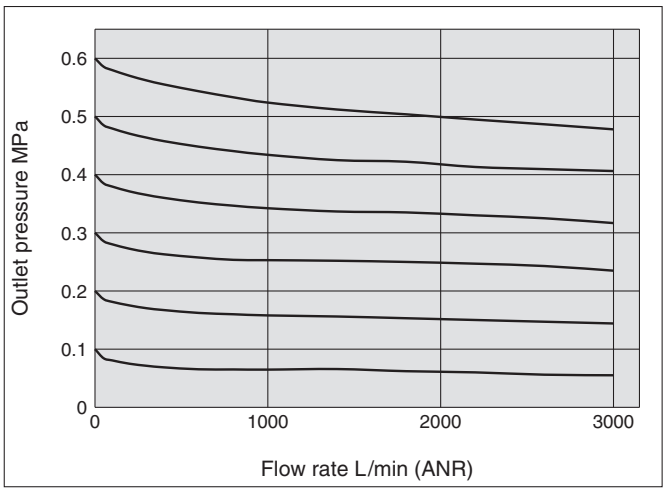
AR30-A

Rc 3/8



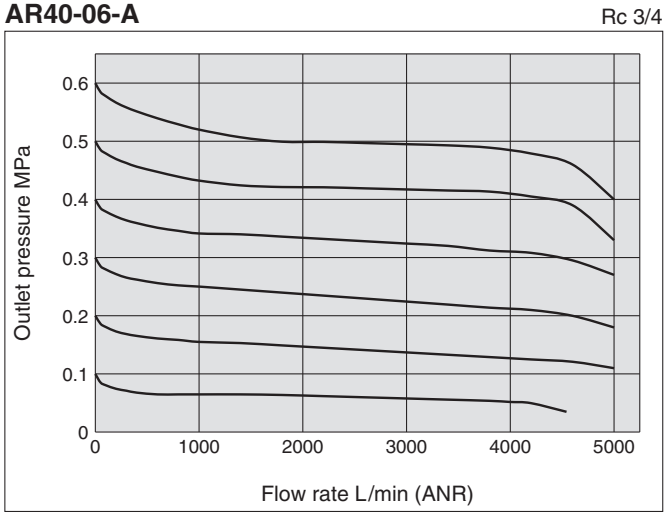
AR40-A

Rc 1/2



AR40-06-A

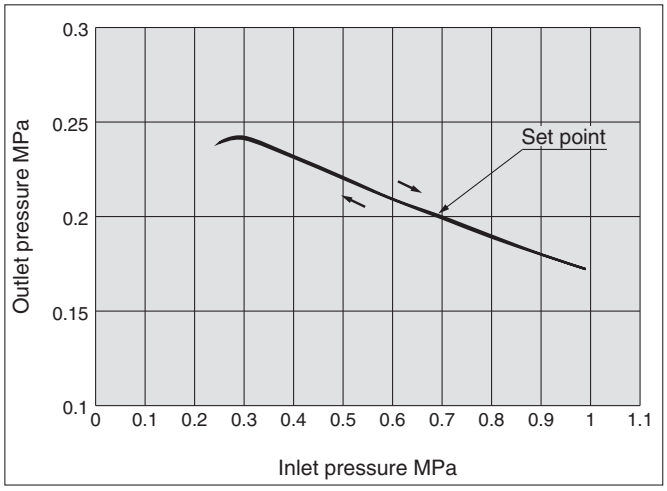
Rc 3/4



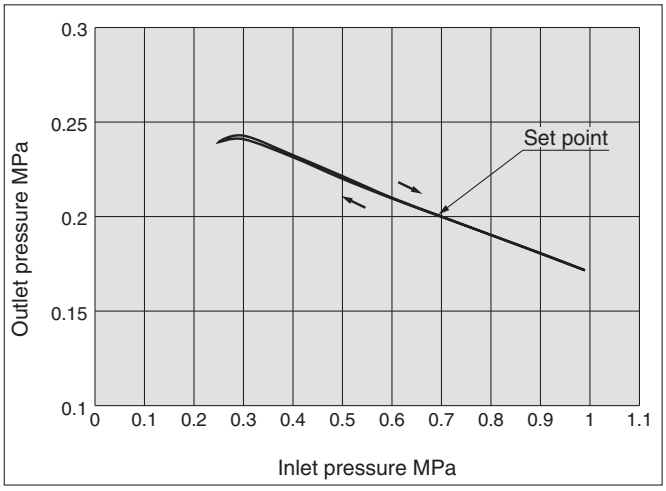
Pressure Characteristics (Representative values)

Conditions: Inlet pressure 0.7 MPa, Outlet pressure 0.2 MPa, Flow rate 20 L/min (ANR)

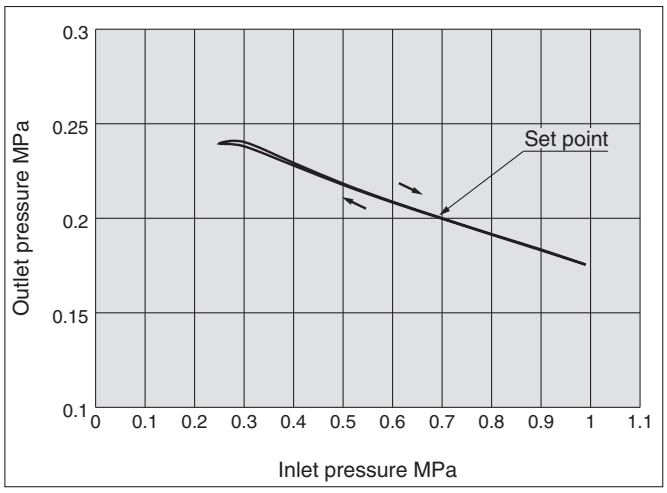
AR20-A



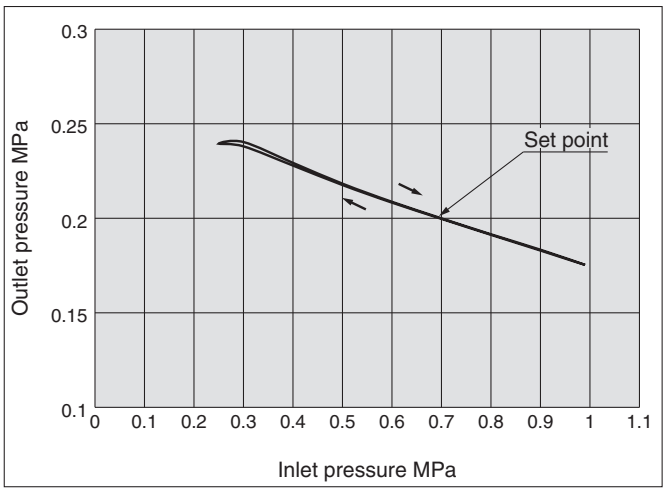
AR25-A



AR30-A

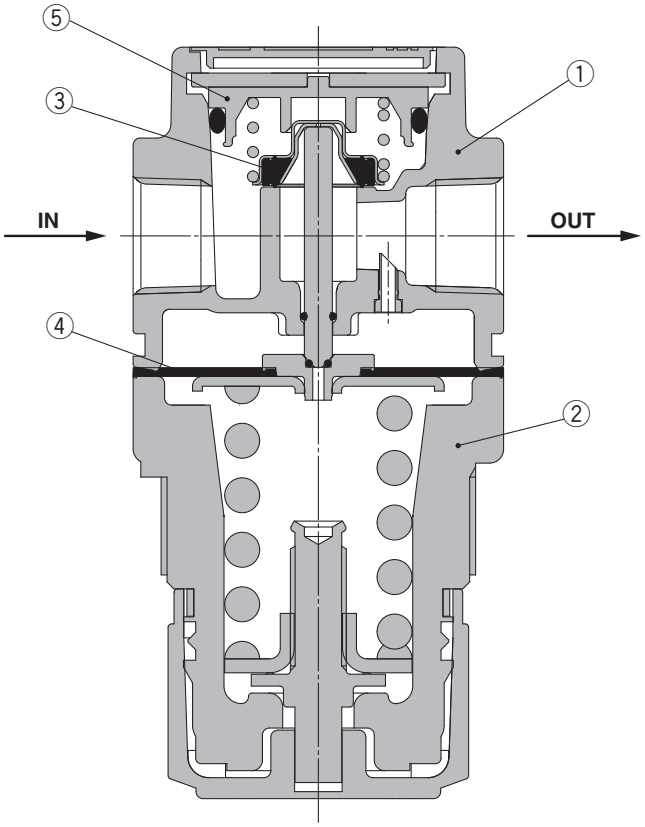


AR40-A/AR40-06-A



Construction

AR20-A to 40-06-A



Component Parts

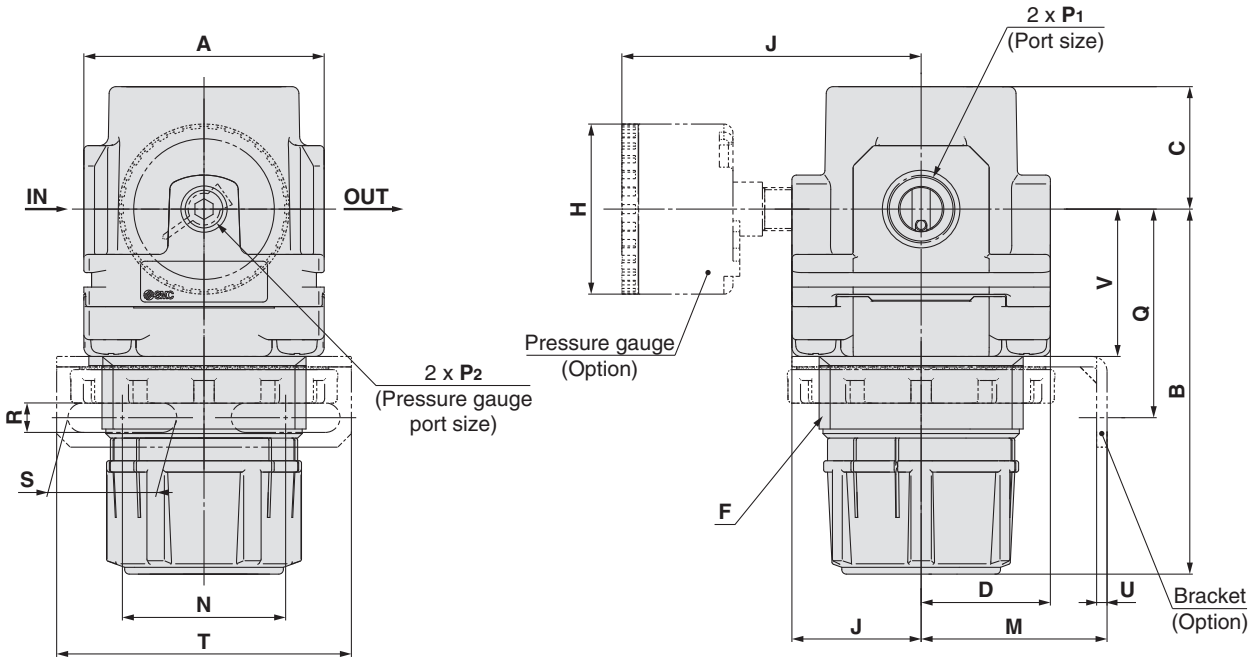
No.	Description	Material	Color
1	**Body**	Aluminum die-cast	White
2	**Bonnet**	Polyacetal	White

Replacement Parts

No.	Description	Material	Part no.				
			AR20-A	**AR25-A**	**AR30-A**	**AR40-A**	**AR40-06-A**
3	**Valve assembly**	Stainless steel, HNBR	AR22P-060AS		AR32P-060AS	AR42P-060AS	
4	**Diaphragm assembly**	Weatherable NBR	AR22P-150AS		AR32P-150AS	AR42P-150AS	
5	**Valve guide assembly**	Polyacetal	AR22P-050AS		AR32P-050AS	AR42P-050AS	

Dimensions

AR20-A to AR40-06-A



Panel fitting dimension

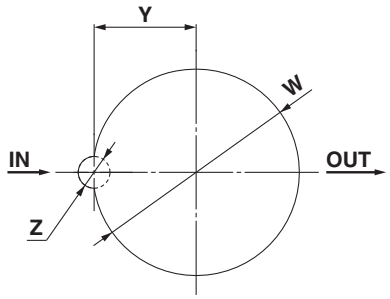


Plate thickness
AR20-A to AR25-A : MAX.4
AR30-A to AR40-06-A: MAX.8

Model	Standard specifications								Optional specifications													
									Round type pressure gauge		Round type pressure gauge (with color zone)		Bracket mount							Panel mount		
	P_1	P_2	A	B[Note]	C	D	F	J	H	J	H	J	M	N	Q	R	S	T	U	V	W	Y	Z
AR20-A	1/8, 1/4	1/8	40	67.4	23.5	22	M36 x 1.5	22	ø37.5	58.5	ø37.5	59.5	30	34	43.9	5.4	15.4	55	2.3	27.3	36.5	17.5	6
AR25-A	1/4, 3/8	1/8	53	70.4	23.5	22	M36 x 1.5	22	ø37.5	58.5	ø37.5	59.5	30	34	44.3	5.4	15.4	55	2.3	30.3	36.5	17.5	6
AR30-A	1/4, 3/8	1/8	53	83.5	27	28.5	M45 x 1.5	28.5	ø37.5	65	ø37.5	66	41	36	46	6.5	24	65	2.3	32.5	45.5	22.5	7
AR40-A	1/4, 3/8, 1/2	1/8	70	100	33.5	34.5	M52 x 1.5	34.5	ø42.5	72	ø42.5	72	50	38	54	8.5	26.5	70	2.3	38.4	52.5	26	7
AR40-06-A	3/4	1/8	75	101.5	33.5	34.5	M52 x 1.5	34.5	ø42.5	72	ø42.5	72	50	38	55.5	8.5	26.5	70	2.3	39.9	52.5	26	7

Note) The total length of B dimension is the length when the filter regulator knob is unlocked.

Modular Type Lubricators

Series AL

Lubricator
Series AL

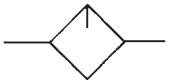
P.53 to 57

Model	Port size	Option
AL20-A	1/8, 1/4	Bracket
AL30-A	1/4, 3/8	
AL40-A	1/4, 3/8, 1/2	
AL40-06-A	3/4	

Lubricator

AL20-A to AL40-A

JIS Symbol



AL20-A **AL40-A**

How to Order

AL ❶**30** – ❷ ❸**03** ❹**B** – ❺ **–A**

- Option/Semi-standard: Select one each for **a** to **d**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) AL30-03B-R-A

		Symbol	Description	❶ Body size 20	❶ Body size 30	❶ Body size 40
❷	Thread type	**Nil**	Rc	●	●	●
		N	NPT	●	●	●
		F	G	●	●	●
		+				
❸	Port size	**01**	1/8	●	—	—
		02	1/4	●	●	●
		03	3/8	—	●	●
		04	1/2	—	—	●
		06	3/4	—	—	●
		+				
❹	Option (Mounting)	**Nil**	Without mounting option	●	●	●
		B Note 1)	With bracket	●	●	●
		+				
❺ Semi-standard	**a** Bowl	**Nil**	Polycarbonate bowl	●	●	●
		C	With bowl guard	●	— Note 2)	— Note 2)
		+				
	b Lubricant exhaust port	**Nil**	Without drain cock	●	●	●
		3	With drain cock	●	●	●
		3W	Drain cock with barb fitting (for ø6 x ø4 nylon tube)	—	●	●
		+				
	c Flow direction	**Nil**	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	d Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●
		Z Note 3)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 4)	○ Note 4)	○ Note 4)

Note 1) Option B is not assembled and supplied loose at the time of shipment.
Note 2) Standard material (polycarbonate)
Note 3) For thread type: NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)
Note 4) ○: For thread type: NPT only

Standard Specifications

Model	AL20-A	AL30-A	AL40-A	AL40-06-A
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Fluid	Air			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Ambient and fluid temperature	– 5 to 60°C (with no freezing)			
Minimum dripping flow rate [L/min (ANR)] Note)	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50
Oil capacity (cm³)	25	55	135	
Recommended lubricant	Class 1 turbine oil (ISO VG32)			
Bowl material	Polycarbonate			
Bowl guard	Semi-standard (Steel)	Standard (Polycarbonate)		
Weight (kg)	0.10	0.20	0.38	0.43

Note) • The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully opened.
• Use air consumption flow rate for minimum dripping flow rate.

Option/Part No.

Optional specifications	Model			
	AL20-A	**AL30-A**	**AL40-A**	**AL40-06-A**
Bracket assembly Note)	AF22P-050AS	AF32P-050AS	AF42P-050AS	AF42P-070AS

Note) Assembly of a bracket and 2 mounting screws.

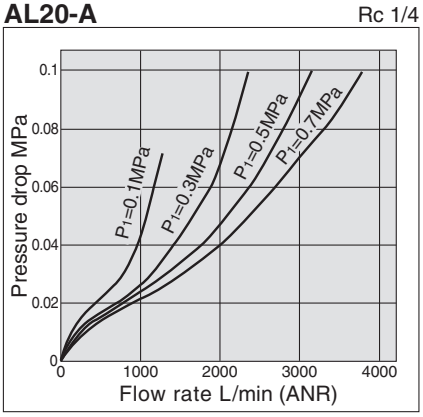
Semi-standard/Bowl Assembly Part No.

Semi-standard specifications				Model			
Bowl material	With drain cock	With barb fitting	With bowl guard	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**
Polycarbonate	●	—	—	C2SL-3-A	C3SL-3-A	C4SL-3-A	
	—	—	●	C2SL-C-A	—	—	
	●	—	●	C2SL-3C-A	—	—	
	●	●	—	—	C3SL-3W-A	C4SL-3W-A	

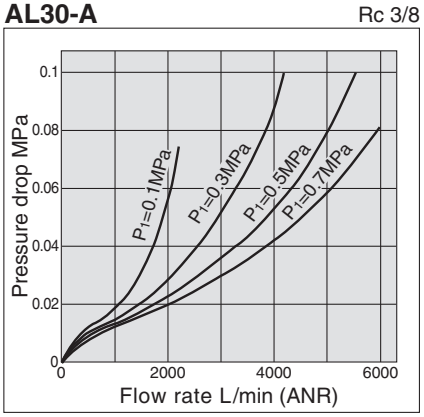
Note) • The bowl assembly includes the bowl O-ring.
• Please consult with SMC separately for psi and °F unit display specifications.

Flow Characteristics (Representative values)

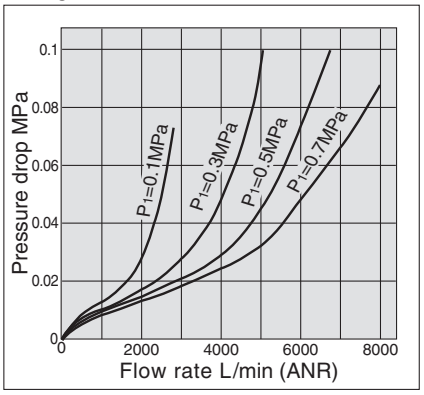
AL20-A Rc 1/4



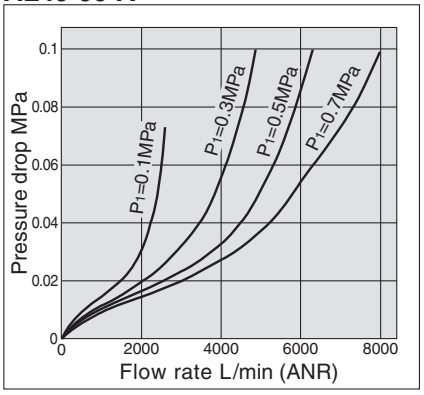
AL30-A Rc 3/8



AL40-A Rc 1/2



AL40-06-A Rc 3/4



⚠ Specific Product Precautions

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and the Operation Manual for F.R.L. Precautions. Please download it via our website, http://www.smcworld.com

Selection

⚠Warning

1. Do not introduce air from the outlet side as this can damage the damper.
2. **The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator and bowl guard are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

Effects of atmosphere of organic solvents and chemicals, and where these elements are likely to adhere to the equipment. Chemical data for substances causing degradation (Reference)

Type	Chemical name	Application examples	Material: Polycarbonate
Acid	Hydrochloric acid Sulfuric acid, Phosphoric acid Chromic acid	Acid washing liquid for metals	△
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×
Inorganic salts	Sodium sulfide Sulfate of potash Sulfate of soda	—	×
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	△
Oil	Gasoline Kerosene	—	×
Ester	Phthalic acid dimethyl Phthalic acid dimethyl Acetic acid	Synthetic oil Anti-rust additives	×
Ether	Methyl ether Ethyl ether	Brake oil additives	×
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×
Other	Thread-lock fluid Seawater Leak tester	—	×

△ : Some effects may occur × : Effects will occur

⚠Caution

1. Use a check valve (Series AKM) to prevent back flow of the lubricant when redirecting the air flow before the lubricator.

Maintenance

⚠Warning

1. For the AL20-A type, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.
2. Adjustment of the oil regulating valve for models from the AL20-A to AL40-A should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools, etc. can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Please do not rotate it any further than this. Note that the numbered scale markings are guidelines for adjusting the position, and not indicators of the dripping amount.

⚠Caution

1. Check the dripping amount once a day. Drip failure can cause damage to the components that need lubrication.

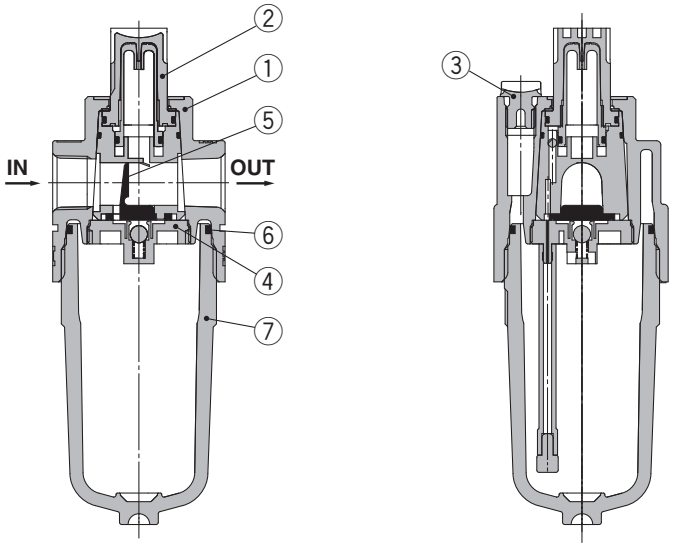
Mounting and Adjustment

⚠Caution

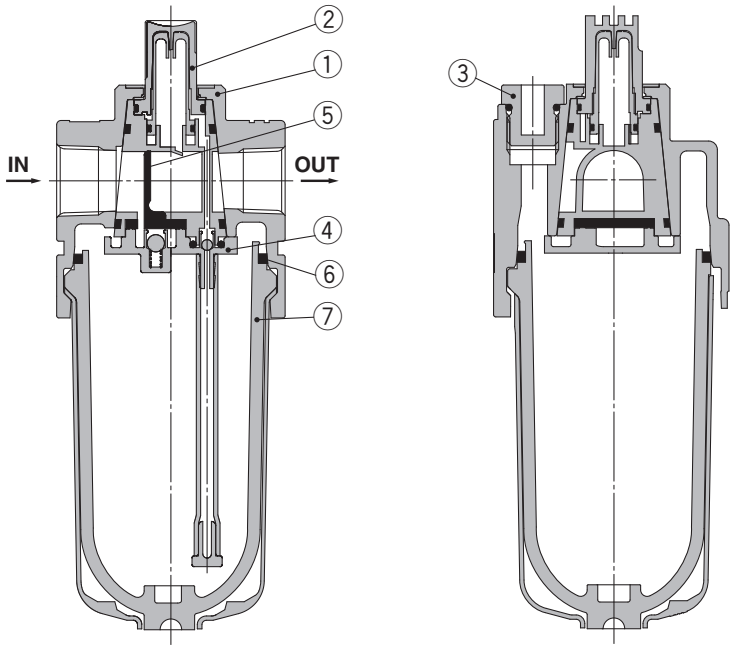
1. When the bowl is installed, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

Construction

AL20-A



AL30-A, AL40-A



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Aluminum die-cast	AL20-A to AL40-A	White

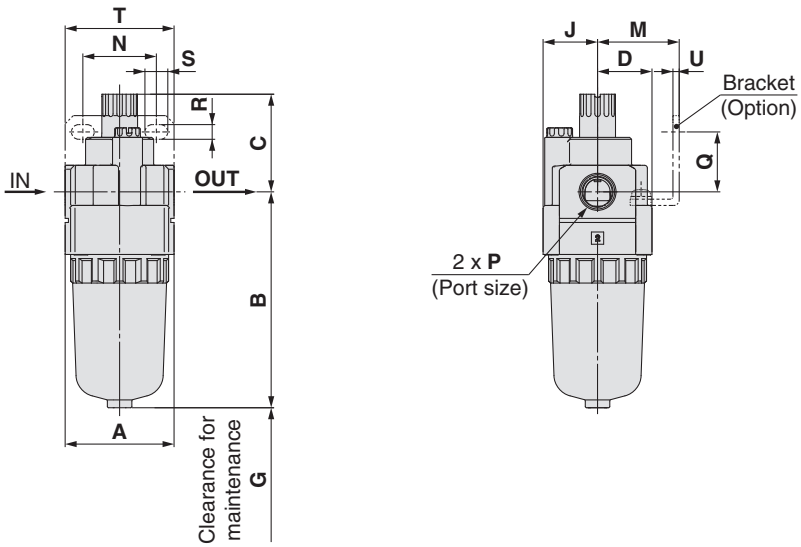
Replacement Parts

No.	Description	Material	Part no.			
			AL20-A	**AL30-A**	**AL40-A**	**AL40-06-A**
2	**Sight dome assembly**	Polycarbonate	AL20P-080AS			
3	**Lubrication plug assembly**	—	AL22P-060AS	AL32P-060AS	AL42P-060AS	
4	**Damper retainer assembly**	—	AL20P-030AS	AL30P-030AS	AL40P-030AS	
5	**Damper (assembly)**	Synthetic resin	AL20P-040S	AL30P-040S	AL40P-040S	
6	**Bowl seal**	NBR	C2SFP-260S	C32FP-260S	C42FP-260S	
7	**Bowl assembly** Note)	Polycarbonate	C2SL-A	C3SL-A	C4SL-A	

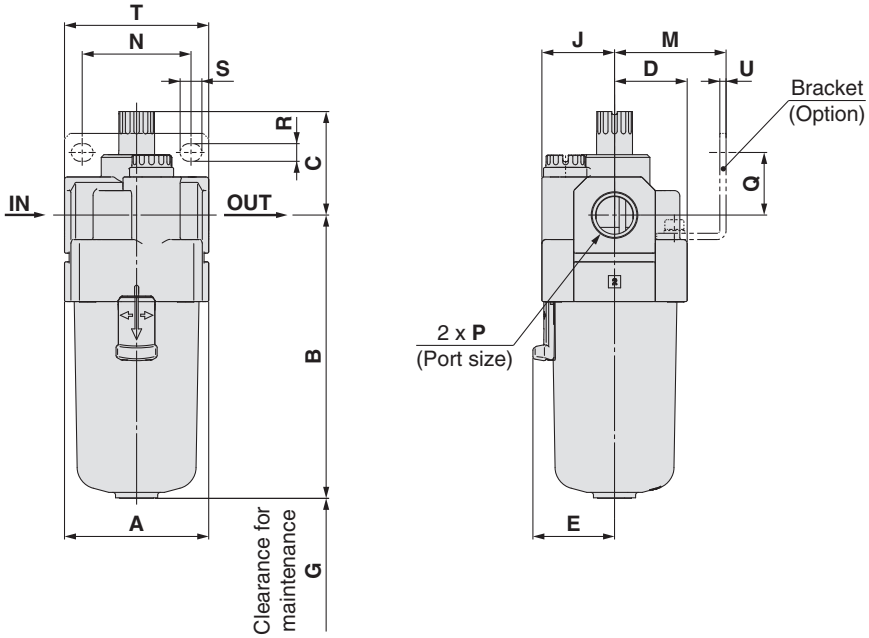
Note) Bowl seal is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.

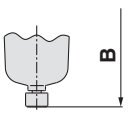
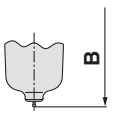
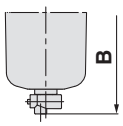
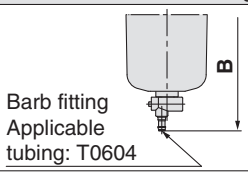
Dimensions

AL20-A



AL30-A, AL40-A



Applicable model	AL20-A		AL30-A to AL40-A	
Optional/Semi-standard specifications	With drain cock	Metal bowl with drain cock	With drain cock	Drain cock with barb fitting
Dimensions				

Model	Standard specifications								Optional specifications						
									Bracket mount						
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U
AL20-A	1/8, 1/4	40	79.3	35.9	20	—	60	20	30	27	22	5.4	8.4	40	2.3
AL30-A	1/4, 3/8	53	104.1	38.1	26.7	30	80	26.7	41	40	23	6.5	8	53	2.3
AL40-A	1/4, 3/8, 1/2	70	136.1	39.8	35.5	38.4	110	35.5	50	54	26	8.5	10.5	70	2.3
AL40-06-A	3/4	75	138.1	37.8	35.5	38.4	110	35.5	50	54	25	8.5	10.5	70	2.3

Model	Semi-standard specifications	
	With drain cock	With barb fitting
	B	B
AL20-A	87.7	—
AL30-A	115.1	123.6
AL40-A	147.1	155.6
AL40-06-A	149.1	157.6

Modular Type
Filter Regulators
Series AW

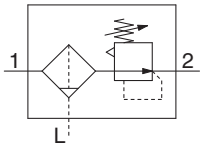
Filter Regulator
Series AW

P.59 to 65

Model	Port size	Options
AW20-A	1/8, 1/4	Bracket Float type auto drain Round type pressure gauge With set nut (for panel mount)*
AW30-A	1/4, 3/8	
AW40-A	1/4, 3/8, 1/2	
AW40-06-A	3/4	* Mounting pitch is different from existing AW Series.

Filter Regulator
AW20-A to AW40-A

JIS Symbol
Filter Regulator



• Integrated filter and regulator units save space and require less piping.

How to Order

AW 30 – ❷ 03 BG – ❺ –A
❶ ❷ ❸ ❹ ❺

• Option/Semi-standard: Select one each for **a** to **i**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AW30-03BG-1N-A

			Symbol	Description	❶ Body size 20	30	40
❷	With backflow function		**Nil**	Rc	●	●	●
			N Note 1)	NPT	●	●	●
			F Note 2)	G	●	●	●
			+				
❸	Thread type		**01**	1/8	●	—	—
			02	1/4	●	●	●
			03	3/8	—	●	●
			04	1/2	—	—	●
			06	3/4	—	—	●
			+				
❹ Option Note 3)	**a**	Mounting	**Nil**	Without mounting option	●	●	●
			B Note 4)	With bracket	●	●	●
			H	With set nut (for panel mount)	●	●	●
			+				
	b	Float type auto drain	**Nil**	Without auto drain	●	●	●
			C Note 5)	N.C. (Normal close) Drain port is closed when pressure is not applied.	●	●	●
			D Note 6)	N.O. (Normal open) Drain port is open when pressure is not applied.	—	●	●
			+				
	c	Pressure gauge Note 7)	**Nil**	Without pressure gauge	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●
			M	Round type pressure gauge (with color zone)	●	●	●
			+				
❺ Semi-standard	**d**	Set pressure Note 8)	**Nil**	0.05 to 0.7 MPa setting	●	●	●
			1	0.02 to 0.2 MPa setting	●	●	●
			+				
	e	Bowl Note 9)	**Nil**	Polycarbonate bowl	●	●	●
			C	With bowl guard	●	— Note 10)	— Note 10)

AW20-A **AW40-A**

		Symbol	Description	❶ Body size 20	30	40
❺ Semi-standard	f Drain port	**Nil**	With drain cock	●	●	●
		J Note 11)	Drain guide 1/8	●	—	—
			Drain guide 1/4	—	●	●
		W	Drain cock with barb fitting (for ø6 x ø4 nylon tube)	—	●	●
		+				
	g Exhaust mechanism	**Nil**	Relieving type	●	●	●
		N	Non-relieving type	●	●	●
		+				
	h Flow direction	**Nil**	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	i Pressure unit	**Nil**	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa	●	●	●
		Z Note 12)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 13)	○ Note 13)	○ Note 13)

Note 1) Drain guide is NPT 1/8 (applicable to the AW20-A) and NPT 1/4 (applicable to the AW30-A to AW40-A). The auto drain port comes with ø3/8" One-touch fitting (applicable to the AW30-A to AW40-A).

Note 2) Drain guide is G 1/8 (applicable to the AW20-A) and G 1/4 (applicable to the AW30-A to AW40-A).

Note 3) Option B, G, H, M are not assembled and supplied loose at the time of shipment.

Note 4) Assembly of a bracket and set nuts.

Note 5) When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.

Note 6) If the compressor is small (0.75 kW, discharge flow is less than 100 L/min[ANR]), air leakage from the drain cock may occur during start of operations. N.C. type is recommended.

Note 7) When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.7 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.

Note 8) Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

Note 9) Refer to Chemical data on page 62 for chemical resistance of the bowl.

Note 10) Standard material (polycarbonate)

Note 11) Without a valve function

Note 12) For thread type: NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Note 13) ○: For thread type: NPT only

Standard Specifications

Model	AW20-A	AW30-A	AW40-A	AW40-06-A
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Pressure gauge port size	1/8			
Fluid	Air			
Ambient and fluid temperature	–5 to 60°C (with no freezing)			
Proof pressure	1.5 MPa			
Maximum operating pressure	1.0 MPa			
Set pressure range	0.05 to 0.7 MPa			
Nominal filtration rating	5 μm			
Drain capacity (cm³)	8	25	45	
Bowl material	Polycarbonate			
Bowl guard	Semi-standard (Steel)	Standard (Polycarbonate)		
Construction	Relieving type			
Weight (kg)	0.21	0.41	0.75	0.81

Options/Part No.

Optional specifications			Model			
			AW20-A	AW30-A	AW40-A	AW40-06-A
Bracket assembly Note 1)			AR22P-270AS	AR32P-270AS	AR42P-270AS	
Set nut			AR22P-260S	AR32P-260S	AR42P-260S	
Pressure gauge	Round type Note 2)	Standard	G36-10-□01		G46-10-□01	
		0.02 to 0.2 MPa setting	G36-4-□01		G46-4-□01	
	Round type Note 2) (with color zone)	Standard	G36-10-□01-L		G46-10-□01-L	
		0.02 to 0.2 MPa setting	G36-4-□01-L		G46-4-□01-L	
Float type auto drain Note 3) Note 4)		N.C.	AD27-A	AD37-A	AD47-A	
		N.O.	—	AD38-A	AD48-A	

Semi-standard/Bowl Assembly Part No.

Semi-standard specifications						Model			
Bowl material	Float type auto drain Note 3) Note 4)		With drain guide Note 4)	With barb fitting	With bowl guard	AW20-A	AW30-A	AW40-A	AW40-06-A
	N.C.	N.O.							
Polycarbonate	—	—	—	—	●	C2SF-C-A	—	—	
	●	—	—	—	●	AD27-C-A	—	—	
	—	—	●	—	—	C2SF-J-A	C3SF-J-A	C4SF-J-A	
	—	—	—	●	—	—	C3SF-W-A	C4SF-W-A	
	—	—	●	—	●	C2SF-CJ-A	—	—	

Note 1) Assembly of a bracket and set nuts
Note 2) □ in part numbers for a round pressure gauge indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the connection thread NPT and pressure gauge supply for psi unit specifications.
Note 3) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27-A) and 0.15 MPa (AD37-A/47-A).
Please consult with SMC separately for psi and °F unit display specifications.
Note 4) Please consult SMC for details on drain piping to fit NPT or G port sizes.
The bowl assembly includes the bowl O-ring.

⚠ Specific Product Precautions

Be sure to read before handling. Refer to back cover for Safety Instructions, "Handling Precautions for SMC Products" (M-E03-3) and the Operation Manual for F.R.L. Precautions.
Please download it via our website, http://www.smcworld.com

Design / Selection

⚠ Warning

1. Although exhaust of the residual pressure to the inlet side is possible when eliminating the inlet pressure, exhaust is not possible when the set pressure is 0.15 MPa or less. Use the regulator with backflow function.

2. The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator and bowl guard are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

Effects of atmosphere of organic solvents and chemicals, and where these elements are likely to adhere to the equipment.
Chemical data for substances causing degradation (Reference)

Type	Chemical name	Application examples	Material
			Polycarbonate
Acid	Hydrochloric acid Sulfuric acid, Phosphoric acid Chromic acid	Acid washing liquid for metals	△
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×
Inorganic salts	Sodium sulfide Sulfate of potash Sulfate of soda	—	×
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	△
Oil	Gasoline Kerosene	—	×
Ester	Phthalic acid dimethyl Phthalic acid dimethyl Acetic acid	Synthetic oil Anti-rust additives	×
Ether	Methyl ether Ethyl ether	Brake oil additives	×
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerato	×
Other	Thread-lock fluid Seawater Leak tester	—	×

△ : Some effects may occur × : Effects will occur

Maintenance

⚠ Warning

1. Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

Mounting and Adjustment

⚠ Warning

1. Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.
2. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

Mounting and Adjustment

⚠ Caution

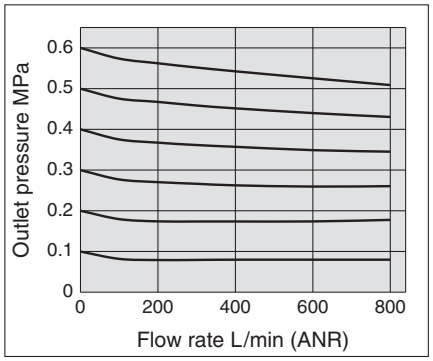
1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).

2. Pulsation will be generated when the difference between the inlet and the outlet pressure is large. In this case, reduce the pressure difference between the inlet and the outlet. Consult SMC if the pulsation problem is not resolved.
3. When the bowl is installed, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

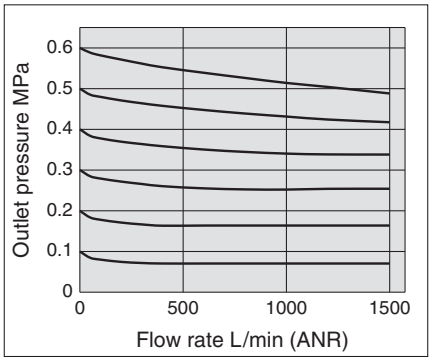
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

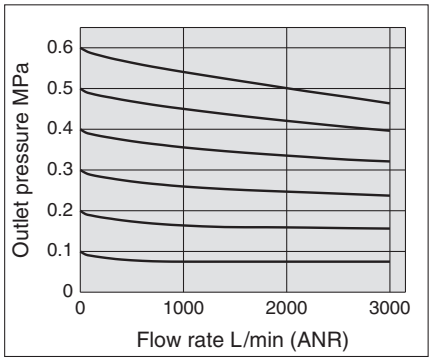
AW20-A Rc 1/4



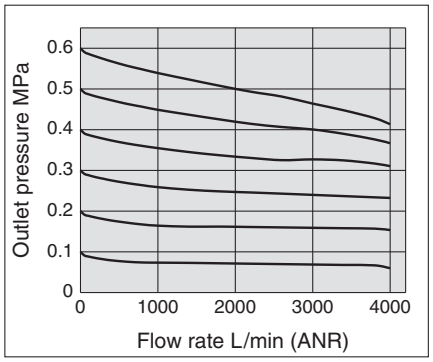
AW30-A Rc 3/8



AW40-A Rc 1/2



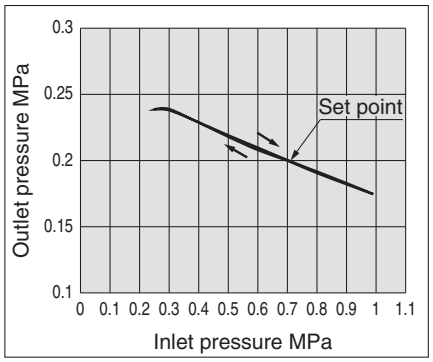
AW40-06-A Rc 3/4



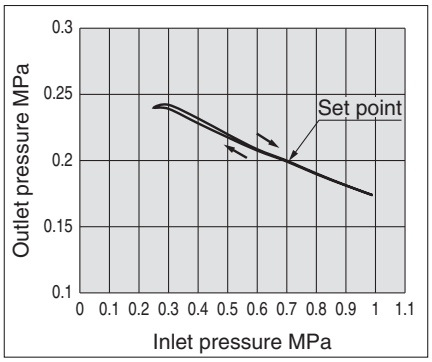
Pressure Characteristics (Representative values)

Conditions: Inlet pressure 0.7 MPa, Outlet pressure 0.2 MPa, Flow rate 20 L/min (ANR)

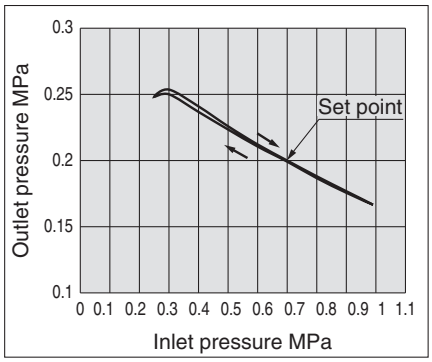
AW20-A



AW30-A

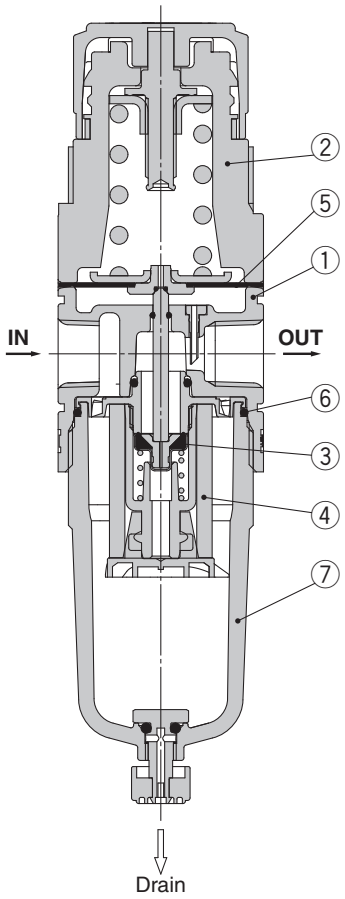


AW40-A/AW40-06-A

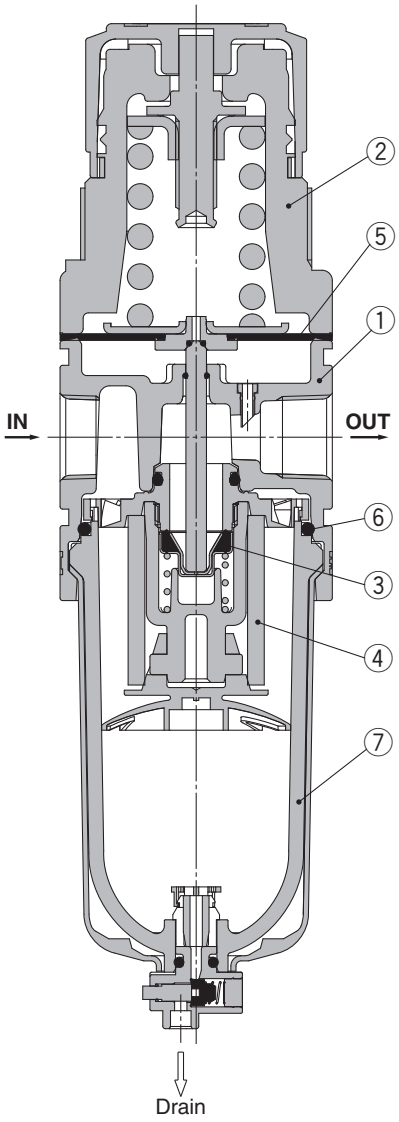


Construction

AW20-A



AW30-A to AW40-06-A



Component Parts

No.	Description	Material	Color
1	**Body**	Aluminum die-cast	White
2	**Bonnet**	Polyacetal	White

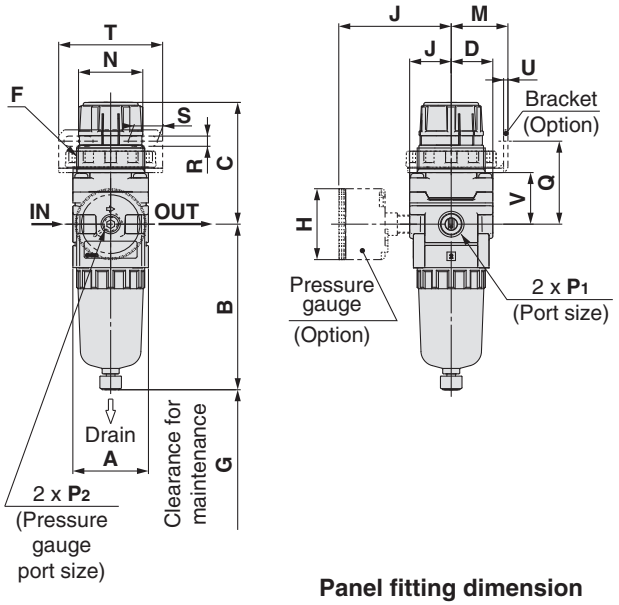
Replacement Parts

No.	Description	Material	Part no.			
			AW20-A	**AW30-A**	**AW40-A**	**AW40-06-A**
3	**Valve assembly**	Stainless steel, HNBR	AW22P-060AS	AW32P-060AS	AW42P-060AS	
4	**Filter element**	Non-woven fabric	AF20P-060S	AF30P-060S	AF40P-060S	
5	**Diaphragm assembly**	Weatherable NBR	AR22P-150AS	AR32P-150AS	AR42P-150AS	
6	**Bowl seal**	NBR	C2SFP-260S	C32FP-260S	C42FP-260S	
7	**Bowl assembly** Note)	Polycarbonate	C2SF-A	C3SF-A	C4SF-A	

Note) Bowl seal is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.

Dimensions

AW20-A



Panel fitting dimension

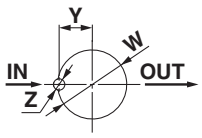
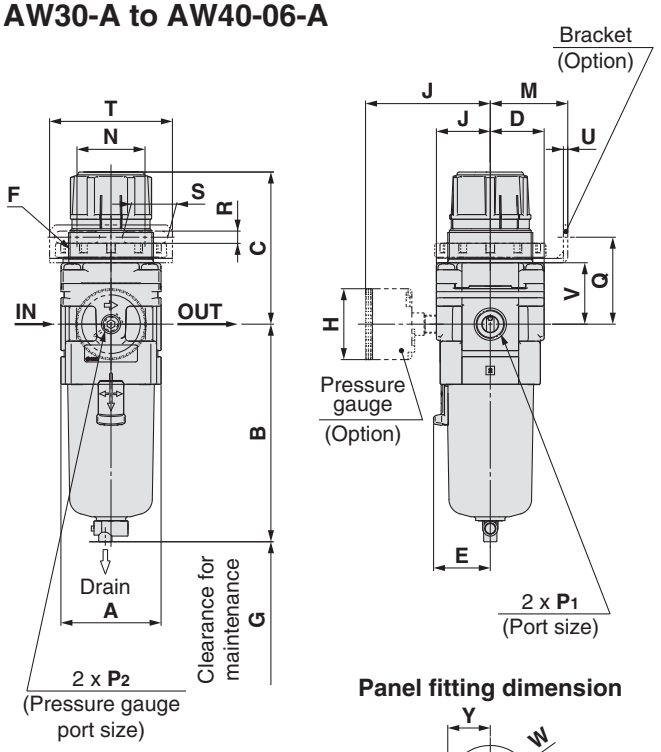


Plate thickness
AW20-A : Max.4

AW30-A to AW40-06-A



Panel fitting dimension

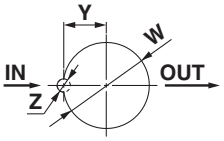
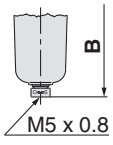
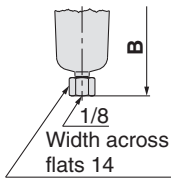
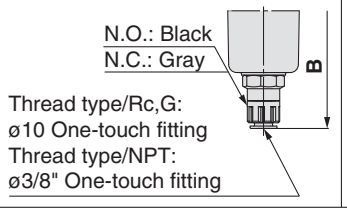
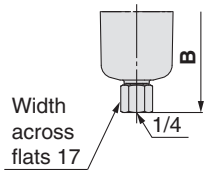
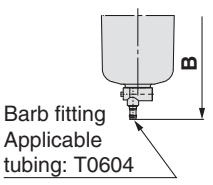


Plate thickness
AW30-A to AW40-06-A : MAX.8

Applicable model	AW20-A		AW30-A to AW40-A		
Optional/Semi-standard specifications	With auto drain (N.C.)	With drain guide	With auto drain (N.O./N.C.)	With drain guide	Drain cock with barb fitting
Dimensions					

Model	Standard specifications										Optional specifications			
											Round type pressure gauge		Round type pressure gauge (with color zone)	
	P1	P2	A	B	C Note)	D	E	F	G	J	H	J	H	J
AW20-A	1/8, 1/4	1/8	40	87.6	67.4	22	—	M36 x 1.5	25	22	ø37.5	58.5	ø37.5	59.5
AW30-A	1/4, 3/8	1/8	53	115.1	83.5	28.5	30	M45 x 1.5	35	28.5	ø37.5	65	ø37.5	66
AW40-A	1/4, 3/8, 1/2	1/8	70	147.1	100	34.5	38.4	M52 x 1.5	40	34.5	ø42.5	72	ø42.5	72
AW40-06-A	3/4	1/8	75	149.1	101.5	34.5	38.4	M52 x 1.5	40	34.5	ø42.5	72	ø42.5	72

Model	Optional specifications												Semi-standard specifications	
	Bracket mount							Panel mount				With auto drain	With barb fitting	With drain guide
	M	N	Q	R	S	T	U	V	W	Y	Z	B	B	B
AW20-A	30	34	43.9	5.4	15.4	55	2.3	27.3	36.5	17.5	6	104.9	—	91.4
AW30-A	41	36	46	6.5	24	65	2.3	32.5	45.5	22.5	7	156.8	123.6	121.9
AW40-A	50	38	54	8.5	26.5	70	2.3	38.4	52.5	26	7	186.9	155.6	153.9
AW40-06-A	50	38	55.5	8.5	26.5	70	2.3	39.9	52.5	26	7	188.9	157.6	155.9

Note) The total length of C dimension is the length when the filter regulator knob is unlocked.

⚠ 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.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ 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. **Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.**
   1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
   2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
   3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
   4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. **The product is provided for use in manufacturing industries.**
   The product herein described is basically provided for peaceful use in manufacturing industries.
   If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
   If anything is unclear, contact your nearest sales branch.

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.*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.

⚠ Safety Instructions | Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.

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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.
D-G
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