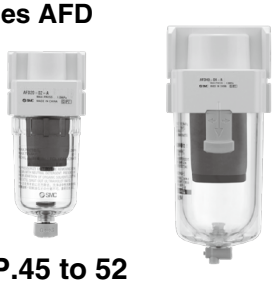
Modular Type
Air Filters
Series AF/AFM/AFD

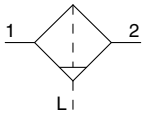
	Model	Port size	Filtration μm	Options
Air Filter Series AF  **P.35 to 43**	**AF10-A**	M5 x 0.8	5	Bracket (Except AF10-A) Float type auto drain
	AF20-A	1/8, 1/4		
	AF30-A	1/4, 3/8		
	AF40-A	1/4, 3/8, 1/2		
	AF40-06-A	3/4		
	AF50-A	3/4, 1		
	AF60-A	1		
Mist Separator Series AFM  **P.45 to 52**	**AFM20-A**	1/8, 1/4	0.3	Bracket Float type auto drain
	AFM30-A	1/4, 3/8		
	AFM40-A	1/4, 3/8, 1/2		
	AFM40-06-A	3/4		
Micro Mist Separator Series AFD  **P.45 to 52**	**AFD20-A**	1/8, 1/4	0.01	Bracket Float type auto drain
	AFD30-A	1/4, 3/8		
	AFD40-A	1/4, 3/8, 1/2		
	AFD40-06-A	3/4		

Air Filter

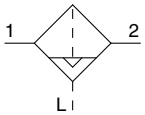
AF10-A to AF60-A

Symbol

Air Filter



Air Filter with Auto Drain





AF10-A



AF20-A



AF40-A

How to Order

AF **30** – ❷ **03** **BD** – ❺ – **A** – ☐

❶ ❷ ❸ ❹ ❺ **Made to Order** ●

(Refer to pages 42 and 43 for details.)

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

Example) AF30-03BD-R-A

			Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Pipe thread type		**Nil**	Metric thread (M5)	●	—	—	—	—	—
				Rc	—	●	●	●	●	●
			N Note 1)	NPT	—	●	●	●	●	●
			F Note 2)	G	—	●	●	●	●	●
			+							
❸	Port size		**M5**	M5 x 0.8	●	—	—	—	—	—
			01	1/8	—	●	—	—	—	—
			02	1/4	—	●	●	●	—	—
			03	3/8	—	—	●	●	—	—
			04	1/2	—	—	—	●	—	—
			06	3/4	—	—	—	●	●	—
			10	1	—	—	—	—	●	●
			+							
❹	Option	**a** Mounting	**Nil**	Without mounting option	●	●	●	●	●	●
			B Note 3)	With bracket	—	●	●	●	●	●
			+							
		b Float type auto drain	**Nil**	Without auto drain	●	●	●	●	●	●
			C Note 4)	N.C. (Normally closed) Drain port is closed when pressure is not applied.	●	●	●	●	●	●
			D Note 5)	N.O. (Normally open) Drain port is open when pressure is not applied.	—	—	●	●	●	●
			+							
❺	Semi-standard	**c** Bowl Note 6)	**Nil**	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●	●
			C	With bowl guard	—	●	— Note 7)	— Note 7)	— Note 7)	— Note 7)
			6C	With bowl guard (Nylon bowl)	—	●	— Note 8)	— Note 8)	— Note 8)	— Note 8)
			+							
		d Drain port Note 9)	**Nil**	With drain cock	●	●	●	●	●	●
			J Note 10)	Drain guide 1/8	—	●	—	—	—	—
				Drain guide 1/4	—	—	●	●	●	●
			W Note 11)	Drain cock with barb fitting	—	—	●	●	●	●
			+							
		e Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●
			+							
		f Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●	●
			Z Note 12)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)

Note 1) Drain guide is NPT1/8 (applicable to the AF20-A) and NPT1/4 (applicable to the AF30-A to AF60-A).
The auto drain port comes with ø3/8" One-touch fitting (applicable to the AF30-A to AF60-A).

Note 2) Drain guide is G1/8 (applicable to the AF20-A) and G1/4 (applicable to the AF30-A to AF60-A).
The auto drain port comes with ø10 One-touch fitting (applicable to the AF30-A to AF60-A).

Note 3) Option B is not assembled and supplied loose at the time of shipment. Assembly of a bracket and 2 mounting screws.

Note 4) 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 5) 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 6) Refer to Chemical data on page 38 for chemical resistance of the bowl.

Note 7) A bowl guard is provided as standard equipment (polycarbonate).

Note 8) A bowl guard is provided as standard equipment (nylon).

Note 9) The combination of float type auto drain: C and D is not available.

Note 10) Without a valve function

Note 11) The combination of metal bowl: 2 and 8 is not available.

Note 12) For pipe thread type: M5, 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 pipe thread type: M5, NPT only

Standard Specifications

Model	AF10-A	AF20-A	AF30-A	AF40-A	AF40-06-A	AF50-A	AF60-A
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Ambient and fluid temperature	–5 to 60 °C (with no freezing)						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Nominal filtration rating	5 µm						
Drain capacity (cm^3)	2.5	8	25	45			
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard (Steel)	Standard (Polycarbonate)				
Weight (kg)	0.06	0.08	0.18	0.36	0.41	0.87	1.00

Options/Part No.

Optional specifications	Model						
	AF10-A	**AF20-A**	**AF30-A**	**AF40-A**	**AF40-06-A**	**AF50-A**	**AF60-A**
Bracket assembly Note)	—	AF22P-050AS	AF32P-050AS	AF42P-050AS	AF42P-070AS	AF52P-050AS	

Note) Assembly of a bracket and 2 mounting screws

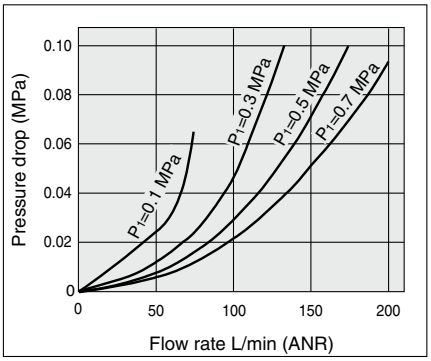
Bowl Assembly/Part No.

Bowl material	Drain discharge mechanism	Drain port	Other	Model						
				AF10-A	**AF20-A**	**AF30-A**	**AF40-A**	**AF40-06-A**	**AF50-A**	**AF60-A**
Polycarbonate bowl	Manual discharge	With drain cock	—	C1SF-A	C2SF-A	—	—			
			With bowl guard	—	C2SF-C-A	C3SF-A	C4SF-A			
		Drain cock with barb fitting	With bowl guard	—	—	C3SF-W-A	C4SF-W-A			
		With drain guide (without valve function)	—	—	C2SF□-J-A	—	—			
			With bowl guard	—	C2SF□-CJ-A	C3SF□-J-A	C4SF□-J-A			
	Automatic discharge Note) (Auto drain)	Normally closed (N.C.)	—	AD17-A	AD27-A	—	—			
			With bowl guard	—	AD27-C-A	AD37□-A	AD47□-A			
		Normally open (N.O.)	With bowl guard	—	—	AD38□-A	AD48□-A			
Nylon bowl	Manual discharge	With drain cock	—	C1SF-6-A	C2SF-6-A	—	—			
			With bowl guard	—	C2SF-6C-A	C3SF-6-A	C4SF-6-A			
		Drain cock with barb fitting	With bowl guard	—	—	C3SF-6W-A	C4SF-6W-A			
		With drain guide (without valve function)	—	—	C2SF□-6J-A	—	—			
			With bowl guard	—	C2SF□-6CJ-A	C3SF□-6J-A	C4SF□-6J-A			
	Automatic discharge Note) (Auto drain)	Normally closed (N.C.)	—	AD17-6-A	AD27-6-A	—	—			
			With bowl guard	—	AD27-6C-A	AD37□-6-A	AD47□-6-A			
		Normally open (N.O.)	With bowl guard	—	—	AD38□-6-A	AD48□-6-A			
Metal bowl	Manual discharge	With drain cock	—	C1SF-2-A	C2SF-2-A	C3SF-2-A	C4SF-2-A			
			With level gauge	—	—	C3LF-8-A	C4LF-8-A			
		With drain guide (without valve function)	—	—	C2SF□-2J-A	C3SF□-2J-A	C4SF□-2J-A			
			With level gauge	—	—	C3LF□-8J-A	C4LF□-8J-A			
	Automatic discharge Note) (Auto drain)	Normally closed (N.C.)	—	AD17-2-A	AD27-2-A	AD37□-2-A	AD47□-2-A			
			With level gauge	—	—	AD37□-8-A	AD47□-8-A			
		Normally open (N.O.)	—	—	—	AD38□-2-A	AD48□-2-A			
			With level gauge	—	—	AD38□-8-A	AD48□-8-A			

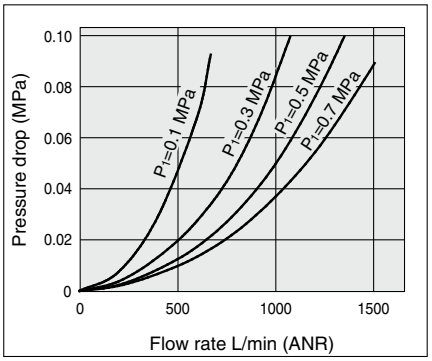
Note) Minimum operating pressure: N.O. type–0.1 MPa (AD38-A, AD48-A); N.C. type–0.1 MPa (AD17-A, AD27-A) and 0.15 MPa (AD37-A, AD47-A).
Bowl assembly for the AF20-A to AF60-A models comes with a bowl seal.
□ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).
No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")
Please consult with SMC separately for psi and °F unit display specifications.

Flow-rate Characteristics (Representative values)

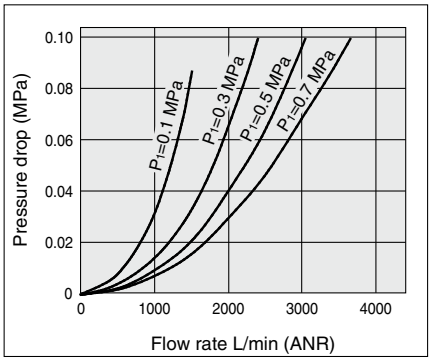
AF10-A M5



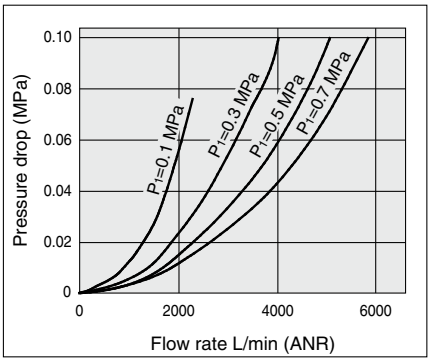
AF20-A Rc1/4



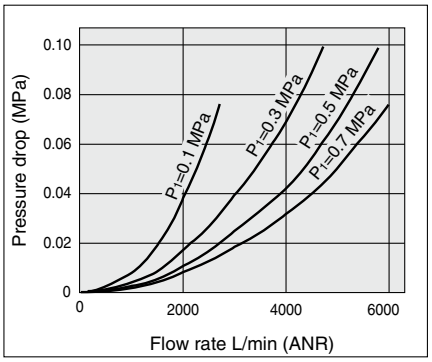
AF30-A Rc3/8



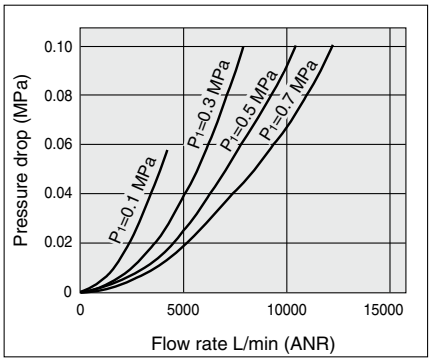
AF40-A Rc1/2



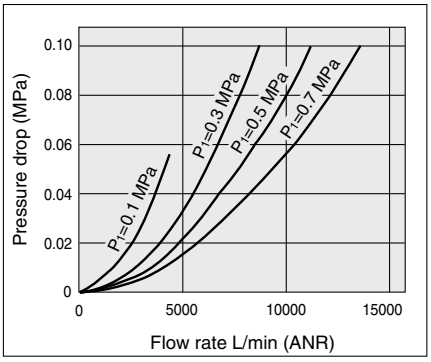
AF40-06-A Rc3/4



AF50-A Rc1



AF60-A Rc1



⚠ Specific Product Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions, "Handling Precautions for SMC Products" and the Operation Manual for F.R.L. Precautions, http://www.smcworld.com

Design/Selection

⚠ Warning

1. The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator 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	Nylon
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 diethyl 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	×	×
Others	Thread-lock fluid Seawater Leak tester	—	×	△

○: Essentially safe △: Some effects may occur. ×: Effects will occur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

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/Adjustment

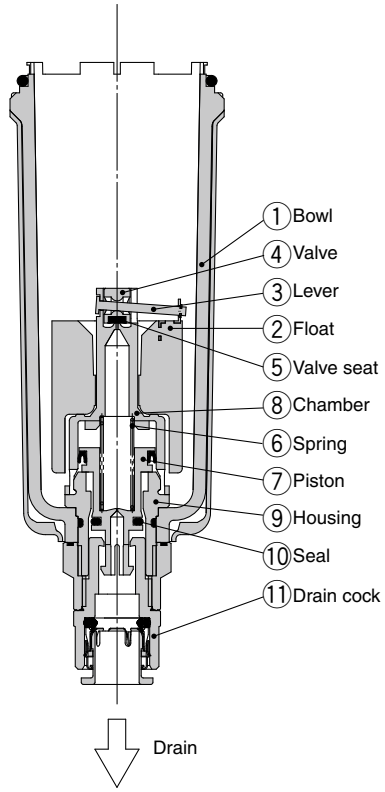
⚠ Caution

1. When the bowl is installed on the air filter (AF30-A to AF60-A), 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.



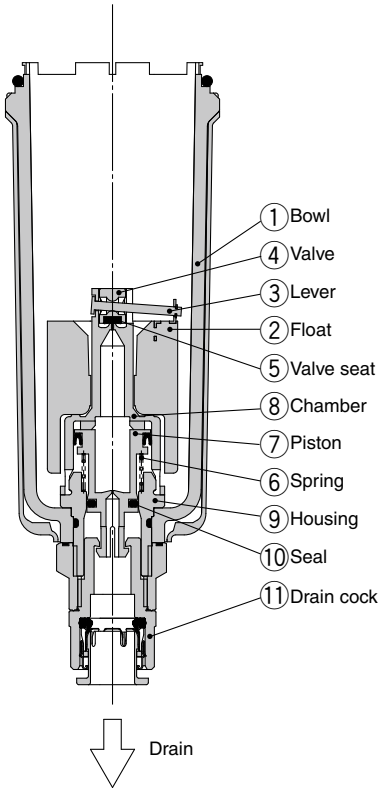
Working Principle: Float Type Auto Drain

N.O. type: AD38-A, AD48-A



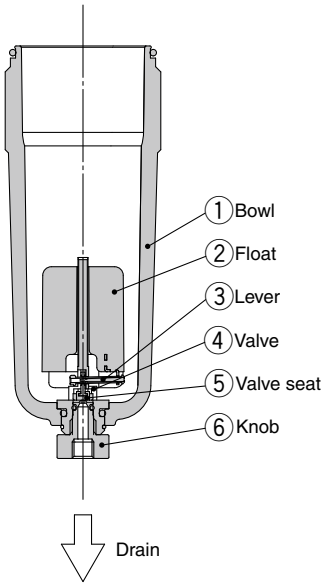
- **When pressure inside the bowl is released:**
  When pressure is released from the bowl ①, the piston ⑦ is lowered by the spring ⑥.
  The sealing action of the seal ⑩ is interrupted, and the outside air flows inside the bowl ① through the housing hole ⑨ and the drain cock ⑪.
  Therefore, if there is an accumulation of condensate in the bowl ①, it will drain out through the drain cock.
- **When pressure is applied inside the bowl:**
  When pressure is 0.1 MPa or more, the force of the piston ⑦ surpasses the force of the spring ⑥, and the piston goes up.
  This pushes seal ⑩ up so that it creates a seal, and the inside of the bowl ①, is shut off from the outside air.
  If there is no accumulation of condensate in the bowl ① at this time, the float ② will be pulled down by its own weight, causing the valve ④, which is connected to the lever ③, to seal the valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.
  This allows the pressure inside the bowl ① to enter the chamber ⑧. The result is that the combined pressure inside the chamber ⑧ and the force of the spring ⑥ lowers the piston ⑦.
  This causes the sealing action of the seal ⑩ to be interrupted, and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning the drain cock ⑪ manually counterclockwise lowers the piston ⑦, and causes the seal created by the seal ⑩ to be interrupted, thus allowing the condensate to drain out.

N.C. type: AD37-A, AD47-A



- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, spring ⑥ keeps the piston ⑦ in its upward position.
  This keeps the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air.
  Therefore, even if there is an accumulation of condensate in the bowl ①, it will not drain out.
- **When pressure is applied inside the bowl:**
  Even when pressure is applied inside the bowl ①, the combined force of the spring ⑥ and the pressure inside the bowl ① keeps the piston ⑦ in its upward position.
  This maintains the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air.
  If there is no accumulation of condensate in the bowl ① at this time, the float ② will be pulled down by its own weight, causing the valve ④, which is connected to the lever ③, to seal the valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.This allows the pressure inside the bowl ① to enter the chamber ⑧.
  The result is that the pressure inside the chamber ⑧ surpasses the force of the spring ⑥ and pushes the piston ⑦ downward.
  This causes the sealing action of the seal ⑩ to be interrupted and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning the drain cock ⑪ manually counterclockwise lowers the piston ⑦, and causes the seal created by the seal ⑩ to be interrupted, thus allowing the condensate to drain out.

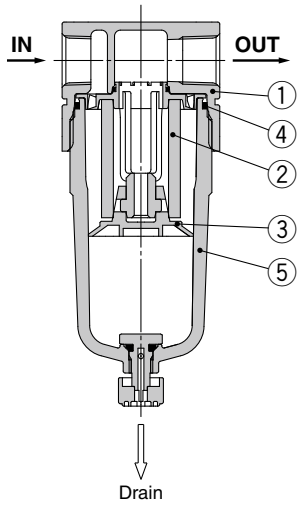
Compact auto drain N.C. type: AD17-A, AD27-A



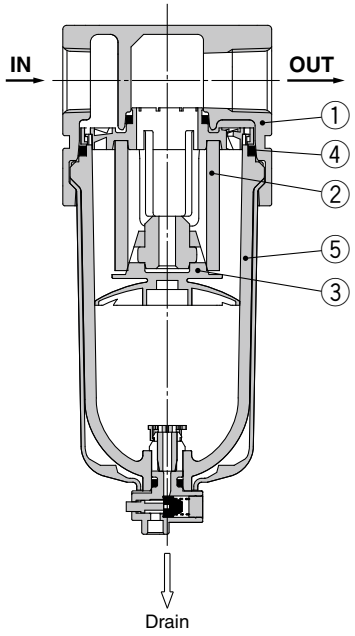
- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, the weight of the float ② causes the valve ④, which is connected to the lever ③, to seal the valve seat ⑤. As a result, the inside of the bowl ① is shut off from the outside air.
  Therefore, even if there is an accumulation of condensate in the bowl ①, it will not drain out.
- **When pressure is applied inside the bowl:**
  Even when pressure is applied inside the bowl ①, the weight of the float ② and the differential pressure that is applied to the valve ④ cause the valve ④ to seal the valve seat ⑤, and the outside air is shut off from the inside of the bowl ①.
- **When there is an accumulation of condensate in the bowl:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.
  The condensate inside the bowl ① drains out through the knob ⑥.
  Turning the knob ⑥ manually counterclockwise lowers it and causes the sealing action of the valve seat ⑤ to be interrupted, which allows the condensate to drain out.

Construction

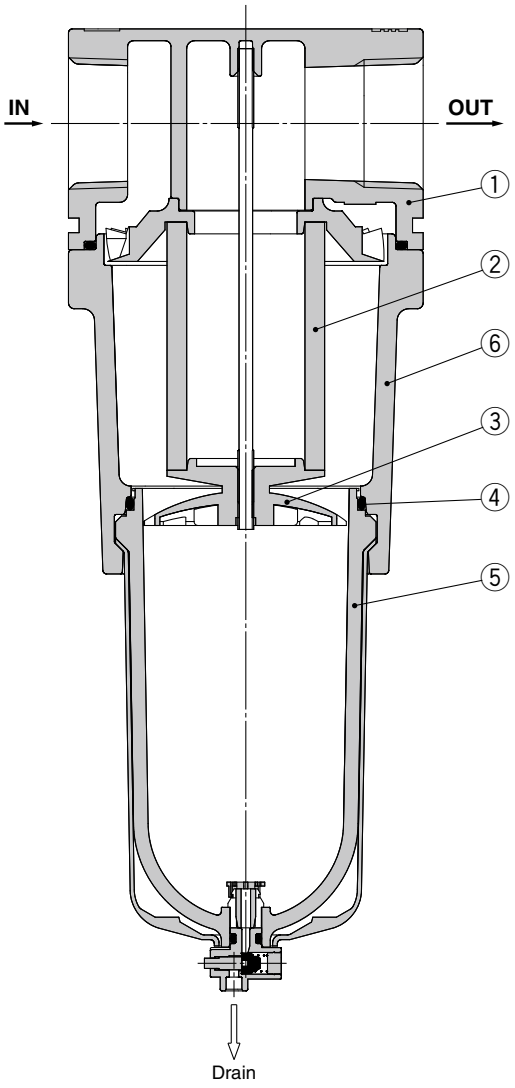
AF10-A/AF20-A



AF30-A to AF40-06-A



AF50-A/AF60-A



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AF10-A	White
		Aluminum die-cast	AF20-A to AF60-A	
6	**Housing**	Aluminum die-cast	AF50-A/AF60-A	White

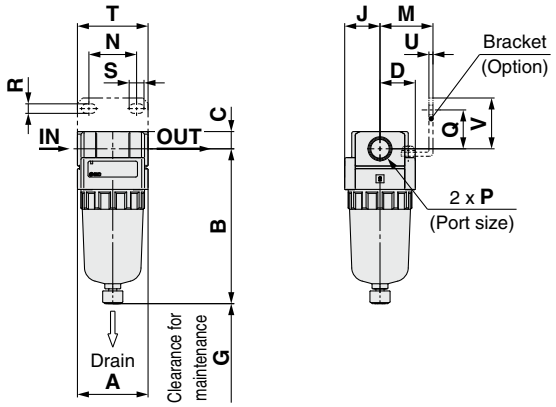
Replacement Parts

No.	Description	Material	Part no.						
			AF10-A	**AF20-A**	**AF30-A**	**AF40-A**	**AF40-06-A**	**AF50-A**	**AF60-A**
2	**Filter element**	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S		AF50P-060S	AF60P-060S
3	**Baffle**	PBT	AF10P-040S Note 2)	AF22P-040S	AF32P-040S	AF42P-040S		AF50P-040S	AF60P-040S
4	**Bowl seal**	NBR	C1SFP-260S	C2SFP-260S	C32FP-260S	C42FP-260S			
5	**Bowl assembly** Note 1)	Polycarbonate	C1SF-A	C2SF-A	C3SF-A	C4SF-A			

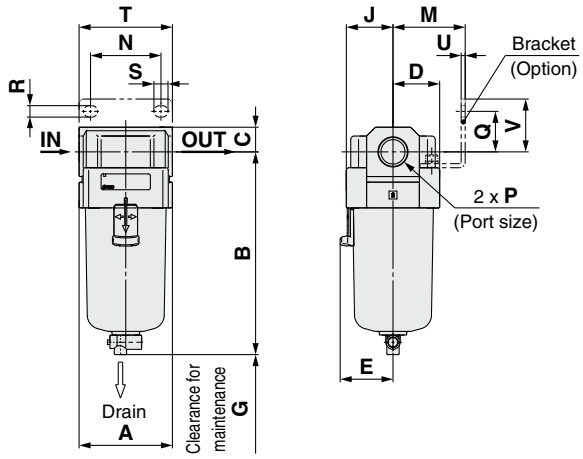
Note 1) Bowl seal is included for the AF20-A to AF60-A. Please contact SMC regarding the supply of bowl assembly with psi and °F unit display specifications.
Note 2) The baffle material for the AF10-A (AF10P-040S) only is polyacetal.

Dimensions

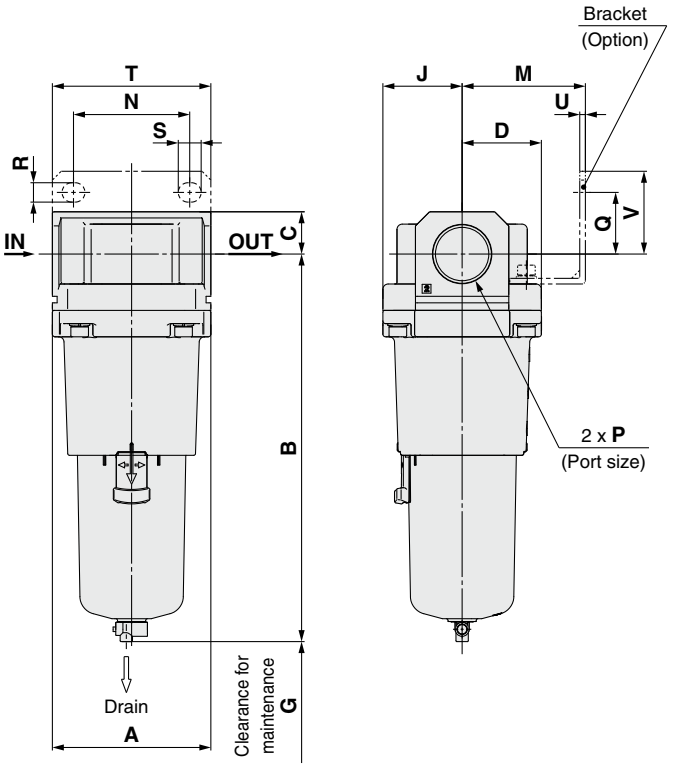
AF10-A/AF20-A

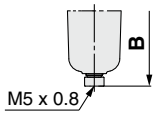
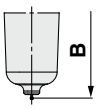
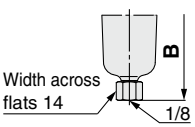
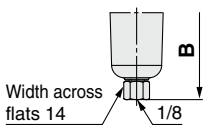
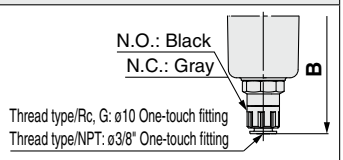


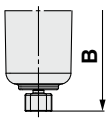
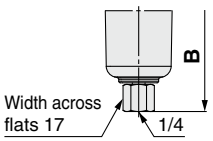
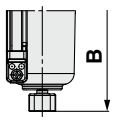
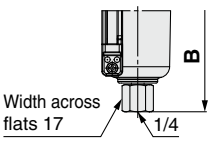
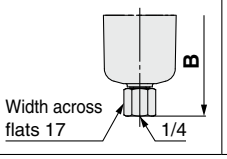
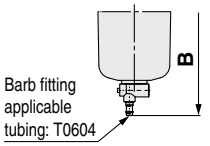
AF30-A to AF40-06-A



AF50-A/AF60-A



Applicable model	AF10-A/AF20-A		AF20-A		AF30-A to AF60-A
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	Metal bowl with drain guide	With auto drain (N.O./N.C.)
Dimensions					

Applicable model	AF30-A to AF60-A					
Optional/Semi-standard specifications	Metal bowl	Metal bowl with drain guide	Metal bowl with level gauge	Metal bowl with level gauge, with drain guide	With drain guide	Drain cock with barb fitting
Dimensions						

Model	Standard specifications								Optional specifications									Semi-standard specifications					
									Bracket mount								With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with drain guide	Metal bowl with level gauge	Metal bowl with level gauge, with drain guide
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B	B	B	B	B	B	B
AF10-A	M5 x 0.8	25	59.9	7	12.5	—	25	12.5	—	—	—	—	—	—	—	—	77.9	—	—	59.3	—	—	—
AF20-A	1/8, 1/4	40	87.6	9.8	20	—	25	20	30	27	22	5.4	8.4	40	2.3	28	104.9	—	91.4	87.4	93.9	—	—
AF30-A	1/4, 3/8	53	115.1	14	26.7	30	35	26.7	41	40	23	6.5	8	53	2.3	30	156.8	123.6	121.9	117.6	122.1	137.6	142.1
AF40-A	1/4, 3/8, 1/2	70	147.1	18	35.5	38.4	40	35.5	50	54	26	8.5	10.5	70	2.3	35	186.9	155.6	153.9	149.6	154.1	169.6	174.1
AF40-06-A	3/4	75	149.1	20	35.5	38.4	40	35.5	50	54	25	8.5	10.5	70	2.3	34	188.9	157.6	155.9	151.6	156.1	171.6	176.1
AF50-A	3/4, 1	90	220.1	24	45	—	30	45	70	66	35	11	13	90	3.2	47	259.9	228.6	226.9	222.6	227.1	242.6	247.1
AF60-A	1	95	234.1	24	47.5	—	30	47.5	70	66	35	11	13	90	3.2	47	273.9	242.6	240.9	236.6	241.1	256.6	261.1

Air Filter/*AF20-A to AF40-06-A*

Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

① Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

Model	AF20-A	AF30-A	AF40-A	AF40-06-A
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Drain capacity (cm^3)	19	43	88	

Note) Please consult with SMC for dimensions.

AF 30 - ❶ ❷ 03 ❸ ❹ - ❺ - A - X64

Long bowl

• 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) AF30-03B-2R-A-X64

			Symbol	Description	❶ Body size 20	30	40
❷	Pipe thread type		**Nil**	Rc	●	●	●
			N Note 1)	NPT	●	●	●
			F Note 2)	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 3)	With bracket	●	●	●
			+				
❺	Semi-standard	**a** Bowl Note 4)	**Nil**	Polycarbonate bowl	●	●	●
			2	Metal bowl	●	●	●
			6	Nylon bowl	●	●	●
			C	With bowl guard	●	— Note 5)	— Note 5)
			6C	With bowl guard (Nylon bowl)	●	— Note 6)	— Note 6)
			+				
		b Drain port	**Nil**	With drain cock	●	●	●
			J Note 7)	Drain guide 1/8	●	—	—
				Drain guide 1/4	—	●	●
			W Note 8)	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 9)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 10)	○ Note 10)	○ Note 10)

Note 1) Drain guide is NPT1/8 (applicable to the AF20-A) and NPT1/4 (applicable to the AF30-A to AF40-06-A).
Note 2) Drain guide is G1/8 (applicable to the AF20-A) and G1/4 (applicable to the AF30-A to AF40-06-A).
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws.
Note 4) Refer to Chemical data on page 38 for chemical resistance of the bowl.
Note 5) A bowl guard is provided as standard equipment (polycarbonate).
Note 6) A bowl guard is provided as standard equipment (nylon).
Note 7) Without a valve function
Note 8) The combination of metal bowl: 2 is not available.
Note 9) For pipe 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 10) ○: For pipe thread type: NPT only

Air Filter/*AF20-A to AF40-06-A*

Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

② With Element Service Indicator

Clogging status of elements can be checked visually.

Applicable Model

Model	AF20-A	AF30-A	AF40-A	AF40-06-A
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4

AF 30 - ❶ ❷ 03 ❸ ❹ - ❺ -A-X2141

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

Example) AF30-03BD-2R-A-X2141

With element service indicator

A special body type is required to mount the element service indicator. It cannot be mounted on a standard body.

			Symbol	Description	❶ Body size 20	30	40
❷	Pipe thread type		**Nil**	Rc	●	●	●
			N Note 1)	NPT	●	●	●
			F Note 2)	G	●	●	●
❸	Port size		**01**	1/8	●	—	—
			02	1/4	●	●	●
			03	3/8	—	●	●
			04	1/2	—	—	●
			06	3/4	—	—	●
❹ Option	**a**	Mounting	**Nil**	Without mounting option	●	●	●
			B Note 3)	With bracket	●	●	●
	b	Float type auto drain	**Nil**	Without auto drain	●	●	●
			C Note 4)	N.C. (Normally closed) Drain port is closed when pressure is not applied.	●	●	●
			D Note 5)	N.O. (Normally open) Drain port is open when pressure is not applied.	—	●	●
❺ Semi-standard	**c**	Bowl Note 6)	**Nil**	Polycarbonate bowl	●	●	●
			2	Metal bowl	●	●	●
			6	Nylon bowl	●	●	●
			8	Metal bowl with level gauge	—	●	●
			C	With bowl guard	●	— Note 7)	— Note 7)
			6C	With bowl guard (Nylon bowl)	●	— Note 8)	— Note 8)
	d	Drain port Note 12)	**Nil**	With drain cock	●	●	●
			J Note 9)	Drain guide 1/8	●	—	—
				Drain guide 1/4	—	●	●
			W Note 13)	Drain cock with barb fitting (for ø6 x ø4 nylon tube)	—	●	●
	e	Flow direction	**Nil**	Flow direction: Left to right	●	●	●
			R	Flow direction: Right to left	●	●	●
	f	Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●
			Z Note 10)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 11)	○ Note 11)	○ Note 11)

Note 1) Drain guide is NPT1/8 (applicable to the AF20-A) and NPT1/4 (applicable to the AF30-A to AF40-06-A). The auto drain port comes with ø3/8" One-touch fitting (applicable to the AF30-A to AF40-06-A).
Note 2) Drain guide is G1/8 (applicable to the AF20-A) and G1/4 (applicable to the AF30-A to AF40-06-A).
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws.
Note 4) 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 5) 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 6) Refer to Chemical data on page 38 for chemical resistance of the bowl.
Note 7) A bowl guard is provided as standard equipment (polycarbonate).
Note 8) A bowl guard is provided as standard equipment (nylon).
Note 9) Without a valve function
Note 10) For pipe 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 11) ○: For pipe thread type: NPT only
Note 12) The combination of float type auto drain: C and D is not available.
Note 13) The combination of metal bowl: 2 and 8 is not available.

Air Filter
AF10 to AF60
Made to Order Specifications:

Made to Order

Please contact SMC for detailed dimensions, specifications, and lead times.

③ Special Temperature Environment

Special materials are used in the manufacturing of seals and resin parts to allow them to withstand various temperature conditions in cold or tropical (hot) climates.

Specifications

Made-to-order no.		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature (°C)		–30 to 60	–5 to 80
Fluid temperature (°C)		–5 to 60 (with no freezing)	
Material	**Rubber parts**	Special NBR	FKM
	Main parts	Metal (Aluminum die-cast, etc.)	

Applicable Model

Model	AF30	AF40	AF40-06	AF50	AF60
Port size	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

AF 30 - ❷ 03 B - 2 ❻ - X430

❶ ❷ ❸ ❹ ❺ ❻

For high/low temperature

X430	Low temperature
X440	High temperature

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

Example) AF30-03B-2R-X430

		Symbol	Description	❶ Body size 30	40	50	60
❷	Thread type	**Nil**	Rc	●	●	●	●
		N Note 1)	NPT	●	●	●	●
		F Note 2)	G	●	●	●	●
❸	Port size	**02**	1/4	●	●	—	—
		03	3/8	●	●	—	—
		04	1/2	—	●	—	—
		06	3/4	—	●	●	—
		10	1	—	—	●	●
❹	Option (Mounting)	**Nil**	Without mounting option	●	●	●	●
		B Note 3)	With bracket	●	●	●	●
❺	Bowl Note 4)	**2**	Metal bowl	●	●	●	●
❻ Semi-standard	a Drain port	**Nil**	With drain cock	●	●	●	●
		J Note 5)	Drain guide 1/4	●	●	●	●
	b Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●
	c Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●
		Z Note 6)	Name plate and caution plate for bowl in imperial units: psi, °F	Note 7) ○	Note 7) ○	Note 7) ○	Note 7) ○

Note 1) Drain guide is NPT1/4.
Note 2) Drain guide is G1/4.
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws
Note 4) Only metal bowl 2 is available.
Note 5) Without a valve function
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.)
Note 7) ○: For thread type: NPT only

④ High Pressure

Strong materials are used in the manufacturing of air filters intended for high pressure operation.

Specifications

Made-to-order no.	-X425
Proof pressure (MPa)	3.0
Maximum operating pressure (MPa)	2.0
Ambient and fluid temperature (°C)	–5 to 60 (with no freezing)

Applicable Model

Model	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

AF 30 - ❷ 03 B - 2 ❻ - X425

❶ ❷ ❸ ❹ ❺ ❻

For high pressure

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

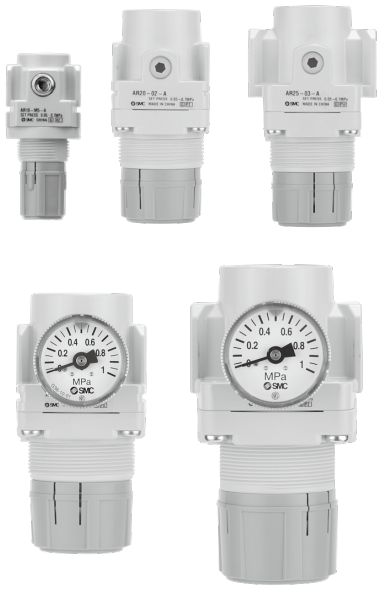
Example) AF30-03B-2R-X425

		Symbol	Description	❶ Body size 20	30	40	50	60
❷	Thread type	**Nil**	Rc	●	●	●	●	●
		N Note 1)	NPT	●	●	●	●	●
		F Note 2)	G	●	●	●	●	●
❸	Port size	**01**	1/8	●	—	—	—	—
		02	1/4	●	●	●	—	—
		03	3/8	—	●	●	—	—
		04	1/2	—	—	●	—	—
		06	3/4	—	—	●	●	—
		10	1	—	—	—	●	●
❹	Option (Mounting)	**Nil**	Without mounting option	●	●	●	●	●
		B Note 3)	With bracket	●	●	●	●	●
❺	Bowl Note 4)	**2**	Metal bowl	●	●	●	●	●
		8	Metal bowl with level gauge	—	●	●	●	●
❻ Semi-standard	a Drain port	**Nil**	With drain cock	●	●	●	●	●
		J Note 5)	Drain guide 1/8	●	—	—	—	—
			Drain guide 1/4	—	●	●	●	●
	b Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●
	c Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●
		Z Note 6)	Name plate and caution plate for bowl in imperial units: psi, °F	Note 7) ○	Note 7) ○	Note 7) ○	Note 7) ○	Note 7) ○

Note 1) Drain guide is NPT1/8 (applicable to the AF20) and NPT1/4 (applicable to the AF30 to AF60.
Note 2) Drain guide is G1/8 (applicable to the AF20) and G1/4 (applicable to the AF30 to AF60).
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws
Note 4) Only metal bowl 2 and 8 are available.
Note 5) Without a valve function
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.)
Note 7) ○: For thread type: NPT only

Modular Type Regulator
Series AR

Regulator Series AR



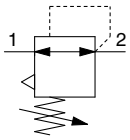
P.55 to 62

Model	Port size	Options
AR10-A	M5 x 0.8	Bracket Round type pressure gauge Set nut (for panel mount)*
AR20-A	1/8, 1/4	
AR25-A	1/4, 3/8	
AR30-A		
AR40-A	1/4, 3/8, 1/2	
AR40-06-A	3/4	

* For AR20-A to AR40-06-A, panel fitting dimensions are different from those of the current AR series.

Regulator
AR10-A to AR40-A

Symbol
Regulator




AR10-A


AR20-A


AR30-A

How to order

AR **30** – ❷ **03** **BG** – ❺ –**A**– ❻

- 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

❻ **Made to Order**
(Refer to pages 61 and 62 for details.)

			Symbol	Description	❶ Body size 10	20	25	30	40
❷	Pipe thread type		**Nil**	Metric thread (M5)	●	—	—	—	—
				Rc	—	●	●	●	●
			N	NPT	—	●	●	●	●
			F	G	—	●	●	●	●
			+						
❸	Port size		**M5**	M5	●	—	—	—	—
			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 mount) Note 3)	●	●	●	●	●
			+						
		b Pressure gauge Note 4)	**Nil**	Without pressure gauge	●	●	●	●	●
			G	Round type pressure gauge (without limit indicator)	●	—	—	—	—
				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 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) Mounting pitch is different from that of the current AR20 to AR40 and AR20-B to AR40-B.
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 (1.0 MPa pressure gauge only for the AR10-A).
Note 5) Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
Note 6) For pipe 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.)
Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.
Note 7) ○: For pipe thread type: M5, NPT only

Standard Specifications

Model	AR10-A	AR20-A	AR25-A	AR30-A	AR40-A	AR40-06-A
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4
Pressure gauge port size	1/16 Note)	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)	0.06	0.17	0.19	0.34	0.58	0.60

Note) Use a bushing (part no: 131368) when connecting the R1/8 pressure gauge to the Rc1/16.

Options/Part No.

Optional specifications			Model					
			AR10-A	AR20-A	AR25-A	AR30-A	AR40-A	AR40-06-A
Bracket assembly Note 1)			AR12P-270AS	AR22P-270AS	AR27P-270AS	AR32P-270AS	AR42P-270AS	AR42P-270AS
Set nut			AR12P-260S	AR22P-260S	AR22P-260S	AR32P-260S	AR42P-260S	AR42P-260S
Pressure gauge	Round type Note 2)	Standard	G27-10-R1	G36-10-□01			G46-10-□01	
		0.02 to 0.2 MPa setting	G27-10-R1 Note 3)	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 round pressure gauge part numbers indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT.
Please contact SMC regarding the pipe thread type NPT and the supply of pressure gauge with psi unit display specifications.
Note 3) Standard pressure gauge

⚠ Specific Product Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions, "Handling Precautions for SMC Products" and the Operation Manual for F.R.L. Precautions, 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/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).

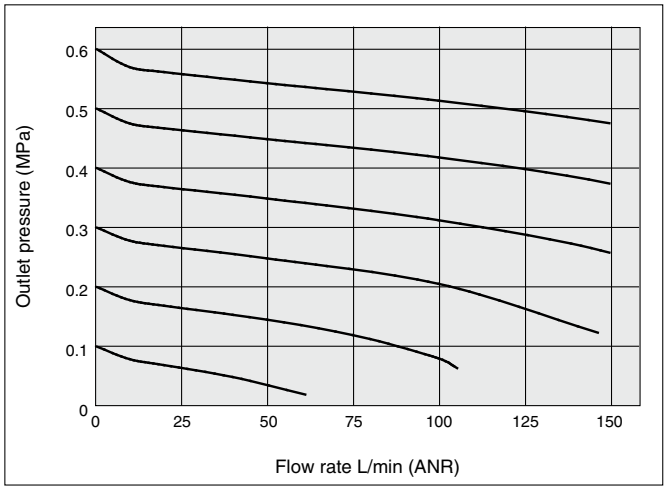
2. Pulsation will be generated when the difference between the inlet and the outlet pressure is large. In this case, reduce the pressure difference between the inlet and the outlet. Please consult with SMC if the pulsation problem is not resolved.

Flow-rate Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

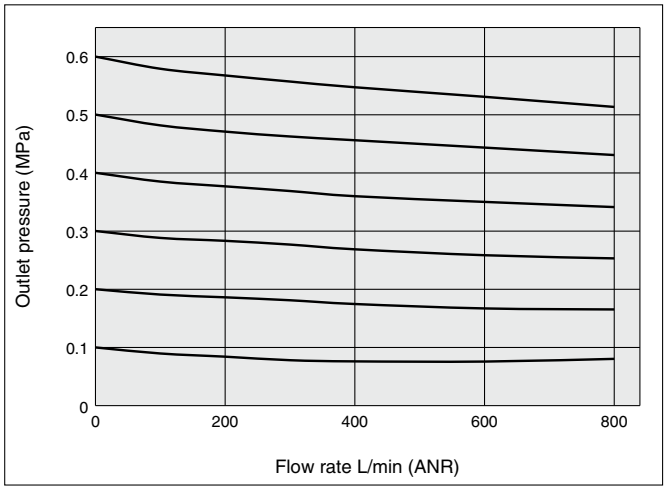
AR10-A

M5



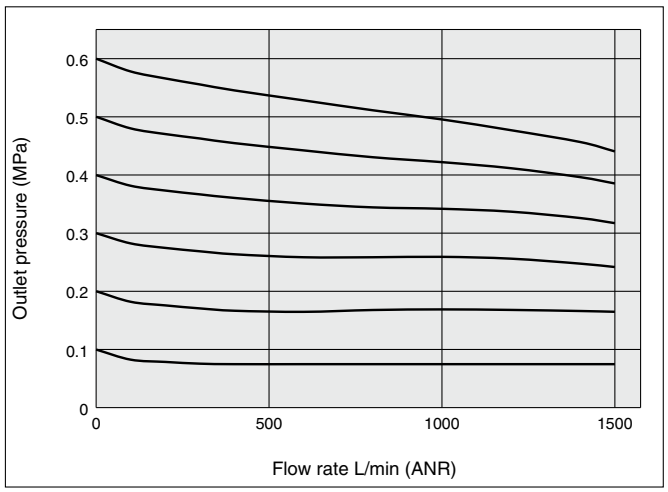
AR20-A

Rc1/4



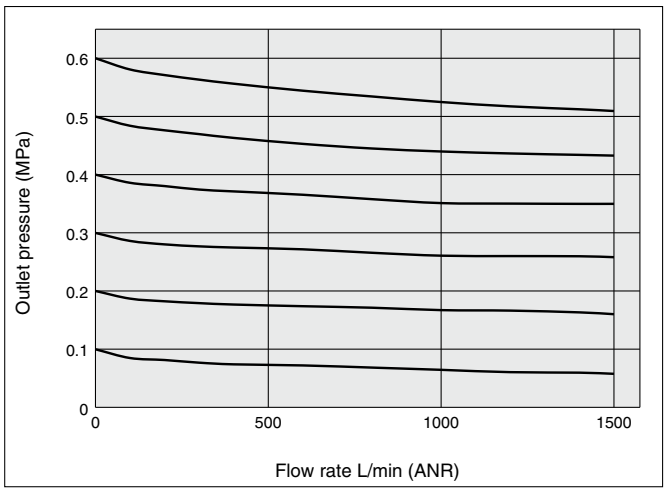
AR25-A

Rc3/8



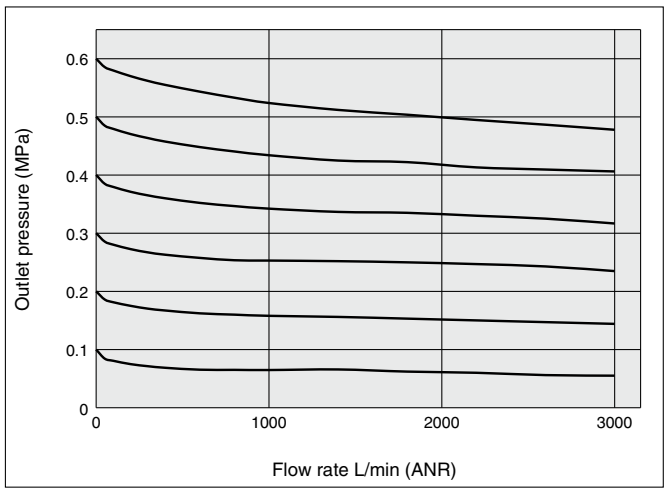
AR30-A

Rc3/8



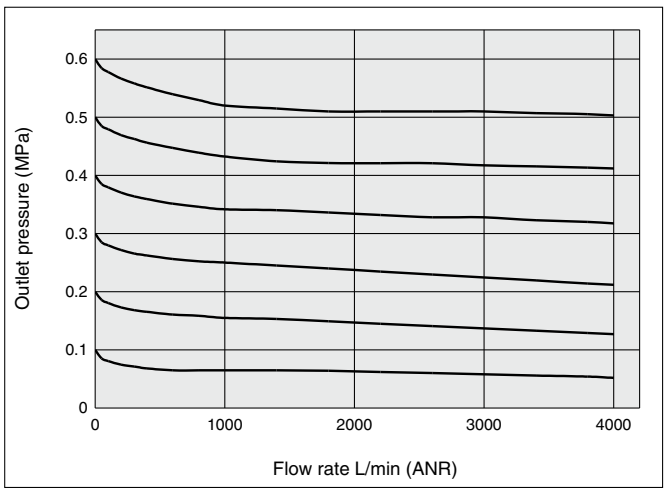
AR40-A

Rc1/2



AR40-06-A

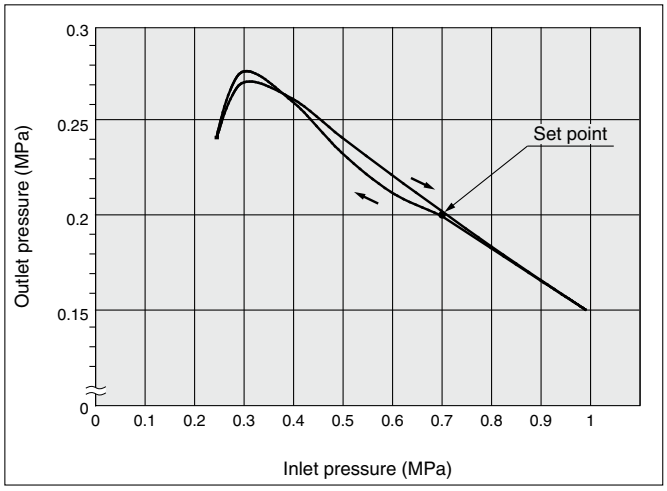
Rc3/4



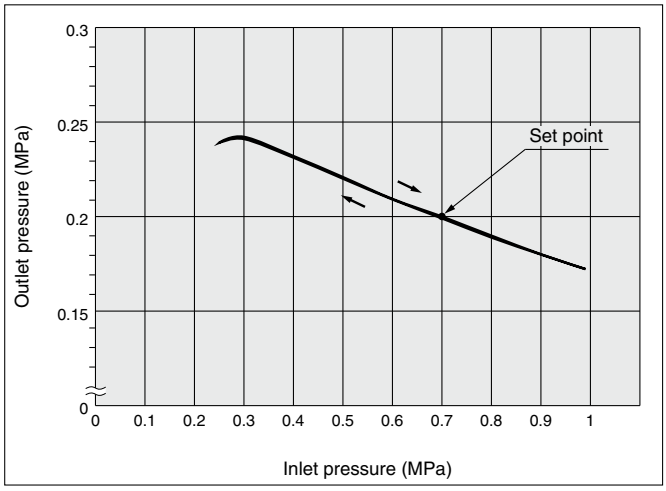
Pressure Characteristics (Representative values)

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

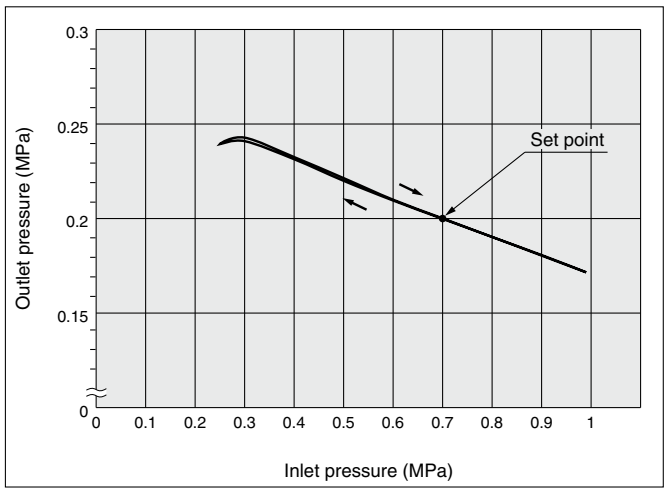
AR10-A



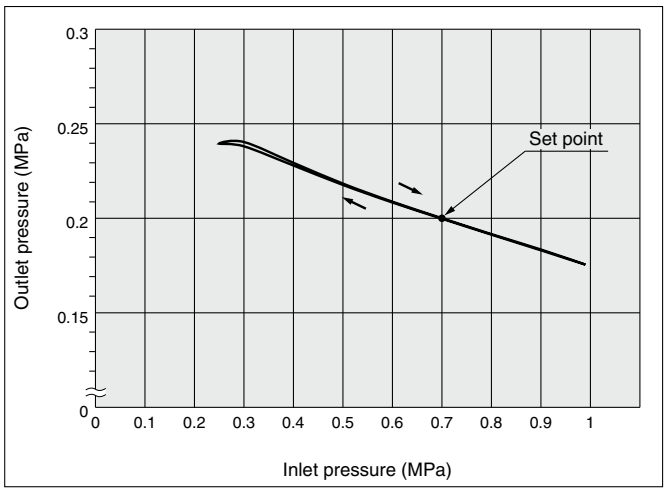
AR20-A



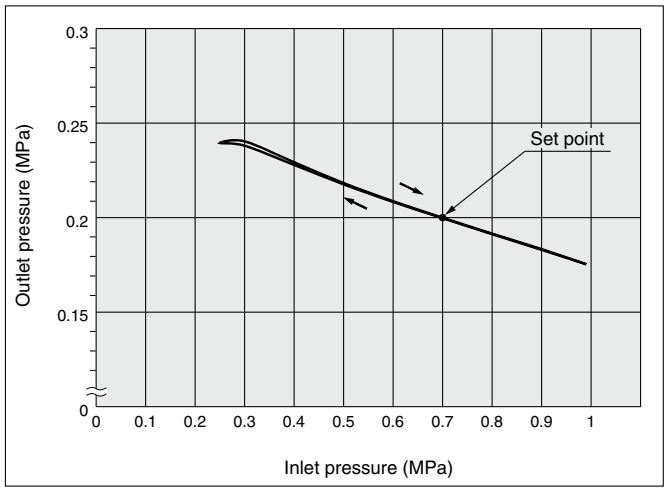
AR25-A



AR30-A

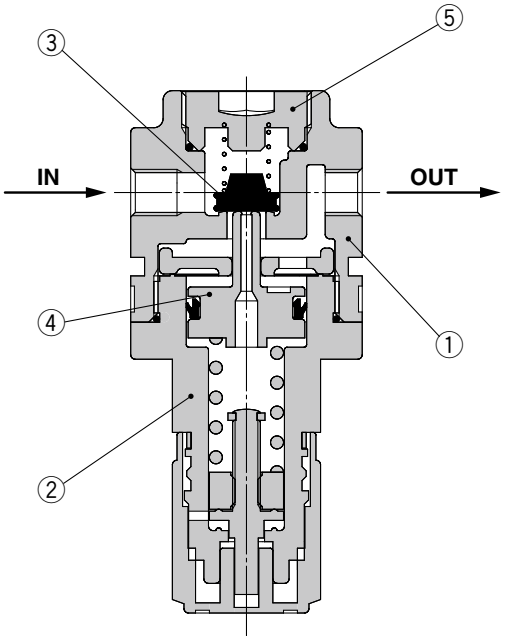


AR40-A/AR40-06-A

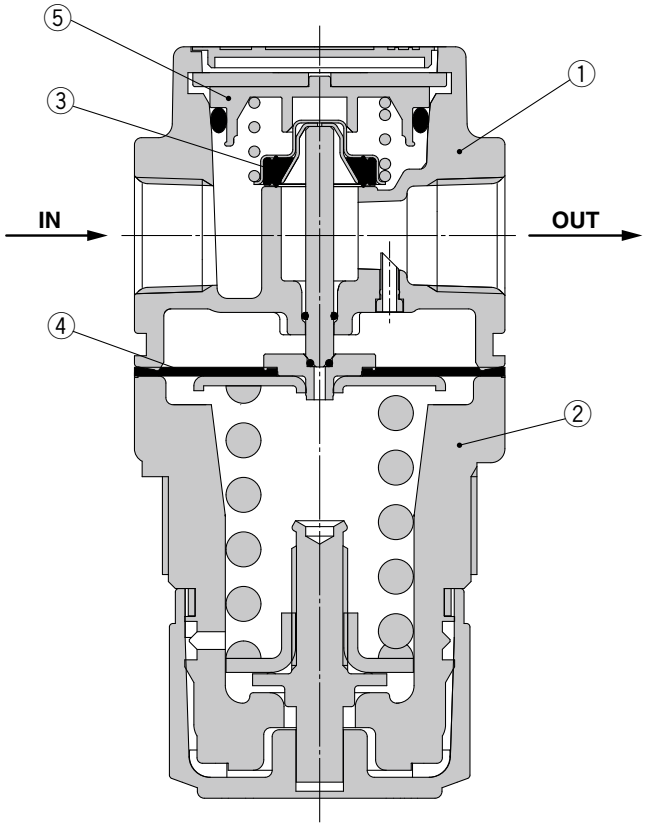


Construction

AR10-A



AR20-A to 40-06-A



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AR10-A	White
		Aluminum die-cast	AR20-A to AR40-A	
2	**Bonnet**	Polyacetal	AR10-A to AR40-A	White

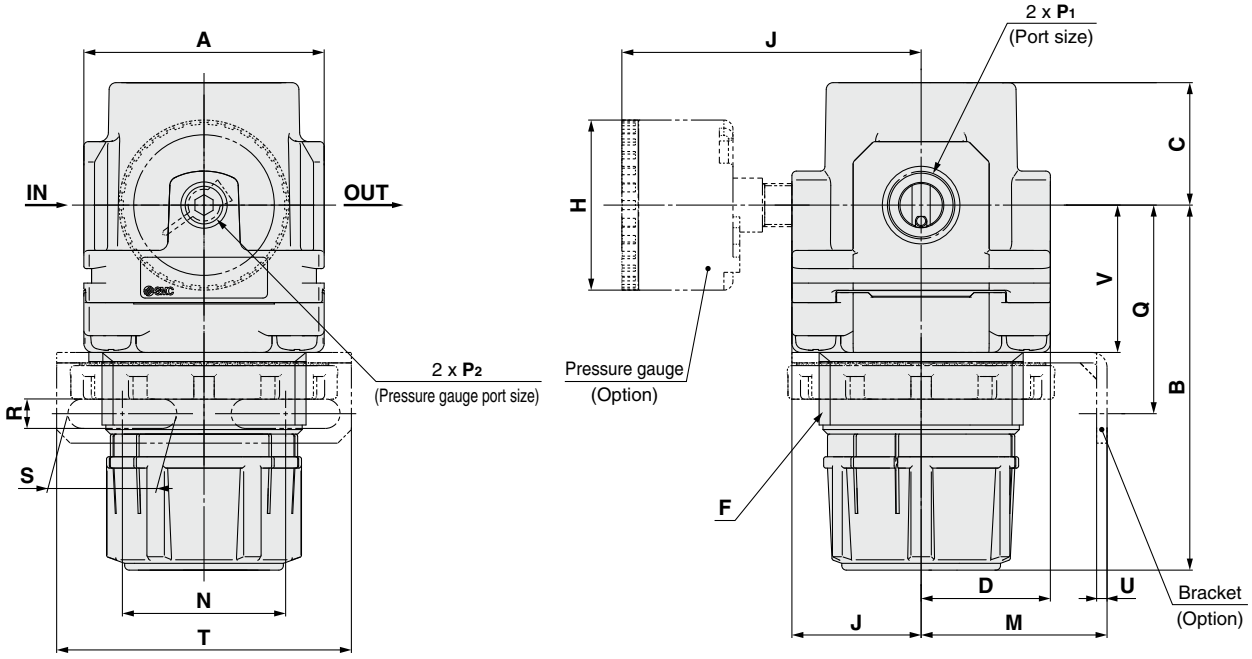
Replacement Parts

No.	Description	Material	Part no.					
			AR10-A	**AR20-A**	**AR25-A**	**AR30-A**	**AR40-A**	**AR40-06-A**
3	**Valve assembly**	Stainless steel, HNBR	AR10P-090S	AR22P-060AS		AR32P-060AS	AR42P-060AS	
4	**Diaphragm assembly**	Weatherable NBR	AR10P-150AS Note)	AR22P-150AS		AR32P-150AS	AR42P-150AS	
5	**Valve guide assembly**	Polyacetal	131329	AR22P-050AS		AR32P-050AS	AR42P-050AS	

Note) The AR10-A is a piston type. Assembly of a piston and a seal (KSYP-13).

Dimensions

AR10-A to AR40-06-A



Panel fitting dimensions

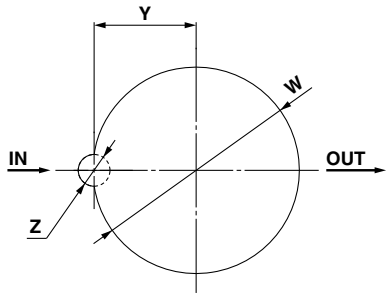


Plate thickness
AR10-A : Max. 3.5
AR20-A to AR25-A : Max. 4
AR30-A to AR40-06-A : Max. 8

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
AR10-A	M5 x 0.8	1/16	25	47.4	11	12.5	M18 x 1	12.5	ø26	26	—	—	25	28	30	4.5	6.5	40	2	18	18.5	—	—
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 dimension of B is the length when the filter regulator knob is unlocked.

Regulator/*AR20-A to AR40-06-A*

Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

① 0.4 MPa Setting

The maximum set pressure is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

Specifications

Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Set pressure range	0.05 to 0.4 MPa

Applicable Model

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

AR 30 - ❷ 03 ❹ - ❺ - A - X406

❶ ❷ ❸ ❹ ❺ — ❶ 0.4 MPa setting

• Option/Semi-standard: Select one each for **a** to **f**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AR30-03BG-NR-A-X406

				Symbol	Description	❶ Body size 20	25	30	40
❷	Pipe 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 mount) Note 3)	●	●	●	●
				+					
		b	Pressure gauge	**Nil**	Without pressure gauge	●	●	●	●
				G	Round type pressure gauge (with limit indicator)	●	●	●	●
				M	Round type pressure gauge (with color zone)	●	●	●	●
				+					
❺	Semi-standard	**c**	Exhaust mechanism	**Nil**	Relieving type	●	●	●	●
				N	Non-relieving type	●	●	●	●
				+					
		d	Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●
				R	Flow direction: Right to left	●	●	●	●
				+					
		e	Knob	**Nil**	Downward	●	●	●	●
				Y	Upward	●	●	●	●
				+					
		f	Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●
				Z Note 4)	Name plate and caution plate for bowl in imperial units: psi	○ Note 5)	○ Note 5)	○ Note 5)	○ Note 5)

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 the AR20-A to 40-A
Note 4) For pipe 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.)
Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.
Note 5) ○: For pipe thread type: NPT only

Regulator/*AR20-A to AR40-06-A*

Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

② 0.85 MPa Setting

The maximum set pressure is 0.85 MPa. When a pressure gauge is included, the display will show a range from 0 to 1.0 MPa.

Specifications

Proof pressure	1.5 MPa
Maximum operating pressure	1.0 MPa
Set pressure range	0.05 to 0.85 MPa

Applicable Model

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

AR 30 - ❷ 03 ❹ - ❺ - A - X2068

❶ ❷ ❸ ❹ ❺ — **0.85 MPa setting**

• Option/Semi-standard: Select one each for **a** to **f**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AR30-03BG-NR-A-X2068

			Symbol	Description	❶ Body size 20	25	30	40
❷	Pipe 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 mount) Note 3)	●	●	●	●
			+					
		b Pressure gauge	**Nil**	Without pressure gauge	●	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●	●
			M	Round type pressure gauge (with color zone)	●	●	●	●
			+					
❺	Semi-standard	**c** Exhaust mechanism	**Nil**	Relieving type	●	●	●	●
			N	Non-relieving type	●	●	●	●
			+					
		d Flow direction	**Nil**	Flow direction: Left to right	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●
			+					
		e Knob	**Nil**	Downward	●	●	●	●
			Y	Upward	●	●	●	●
			+					
		f Pressure unit	**Nil**	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●
			Z Note 4)	Name plate and caution plate for bowl in imperial units: psi	○ Note 5)	○ Note 5)	○ Note 5)	○ Note 5)

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 the AR20-A to 40-A
Note 4) For pipe 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.)
Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.
Note 5) ○: For pipe thread type: NPT only

Modular Type
Lubricator
Series AL

Lubricator
Series AL

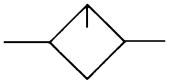


P.65 to 70

Model	Port size	Option
AL10-A	M5 x 0.8	Bracket (Except AL10-A)
AL20-A	1/8, 1/4	
AL30-A	1/4, 3/8	
AL40-A	1/4, 3/8, 1/2	
AL40-06-A	3/4	
AL50-A	3/4, 1	
AL60-A	1	

Lubricator
AL10-A to AL60-A

Symbol





AL10-A **AL20-A** **AL40-A**

How to Order

AL [30] – [ ] [03] [B] – [ ] – **A**

❶ ❷ ❸ ❹ ❺

- 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-3RW-A

			Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Pipe thread type		Nil	Metric thread (M5)	●	—	—	—	—	—
				Rc	—	●	●	●	●	●
			N	NPT	—	●	●	●	●	●
			F	G	—	●	●	●	●	●
			+							
❸	Port size		M5	M5 x 0.8	●	—	—	—	—	—
			01	1/8	—	●	—	—	—	—
			02	1/4	—	●	●	●	—	—
			03	3/8	—	—	●	●	—	—
			04	1/2	—	—	—	●	—	—
			06	3/4	—	—	—	●	●	—
			10	1	—	—	—	—	●	●
			+							
❹	Option (Mounting)		Nil	Without mounting option	●	●	●	●	●	●
			B Note 1)	With bracket	—	●	●	●	●	●
			+							
❺	Semi-standard	a	Bowl Note 2)	Nil	Polycarbonate bowl	●	●	●	●	●	●
				2	Metal bowl	●	●	●	●	●	●
				6	Nylon bowl	●	●	●	●	●	●
				8	Metal bowl with level gauge	—	—	●	●	●	●
				C	With bowl guard	—	●	— Note 3)	— Note 3)	— Note 3)	— Note 3)
				6C	With bowl guard (Nylon bowl)	—	●	— Note 4)	— Note 4)	— Note 4)	— Note 4)
			+							
		b	Lubricant exhaust port	Nil	Without drain cock	●	●	●	●	●	●
				3	With drain cock	●	●	●	●	●	●
				3W Note 5)	Drain cock with barb fitting	—	—	●	●	●	●
			+							
		c	Flow direction	Nil	Flow direction: Left to right	●	●	●	●	●	●
				R	Flow direction: Right to left	●	●	●	●	●	●
			+							
		d	Pressure unit	Nil	Name plate and caution plate: MPa	●	●	●	●	●	●
				Z Note 6)	Name plate and caution plate: psi, °F	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)

Note 1) Option is not assembled and supplied loose at the time of shipment.
Note 2) Refer to Chemical data on page 68 for chemical resistance of the bowl.
Note 3) A bowl guard is provided as standard equipment (polycarbonate).
Note 4) A bowl guard is provided as standard equipment (nylon).
Note 5) The combination of metal bowl: 2 and 8 is not available.
Note 6) For pipe thread type: M5, 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 7) ○: For pipe thread type: M5, NPT only

Standard Specifications

Model	AL10-A	AL20-A	AL30-A	AL40-A	AL40-06-A	AL50-A	AL60-A
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Ambient and fluid temperature	–5 to 60°C (with no freezing)						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Minimum dripping flow rate (L/min (ANR)) Note)	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Oil capacity (cm^3)	7	25	55	135			
Recommended lubricant	Class 1 turbine oil (ISO VG32)						
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard (Steel)	Standard (Polycarbonate)				
Weight (kg)	0.07	0.10	0.20	0.38	0.43	0.94	1.09

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 open.
· For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

Option/Part No.

Optional specifications	Model						
	AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
Bracket assembly Note)	—	AF22P-050AS	AF32P-050AS	AF42P-050AS	AF42P-070AS	AF52P-050AS	

Note) Assembly of a bracket and 2 mounting screws

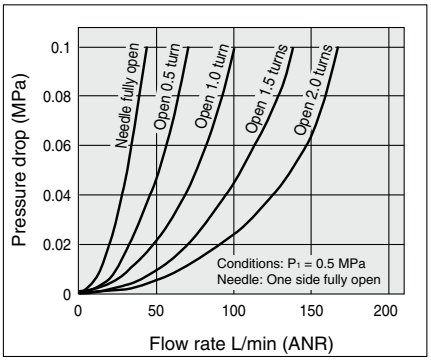
Bowl Assembly/Part No.

Bowl material	Lubricant exhaust port	Other	Model						
			AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
Polycarbonate bowl	Without drain cock	—	C1SL-A	C2SL-A	—	—			
		With bowl guard	—	C2SL-C-A	C3SL-A	C4SL-A			
	With drain cock	—	C1SL-3-A	C2SL-3-A	—	—			
		With bowl guard	—	C2SL-3C-A	C3SL-3-A	C4SL-3-A			
	Drain cock with barb fitting	With bowl guard	—	—	C3SL-3W-A	C4SL-3W-A			
Nylon bowl	Without drain cock	—	C1SL-6-A	C2SL-6-A	—	—			
		With bowl guard	—	C2SL-6C-A	C3SL-6-A	C4SL-6-A			
	With drain cock	—	C1SL-36-A	C2SL-36-A	—	—			
		With bowl guard	—	C2SL-36C-A	C3SL-36-A	C4SL-36-A			
	Drain cock with barb fitting	With bowl guard	—	—	C3SL-36W-A	C4SL-36W-A			
Metal bowl	Without drain cock	—	C1SL-2-A	C2SL-2-A	C3SL-2-A	C4SL-2-A			
		With level gauge	—	—	C3LL-8-A	C4LL-8-A			
	With drain cock	—	C1SL-23-A	C2SL-23-A	C3SL-23-A	C4SL-23-A			
		With level gauge	—	—	C3LL-38-A	C4LL-38-A			

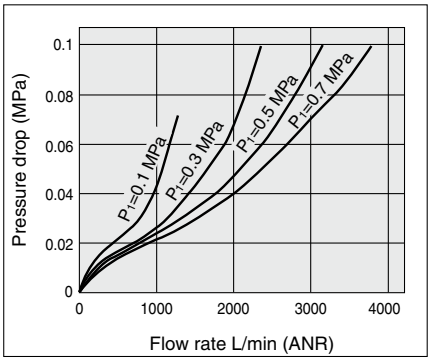
Note) · Bowl assembly for the AL20-A to AL60-A models comes with a bowl seal.
· Please consult with SMC separately for psi and °F unit display specifications.

Flow-rate Characteristics (Representative values)

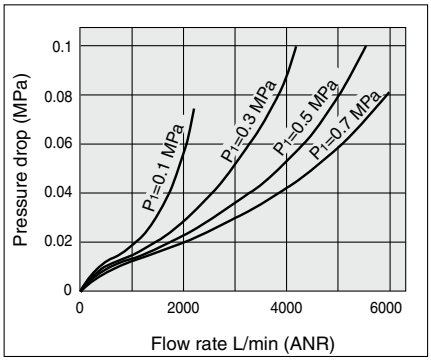
AL10-A M5



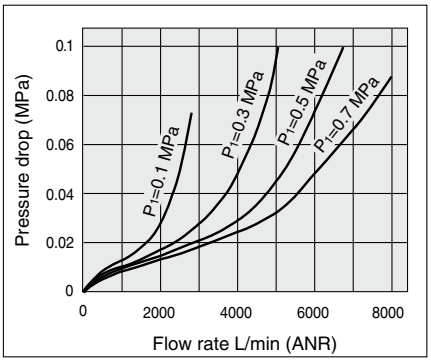
AL20-A Rc1/4



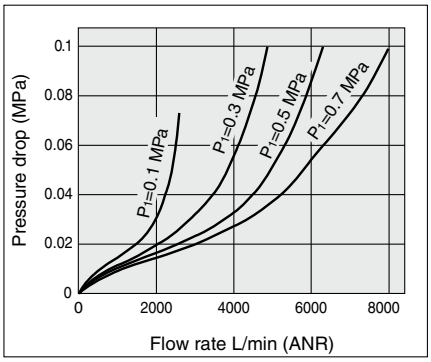
AL30-A Rc3/8



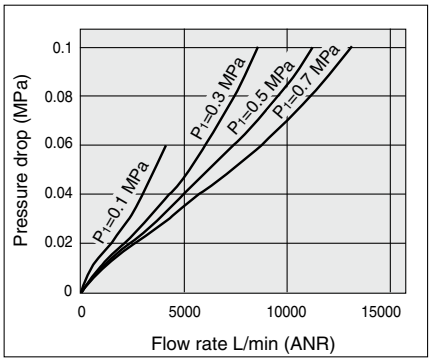
AL40-A Rc1/2



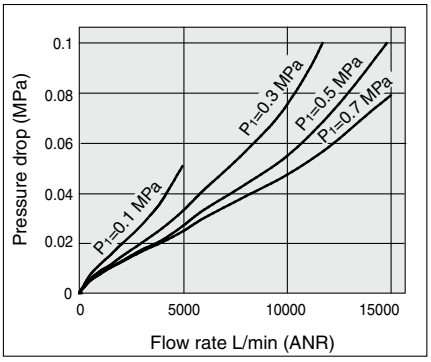
AL40-06-A Rc3/4



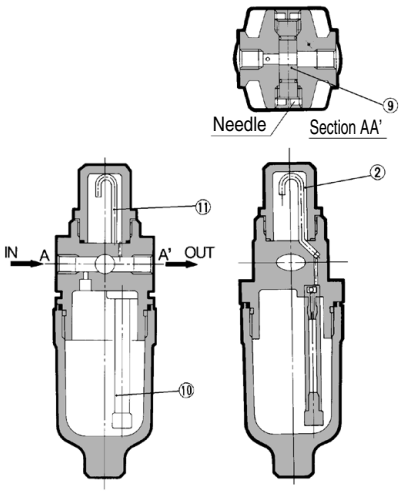
AL50-A Rc1



AL60-A Rc1



Working Principle: AL10 Type



A portion of the air introduced from the IN side pressurizes the lubricant inside the bowl. The remainder of the air passes through the needle ⑨, and flows to the OUT side. The differential pressure between the inside of the bowl and the inside of the sight dome ②, causes the lubricant inside the bowl into the oil passage ⑩. The lubricant drips from the dripping tube ⑪, and lubricates the OUT side. The amount of lubricant is adjusted by the needle ⑨ on the front face. Turning the needle clockwise increases the amount of the lubricant, and turning it counterclockwise until fully open shuts off the lubricant. The needle on the side that is not used should be left fully open.

⚠ Specific Product Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions, "Handling Precautions for SMC Products" and the Operation Manual for F.R.L. Precautions, http://www.smcworld.com

Selection

⚠Warning

1. Do not introduce air from the outlet side as this can damage the bumper.
2. **The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator 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	Nylon
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 diethyl 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	×	×
Others	Thread-lock fluid Seawater Leak tester	—	×	△

○: Essentially safe △: Some effects may occur. ×: Effects will occur.

When the above factors are present, or there is some doubt, use a metal bowl for safety.

Selection

⚠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 AL10-A/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 AL60-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. 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.

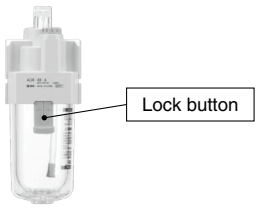
⚠Caution

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

Mounting/Adjustment

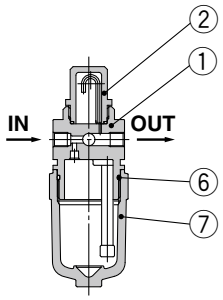
⚠Caution

1. When the bowl is installed on the AL30-A to AL60-A, 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.

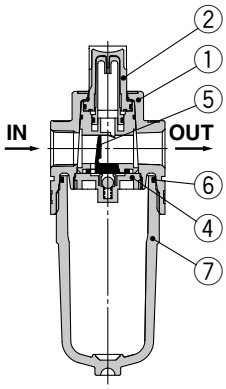


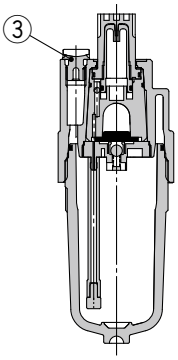
Construction

AL10-A

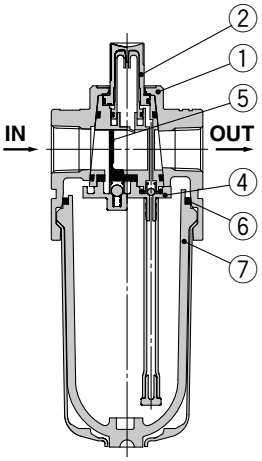


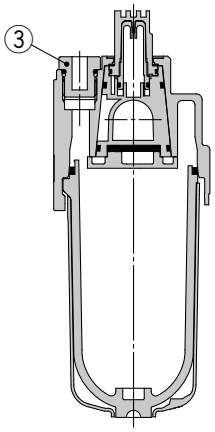
AL20-A



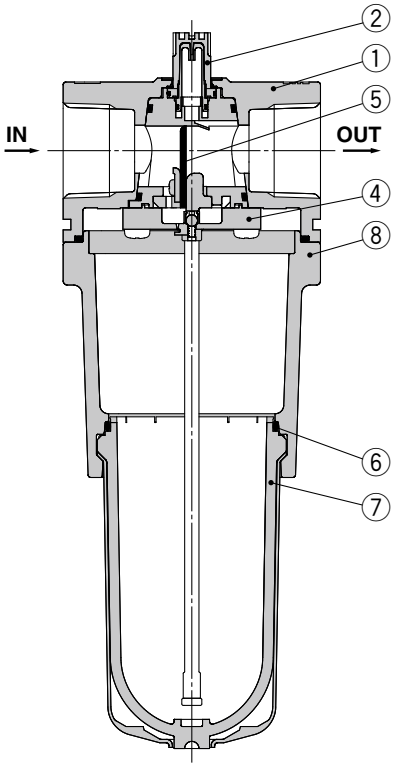


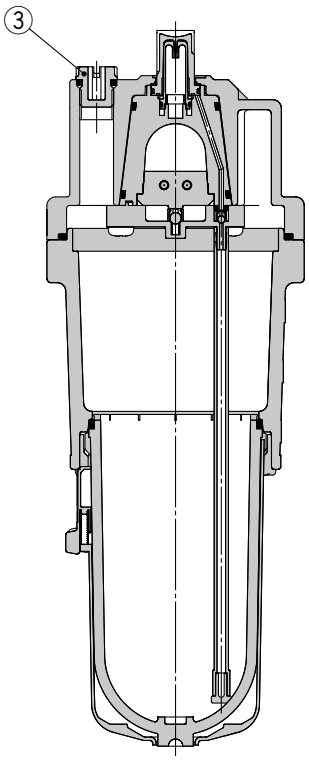
AL30-A/AL40-A





AL50-A/AL60-A





Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AL10-A	White
		Aluminum die-cast	AL20-A to AL60-A	
8	**Housing**	Aluminum die-cast	AL50-A/AL60-A	White

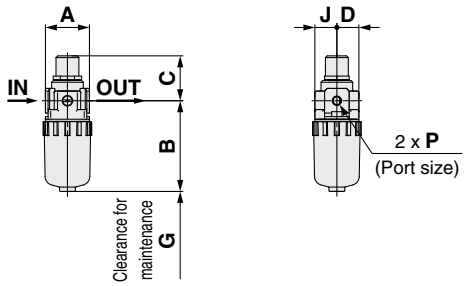
Replacement Parts

No.	Description	Material	Part no.						
			AL10-A	**AL20-A**	**AL30-A**	**AL40-A**	**AL40-06-A**	**AL50-A**	**AL60-A**
2	**Sight dome assembly**	Polycarbonate	AL10P-080AS	AL20P-080AS					
3	**Lubrication plug assembly**	—	—	AL22P-060AS	AL32P-060AS	AL42P-060AS			
4	**Bumper retainer assembly**	—	—	AL20P-030AS	AL30P-030AS	AL40P-030AS		AL50P-030AS	AL60P-030AS
5	**Bumper (assembly)**	Synthetic resin	—	AL20P-040S	AL30P-040S	AL40P-040S		AL50P-040AS	AL60P-040AS
6	**Bowl seal**	NBR	C1SFP-260S	C2SFP-260S	C32FP-260S	C42FP-260S			
7	**Bowl assembly** Note)	Polycarbonate	C1SL-A	C2SL-A	C3SL-A	C4SL-A			

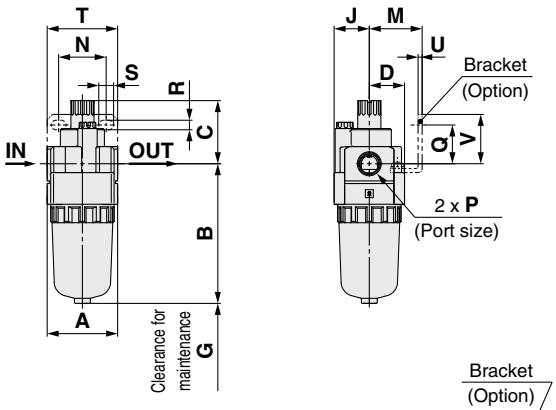
Note) · Bowl seal is included for the AL20-A to AL60-A. Please consult with SMC separately for psi and °F unit display specifications.
· Bowl assembly for the AL30-A to AL60-A models comes with a bowl guard (Material: Polycarbonate).

Dimensions

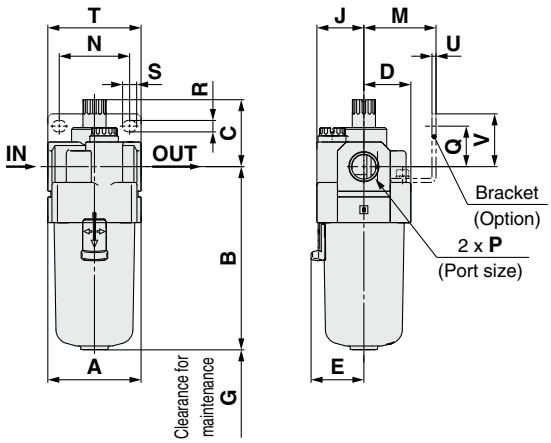
AL10-A



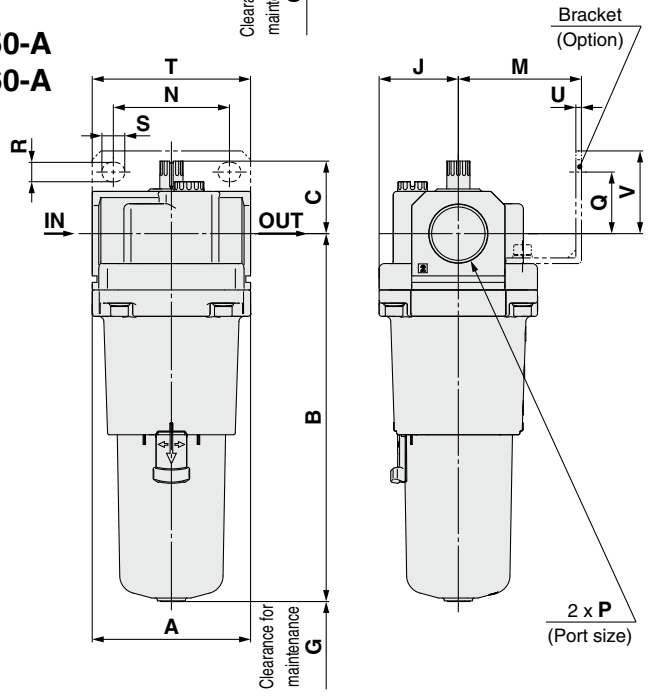
AL20-A

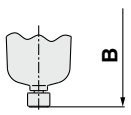
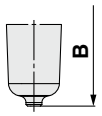
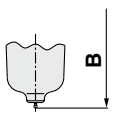
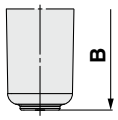


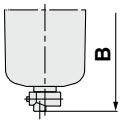
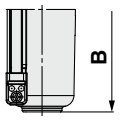
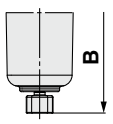
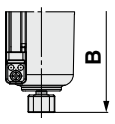
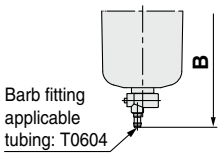
AL30-A to AL40-06-A



AL50-A
AL60-A



Applicable model	AL10-A/AL20-A			AL30-A to AL60-A
Optional/Semi-standard specifications	With drain cock	Metal bowl	Metal bowl with drain cock	Metal bowl
Dimensions				

Applicable model	AL30-A to AL60-A				
Optional/Semi-standard specifications	With drain cock	Metal bowl with level gauge	Metal bowl with drain cock	Metal bowl with level gauge, with drain cock	Drain cock with barb fitting
Dimensions					

Model	Standard specifications								Optional specifications								Semi-standard specifications					
									Bracket mount								With drain cock	With barb fitting	Metal bowl	Metal bowl with drain cock	Metal bowl with level gauge	Metal bowl with level gauge, with drain cock
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B	B	B	B	B	B
AL10-A	M5 x 0.8	25	51.5	25.5	12.5	—	35	12.5	—	—	—	—	—	—	—	—	59.9	—	56.3	59.3	—	—
AL20-A	1/8, 1/4	40	79.3	35.9	20	—	60	20	30	27	22	5.4	8.4	40	2.3	28	87.7	—	84.5	87.5	—	—
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	30	115.1	123.6	104.1	117.6	124.1	137.6
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	35	147.1	155.6	136.1	149.6	156.1	169.6
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	34	149.1	157.6	138.1	151.6	158.1	171.6
AL50-A	3/4, 1	90	209.1	41.2	45	—	110	45	70	66	35	11	13	90	3.2	47	220.1	228.6	209.1	222.6	229.1	246.2
AL60-A	1	95	223.1	44.7	47.5	—	110	47.5	70	66	35	11	13	90	3.2	47	234.1	242.6	223.1	236.6	243.1	256.6

⚠ 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, 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

SMC products are not intended for use as instruments for legal metrology.
Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.