CAT.EUS40-42-Ⓓ UK

SMC

Modular F.R.L. Unit

Series AC

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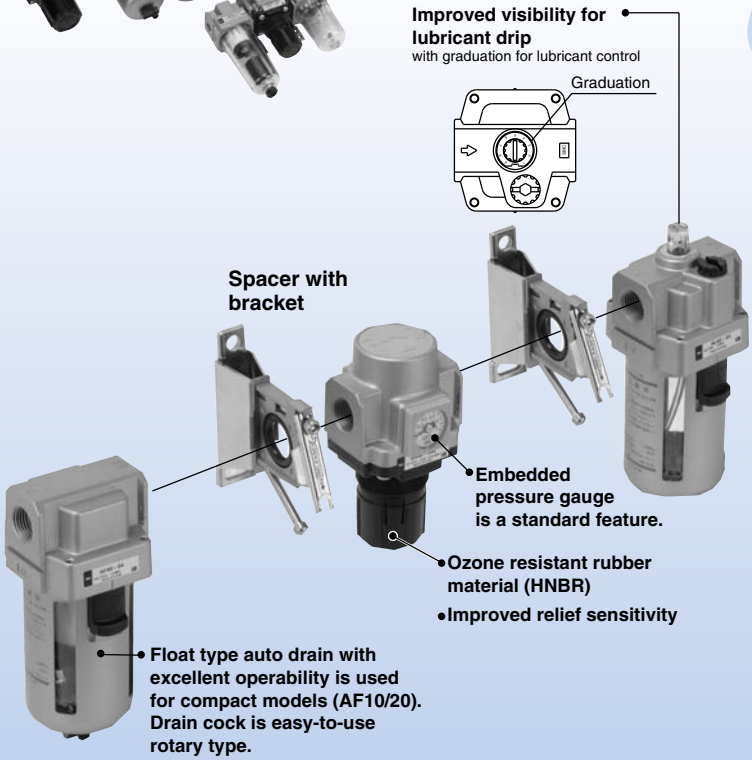
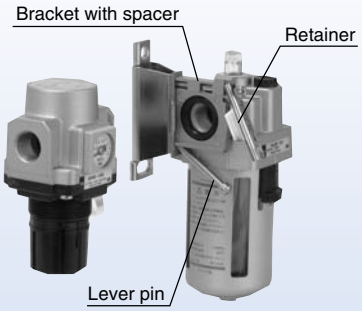
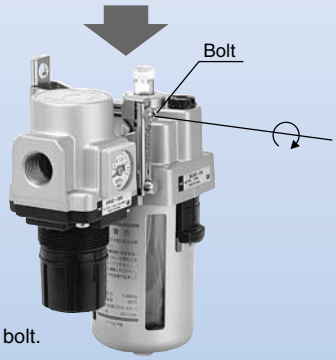
Series AC



Improved installation



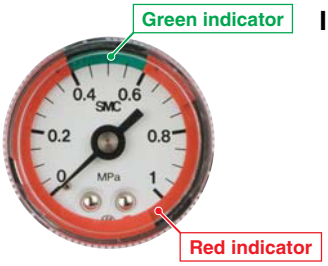
① Attach the component into the fitting of the spacer with bracket.
② Lock the lever pin into the retainer. (temporary installation)



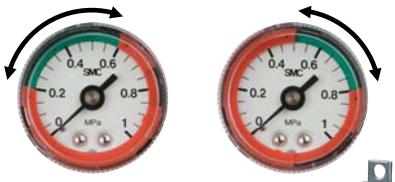
③ Tighten the bolt.

New Round type pressure gauge (with colour zone) type

■ **Red and green zones offer improved visibility of pressure control range.**



Indicator adjusts to highlight preferred range

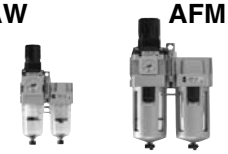


- **Filter Regulator**
  AW20(K) to 60(K)
- **Mist Separator Regulator**
  AWM20 to 40
- **Micro Mist Separator Regulator**
  AWD20 to 40

- **Regulator**
  AR20(K) to 60(K)

- **F.R.L. Unit**
  AC20 to 60 (AF + AR + AL)
  AC20A to 60A (AW + AL)
  AC20B to 60B (AF + AR)
  AC20C to 40C (AF + AFM + AR)
  AC20D to 40D (AW + AFM)

Series Configuration

Product		Model	Port size							Page
			M5	1/8	1/4	3/8	1/2	3/4	1	
Air Combination	Air Filter + Regulator + Lubricator AF AR AL 	AC10	●							1
		AC20		●	●					
		AC25			●	●				
		AC30			●	●				
		AC40			●	●	●			
		AC40-06						●		
		AC50						●	●	
		AC55							●	
		AC60							●	
	Filter Regulator + Lubricator AW AL 	AC10A	●							7
		AC20A		●	●					
		AC30A			●	●				
		AC40A			●	●	●			
		AC40A-06						●		
		AC50A						●	●	
		AC60A							●	
	Air Filter + Regulator AF AR 	AC10B	●							11
		AC20B		●	●					
		AC25B			●	●				
		AC30B			●	●				
		AC40B			●	●	●			
		AC40B-06						●		
		AC50B						●	●	
		AC55B							●	
		AC60B							●	
	Air Filter + Mist Separator + Regulator AF AFM AR 	AC20C		●	●					15
		AC25C			●	●				
		AC30C			●	●				
		AC40C			●	●	●			
		AC40C-06						●		
	Filter Regulator + Mist Separator AW AFM 	AC20D		●	●					19
		AC30D			●	●				
		AC40D			●	●	●			
		AC40D-06						●		

Series Configuration

Product		Model	Port size							Page
			M5	1/8	1/4	3/8	1/2	3/4	1	
Air Filter	AF	AF10	●							29
		AF20		●	●					
		AF30			●	●				
		AF40			●	●	●			
		AF40-06						●		
		AF50						●	●	
		AF60							●	
Mist Separator	AFM	AFM20		●	●					39
		AFM30			●	●				
		AFM40			●	●	●			
		AFM40-06						●		
Micro Mist Separator	AFD	AFD20		●	●					39
		AFD30			●	●				
		AFD40			●	●	●			
		AFD40-06						●		
Regulator	AR	AR10	●							47
		AR20		●	●					
		AR25			●	●				
		AR30			●	●				
		AR40			●	●	●			
		AR40-06						●		
		AR50						●	●	
		AR60							●	
Regulator with Backflow Function	AR□K	AR20K		●	●					47
		AR25K			●	●				
		AR30K			●	●				
		AR40K			●	●	●			
		AR40K-06						●		
		AR50K						●	●	
		AR60K							●	

Series Configuration

Product		Model	Port size							Page
			M5	1/8	1/4	3/8	1/2	3/4	1	
Lubricator	AL	AL10	●							59
		AL20		●	●					
		AL30			●	●				
		AL40			●	●	●			
		AL40-06						●		
		AL50						●	●	
		AL60							●	
Filter Regulator	AW	AW10	●							67
		AW20		●	●					
		AW30			●	●				
		AW40			●	●	●			
		AW40-06						●		
		AW60						●	●	
Filter Regulator with Backflow Function	AW□K	AW20K		●	●					67
		AW30K			●	●				
		AW40K			●	●	●			
		AW40K-06						●		
		AW60K						●	●	
Mist Separator Regulator	AWM	AWM20		●	●					79
		AWM30			●	●				
		AWM40			●	●	●			
Micro Mist Separator Regulator	AWD	AWD20		●	●					79
		AWD30			●	●				
		AWD40			●	●	●			

Simple Specials System

A system designed to respond quickly and easily to your special ordering needs.

Simple Specials System

Short lead times

This system enables us to respond to your special needs, such as additional machining, accessory assembly, or modular unit, and deliver such special products as quickly as standard products.

Repeat orders

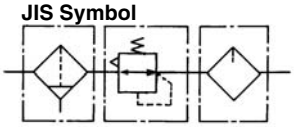
Once we receive a Simple Special part number from your previous order, we will process the order, manufacture the product, and deliver it to you.

Air Combination

Air Filter + Regulator + Lubricator

AC10 to AC60

JIS Symbol



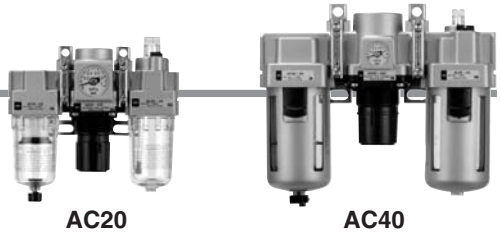
How to Order

AC [30] – [ ] [03] [DE] – [ ] – [ ]
❶ ❷ ❸ ❹ ❺ ❻

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

Example) AC30-F03DE1-KSTV-136NR

			Symbol	Description	❶ Body size 10	20	25	30	40	50	55	60
❷	Thread type		—	Metric thread (M5)	●	—	—	—	—	—	—	—
				Rc	—	●	●	●	●	●	●	●
			N Note 1)	NPT	—	●	●	●	●	●	●	●
			F Note 2)	G	—	●	●	●	●	●	●	●
			+									
❸	Port size		M5	M5	●	—	—	—	—	—	—	—
			01	1/8	—	●	—	—	—	—	—	—
			02	1/4	—	●	●	●	●	—	—	—
			03	3/8	—	—	●	●	●	—	—	—
			04	1/2	—	—	—	—	●	—	—	—
			06	3/4	—	—	—	—	●	●	—	—
			10	1	—	—	—	—	—	●	●	●
			+									
❹	Option Note 3)	a	Float type auto drain	—	Without auto drain	●	●	●	●	●	●	●	●
				C	Float type auto drain (N.C.)	●	●	●	●	●	●	●	●
				D	Float type auto drain (N.O.)	—	—	●	●	●	●	●	●
			+										
		b	Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●	●	●
				E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●
				G	Round type pressure gauge (without limit indicator)	●	—	—	—	—	—	—	—
					Round type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●
				M	Round type pressure gauge (with colour zone)	—	●	●	●	●	●	●	●
			Digital pressure switch	E1	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
				E2	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
				E3	Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
				E4	Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
			+										
❺	Attachment	c	Check valve	—	Without attachment	●	●	●	●	●	●	●	●
				K	Mounting position: AF+AR+**K**+AL	—	●	●	●	● Note 4)	—	—	—
			+										
		d	Pressure switch	—	Without attachment	●	●	●	●	●	●	●	●
				S Note 5)	Mounting position: AF+AR+**S**+AL	—	●	●	●	●	●	●	●
			+										
		e	T-interface	—	Without attachment	●	●	●	●	●	●	●	●
				T Note 5)	Mounting position: AF+**T**+AR+AL	●	●	●	●	●	●	●	●
			+										
		f	3-port valve for residual pressure release	—	Without attachment	●	●	●	●	●	●	●	●
				V	Mounting position: AF+AR+AL+**V**	—	●	●	●	●	●	—	—
			+										
❻	Semi-standard	g	Set pressure	—	0.05 to 0.85 MPa setting	●	●	●	●	●	●	●	●
				1 Note 6)	0.02 to 0.2 MPa setting	●	●	●	●	●	●	●	●
			+										
		h	Bowl	—	Polycarbonate bowl	●	●	●	●	●	●	●	●
				2	Metal bowl	●	●	●	●	●	●	●	●
				6	Nylon bowl	●	●	●	●	●	●	●	●
				8	Metal bowl with level gauge	—	—	●	●	●	●	●	●
				C	With bowl guard	—	●	—	—	—	—	—	—
				6C	Nylon bowl with bowl guard	—	●	—	—	—	—	—	—



AC20 AC40

			Symbol	Description	❶ Body size 10	20	25	30	40	50	55	60
❻ Semi-standard	i	Filter drain port Note 7)	—	With drain cock	●	●	●	●	●	●	●	●
			J Note 8)	Drain guide 1/8	—	●	—	—	—	—	—	—
				Drain guide 1/4	—	—	●	●	●	●	●	●
			W Note 9)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●	●	●
			+									
	j	Lubricator lubricant exhaust port	—	Without drain cock	●	●	●	●	●	●	●	●
			3 Note 10)	Lubricator with drain cock	●	●	●	●	●	●	●	●
			+									
	k	Exhaust mechanism	—	Relieving type	●	●	●	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●	●	●	●
			+									
	l	Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●	●	●
			+									
	m	Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●	●	●
			Z Note 11)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)
			ZA Note 12)	Digital pressure switch: With unit conversion function	—	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)

Note 1) Drain guide is NPT1/8 (applicable to the AC20) and NPT1/4 (applicable to the AC25 to AC60). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AC25 to AC60).
Note 2) Drain guide is G1/8 (applicable to the AC20) and G1/4 (applicable to the AC25 to AC60).
Note 3) Option G and M are not assembled and supplied loose at the time of shipment.
Note 4) Not available with piping port size: 06.
Note 5) The bracket position varies depending on the T-interface or pressure switch mounting.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 8) Without a valve function
Note 9) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 10) Filter drain port: When choosing with W, the drain cock of a lubricator will be with barb fittings.
Note 11) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
MPa and psi are shown together on the pressure unit.
Note 12) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 13) ○: For thread type: M5 and NPT only
Note 14) △: Select with options: E1, E2, E3, E4.

Standard Specifications

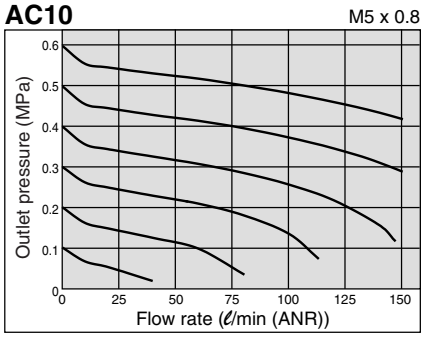
Model		AC10	AC20	AC25	AC30	AC40	AC40-06	AC50	AC55	AC60
Component	Air filter	AF10	AF20	AF30	AF30	AF40	AF40-06	AF50	AF60	AF60
	Regulator	AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR50	AR60
	Lubricator	AL10	AL20	AL30	AL30	AL40	AL40-06	AL50	AL60	AL60
Port size		M5	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1	1
Pressure gauge port size Note 1)		1/16	1/8			1/4				
Fluid		Air								
Ambient and fluid temperature Note 2)		–5 to 60°C (with no freezing)								
Proof pressure		1.5 MPa								
Max. operating pressure		1.0 MPa								
Set pressure range		0.05 to 0.7 MPa	0.05 to 0.85 MPa							
Relief pressure		Set pressure + 0.05 MPa Note 3) [at relief flow rate of 0.1 ℓ/min (ANR)]								
Nominal filtration rating		5 µm								
Recommended lubricant		Class 1 turbine oil (ISO VG32)								
Bowl material		Polycarbonate								
Bowl guard		—	Semi-standard	Standard						
Regulator construction		Relieving type								
Mass (kg)		0.27	0.46	0.91	1.00	1.74	1.95	4.17	4.25	4.34

Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch (AC20 to AC60).
Note 2) –5 to 50°C for the products with the digital pressure switch
Note 3) Not applicable to the AC10.

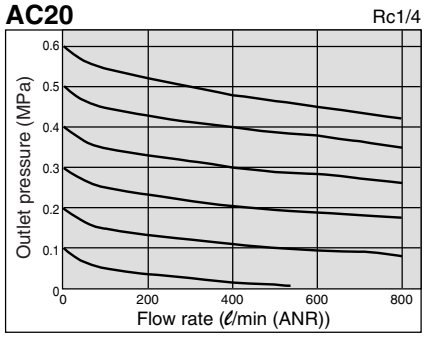
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

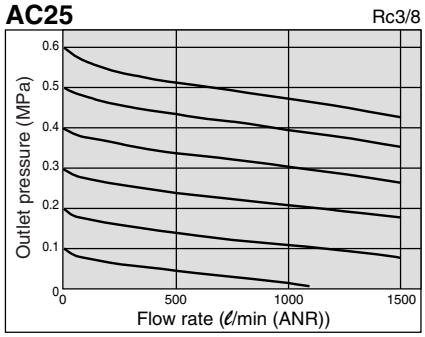
AC10 M5 x 0.8



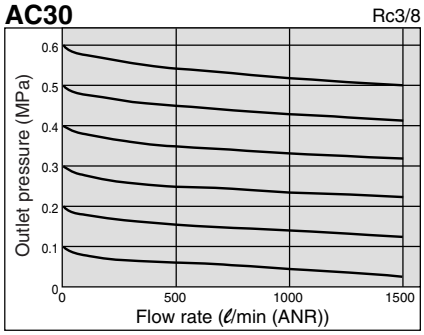
AC20 Rc1/4



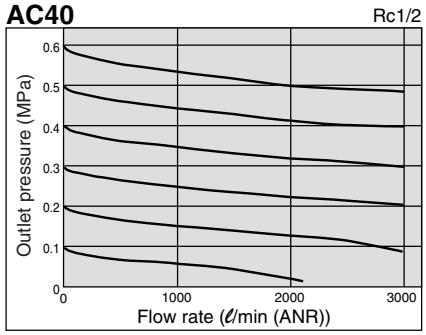
AC25 Rc3/8



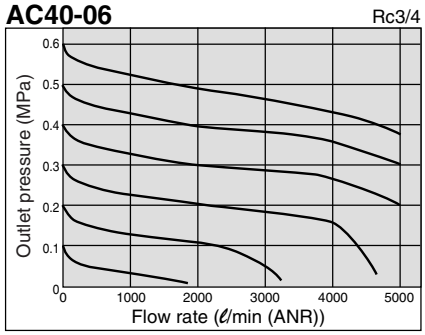
AC30 Rc3/8



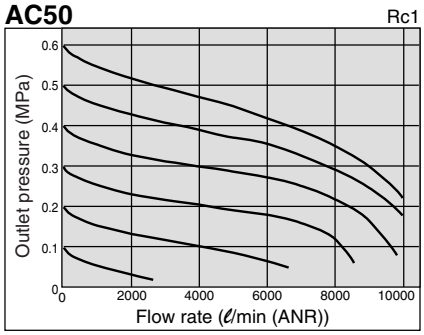
AC40 Rc1/2



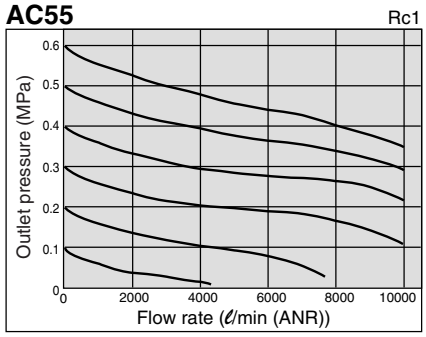
AC40-06 Rc3/4



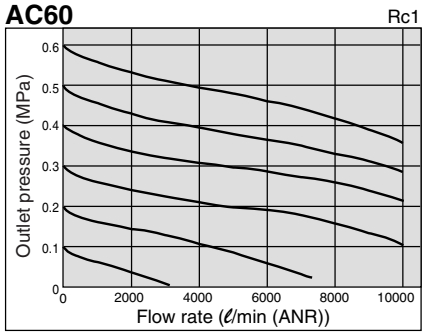
AC50 Rc1



AC55 Rc1



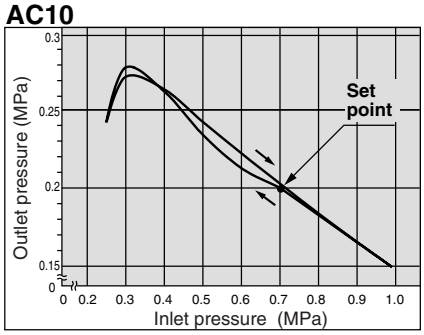
AC60 Rc1



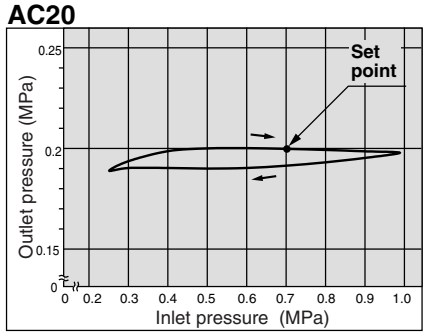
Pressure Characteristics (Representative values)

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

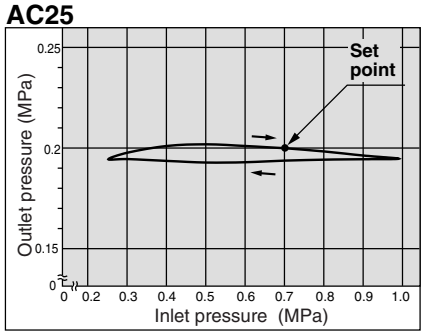
AC10



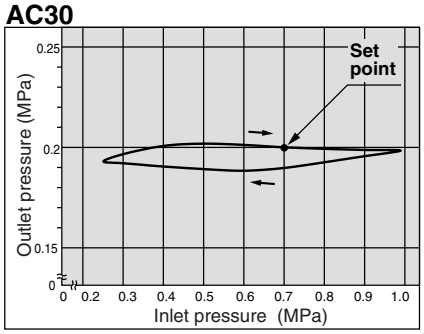
AC20



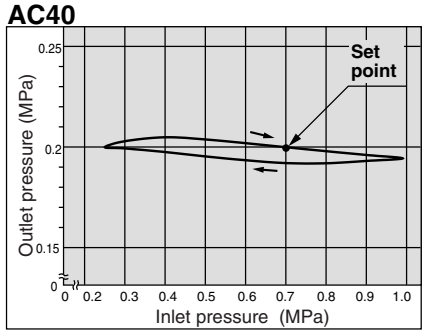
AC25



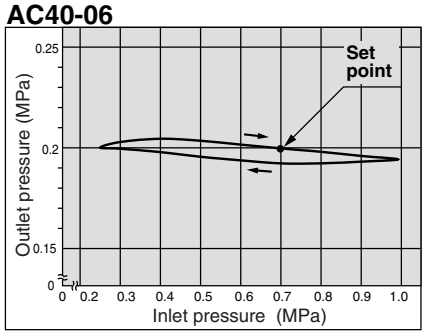
AC30



AC40



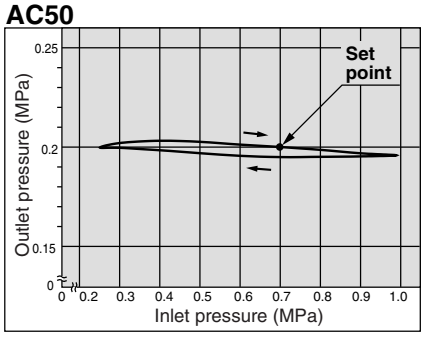
AC40-06



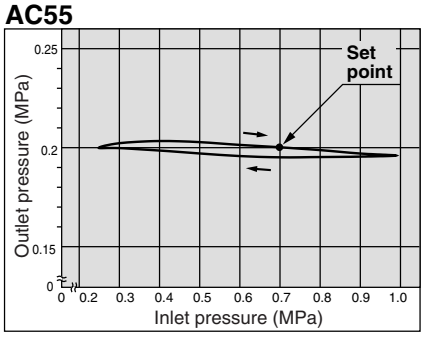
Pressure Characteristics (Representative values)

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

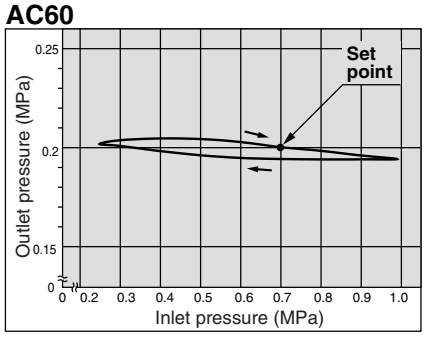
AC50



AC55



AC60



⚠ Specific Product Precautions

Mounting and Adjustment

⚠ Caution

1. A knob cover is available to prevent careless operation of the knob. Refer to page 90 for details.

Piping

⚠ Warning

1. When mounting a check valve, make sure the arrow (IN side) points in the correct direction of air flow.

Air Supply

⚠ Caution

1. Use an air filter with 5 μm or less filtration rating on the inlet side of the valve to avoid any damage to the seat caused by dust when mounting a 3-port valve for residual pressure release on the inlet side.

Selection

⚠ Warning

1. Float type auto drain

   Operate under the following conditions to avoid malfunction.

   <N.O. type>
   - Operating compressor: 0.75 kW (100 ℓ/min (ANR)) or more.

     When using 2 or more auto drains, multiply the value above by the number of auto drains to find the capacity of the compressors you will need.

     For example, when using 2 auto drains, 1.5 kW (200 ℓ/min (ANR)) of the compressor capacity is required.
   - Operating pressure: 0.1 MPa or more.

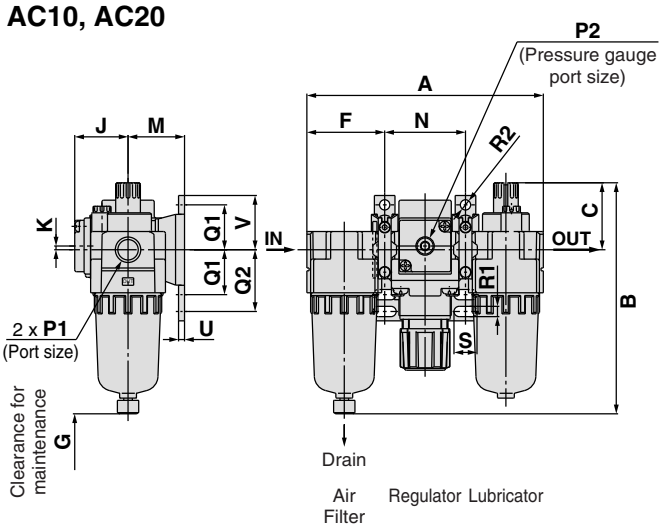
   <N.C. type>
   - Operating pressure for AD17/27: 0.1 MPa or more.
   - Operating pressure for AD37/47: 0.15 MPa or more.
2. Use a regulator or filter regulator with backflow function when mounting a 3-port valve for residual pressure release on the IN side to ensure the release of the residual pressure. Otherwise, residual pressure will not be fully released.

⚠ Caution

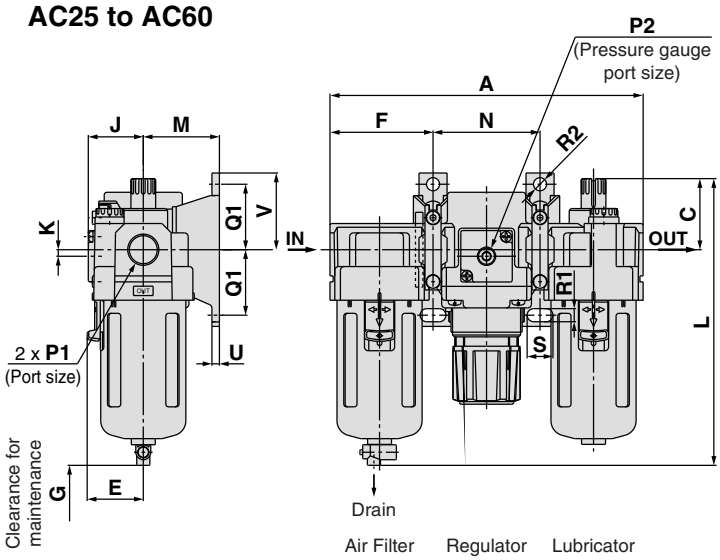
1. When releasing air at the intermediate position using a T-interface on the inlet side of the lubricator, lubricant may back flow. Therefore, releasing air that does not contain traces of lubricant is not possible.
   To release air that does not contain traces of lubricant, use a check valve (AKM series) on the inlet side of the lubricator to prevent a backflow of the lubricant.
2. If a residual pressure-release 3-port valve is mounted on the inlet side of the lubricator, causing a backflow of air, it can result in a backflow of oil or damage to internal parts. Please do not use it in this fashion.
3. An F.R.L. unit shipped from the plant has its model number labeled. However, components that are combined together during the distribution process do not have a label on them.

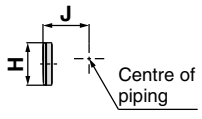
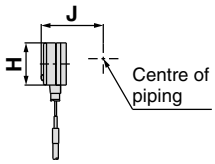
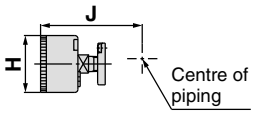
Dimensions

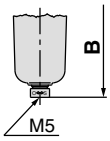
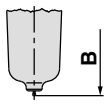
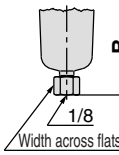
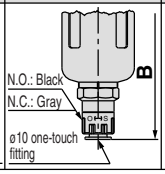
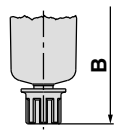
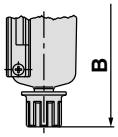
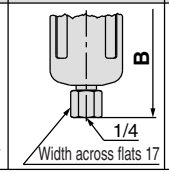
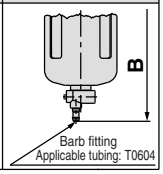
AC10, AC20



AC25 to AC60



Applicable model	AC20 to AC60		AC10 to AC60	AC20 to AC60
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AC10, AC20		AC20	AC25 to AC60				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
											Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B	C	E	F	G	J	K	H	J	H	J	H	J	H	J
AC10	M5 x 0.8	1/16	87	85	26	—	28	35	13	0	—	—	—	—	ø26	26	—	—
AC20	1/8, 1/4	1/8	126	123	36	—	41.5	60	28.5	2 Note)	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AC25	1/4, 3/8	1/8	167	153	38	30	55	80	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AC30	1/4, 3/8	1/8	167	153	38	30	55	80	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40	1/4, 3/8, 1/2	1/4	220	187	40	38	72.5	110	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC40-06	3/4	1/4	235	187	38	38	77.5	110	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC50	3/4, 1	1/4	282	264	43	45	93	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC55	1	1/4	292	279	45	47.5	98	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC60	1	1/4	297	280	46	47.5	98	110	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84

Model	Optional specifications										Semi-standard specifications			
	Bracket mount									With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	N	Q1	Q2	R1	R2	S	U	V	B	B	B	B	B
AC10	25	31	20	27	4.5	ø4.5	7	2.8	24.5	104	—	—	85	—
AC20	30	43	24	33	5.5	ø5.5	12	3.2	29	141	—	127	123	—
AC25	41	57	35	—	7	ø7	14	4	41	194	161	160	166	186
AC30	41	57	35	—	7	ø7	14	4	41	194	161	160	166	186
AC40	50	75	40	—	9	ø9	18	4	48	226	195	194	200	220
AC40-06	50	80	40	—	9	ø9	18	4.6	48	226	195	194	200	220
AC50	70	96	50	—	11	ø11	20	6.4	60	303	272	271	276	296
AC55	70	96	50	—	11	ø11	20	6.4	60	318	287	286	292	312
AC60	70	101	50	—	11	ø11	20	6.4	60	319	288	287	293	313

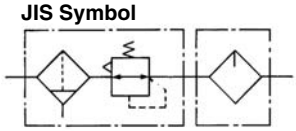
Note) For the AC20 only, the position of the pressure gauge is above the centre of the piping.

Air Combination

Filter Regulator + Lubricator

AC10A to AC60A

JIS Symbol



Filter Regulator Lubricator

How to Order

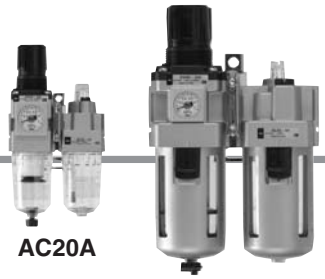
AC **30** A – ❑ **03** **DE** – ❑ – ❑

❶ ❷ ❸ ❹ ❺ ❻

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

Example) AC30A-F03DE1-KSV-136NR

			Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Thread type		—	Metric thread (M5)	●	—	—	—	—	—
				Rc	—	●	●	●	●	●
			N Note 1)	NPT	—	●	●	●	●	●
			F Note 2)	G	—	●	●	●	●	●
			+							
❸	Port size		M5	M5	●	—	—	—	—	—
			01	1/8	—	●	—	—	—	—
			02	1/4	—	●	●	●	—	—
			03	3/8	—	—	●	●	—	—
			04	1/2	—	—	—	●	—	—
			06	3/4	—	—	—	●	●	—
			10	1	—	—	—	—	●	●
			+							
❹	Option Note 3)	a Float type auto drain	—	Without auto drain	●	●	●	●	●	●
			C	Float type auto drain (N.C.)	●	●	●	●	●	●
			D	Float type auto drain (N.O.)	—	—	●	●	●	●
			+							
		b Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●
			G	Round type pressure gauge (without limit indicator)	●	—	—	—	—	—
				Round type pressure gauge (with limit indicator)	—	●	●	●	●	●
			M	Round type pressure gauge (with colour zone)	—	●	●	●	●	●
		b Digital pressure switch	E1	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●
			E2	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●
			E3	Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●
			E4	Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●	●
			+							
❺	Attachment	c Check valve	—	Without attachment	●	●	●	●	●	●
			K	Mounting position: AW+**K**+AL	—	●	●	● Note 4)	—	—
			+							
		d Pressure switch	Nil	Without attachment	●	●	●	●	●	●
			S Note 5)	Mounting position: AW+**S**+AL	—	●	●	●	●	●
			+							
		e 3-port valve for residual pressure release	—	Without attachment	●	●	●	●	●	●
			V	Mounting position: AW+AL+**V**	—	●	●	●	●	—
			+							
❻	Semi-standard	f Set pressure	—	0.05 to 0.85 MPa setting	●	●	●	●	●	●
			1 Note 6)	0.02 to 0.2 MPa setting	●	●	●	●	●	●
			+							
		g Bowl	—	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●	●
			C	With bowl guard	—	●	—	—	—	—
			6C	Nylon bowl with bowl guard	—	●	—	—	—	—
			+							
		h Filter regulator drain port Note 7)	—	With drain cock	●	●	●	●	●	●
			J Note 8)	Drain guide 1/8	—	●	—	—	—	—
				Drain guide 1/4	—	—	●	●	●	●
			W Note 9)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●



AC20A AC40A

		Symbol	Description	❶ Body size 10	20	30	40	50	60
❻ Semi-standard	i Lubricator lubricant exhaust port	—	Without drain cock	●	●	●	●	●	●
		3	Lubricator with drain cock	●	●	●	●	●	●
		+							
	j Exhaust mechanism	—	Relieving type	●	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●	●
		+							
	k Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●	●
		+							
	l Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●
		Z Note 10)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)
		ZA Note 11)	Digital pressure switch: With unit conversion function	—	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)

Note 1) Drain guide is NPT1/8 (applicable to the AC20A) and NPT1/4 (applicable to the AC30A to AC60A). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AC30A to AC60A).
Note 2) Drain guide is G1/8 (applicable to the AC20A) and G1/4 (applicable to the AC30A to AC60A).
Note 3) Option G, M are not assembled and supplied loose at the time of shipment.
Note 4) Not available with piping port size: 06.
Note 5) The bracket position varies depending on the pressure switch mounting.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 8) Without a valve function
Note 9) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 10) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
MPa and psi are shown together on the pressure unit.
Note 11) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 12) ○: For thread type: M5 and NPT only
Note 13) △: Select with options: E1, E2, E3, E4.

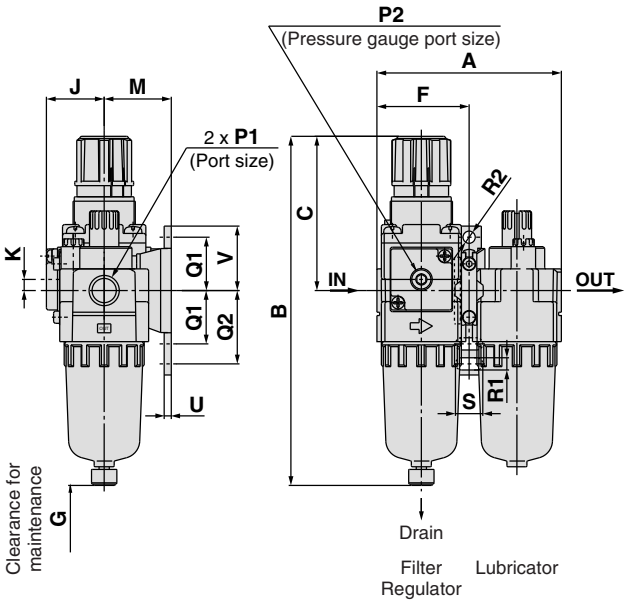
Standard Specifications

Model		AC10A	AC20A	AC30A	AC40A	AC40A-06	AC50A	AC60A
Component	**Filter regulator**	**AW10**	**AW20**	**AW30**	**AW40**	**AW40-06**	**AW60**	**AW60**
	Lubricator	**AL10**	**AL20**	**AL30**	**AL40**	**AL40-06**	**AL50**	**AL60**
Port size		M5	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Pressure gauge port size Note 1)		1/16	1/8		1/4			
Fluid		Air						
Ambient and fluid temperature Note 2)		–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	0.05 to 0.85 MPa					
Relief pressure		Set pressure + 0.05 MPa Note 3) [at relief flow rate of 0.1 ℓ/min (ANR)]						
Nominal filtration rating		5 µm						
Recommended lubricant		Class 1 turbine oil (ISO VG32)						
Bowl material		Polycarbonate						
Bowl guard		—	Semi-standard	Standard				
Regulator construction		Relieving type						
Mass (kg)		0.20	0.38	0.75	1.41	1.46	3.33	3.40

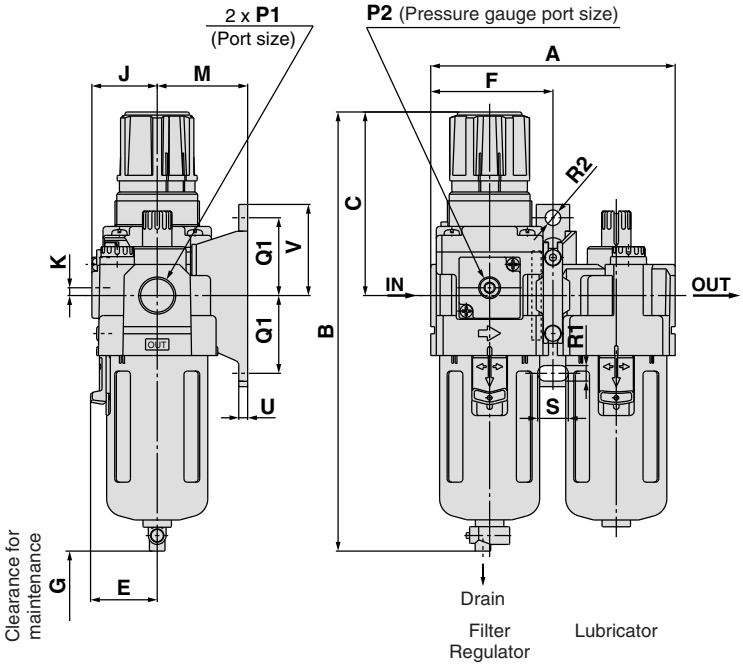
Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch (AC20A to AC60A).
Note 2) –5 to 50°C for the products with the digital pressure switch
Note 3) Not applicable to the AC10A.

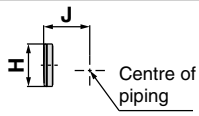
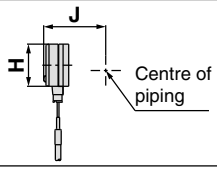
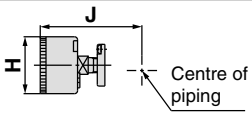
Dimensions

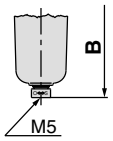
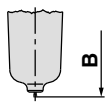
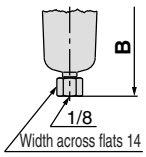
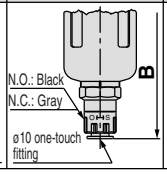
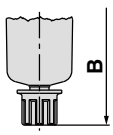
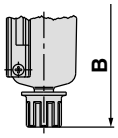
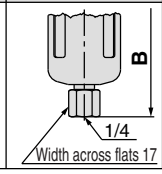
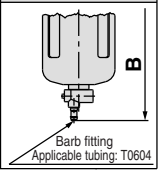
AC10A, AC20A



AC30A to AC60A



Applicable model	AC20A to AC60A		AC10A to AC60A	AC20A to AC60A
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AC10A, AC20A		AC20A	AC30A to AC60A				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
											Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B Note)	C	E	F	G	J	K	H	J	H	J	H	J	H	J
AC10A	M5 x 0.8	1/16	56	108	48	—	28	35	13	0	—	—	—	—	ø26	26	—	—
AC20A	1/8, 1/4	1/8	83	160	73	—	41.5	60	26	5	□28	27	□27.8	37.5	ø37.5	63	ø37.5	63
AC30A	1/4, 3/8	1/8	110	201	86	30	55	80	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40A	1/4, 3/8, 1/2	1/4	145	239	92	38	72.5	110	37.5	1.5	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76
AC40A-06	3/4	1/4	155	242	93	38	77.5	110	37.5	1.2	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76
AC50A	3/4, 1	1/4	191	409	175	—	98	110	43.5	3.2	□28	44.5	□27.8	61.5	ø42.5	84	ø42.5	84
AC60A	1	1/4	196	409	175	—	98	110	43.5	3.2	□28	44.5	□27.8	61.5	ø42.5	84	ø42.5	84

Model	Optional specifications									Semi-standard specifications			
	Bracket mount								With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	Q1	Q2	R1	R2	S	U	V	B	B	B	B	B
AC10A	25	20	27	4.5	ø4.5	7	2.8	24.5	125	—	—	107	—
AC20A	30	24	33	5.5	ø5.5	12	3.2	29	177	—	164	160	—
AC30A	41	35	—	7	ø7	14	4	41	242	209	208	214	234
AC40A	50	40	—	9	ø9	18	4	48	278	247	246	252	272
AC40A-06	50	40	—	9	ø9	18	4.6	48	282	251	249	255	275
AC50A	70	50	—	11	ø11	20	6.4	60	448	417	416	422	442
AC60A	70	50	—	11	ø11	20	6.4	60	448	417	416	422	442

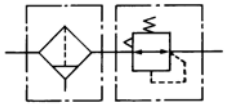
Note) The total length of B dimension is the length when the filter regulator knob is unlocked.

Air Combination

Air Filter + Regulator

AC10B to AC60B

JIS Symbol



Air Filter Regulator

How to Order

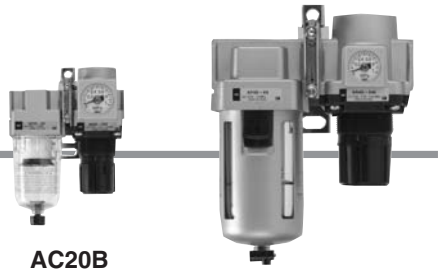
AC **30** B – [ ] **03** **DE** – [ ] – [ ]

❶ ❷ ❸ ❹ ❺ ❻

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

Example) AC30B-F03DE1-SV-16NR

			Symbol	Description	❶ Body size 10	20	25	30	40	50	55	60
❷	Thread type		—	Metric thread (M5)	●	—	—	—	—	—	—	—
				Rc	—	●	●	●	●	●	●	●
			N Note 1)	NPT	—	●	●	●	●	●	●	●
			F Note 2)	G	—	●	●	●	●	●	●	●
			+									
❸	Port size		M5	M5	●	—	—	—	—	—	—	—
			01	1/8	—	●	—	—	—	—	—	—
			02	1/4	—	●	●	●	●	—	—	—
			03	3/8	—	—	●	●	●	—	—	—
			04	1/2	—	—	—	—	●	—	—	—
			06	3/4	—	—	—	—	●	●	—	—
			10	1	—	—	—	—	—	●	●	●
			+									
❹	Option Note 3)	a	Float type auto drain	— Without auto drain	●	●	●	●	●	●	●	●
				C Float type auto drain (N.C.)	●	●	●	●	●	●	●	●
				D Float type auto drain (N.O.)	—	—	●	●	●	●	●	●
			+									
		b	Pressure gauge	— Without pressure gauge	●	●	●	●	●	●	●	●
				E Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●
				G Round type pressure gauge (without limit indicator)	●	—	—	—	—	—	—	—
				Round type pressure gauge (with limit indicator)	—	●	●	●	●	●	●	●
				M Round type pressure gauge (with colour zone)	—	●	●	●	●	●	●	●
			Digital pressure switch	E1 Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
				E2 Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
				E3 Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●	●
				E4 Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●	●
			+									
❺	Attachment	c	Pressure switch	— Without attachment	●	●	●	●	●	●	●	●
				S Note 4) Mounting position: AF+**S**+AR	—	●	●	●	●	●	●	●
			T-interface	T Note 4) Mounting position: AF+**T**+AR	●	●	●	●	●	●	●	●
			+									
		d	3-port valve for residual pressure release	Nil Without attachment	●	●	●	●	●	●	●	●
				V Mounting position: AF+AR+**V**	—	●	●	●	●	●	—	—
				V1 Note 5) Mounting position: **V**+AF+AR□K	—	●	●	●	●	●	—	—
			+									
❻	Semi-standard	e	Set pressure	— 0.05 to 0.85 MPa setting	●	●	●	●	●	●	●	●
				1 Note 6) 0.02 to 0.2 MPa setting	●	●	●	●	●	●	●	●
			+									
		f	Bowl	— Polycarbonate bowl	●	●	●	●	●	●	●	●
				2 Metal bowl	●	●	●	●	●	●	●	●
				6 Nylon bowl	●	●	●	●	●	●	●	●
				8 Metal bowl with level gauge	—	—	●	●	●	●	●	●
				C With bowl guard	—	●	—	—	—	—	—	—
				6C Nylon bowl with bowl guard	—	●	—	—	—	—	—	—
			+									
		g	Filter drain port Note 7)	— With drain cock	●	●	●	●	●	●	●	●
				J Note 8) Drain guide 1/8	—	●	—	—	—	—	—	—
				Drain guide 1/4	—	—	●	●	●	●	●	●
				W Note 9) Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●	●	●



AC20B AC40B

		Symbol	Description	❶ Body size 10	20	25	30	40	50	55	60
❻ Semi-standard	h Exhaust mechanism	—	Relieving type	●	●	●	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●	●	●	●
		+									
	i Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●	●	●	●
		+									
	j Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●	●	●
		Z Note 10)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)
		ZA Note 11)	Digital pressure switch: With unit conversion function	—	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)

Note 1) Drain guide is NPT1/8 (applicable to the AC20B) and NPT1/4 (applicable to the AC25B to AC60B). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AC25B to AC60B).
Note 2) Drain guide is G1/8 (applicable to the AC20B) and G1/4 (applicable to the AC25B to AC60B).
Note 3) Option G, M are not assembled and supplied loose at the time of shipment.
Note 4) The bracket position varies depending on the T-interface or pressure switch mounting.
Note 5) The regulator is equipped with a backflow function in this configuration. Additionally, for safety purposes, please check that the pressure in the outlet side is turned to the atmospheric pressure once the pressure in the outlet side is exhausted, by using a pressure gauge, etc.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 8) Without a valve function
Note 9) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 10) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
MPa and psi are shown together on the pressure unit.
Note 11) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 12) ○: For thread type: M5 and NPT only
Note 13) △: Select with options: E1, E2, E3, E4.

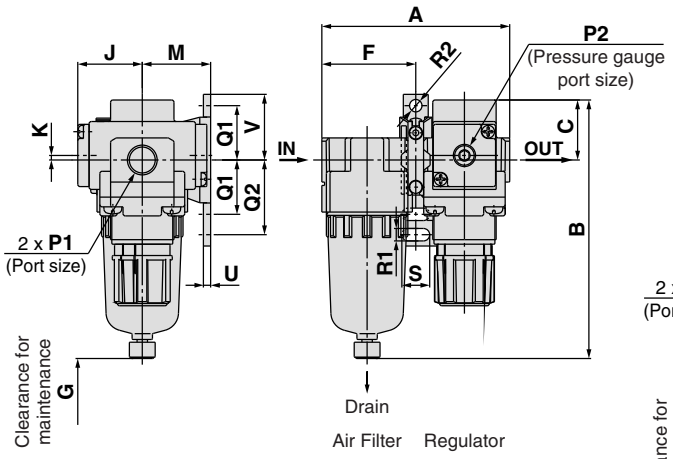
Standard Specifications

Model		AC10B	AC20B	AC25B	AC30B	AC40B	AC40B-06	AC50B	AC55B	AC60B
Component	**Air filter**	**AF10**	**AF20**	**AF30**	**AF30**	**AF40**	**AF40-06**	**AF50**	**AF60**	**AF60**
	Regulator	**AR10**	**AR20**	**AR25**	**AR30**	**AR40**	**AR40-06**	**AR50**	**AR50**	**AR60**
Port size		M5	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1	1
Pressure gauge port size Note 1)		1/16	1/8			1/4				
Fluid		Air								
Ambient and fluid temperature Note 2)		–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	0.05 to 0.85 MPa							
Relief pressure		Set pressure + 0.05 MPa Note 3) [at relief flow rate of 0.1 ℓ/min (ANR)]								
Nominal filtration rating		5 μm								
Bowl material		Polycarbonate								
Bowl guard		—	Semi-standard	Standard						
Regulator construction		Relieving type								
Mass (kg)		0.16	0.33	0.55	0.63	1.12	1.16	2.44	2.45	2.54

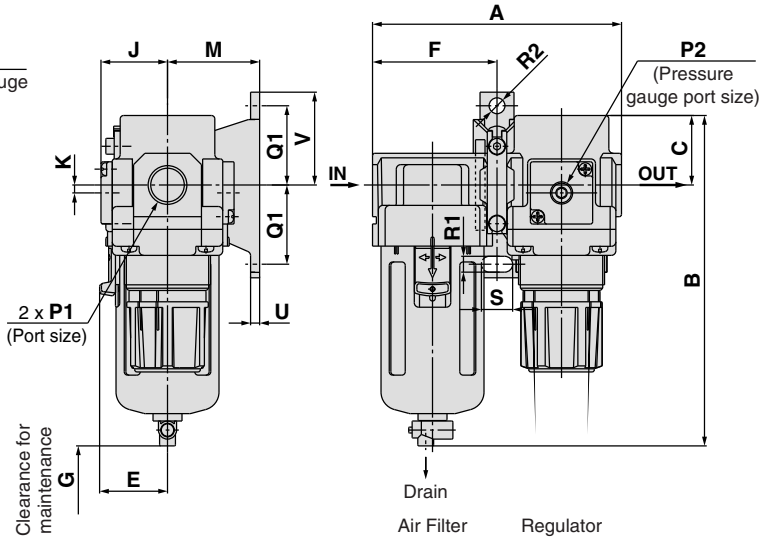
Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch (AC10B to AC60B).
Note 2) –5 to 50°C for the products with the digital pressure switch
Note 3) Not applicable to the AC10B.

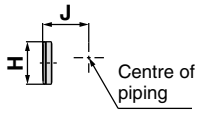
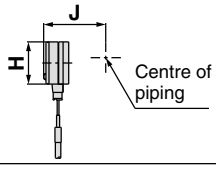
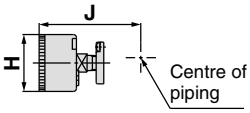
Dimensions

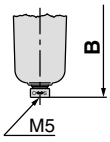
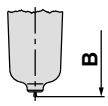
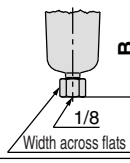
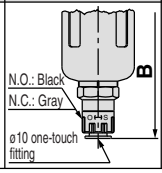
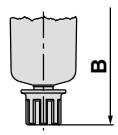
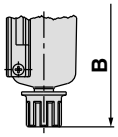
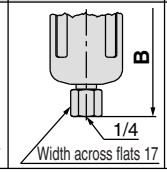
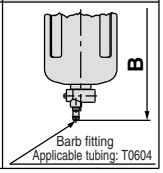
AC10B, AC20B



AC25B to AC60B



Applicable model	AC20B to AC60B		AC10B to AC60B	AC20B to AC60B
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AC10B, AC20B		AC20B	AC25B to AC60B				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
											Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B	C	E	F	G	J	K	H	J	H	J	H	J	H	J
AC10B	M5 x 0.8	1/16	56	71	11	—	28	25	13	0	—	—	—	—	ø26	26	—	—
AC20B	1/8, 1/4	1/8	83	114	26.5	—	41.5	40	28.5	2 Note)	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AC25B	1/4, 3/8	1/8	110	143	28	30	55	50	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AC30B	1/4, 3/8	1/8	110	146	31	30	55	50	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40B	1/4, 3/8, 1/2	1/4	145	183	36	38	72.5	75	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC40B-06	3/4	1/4	155	185	36	38	77.5	75	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC50B	3/4, 1	1/4	186	263	43	45	93	20	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC55B	1	1/4	191	277	43	47.5	98	20	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AC60B	1	1/4	196	280	46	47.5	98	20	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84

Model	Optional specifications									Semi-standard specifications			
	Bracket mount								With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	Q1	Q2	R1	R2	S	U	V	B	B	B	B	B
AC10B	25	20	27	4.5	ø4.5	7	2.8	24.5	89	—	—	70	—
AC20B	30	24	33	5.5	ø5.5	12	3.2	29	132	—	118	114	—
AC25B	41	35	—	7	ø7	14	4	41	184	151	150	156	176
AC30B	41	35	—	7	ø7	14	4	41	187	154	153	159	179
AC40B	50	40	—	9	ø9	18	4	48	222	191	190	196	216
AC40B-06	50	40	—	9	ø9	18	4.6	48	224	193	192	198	218
AC50B	70	50	—	11	ø11	20	6.4	60	303	271	270	277	297
AC55B	70	50	—	11	ø11	20	6.4	60	316	285	284	290	310
AC60B	70	50	—	11	ø11	20	6.4	60	319	288	287	293	313

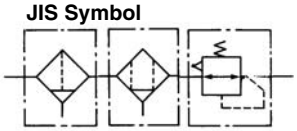
Note) For the AC20B only, the position of the pressure gauge is above the centre of the piping.

Air Combination

Air Filter + Mist Separator + Regulator

AC20C to AC40C

JIS Symbol



Air Filter Mist Separator Regulator

How to Order

AC 30 C – □ 03 DE – □ – □

❶ ❷ ❸ ❹ ❺ ❻

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

Example) AC30C-F03DE1-SV-16NR

			Symbol	Description	❶ Body size 20	25	30	40
❷	Thread type		—	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 Note 3)	a	Float type auto drain	—	Without auto drain	●	●	●	●
			C	Float type auto drain (N.C.)	●	●	●	●
			D	Float type auto drain (N.O.)	—	●	●	●
			+					
	b	Pressure gauge	—	Without pressure gauge	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	●	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●	●
			M	Round type pressure gauge (with colour zone)	●	●	●	●
		Digital pressure switch	E1	Output: NPN output / Electrical entry: Wiring bottom entry	●	●	●	●
			E2	Output: NPN output / Electrical entry: Wiring top entry	●	●	●	●
			E3	Output: PNP output / Electrical entry: Wiring bottom entry	●	●	●	●
			E4	Output: PNP output / Electrical entry: Wiring top entry	●	●	●	●
			+					
❺ Attachment	c	Pressure switch	—	Without attachment	●	●	●	●
			S Note 4)	Mounting position: AF+AFM+**S**+AR	●	●	●	●
		T-interface	T Note 4)	Mounting position: AF+AFM+**T**+AR	●	●	●	●
			+					
	d	3-port valve for residual pressure release	—	Without attachment	●	●	●	●
			V	Mounting position: AF+AFM+AR+**V**	●	●	●	●
			V1 Note 5)	Mounting position: **V**+AF+AFM+AR□K	●	●	●	●
			+					
❻ Semi-standard	e	Set pressure	—	0.05 to 0.85 MPa setting	●	●	●	●
			1 Note 6)	0.02 to 0.2 MPa setting	●	●	●	●
			+					
	f	Bowl	—	Polycarbonate bowl	●	●	●	●
			2	Metal bowl	●	●	●	●
			6	Nylon bowl	●	●	●	●
			8	Metal bowl with level gauge	—	●	●	●
			C	With bowl guard	●	—	—	—
			6C	Nylon bowl with bowl guard	●	—	—	—
			+					
	g	Filter Mist separator drain port Note 7)	—	With drain cock	●	●	●	●
			J Note 8)	Drain guide 1/8	●	—	—	—
				Drain guide 1/4	—	●	●	●
			W Note 9)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	●	●	●
			+					
	h	Exhaust mechanism	—	Relieving type	●	●	●	●
			N	Non-relieving type	●	●	●	●

AC20C AC40C

		Symbol	Description	❶ Body size 20	25	30	40
❻ Semi-standard	i Flow direction	—	Flow direction: Left to right	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●
		+					
	j Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●
		Z Note 10)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 12)	○ Note 12)	○ Note 12)	○ Note 12)
		ZA Note 11)	Digital pressure switch: With unit conversion function	△ Note 13)	△ Note 13)	△ Note 13)	△ Note 13)

Note 1) Drain guide is NPT1/8 (applicable to the AC20C) and NPT1/4 (applicable to the AC30C to AC40C). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AC30C to AC40C).
Note 2) Drain guide is G1/8 (applicable to the AC20C) and G1/4 (applicable to the AC30C to AC40C).
Note 3) Option G, M are not assembled and supplied loose at the time of shipment.
Note 4) The bracket position varies depending on the T-interface or pressure switch mounting.
Note 5) The regulator is equipped with a backflow function in this configuration. Additionally, for safety purposes, please check that the pressure in the outlet side is turned to the atmospheric pressure once the pressure in the outlet side is exhausted, by using a pressure gauge, etc.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 8) Without a valve function
Note 9) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 10) 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.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
MPa and psi are shown together on the pressure unit.
Note 11) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 12) ○: For thread type: NPT only
Note 13) △: Select with options: E1, E2, E3, E4.

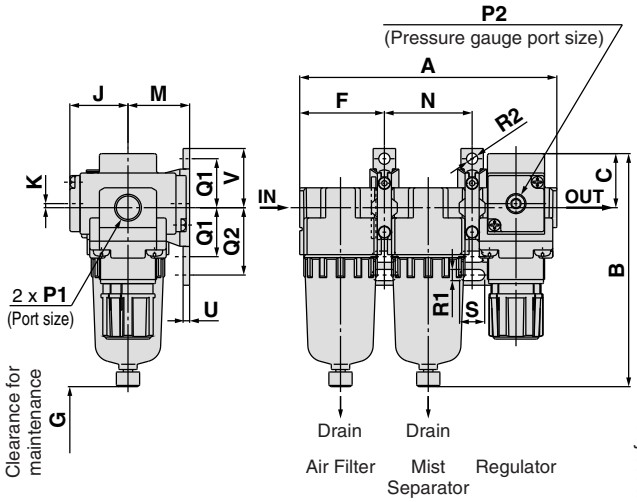
Standard Specifications

Model		AC20C	AC25C	AC30C	AC40C	AC40C-06
Component	Air filter	AF20	AF30	AF30	AF40	AF40-06
	Mist separator	AFM20	AFM30	AFM30	AFM40	AFM40-06
	Regulator	AR20	AR25	AR30	AR40	AR40-06
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 Note 1)		1/8			1/4	
Fluid		Air				
Ambient and fluid temperature Note 2)		–5 to 60°C (with no freezing)				
Proof pressure		1.5 MPa				
Maximum operating pressure		1.0 MPa				
Minimum operating pressure		0.05 MPa				
Set pressure range		0.05 to 0.85 MPa				
Relief pressure		Set pressure + 0.05 MPa [at relief flow rate of 0.1 ℓ/min (ANR)]				
Nominal filtration rating		AF: 5 μm, AFM: 0.3 μm (99.9% filtered particle size)				
Outlet side oil mist concentration		Max. 1.0 mg/m³ (ANR) (≈ 0.8 ppm) Note 4) Note 5)				
Rated flow (ℓ/min (ANR)) Note 3)		200	450	450	1100	1100
Bowl material		Polycarbonate				
Bowl guard		Semi-standard	Standard			
Regulator construction		Relieving type				
Mass (kg)		0.48	0.88	0.95	1.76	1.83

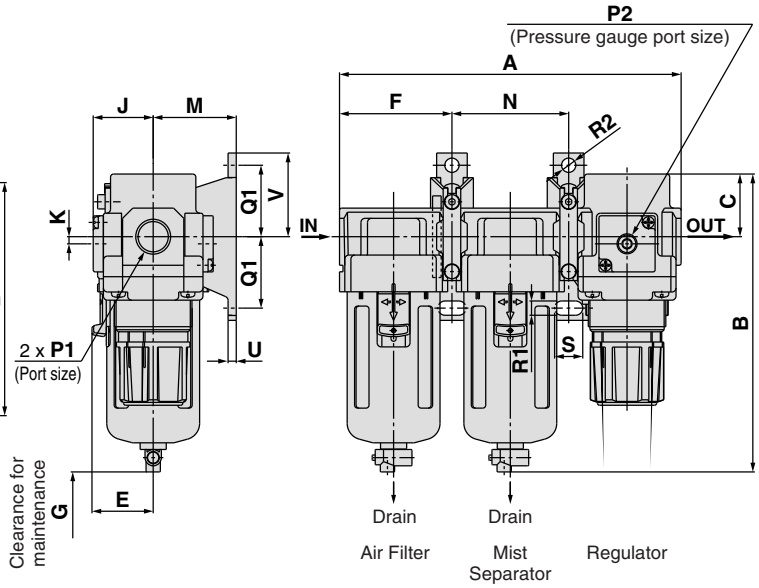
Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch (AC20C to AC40C).
Note 2) –5 to 50°C for the products with the digital pressure switch.
Note 3) Conditions: Mist separator inlet pressure: 0.7 MPa; The rated flow varies depending on the inlet pressure. Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.
Note 4) When the compressor oil mist discharge concentration is 30 mg/m³ (ANR).
Note 5) Bowl O-ring and other O-rings are slightly lubricated.

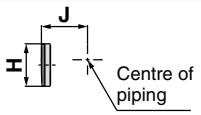
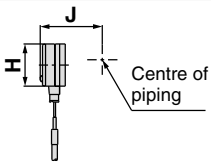
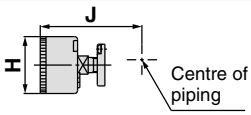
Dimensions

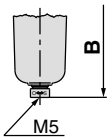
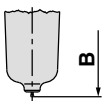
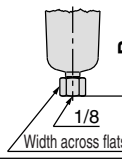
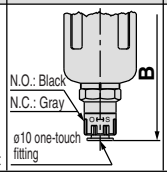
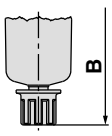
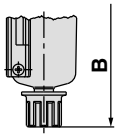
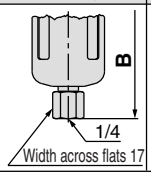
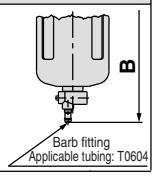
AC20C



AC25C to AC40C-06



Applicable model	AC20C to AC40C-06			
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AC20C			AC25C to AC40C-06				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
											Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B	C	E	F	G	J	K	H	J	H	J	H	J	H	J
AC20C	1/8, 1/4	1/8	126	114	26.5	—	41.5	45	28.5	2 Note)	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AC25C	1/4, 3/8	1/8	167	143	28	30	55	50	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AC30C	1/4, 3/8	1/8	167	146	31	30	55	50	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40C	1/4, 3/8, 1/2	1/4	220	183	36	38	72.5	75	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AC40C-06	3/4	1/4	235	185	36	38	77.5	75	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74

Model	Optional specifications										Semi-standard specifications			
	Bracket mount									With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	N	Q1	Q2	R1	R2	S	U	V	B	B	B	B	B
AC20C	30	43	24	33	5.5	ø5.5	12	3.2	29	132	—	118	114	—
AC25C	41	57	35	—	7	ø7	14	4	41	184	151	150	156	176
AC30C	41	57	35	—	7	ø7	14	4	41	187	154	153	159	179
AC40C	50	75	40	—	9	ø9	18	4	48	222	191	190	196	216
AC40C-06	50	80	40	—	9	ø9	18	4.6	48	224	193	192	198	218

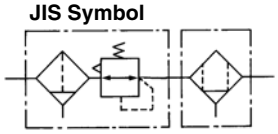
Note) For the AC20C only, the position of the pressure gauge is above the centre of the piping.

Air Combination

Filter Regulator + Mist Separator

AC20D to AC40D

JIS Symbol



Filter Regulator　Mist Separator

How to Order

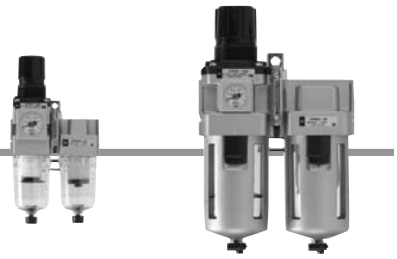
AC 30 D – ❷ 03 DE – ❺ – ❻

❶ ❷ ❸ ❹ ❺ ❻

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

Example) AC30D-F03DE1-SV-16NR

			Symbol	Description	❶ Body size 20	30	40
❷	Thread type		—	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 Note 3)	a	Float type auto drain	—	Without auto drain	●	●	●
			C	Float type auto drain (N.C.)	●	●	●
			D	Float type auto drain (N.O.)	—	●	●
			+				
	b	Pressure gauge	—	Without pressure gauge	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	●	●	●
			G	Round type pressure gauge (with limit indicator)	●	●	●
			M	Round type pressure gauge (with colour zone)	●	●	●
		Digital pressure switch	E1	Output: NPN output / Electrical entry: Wiring bottom entry	●	●	●
			E2	Output: NPN output / Electrical entry: Wiring top entry	●	●	●
			E3	Output: PNP output / Electrical entry: Wiring bottom entry	●	●	●
			E4	Output: PNP output / Electrical entry: Wiring top entry	●	●	●
			+				
❺ Attachment	c	Pressure switch	—	Without attachment	●	●	●
			S Note 4)	Mounting position: AW+**S**+AFM	●	●	●
			+				
	d	3-port valve for residual pressure release	—	Without attachment	●	●	●
			V	Mounting position: AW+AFM+**V**	●	●	●
			V1 Note 5)	Mounting position: **V**+AW□K+AFM	●	●	●
			+				
❻ Semi-standard	e	Set pressure	—	0.05 to 0.85 MPa setting	●	●	●
			1 Note 6)	0.02 to 0.2 MPa setting	●	●	●
			+				
	f	Bowl	—	Polycarbonate bowl	●	●	●
			2	Metal bowl	●	●	●
			6	Nylon bowl	●	●	●
			8	Metal bowl with level gauge	—	●	●
			C	With bowl guard	●	—	—
			6C	Nylon bowl with bowl guard	●	—	—
			+				
	g	Filter regulator Mist separator drain port Note 7)	—	With drain cock	●	●	●
			J Note 8)	Drain guide 1/8	●	—	—
				Drain guide 1/4	—	●	●
			W Note 9)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	●	●
			+				
	h	Exhaust mechanism	—	Relieving type	●	●	●
			N	Non-relieving type	●	●	●
			+				
	i	Flow direction	—	Flow direction: Left to right	●	●	●
			R	Flow direction: Right to left	●	●	●



AC20D AC40D

	Symbol	Description	❶ Body size 20	30	40
❻ Semi-standard, j, Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●
	Z Note 10)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 12)	○ Note 12)	○ Note 12)
	ZA Note 11)	Digital pressure switch: With unit conversion function	△ Note 13)	△ Note 13)	△ Note 13)

Note 1) Drain guide is NPT1/8 (applicable to the AC20D) and NPT1/4 (applicable to the AC30D to AC40D). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AC30D to AC40D).
Note 2) Drain guide is G1/8 (applicable to the AC20D) and G1/4 (applicable to the AC30D to AC40D).
Note 3) Option G, M are not assembled and supplied loose at the time of shipment.
Note 4) The bracket position varies depending on the pressure switch mounting.
Note 5) The regulator is equipped with a backflow function in this configuration. Additionally, for safety purposes, please check that the pressure in the outlet side is turned to the atmospheric pressure once the pressure in the outlet side is exhausted, by using a pressure gauge, etc.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 8) Without a valve function
Note 9) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 10) 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.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
MPa and psi are shown together on the pressure unit.
Note 11) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 12) ○: For thread type: NPT only
Note 13) △: Select with options: E1, E2, E3, E4.

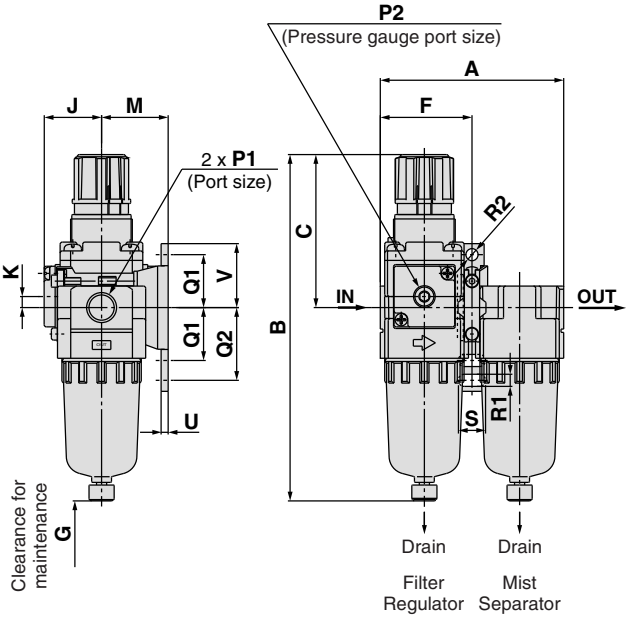
Standard Specifications

Model		AC20D	AC30D	AC40D	AC40D-06
Component	Filter regulator	AW20	AW30	AW40	AW40-06
	Mist separator	AFM20	AFM30	AFM40	AFM40-06
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Pressure gauge port size Note 1)		1/8		1/4	
Fluid		Air			
Ambient and fluid temperature Note 2)		–5 to 60°C (with no freezing)			
Proof pressure		1.5 MPa			
Maximum operating pressure		1.0 MPa			
Minimum operating pressure		0.05 MPa			
Set pressure range		0.05 to 0.85 MPa			
Relief pressure		Set pressure + 0.05 MPa [at relief flow rate of 0.1 ℓ/min (ANR)]			
Nominal filtration rating		AF: 5 µm, AFM: 0.3 µm (99.9% filtered particle size)			
Rated flow (ℓ/min (ANR)) Note 3)		150	330	800	800
Outlet side oil mist concentration		Max. 1.0 mg/m³ (ANR) (≈ 0.8 ppm) Note 4) Note 5)			
Bowl material		Polycarbonate			
Bowl guard		Semi-standard	Standard		
Regulator construction		Relieving type			
Mass (kg)		0.37	0.74	1.38	1.43

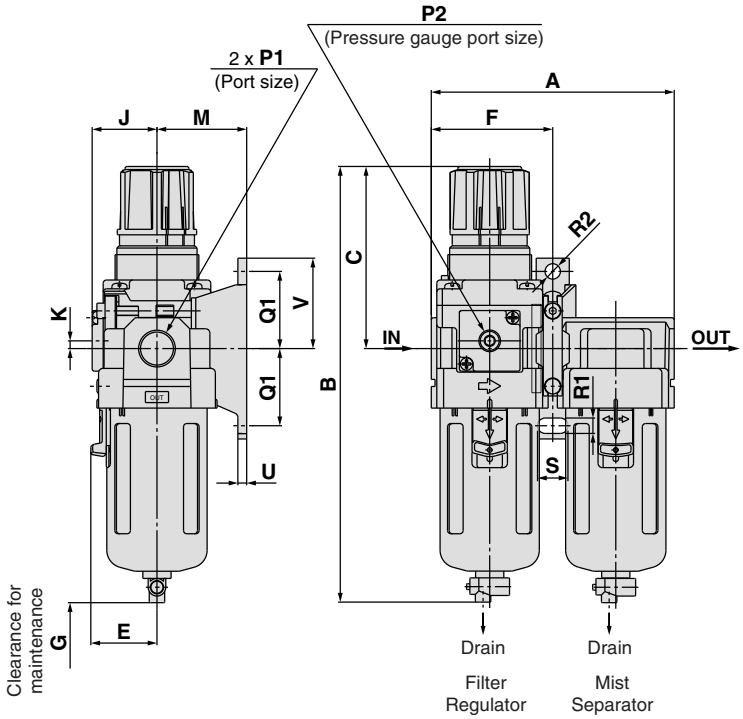
Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch (AC20D to AC40D).
Note 2) –5 to 50°C for the products with the digital pressure switch
Note 3) Conditions: Mist separator inlet pressure: 0.5 MPa; The rated flow varies depending on the inlet pressure. Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.
Note 4) When the compressor oil mist discharge concentration is 30 mg/m³ (ANR).
Note 5) Bowl O-ring and other O-rings are slightly lubricated.

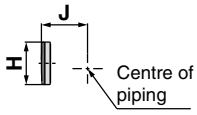
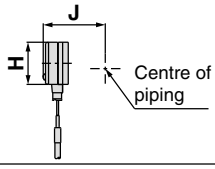
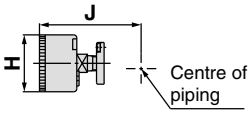
Dimensions

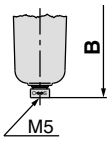
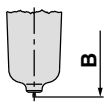
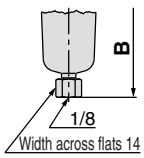
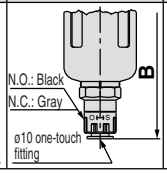
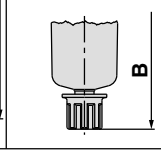
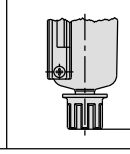
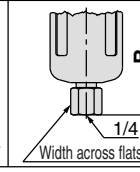
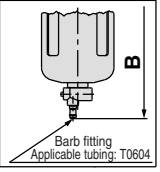
AC20D



AC30D to AC40D-06



Applicable model	AC20D to AC40D-06			
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AC20D			AC30D to AC40D-06				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications										Optional specifications							
											Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B Note)	C	E	F	G	J	K	H	J	H	J	H	J	H	J
AC20D	1/8, 1/4	1/8	83	160	73	—	41.5	45	26	5	□28	27	□27.8	37.5	ø37.5	63	ø37.5	63
AC30D	1/4, 3/8	1/8	110	201	86	30	55	55	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AC40D	1/4, 3/8, 1/2	1/4	145	239	92	38	72.5	80	37.5	1.5	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76
AC40D-06	3/4	1/4	155	242	93	38	77.5	80	37.5	1.2	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76

Model	Optional specifications									Semi-standard specifications			
	Bracket mount								With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	Q1	Q2	R1	R2	S	U	V	B	B	B	B	B
AC20D	30	24	33	5.5	ø5.5	12	3.2	29	177	—	164	160	—
AC30D	41	35	—	7	ø7	14	4	41	242	209	208	214	234
AC40D	50	40	—	9	ø9	18	4	48	278	247	246	252	272
AC40D-06	50	40	—	9	ø9	18	4.6	48	282	251	249	255	275

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

Air Combination
Series AC
Options/Attachments

Options/Attachments Part No.

Section	Type		Model / Part no.								
			For AC10	For AC20	For AC25	For AC30	For AC40	For AC40-06	For AC50	For AC55	For AC60
			For AC10A	For AC20A	—	For AC30A	For AC40A	For AC40A-06	For AC50A	—	For AC60A
			For AC10B	For AC20B	For AC25B	For AC30B	For AC40B	For AC40B-06	For AC50B	For AC55B	For AC60B
			—	For AC20C	For AC25C	For AC30C	For AC40C	For AC40C-06	—	—	—
			—	For AC20D	—	For AC30D	For AC40D	For AC40D-06	—	—	—
Option	Pressure gauge Note 1) Round type	Standard	G27-10-R1	G36-10-□01			G46-10-□02				
		0.02 to 0.2 MPa setting	G27-10-R1 Note 3)	G36-2-□01			G46-2-□02				
	Pressure gauge Round type (with colour zone)	Standard	—	G36-10-□01-L			G46-10-□02-L				
		0.02 to 0.2 MPa setting	—	G36-2-□01-L			G46-2-□02-L				
	Pressure gauge Square embedded type Note 2)	Standard	—	GC3-10AS [GC3P-010AS (Pressure gauge cover only)]							
		0.02 to 0.2 MPa setting	—	GC3-2AS [GC3P-010AS (Pressure gauge cover only)]							
	Digital pressure switch	NPN output/Wiring bottom entry	—	ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)] Note 4)							
		NPN output/Wiring top entry		ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)] Note 4)							
		PNP output/Wiring bottom entry		ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)] Note 4)							
		PNP output/Wiring top entry		ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)] Note 4)							
	Float type Note 5) auto drain	N.O.	—	—	AD38		AD48				
		N.C.	AD17	AD27	AD37		AD47				
Attachment	Spacer		Y100	Y200	Y300		Y400	Y500	Y600		
	Check valve Note 6) Note 7)		—	AKM2000-□01 (□02)	AKM3000-(□01) □02		AKM4000-(□02) □03	—	—	—	—
	Pressure switch Note 7)		—	IS1000M-20	IS1000M-30		IS1000M-40	IS1000M-50	IS1000M-60		
	T-interface Note 6) Note 7)		Y110-M5	Y210-□01 (□02)	Y310-(□01) □02		Y410-(□02) □03	Y510-(□02) □03	Y610-□03 (□04)	Y610-(□03) □04	
	3-port valve for residual pressure release Note 7)		—	VHS20-□01 □02	VHS30-□02 □03		□02 VHS40-□03 □04	VHS40-□06	VHS50-□06 □10	—	—
	Piping adapter Note 7)		E100-M5	□01 E200-□02 □03	□02 E300-□03 □04		□02 E400-□03 □04 □06	E500-□06	E600-□06 □10		
	Pressure switch with piping adapter Note 7)		—	□01 IS1000E-20□02 □03	□02 IS1000E-30□03 □04		□02 IS1000E-40□03 □04 □06	—	—	—	—
	Cross spacer Note 7)		Y14-M5	Y24-□01 □02	Y34-□01 □02		Y44-□02 □03	Y54-□03 □04	—	—	—

Note 1) □ 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 2) Including one O-ring and 2 mounting screws
Note 3) Standard pressure gauge
Note 4) Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached. [ ]: Switch body only.
Also, regarding how to order the digital pressure switch, please refer to page 89.
Note 5) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD17/27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.
Note 6) For F.R.L. units, port sizes without ( ) are standard specifications.
Note 7) Separate interfaces are required for modular unit.

Check Valve: (K) 1/8, 1/4, 3/8

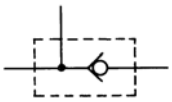
A check valve with intermediate air release port can be easily installed to prevent a backflow of lubricant when redirecting the air flow and releasing the air on the outlet side of the regulator.

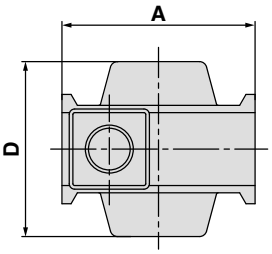
AKM 30 00 – □ 01

❶ ❷ ❸

	Symbol	Description	❶ Body size 20	30	40
❷ Thread type	—	Rc	●	●	●
	N	NPT	●	●	●
	F	G	●	●	●
	+				
❸ By-pass port size	01	1/8	●	●	—
	02	1/4	●	●	●
	03	3/8	—	—	●

JIS Symbol

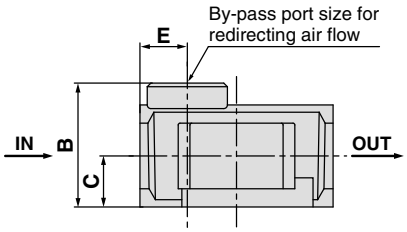




Specifications

Model	Effective area (mm²)
AKM2000	28
AKM3000	55
AKM4000	111

Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator. Threads for IN and OUT ports are not machined.



Model	By-pass port size	A	B	C	D	E	Applicable model
AKM2000	1/8, 1/4	40	28	11	40	11	AC20, AC20A
AKM3000	1/8, 1/4	53	34	14	48	13	AC25, AC25A AC30, AC30A
AKM4000	1/4, 3/8	70	42	18	54	15	AC40, AC40A Note)

Note) A pressure switch cannot be mounted on the AC40□-06.
∗ Refer to the attachment table above for standard by-pass port sizes applicable to the AC.

Pressure Switch: (S)

A compact integrated pressure switch can be easily installed and facilitates the pressure detection of the line.

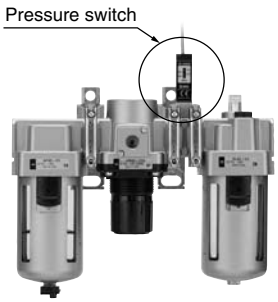
IS1000M – 30 – □

❶ ❷

	Symbol	Description: Lead wire length	Set pressure range	Pressure display	❶ Body size 20	30	40	50	60
❷ Option	—	0.5 m	0.1 to 0.4 MPa	MPa	●	●	●	●	●
	P Note)	0.5 m	0.1 to 0.4 MPa	MPa/psi dual scale	●	●	●	●	●
	X202	0.5 m	0.1 to 0.6 MPa	MPa	●	●	●	●	●
	X202-P Note)	0.5 m	0.1 to 0.6 MPa	MPa/psi dual scale	●	●	●	●	●
	X201	3 m	0.1 to 0.4 MPa	MPa	●	●	●	●	●
	X201-P Note)	3 m	0.1 to 0.4 MPa	MPa/psi dual scale	●	●	●	●	●
	X215	3 m	0.1 to 0.6 MPa	MPa	●	●	●	●	●
	X215-P Note)	3 m	0.1 to 0.6 MPa	MPa/psi dual scale	●	●	●	●	●

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

JIS Symbol



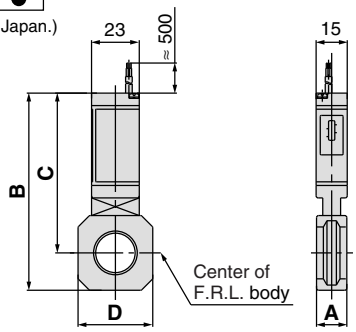
Specifications

Fluid	Air
Ambient and fluid temperature	–5 to 60°C (with no freezing)
Proof pressure	1.0 MPa
Maximum operating pressure	0.7 MPa
Set pressure range (when OFF)	0.1 to 0.4 MPa
Hysteresis	0.08 MPa or less

Switch Characteristics

Contact point configuration	1a
Maximum contact point capacity	2 VA (AC), 2 W (DC)
Operating voltage: AC, DC	100 V or less
Maximum operating current	12 V to 24 VAC, DC: 50 mA 48 VAC, DC: 40 mA 100 VAC, DC: 20 mA

Note) For detailed specifications, please refer to Best Pneumatics, IS1000 Series.

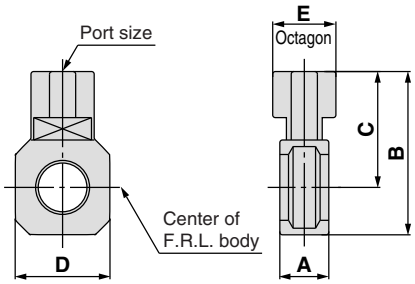


Model	A	B	C	D	Applicable model
IS1000M-20	11	76	66	28	**AC20□**
IS1000M-30	13	86	72	30	**AC25□, AC30□**
IS1000M-40	15	95	77	36	**AC40□**
IS1000M-50	17	99	79	44	**AC40□-06**
IS1000M-60	22	92.5	68.5	53	**AC50□, AC55□, AC60□**

Note) Separate spacers are required for modular unit.

T-interface: (T) M5, 1/8, 1/4, 3/8, 1/2

Using a T-interface facilitates the redirection of air flow.



Model	Port size	A	B	C	D	E	Applicable model
Y110-M5	M5	11	19	12	14	8	**AC10, AC10B**
Y210-□01	1/8	15	42	32	28	19	**AC20, AC20B, AC20C**
Y210-□02	1/4						
Y310-□01	1/8	15	53	39	30	19	**AC25, AC25B, AC25C, AC30, AC30B, AC30C**
Y310-□02	1/4						
Y410-□02	1/4	19	62	44	36	24	**AC40, AC40B, AC40C**
Y410-□03	3/8						
Y510-□02	1/4	19	66	46	44	24	**AC40-06, AC40B-06**
Y510-□03	3/8						**AC40C-06**
Y610-□03	3/8	22	81	57	53	30	**AC50, AC55, AC60, AC50B, AC55B, AC60B**
Y610-□04	1/2						

Note 1) □ in model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.
Note 2) Separate interfaces are required for modular unit.
∗ Refer to the attachment table on page 22 for standard port sizes when using with the AC.

Caution on Mounting

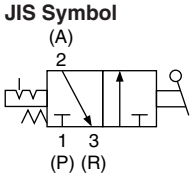
If a T-interface is used on the IN side of the lubricator, lubricant may be mixed. Use the AKM series check valve to avoid such possibility.

Residual Pressure Release 3 Port Valve: (V)

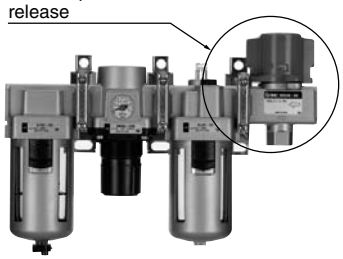
With the use of a 3-port valve for residual pressure release, pressure left in the line can be easily exhausted.

VHS 30 – □ 03 – □
❶ ❷ ❸ ❹

JIS Symbol



3-port valve for residual pressure release

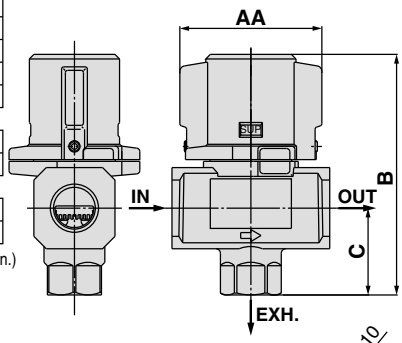


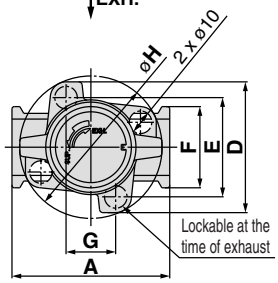
- Semi-standard: Select one each for **a** to **b**.
- Semi-standard symbol: When more than one specification is required, indicate in ascending alphabetic order.

Example) VHS30-03-RZ

		Symbol	Description	❶ Body size 20	30	40	50
❷	Thread type	—	Rc	●	●	●	●
		N Note)	NPT	●	●	●	●
		F Note)	G	●	●	●	●
		+					
❸	Port size	01	1/8	●	—	—	—
		02	1/4	●	●	●	—
		03	3/8	—	●	●	—
		04	1/2	—	—	●	—
		06	3/4	—	—	●	●
		10	1	—	—	—	●
		+					
❹	Semi-standard a Flow direction	—	Flow direction: Left to right	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●
		+					
	b Pressure unit	—	Name plate in imperial units: MPa	●	●	●	●
		Z Note)	Name plate in imperial units: psi	●	●	●	●

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





Specifications

Model	Port size IN, OUT	Port size EXH	Effective area (mm²) ( ): Cv factor IN→OUT	OUT→EXH
VHS20	1/8	1/8	10 (0.54)	11 (0.60)
	1/4		14 (0.76)	16 (0.87)
VHS30	1/4	1/4	16 (0.87)	14 (0.76)
	3/8		31 (1.68)	29 (1.57)
VHS40	1/4	3/8	27 (1.46)	36 (1.95)
	3/8		38 (2.06)	40 (2.17)
	1/2		55 (2.98)	42 (2.28)
VHS40-06	3/4	1/2	77 (1.73)	49 (2.66)
VHS50	3/4	1/2	82 (4.44)	50 (2.71)
	1		125 (6.78)	53 (2.87)

Note) Use an air filter on the IN side for operating protection.

Model	A	AA	B	C	D	E	F	G	H
VHS20	40	34	59	20	45	33	28	—	45
VHS30	53	46	78	29	55	42	30	—	55
VHS40	70	63	107	39	58	44	36	22	63
VHS40-06	75	67	110	42	65	50	44	21	69
VHS50	90	78	134	53	76	61	54	26	81

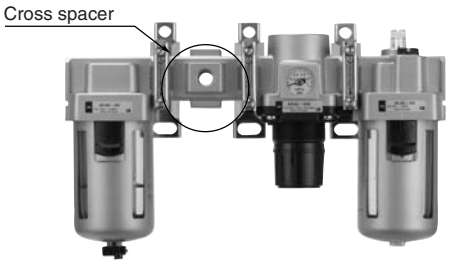
Caution on Mounting

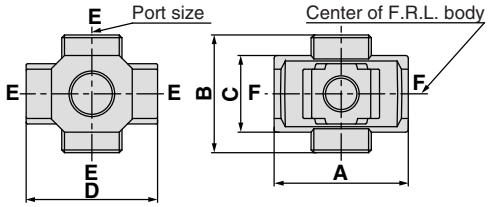
1. If a tube, stop valve or silencer is connected to the exhaust port of the VHS20/30, the effective sectional area should be larger than the figure indicated in the following table, to prevent malfunction caused by back pressure. (This is not applicable to the VHS40/50.)

Model	Effective area (mm²)
VHS20	5
VHS30	5

Cross Spacer: M5, 1/8, 1/4, 3/8, 1/2

Pipings are possible in all 4 directions.
IN/OUT ports are not machined for threads.
Please contact SMC if threaded (machined) ports are required.





E: 4 x Rc
F: Without thread

Model	Port size	A	B	C	D	Applicable model
Y14-M5	M5	23	16	14	25	**AC10□**
Y24-□01	1/8	40	40	22	40	**AC20□**
Y24-□02	1/4					
Y34-□01	1/8	49	43	28	48	**AC25□, AC30□**
Y34-□02	1/4					
Y44-□02	1/4	60	48	36	54	**AC40□**
Y44-□03	3/8					
Y54-□03	3/8	72	62	40	62	**AC40□-06**
Y54-□04	1/2					

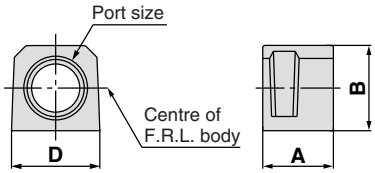
Note 1) □ in model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.
Note 2) If threaded ports are required, they are available as a special order. Please contact SMC.

Caution on Mounting

1. When mounting a cross interface directly on the IN side of the lubricator, be sure to use the AKM series check valve between the lubricator and cross interface.
2. Factory mounting of a cross interface on the AC model is available as a special order.

Piping Adapter: M5, 1/8, 1/4, 3/8, 1/2, 3/4, 1

A piping adapter allows installation/removal of the component without removing the piping and thus makes maintenance easier.



Model Note 1)	Port size	A	B	D	Applicable model
E100-M5	M5	10	14	14	**AC10□, AW10, AF10, AR10, AL10**
E200-□01	1/8	30	23.5	28	**AC20□ AF20, AR20□, AW20□ AL20, AFM20, AFD20, AWM20, AWD20**
E200-□02	1/4				
E200-□03	3/8				
E300-□02	1/4	32	30	30	**AC25□, AC30□ AF30, AR30□, AW30□ AL30, AFM30, AFD30, AWM30, AWD30**
E300-□03	3/8				
E300-□04	1/2				
E400-□02	1/4	32	36	36	**AC40□ AF40, AR40□, AW40□ AL40, AFM40, AFD40 AWM40, AWD40**
E400-□03	3/8				
E400-□04	1/2				
E400-□06	3/4				
E500-□06	3/4	32	40	44	**AC40□-06, AF40-06, AR40□-06, AW40□-06, AL40-06, AFM40-06, AFD40-06**
E600-□06	3/4	35	48	53	**AC50, AC55, AC60, AC50A AC60A, AC50B, AC55B AC60B, AF50, AF60, AR50□ AR60□, AL50, AL60, AW60□**
E600-□10	1				

Note 1) □ in model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.
Note 2) Separate interfaces are required for modular unit.
∗ Factory mounting of a piping adapter on the AC models is available as a special order.

Pressure Switch with Piping Adapter

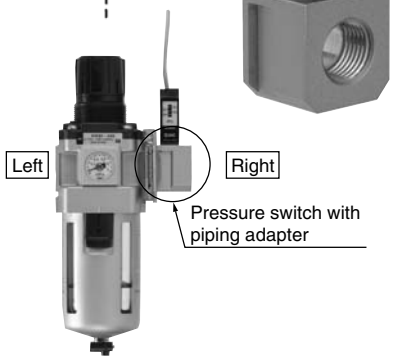
IS1000E – 30 □ 03 – □
❶ ❷ ❸ ❹

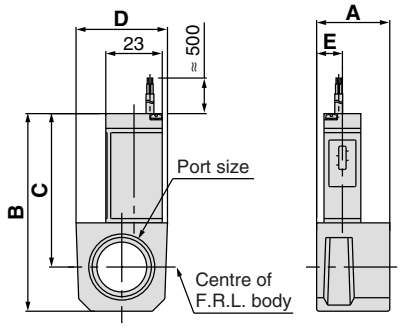
JIS Symbol

	Symbol	Description	❶ Body size 20	30	40
❷ Thread type	—	Rc	●	●	●
	N Note)	NPT	●	●	●
	F Note)	G	●	●	●
	+				
❸ Port size	01	1/8	●	—	—
	02	1/4	●	●	●
	03	3/8	●	●	●
	04	1/2	—	●	●
	06	3/4	—	—	●
	+				

	Symbol	Lead wire length	Regulating pressure range	Pressure display	Mounting position	20	30	40
❹ Accessory	—	0.5 m	0.1 to 0.4 MPa	MPa	Right	●	●	●
	X250	0.5 m	0.1 to 0.4 MPa	MPa	Left	●	●	●
	P Note)	0.5 m	0.1 to 0.4 MPa	MPa/psi dual scale	Right	●	●	●
	X250-P Note)	0.5 m	0.1 to 0.4 MPa	MPa/psi dual scale	Left	●	●	●
	X202	0.5 m	0.1 to 0.6 MPa	MPa	Right	●	●	●
	X252	0.5 m	0.1 to 0.6 MPa	MPa	Left	●	●	●
	X202-P Note)	0.5 m	0.1 to 0.6 MPa	MPa/psi dual scale	Right	●	●	●
	X252-P Note)	0.5 m	0.1 to 0.6 MPa	MPa/psi dual scale	Left	●	●	●
	X201	3 m	0.1 to 0.4 MPa	MPa	Right	●	●	●
	X251	3 m	0.1 to 0.4 MPa	MPa	Left	●	●	●
	X201-P Note)	3 m	0.1 to 0.4 MPa	MPa/psi dual scale	Right	●	●	●
	X251-P Note)	3 m	0.1 to 0.4 MPa	MPa/psi dual scale	Left	●	●	●
	X215	3 m	0.1 to 0.6 MPa	MPa	Right	●	●	●
	X253	3 m	0.1 to 0.6 MPa	MPa	Left	●	●	●
	X215-P Note)	3 m	0.1 to 0.6 MPa	MPa/psi dual scale	Right	●	●	●
	X253-P Note)	3 m	0.1 to 0.6 MPa	MPa/psi dual scale	Left	●	●	●

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





Specifications

Fluid	Air
Ambient and fluid temperature	–5 to 60°C (with no freezing)
Proof pressure	1.0 MPa
Maximum operating pressure	0.7 MPa
Set pressure range (when OFF)	0.1 to 0.4 MPa
Hysteresis	0.08 MPa or less

Switch Characteristics

Contact point configuration	1a
Maximum contact point capacity	2VA(AC), 2W(DC)
Operating voltage: AC, DC	100V or less
Maximum operating current	12V to 24V AC, DC: 50 mA 48V AC, DC: 40 mA 100V AC, DC: 20 mA

Model Note 1)	Port size	A	B	C	D	E	Applicable model
IS1000E-20□01	1/8	30	68	57	28	16	**AC20□ AR20□, AW20□ AWM20, AWD20**
IS1000E-20□02	1/4						
IS1000E-20□03	3/8						
IS1000E-30□02	1/4	32	74.5	60.5	30	13	**AC25□, AC30□ AR25□, AR30□, AW30□ AWM30, AWD30**
IS1000E-30□03	3/8						
IS1000E-30□04	1/2						
IS1000E-40□02	1/4	32	80.5	62.5	37	12.5	Note 2) **AC40□ AR40□, AW40□ AWM40, AWD40**
IS1000E-40□03	3/8						
IS1000E-40□04	1/2						
IS1000E-40□06	3/4						

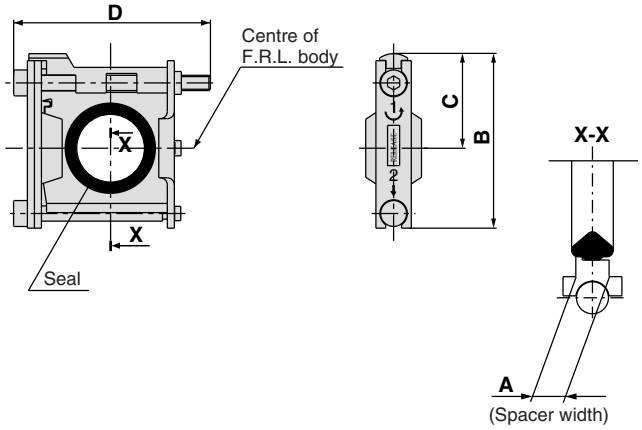
Note 1) □ in the model numbers indicates a thread type. No indication is necessary for Rc; however, indicate N for NPT, and F for G.
Note 2) Cannot be mounted on the AC40□-06 and AW40□-06.
Note 3) Separate interfaces are required for modular unit.
∗ The pressure switch on the AC40□-06 and above and the AW40□-06 can be mounted by screwing IS1000-01 into the piping adapter E500-□06-X501 or E600-□06-X501 to E600-□10-X501 (with top-face thread Rc 1/8). Products with a premounted switch are available as a special order. Please contact SMC regarding their availability.

Accessories

Spacer

Y200

Y400



Model	A	B	C	D	Applicable model
Y100	6	27	15	33	**AC10, AC10A, AC10B**
Y200	3	35.5	18.5	48	**AC20□**
Y300	4	47	26	59	**AC25□, AC30□**
Y400	5	57	31	65	**AC40□**
Y500	5	61	33	75	**AC40□-06**
Y600	6	75.5	41	86	**AC50, AC55, AC60 AC50A, AC60A AC50B, AC55B, AC60B**

Replacement Parts

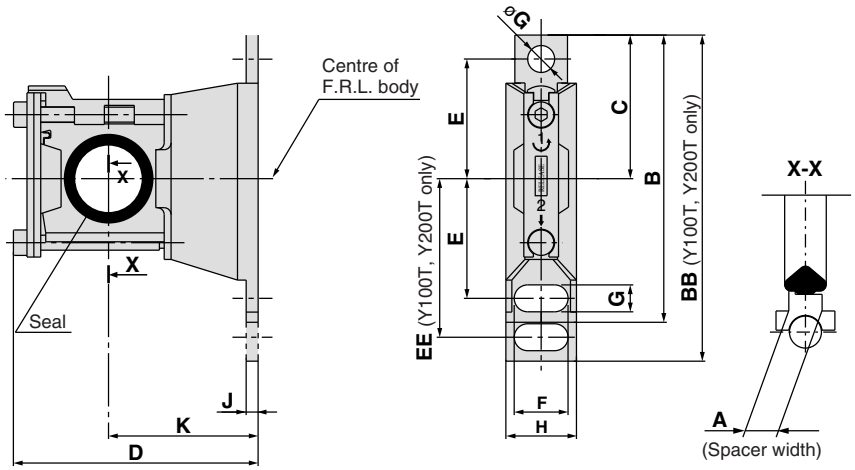
Description	Material	Part no.					
		Y100	**Y200**	**Y300**	**Y400**	**Y500**	**Y600**
Seal	HNBR Note 2)	Y100P-060AS Note 1)	Y200P-061S	Y300P-060S	Y400P-060S	Y500P-060S	Y600P-060S

Note 1) Assembly includes 2 O-rings
Note 2) NBR is used for Y100 spacer because of no direct contact with fluid.

Spacer with Bracket

Y200T

Y400T



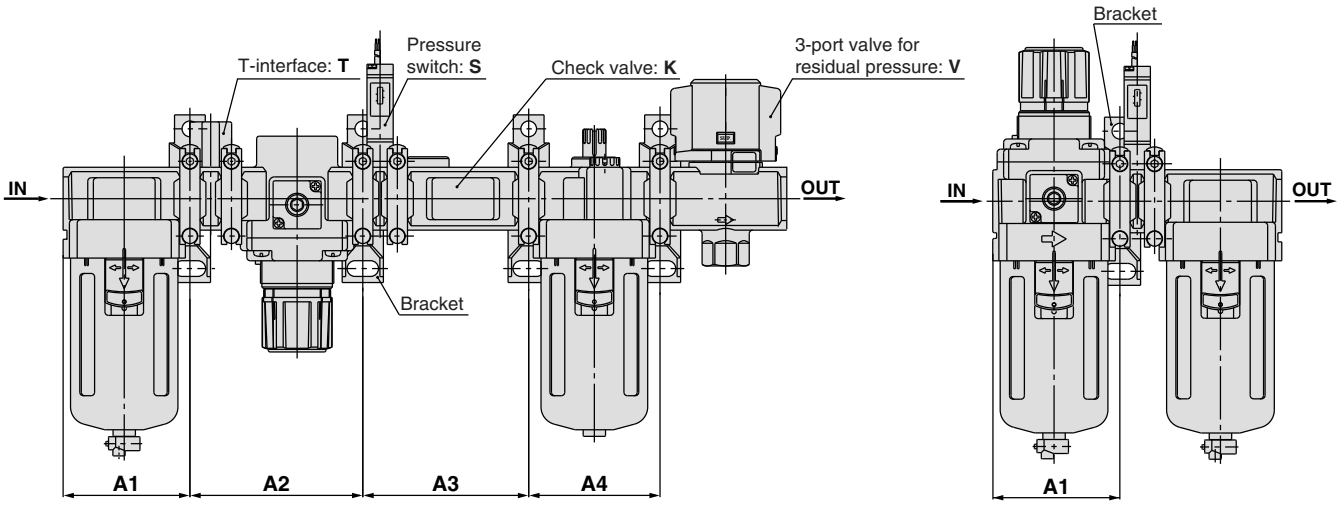
Model	A	B	BB	C	D	E	EE	F	G	øG	H	J	K	Applicable model
Y100T	6	—	56	24.5	40.5	20	27	6.8	4.5	4.5	14	2.8	25	**AC10□**
Y200T	3	—	67	29	53	24	33	12	5.5	5.5	19	3.2	30	**AC20□**
Y300T	4	82	—	41	68	35	—	14	7	7	21	4	41	**AC25□, AC30□**
Y400T	5	96	—	48	81.5	40	—	18	9	9	26	4	50	**AC40□**
Y500T	5	96	—	48	86	40	—	18	9	9	27	4.6	50	**AC40□-06**
Y600T	6	120	—	60	112	50	—	20	11	11	31	6.4	70	**AC50, AC55, AC60, AC50A, AC60A, AC50B, AC55B, AC60B**

Replacement Parts

Description	Material	Part no.					
		Y100T	**Y200T**	**Y300T**	**Y400T**	**Y500T**	**Y600T**
Seal	HNBR Note 2)	Y100P-060AS Note 1)	Y200P-061S	Y300P-060S	Y400P-060S	Y500P-060S	Y600P-060S

Note 1) Assembly includes 2 O-rings
Note 2) NBR is used for Y100T spacer because of no direct contact with fluid.

Mounting Position for Spacer with Bracket



Attachment / Model	K			S		T		V			KS			KT			KV				KST		
	A1	A2	A3	A1	A2	A1	A2	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A4	A1	A2	A3
AC10	—	—	—	—	—	28	48	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC20	41.5	43	43	41.5	43	41.5	61	41.5	43	43	41.5	43	57	41.5	61	43	41.5	43	43	43	41.5	61	57
AC25	55	57	57	55	57	55	76	55	57	57	55	57	74	55	76	57	55	57	57	57	55	76	74
AC30	55	57	57	55	57	55	76	55	57	57	55	57	74	55	76	57	55	57	57	57	55	76	74
AC40	72.5	75	75	72.5	75	72.5	99	72.5	75	75	72.5	75	95	72.5	99	75	72.5	75	75	75	72.5	99	95
AC40-06	—	—	—	77.5	80	77.5	104	77.5	80	80	—	—	—	—	—	—	—	—	—	—	—	—	—
AC50	—	—	—	93	96	93	124	93	96	96	—	—	—	—	—	—	—	—	—	—	—	—	—
AC55	—	—	—	98	96	98	124	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC60	—	—	—	98	101	98	129	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Attachment / Model	KSV				KTV				KSTV				ST		SV			STV			TV		
	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A3	A4	A1	A2	A1	A2	A3	A1	A2	A3	A1	A2	A3
AC10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC20	41.5	43	57	43	41.5	61	43	43	41.5	61	57	43	41.5	61	41.5	43	57	41.5	61	57	41.5	61	43
AC25	55	57	74	57	55	76	57	57	55	76	74	57	55	76	55	57	74	55	76	74	55	76	57
AC30	55	57	74	57	55	76	57	57	55	76	74	57	55	76	55	57	74	55	76	74	55	76	57
AC40	72.5	75	95	75	72.5	99	75	75	72.5	99	95	75	72.5	99	72.5	75	95	72.5	99	95	72.5	99	75
AC40-06	—	—	—	—	—	—	—	—	—	—	—	—	77.5	104	77.5	80	102	77.5	104	102	77.5	104	80
AC50	—	—	—	—	—	—	—	—	—	—	—	—	93	124	93	96	124	93	124	124	93	124	96
AC55	—	—	—	—	—	—	—	—	—	—	—	—	98	124	—	—	—	—	—	—	—	—	—
AC60	—	—	—	—	—	—	—	—	—	—	—	—	98	129	—	—	—	—	—	—	—	—	—

Attachment / Model	K		S	V		KS		KV			KSV			SV	
	A1	A2	A1	A1	A2	A1	A2	A1	A2	A3	A1	A2	A3	A1	A2
AC20A	41.5	43	41.5	41.5	43	41.5	57	41.5	43	43	41.5	57	43	41.5	57
AC30A	55	57	55	55	57	55	74	55	57	57	55	74	57	55	74
AC40A	72.5	75	72.5	72.5	75	72.5	95	72.5	75	75	72.5	95	75	72.5	95
AC40A-06	—	—	77.5	77.5	80	—	—	—	—	—	—	—	—	77.5	102
AC50A	—	—	98	98	96	—	—	—	—	—	—	—	—	98	124
AC60A	—	—	98	—	—	—	—	—	—	—	—	—	—	—	—

Attachment / Model	S	T	V		V1		SV		SV1		TV		TV1	
	A1	A1	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2
AC10B	—	28	—	—	—	—	—	—	—	—	—	—	—	—
AC20B	41.5	41.5	41.5	43	41.5	43	41.5	57	41.5	43	41.5	61	41.5	43
AC25B	55	55	55	57	55	57	55	74	55	57	55	76	55	57
AC30B	55	55	55	57	55	57	55	74	55	57	55	76	55	57
AC40B	72.5	72.5	72.5	75	72.5	75	72.5	95	72.5	75	72.5	99	72.5	75
AC40B-06	77.5	77.5	77.5	80	77.5	80	77.5	102	77.5	80	77.5	104	77.5	80
AC50B	93	93	93	96	93	96	93	124	93	96	93	124	93	96
AC55B	98	98	—	—	—	—	—	—	—	—	—	—	—	—
AC60B	98	98	—	—	—	—	—	—	—	—	—	—	—	—

Attachment / Model	S		T		V			V1			SV			SV1			TV			TV1		
	A1	A2	A1	A2	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3	A1	A2	A3
AC20C	41.5	43	41.5	43	41.5	43	43	41.5	43	43	41.5	43	57	41.5	43	43	41.5	43	61	41.5	43	43
AC25C	55	57	55	57	55	57	57	55	57	57	55	57	74	55	57	57	55	57	76	55	57	57
AC30C	55	57	55	57	55	57	57	55	57	57	55	57	74	55	57	57	55	57	76	55	57	57
AC40C	72.5	75	72.5	75	72.5	75	75	72.5	75	75	72.5	75	95	72.5	75	75	72.5	75	99	72.5	75	75
AC40C-06	77.5	80	77.5	80	77.5	80	80	77.5	80	80	77.5	80	102	77.5	80	80	77.5	80	104	77.5	80	80

Attachment / Model	S	V		V1		SV		SV1	
	A1	A1	A2	A1	A2	A1	A2	A1	A2
AC20D	41.5	41.5	43	41.5	43	41.5	57	41.5	43
AC30D	55	55	57	55	57	55	74	55	57
AC40D	72.5	72.5	75	72.5	75	72.5	95	72.5	75
AC40D-06	77.5	77.5	80	77.5	80	77.5	102	77.5	80

A1: Dimensions from the end of the IN side to the center of the mounting hole for the first bracket.
A2: Mounting hole pitch between the first and the second brackets.
A3: Mounting hole pitch between the second and the third brackets.
A4: Mounting hole pitch between the third and the fourth brackets.

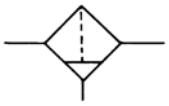
Modular Type
Air Filters
Series AF

	Model	Port size	Filtration (μm)	Options
Air Filter Series AF **Page 29 through to 37**	**AF10**	M5	5	Bracket Float type auto drain
	AF20	1/8, 1/4		
	AF30	1/4, 3/8		
	AF40	1/4, 3/8, 1/2		
	AF40-06	3/4		
	AF50	3/4, 1		
	AF60	1		
Mist Separator Series AFM **Page 39 through to 45**	**AFM20**	1/8, 1/4	0.3	Bracket Float type auto drain
	AFM30	1/4, 3/8		
	AFM40	1/4, 3/8, 1/2		
	AFM40-06	3/4		
Micro Mist Separator Series AFD **Page 39 through to 45**	**AFD20**	1/8, 1/4	0.01	Bracket Float type auto drain
	AFD30	1/4, 3/8		
	AFD40	1/4, 3/8, 1/2		
	AFD40-06	3/4		

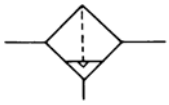
Air Filter
AF10 to AF60

JIS Symbol

Air Filter



Air Filter with Auto Drain



AF20

AF40

How to Order

AF [30] – [ ] [03] [BD] – [ ] – [ ]

❶ ❷ ❸ ❹ ❺

Made to Order
(Refer to page 35 through to 37 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 ascending alphanumeric order.

Example) AF30-03BD-2R

			Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Thread type		—	Metric thread (M5)	●	—	—	—	—	—
				Rc	—	●	●	●	●	●
			N Note 1)	NPT	—	●	●	●	●	●
			F Note 2)	G	—	●	●	●	●	●
			+							
❸	Port size		M5	M5	●	—	—	—	—	—
			01	1/8	—	●	—	—	—	—
			02	1/4	—	●	●	●	—	—
			03	3/8	—	—	●	●	—	—
			04	1/2	—	—	—	●	—	—
			06	3/4	—	—	—	●	●	—
			10	1	—	—	—	—	●	●
			+							
❹	Option	a Mounting	—	Without mounting option	●	●	●	●	●	●
			B Note 3)	With bracket	—	●	●	●	●	●
			+							
		b Float type auto drain	—	Without auto drain	●	●	●	●	●	●
			C	Float type auto drain (N.C.)	●	●	●	●	●	●
			D	Float type auto drain (N.O.)	—	—	●	●	●	●
			+							
❺	Semi-standard	c Bowl	—	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●	●
			C	With bowl guard	—	●	—	—	—	—
			6C	Nylon bowl with bowl guard	—	●	—	—	—	—
			+							
		d Drain port Note 4)	—	With drain cock	●	●	●	●	●	●
			J Note 5)	Drain guide 1/8	—	●	—	—	—	—
				Drain guide 1/4	—	—	●	●	●	●
			W Note 6)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●
			+							
		e Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●
			+							
		f Pressure unit	—	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●	●
			Z Note 7)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 8)	○ Note 8)	○ Note 8)	○ Note 8)	○ Note 8)	○ Note 8)

Note 1) Drain guide is NPT1/8 (applicable to the AF20) and NPT1/4 (applicable to the AF30 and AF60). The auto drain port comes with a ø3/8" one-touch fitting (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) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 5) Without a valve function
Note 6) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 7) For thread type: M5 and 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 8) ○: For thread type: M5 and NPT only.

Standard Specifications

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	M5	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	Standard				
Mass (kg)	0.06	0.10	0.22	0.45	0.49	0.99	1.05

Options/Part No.

Optional specifications		Model						
		AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Bracket assembly Note 1)		—	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS	AF50P-050AS	AF50P-050AS
Float type auto drain Note 2) Note 3)	**N.C.**	AD17	AD27	AD37	AD47			
	N.O.	—	—	AD38	AD48			

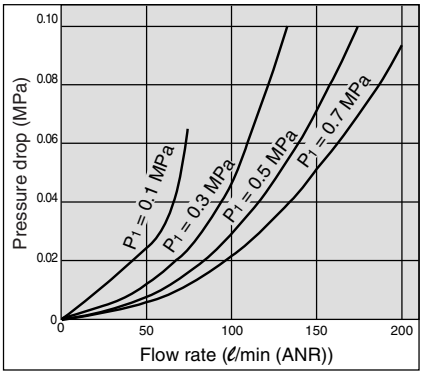
Semi-standard/Bowl Assembly Part No.

Semi-standard specifications						Model						
Bowl material	Float type auto drain Note 2) Note 3)		With drain guide Note 3)	With barb fitting	With bowl guard	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
	N.C.	N.O.										
Polycarbonate	—	—	—	—	●	—	C2SF-C	—	—			
	●	—	—	—	●	—	AD27-C	—	—			
	—	—	●	—	—	—	C2SF-J	C3SF-J	C4SF-J			
	—	—	—	●	—	—	—	C3SF-W	C4SF-W			
	—	—	●	—	●	—	C2SF-CJ	—	—			
Nylon	—	—	—	—	—	C1SF-6	C2SF-6	C3SF-6	C4SF-6			
	—	—	—	—	●	—	C2SF-6C	—	—			
	●	—	—	—	—	AD17-6	AD27-6	AD37-6	AD47-6			
	—	●	—	—	—	—	—	AD38-6	AD48-6			
	●	—	—	—	●	—	AD27-6C	—	—			
	—	—	●	—	—	—	C2SF-6J	C3SF-6J	C4SF-6J			
	—	—	—	●	—	—	—	C3SF-6W	C4SF-6W			
	—	—	●	—	●	—	C2SF-6CJ	—	—			
Metal	—	—	—	—	—	C1SF-2	C2SF-2	C3SF-2	C4SF-2			
	●	—	—	—	—	AD17-2	AD27-2	AD37-2	AD47-2			
	—	●	—	—	—	—	—	AD38-2	AD48-2			
	—	—	●	—	—	—	C2SF-2J	C3SF-2J	C4SF-2J			
Metal bowl with level gauge	—	—	—	—	—	—	—	C3LF-8	C4LF-8			
	●	—	—	—	—	—	—	AD37-8	AD47-8			
	—	●	—	—	—	—	—	AD38-8	AD48-8			
	—	—	●	—	—	—	—	C3LF-8J	C4LF-8J			

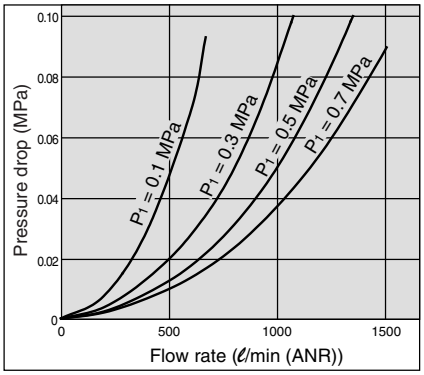
Note 1) Assembly of a bracket and 2 mounting screws
Note 2) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD17/27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.
Note 3) Please consult SMC for details on drain piping to fit NPT or G port sizes.
Note) • Bowl O-ring is included for the AF20 to AF60.
• Bowl assembly for the AF30 to AF60 models comes with a bowl guard (steel band material). (except when the bowl material is metal)

Flow Characteristics (Representative values)

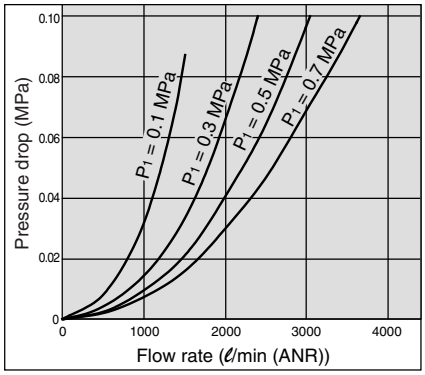
AF10 M5



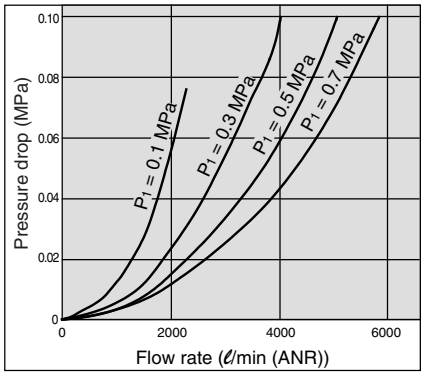
AF20 Rc1/4



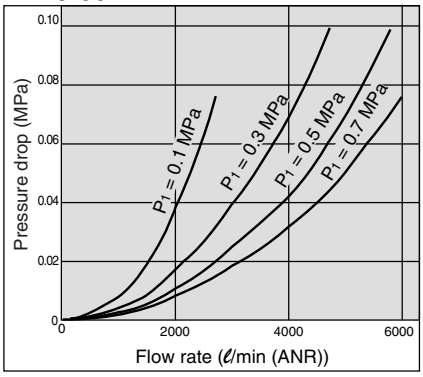
AF30 Rc3/8



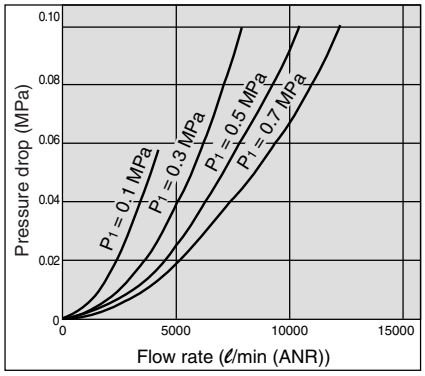
AF40 Rc1/2



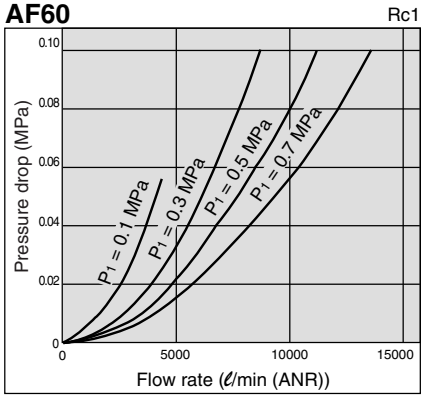
AF40-06 Rc3/4



AF50 Rc1



AF60 Rc1



⚠ Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

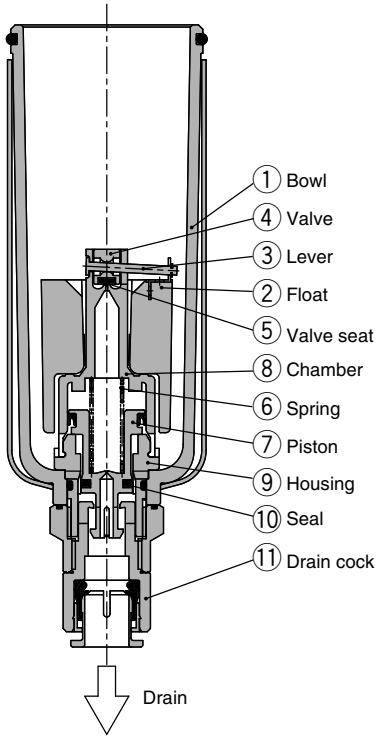
Mounting and Adjustment

⚠ 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.

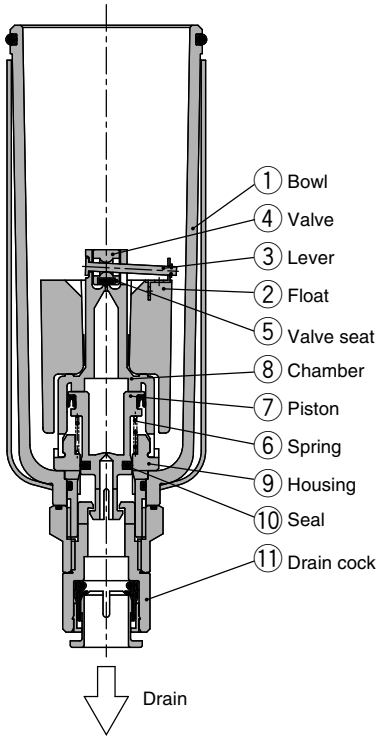
Working Principle: Float Type Auto Drain

N.O. type: AD38, AD48



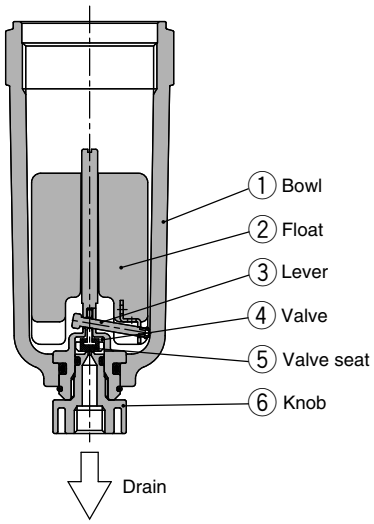
- **When pressure inside the bowl is released:**
  When pressure is released from the bowl ①, piston ⑦ is lowered by spring ⑥.
  The sealing action of seal ⑩ is interrupted, and the outside air flows inside the bowl ① through housing hole ⑨ and drain cock ⑪.
  Therefore, if there is an accumulation of condensate in the bowl ①, it will drain out through the drain cock.
- **When pressure is applied inside the bowl:**
  When pressure exceeds 0.1 MPa, the force of piston ⑦ surpasses the force of 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, float ② will be pulled down by its own weight, causing valve ④, which is connected to lever ③, to seal valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat ⑤.
  This allows the pressure inside the bowl ① to enter the chamber ⑧. The result is that the combined pressure inside chamber ⑧ and the force of the spring ⑥ lowers the piston ⑦.
  This causes the sealing action of seal ⑩ to be interrupted, and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning drain cock ⑪ manually counterclockwise lowers piston ⑦, which pushes open the seal created by seal ⑩, thus allowing the condensate to drain out.

N.C. type: AD37, AD47



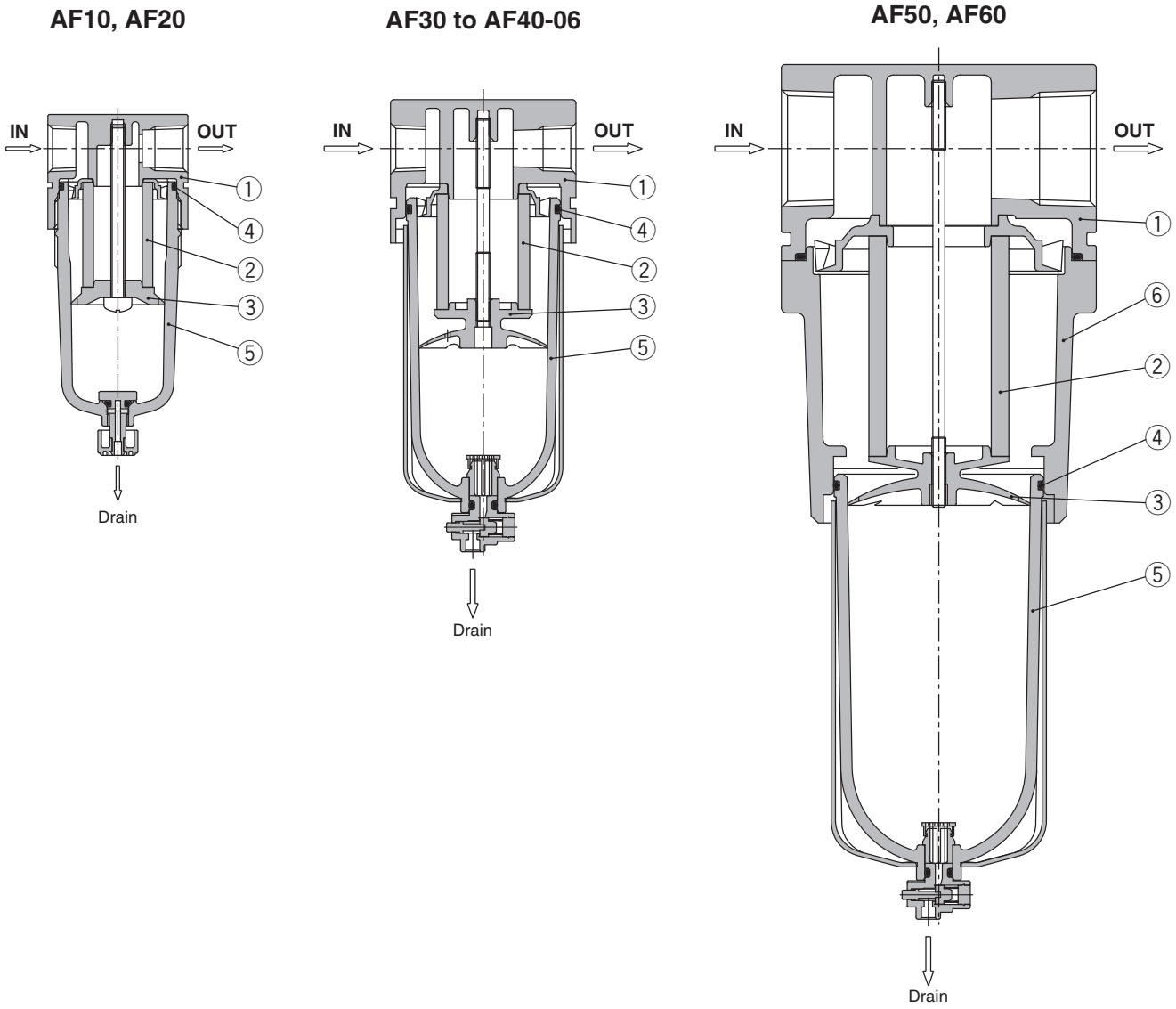
- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, spring ⑥ keeps piston ⑦ in its upward position.
  This keeps the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air.
  Therefore, even if there is an 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 spring ⑥ and the pressure inside the bowl ① keeps 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 float ② will be pulled down by its own weight, causing valve ④, which is connected to lever ③, to seal valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat ⑤.
  Pressure passes from the bowl to chamber ⑧.
  The result is that the pressure inside chamber ⑧ surpasses the force of the spring ⑥ and pushes piston ⑦ downwards.
  This causes the sealing action of seal ⑩ to be interrupted and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning drain cock ⑪ manually counterclockwise lowers piston ⑦, which pushes open the seal created by seal ⑩, thus allowing the condensate to drain out.

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



- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, the weight of the float ② causes valve ④, which is connected to lever ③, to seal 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 valve ④ cause valve ④ to seal 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:**
  Float ② rises due to its own buoyancy and the seal at valve seat ⑤ is interrupted.
  The condensate inside the bowl ① drains out through the knob ⑥.
  Turning knob ⑥ manually counterclockwise lowers it and causes the sealing action of valve seat ⑤ to be interrupted, which allows the condensate to drain out.

Construction



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AF10	Platinum silver
		Aluminum die-cast	AF20 to AF60	
6	**Housing**	Aluminum die-cast	AF50, AF60	Platinum silver

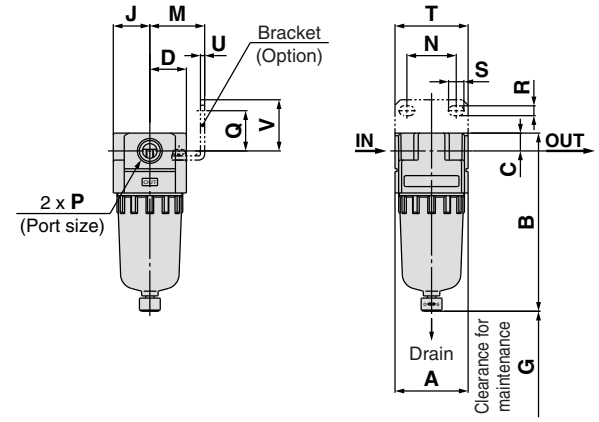
Replacement Parts

No.	Description	Material	Part no.						
			AF10	**AF20**	**AF30**	**AF40**	**AF40-06**	**AF50**	**AF60**
2	**Filter element**	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S		AF50P-060S	AF60P-060S
3	**Baffle**	PBT	AF10P-040S Note 1)	AF20P-040S	AF30P-040S	AF40P-040S		AF50P-040S	AF60P-040S
4	**Bowl O-ring**	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S			
5	**Bowl assembly** Note 2)	Polycarbonate	C1SF	C2SF	C3SF Note 3)	C4SF Note 3)			

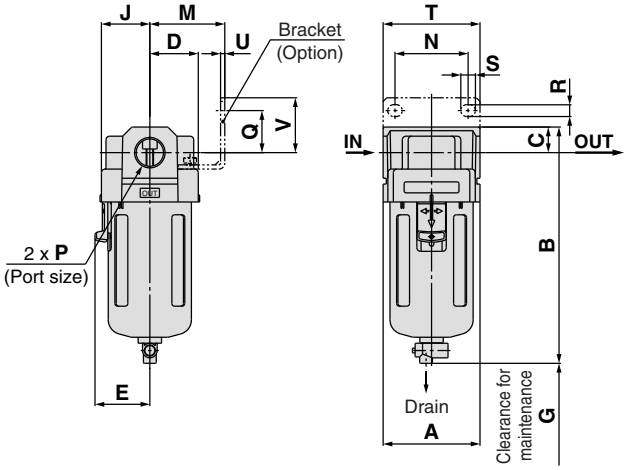
Note 1) The material of the baffle for the AF10 (AF10P-040S) only is polyacetal.
Note 2) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 3) Bowl assembly for the AF30 to AF60 models comes with a bowl guard (steel band material).

Dimensions

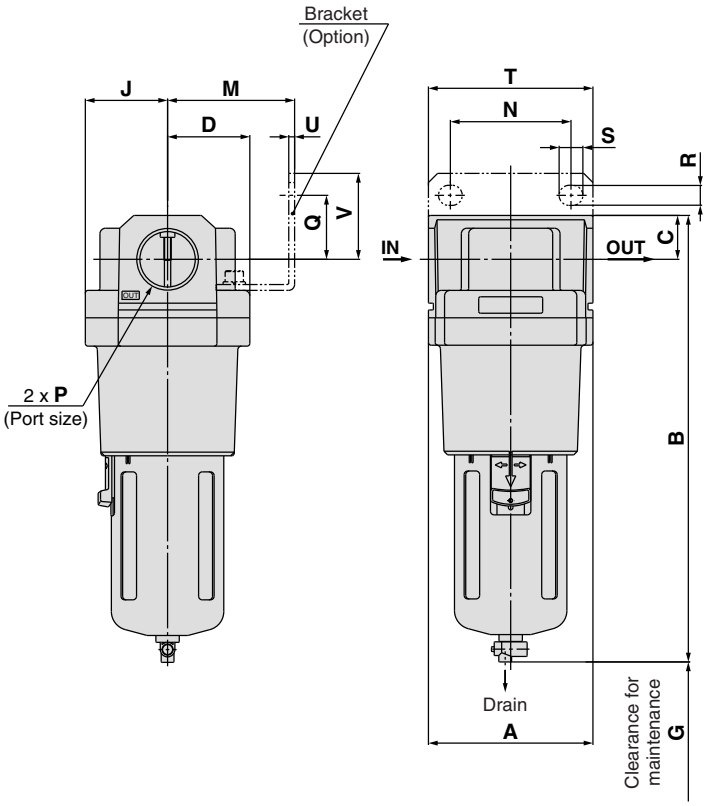
AF10, AF20

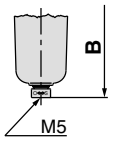
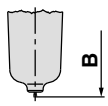
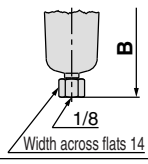
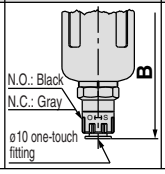
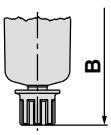
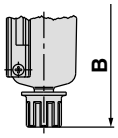
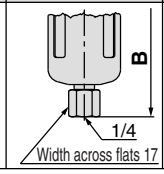
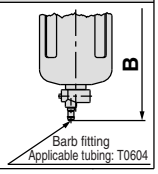


AF30 to AF40-06



AF50, AF60



Applicable model	AF10/20		AF20	AF30 to AF60				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications								Optional specifications								
									Bracket mount								With auto drain
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B
AF10	M5	25	67	7	12.5	—	25	12.5	—	—	—	—	—	—	—	—	85
AF20	1/8, 1/4	40	97	10	20	—	40	20	30	27	22	5.4	8.4	40	2.3	28	115
AF30	1/4, 3/8	53	129	14	26.5	30	50	26.5	41	40	23	6.5	8	53	2.3	30	170
AF40	1/4, 3/8, 1/2	70	165	18	35	38	75	35	50	54	26	8.5	10.5	70	2.3	35	204
AF40-06	3/4	75	169	20	35	38	75	35	50	54	25	8.5	10.5	70	2.3	34	208
AF50	3/4, 1	90	245	24	45	—	20	45	70	66	35	11	13	90	3.2	47	284
AF60	1	95	258	24	47.5	—	20	47.5	70	66	35	11	13	90	3.2	47	297

Model	Semi-standard specifications			
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AF10	—	—	66	—
AF20	—	101	97	—
AF30	137	136	142	162
AF40	173	172	178	198
AF40-06	177	176	182	202
AF50	253	252	258	278
AF60	266	265	271	291

Air Filter
AF10 to AF60
Made to Order

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

Made to Order

① 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°C	–5 to 80°C
Fluid temperature (°C)		–5 to 60°C (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 - ❶ ❷ 03 B - 2 ❺ ❻ - X430

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

Example) AF30-03B-2R-X430

For high/low temperature

X430	Low temperature
X440	High temperature

		Symbol	Description	❶ Body size 30	40	50	60
❷ Thread type		—	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)		—	Without mounting option	●	●	●	●
		B Note 3)	With bracket	●	●	●	●
+							
❺ Bowl Note 4)		2	Metal bowl	●	●	●	●
+							
❻ Semi-standard	a Drain port	—	With drain cock	●	●	●	●
		J Note 5)	Drain guide 1/4	●	●	●	●
+							
	b Flow direction	—	Flow direction: Left to right	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●
+							
	c Pressure unit	—	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

② 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°C (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 - ❶ ❷ 03 B - 2 ❺ ❻ - X425

For high pressure

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

Example) AF30-03B-2R-X425

		Symbol	Description	❶ Body size 20	30	40	50	60
❷ Thread type		—	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)		—	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	—	With drain cock	●	●	●	●	●
		J Note 5)	Drain guide 1/8	●	—	—	—	—
			Drain guide 1/4	—	●	●	●	●
+								
	b Flow direction	—	Flow direction: Left to right	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●
+								
	c Pressure unit	—	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

③ Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	M5	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Drain capacity (cm^3)	9	19	43	88			

Note) Please consult SMC for dimensions.

AF 30 - ☐ 03 ☐ - ☐ - X64

❶ ❷ ❸ ❹ ❺

• **Long bowl**

• Semi-standard: Select one each for **a** to **d**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in ascendingalphanumeric order.
Example) AF30-03B-2R-X64

		Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Thread type	—	Metric thread (M5)	●	—	—	—	—	—
			Rc	—	●	●	●	●	●
		N Note 1)	NPT	—	●	●	●	●	●
		F Note 2)	G	—	●	●	●	●	●
		+							
❸	Port size	M5	M5	●	—	—	—	—	—
		01	1/8	—	●	—	—	—	—
		02	1/4	—	●	●	●	—	—
		03	3/8	—	—	●	●	—	—
		04	1/2	—	—	—	●	—	—
		06	3/4	—	—	—	●	●	—
		10	1	—	—	—	—	●	●
		+							
❹	Option (Mounting)	—	Without mounting option	●	●	●	●	●	●
		B Note 3)	With bracket	—	●	●	●	●	●
		+							
❺ Semi-standard	a Bowl	—	Polycarbonate bowl	●	●	●	●	●	●
		2	Metal bowl	●	●	●	●	●	●
		6	Nylon bowl	●	●	●	●	●	●
		C	With bowl guard	—	●	—	—	—	—
		6C	Nylon bowl with bowl guard	—	●	—	—	—	—
		+							
	b Drain port	—	With drain cock	●	●	●	●	●	●
		J Note 4)	Drain guide 1/8	—	●	—	—	—	—
			Drain guide 1/4	—	—	●	●	●	●
		W Note 5)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●
		+							
	c Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●	●
		+							
	d Pressure unit	—	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 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. Includes 2 mounting screws
Note 4) Without a valve function
Note 5) Metal bowl: The combination with 2 cannot be selected with W.
Note 6) For 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 thread type: M5, NPT only

Air Filter
AF30 to AF60
Made to Order

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

Made to Order

④ With Element Service Indicator

Clogging status of elements can be checked visually.

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 - ☐ 03 ☐ - ☐ - X2141

❶ ❷ ❸ ❹ ❺

• **With element service indicator**

A special body type is required to mount the clogging checker. It cannot be mounted on a standard body.

• Option/Semi-standard: Select one each for **a** to **f**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in ascending alphanumeric order.
Example) AF30-03BD-2R-X2141

			Symbol	Description	❶ Body size 30	40	50	60
❷	Thread type		—	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	a Mounting	—	Without mounting option	●	●	●	●
			B Note 3)	With bracket	●	●	●	●
			+					
		b Float type auto drain	—	Without auto drain	●	●	●	●
			C	Float type auto drain (N.C.)	●	●	●	●
			D	Float type auto drain (N.O.)	●	●	●	●
			+					
❺	Semi-standard	c Bowl	—	Polycarbonate bowl	●	●	●	●
			2	Metal bowl	●	●	●	●
			6	Nylon bowl	●	●	●	●
			8	Metal bowl with level gauge	●	●	●	●
			+					
		d Drain port Note 4)	—	With drain cock	●	●	●	●
			J Note 5)	Drain guide 1/4	●	●	●	●
			W Note 6)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	●	●	●	●
			+					
		e Flow direction	—	Flow direction: Left to right	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●
			+					
		f Pressure unit	—	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●
			Z Note 7)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 8)	○ Note 8)	○ Note 8)	○ Note 8)

Note 1) Drain guide is NPT1/4.
The auto drain port comes with a ø3/8" one-touch fitting.
Note 2) Drain guide is G1/4.
Note 3) Option B is not assembled and supplied loose at the time of shipment.
Includes 2 mounting screws
Note 4) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 5) Without a valve function
Note 6) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 7) 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 8) ○: For thread type: NPT only.

Mist Separator

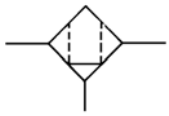
AFM20 to AFM40

Micro Mist Separator

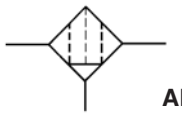
AFD20 to AFD40

JIS Symbol

Mist Separator



Micro Mist Separator



AFM20, AFD20

AFM40, AFD40

- **Series AFM Nominal filtration rating: 0.3 µm**
- **Series AFD Nominal filtration rating: 0.01 µm**

How to Order

AFM 30 – ☐ 03 BD – ☐ – ☐

AFD 30 – ☐ 03 BD – ☐ – ☐

❶ ❷ ❸ ❹ ❺

- **Made to Order**
  (Refer to pages 44 and 45 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 ascending alphanumeric order.

Example) AFM30-03BD-2R

			Symbol	Description	❶ Body size 20	30	40
❷	Thread type		—	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	—	Without mounting option	●	●	●
			B Note 3)	With bracket	●	●	●
			+				
		b Float type auto drain Note 4)	—	Without auto drain	●	●	●
			C	Float type auto drain (N.C.)	●	●	●
			D	Float type auto drain (N.O.)	—	●	●
			+				
❺	Semi-standard	c Bowl	—	Polycarbonate bowl	●	●	●
			2	Metal bowl	●	●	●
			6	Nylon bowl	●	●	●
			8	Metal bowl with level gauge	—	●	●
			C	With bowl guard	●	—	—
			6C	Nylon bowl with bowl guard	●	—	—
			+				
		d Drain port	—	With drain cock	●	●	●
			J Note 5)	Drain guide 1/8	●	—	—
				Drain guide 1/4	—	●	●
			W Note 6)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	●	●
			+				
		e Flow direction	—	Flow direction: Left to right	●	●	●
			R	Flow direction: Right to left	●	●	●
			+				
		f Pressure unit	—	Name plate and caution plate for bowl in imperial units: MPa	●	●	●
			Z Note 7)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 8)	○ Note 8)	○ Note 8)

Note 1) Drain guide is NPT1/8 (applicable to the AFM20, AFD20) and NPT1/4 (applicable to the AFM30/40, AFD30/40).
The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AFM30/40, AFD30/40).
Note 2) Drain guide is G1/8 (applicable to the AFM20, AFD20) and G1/4 (applicable to the AFM30/40, AFD30/40).
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws
Note 4) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 5) Without a valve function
Note 6) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 7) 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 8) ○: For thread type: NPT only

Standard Specifications

Model		AFM20 AFD20	AFM30 AFD30	AFM40 AFD40	AFM40-06 AFD40-06
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
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 operating pressure		0.05 MPa			
Nominal filtration rating	**AFM20 to AFM40-06**	0.3 μm (99.9% filtered particle size)			
	AFD20 to AFD40-06	0.01 μm (99.9% filtered particle size)			
Outlet side oil mist concentration	**AFM20 to AFM40-06**	Max. 1.0 mg/m^3 (ANR) (≈ 0.8 ppm) Note 2) Note 3)			
	AFD20 to AFD40-06	Max. 0.1 mg/m^3 (ANR) (Before saturated with oil 0.01 mg/m^3 (ANR) or less ≈ 0.008 ppm) Note 2) Note 3)			
Rated flow (ℓ/min (ANR)) Note 1)	**AFM20 to AFM40-06**	200	450	1100	
	AFD20 to AFD40-06	120	240	600	
Drain capacity (cm^3)		8	25	45	
Bowl material		Polycarbonate			
Bowl guard		Semi-standard	Standard		
Mass (kg)		0.10	0.22	0.44	0.49

Note 1) Conditions: Inlet pressure: 0.7 MPa; The rated flow varies depending on the inlet pressure. Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.
Note 2) When the compressor oil mist discharge concentration is 30 mg/m^3 (ANR).
Note 3) Bowl O-ring and other O-rings are slightly lubricated.

Options/Part No.

Optional specifications		Model			
		AFM20 AFD20	AFM30 AFD30	AFM40 AFD40	AFM40-06 AFD40-06
Bracket assembly Note 1)		AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS
Float type auto drain Note 2) Note 3)	**N.C.**	AD27	AD37	AD47	
	N.O.	—	AD38	AD48	

Semi-standard/Bowl Assembly Part No.

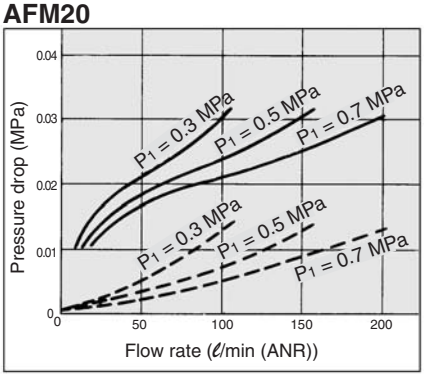
Semi-standard specifications						Model			
Bowl material	Float type auto drain Note 2) Note 3)		With drain guide Note 3)	With barb fitting	With bowl guard	AFM20 AFD20	AFM30 AFD30	AFM40 AFD40	AFM40-06 AFD40-06
	N.C.	N.O.							
Polycarbonate	—	—	—	—	●	C2SF-C	—	—	
	●	—	—	—	●	AD27-C	—	—	
	—	—	●	—	—	C2SF-J	C3SF-J	C4SF-J	
	—	—	—	●	—	—	C3SF-W	C4SF-W	
	—	—	●	—	●	C2SF-CJ	—	—	
Nylon	—	—	—	—	—	C2SF-6	C3SF-6	C4SF-6	
	—	—	—	—	●	C2SF-6C	—	—	
	●	—	—	—	—	AD27-6	AD37-6	AD47-6	
	—	●	—	—	—	—	AD38-6	AD48-6	
	●	—	—	—	●	AD27-6C	—	—	
	—	—	●	—	—	C2SF-6J	C3SF-6J	C4SF-6J	
	—	—	—	●	—	—	C3SF-6W	C4SF-6W	
	—	—	●	—	●	C2SF-6CJ	—	—	
Metal	—	—	—	—	—	C2SF-2	C3SF-2	C4SF-2	
	●	—	—	—	—	AD27-2	AD37-2	AD47-2	
	—	●	—	—	—	—	AD38-2	AD48-2	
	—	—	●	—	—	C2SF-2J	C3SF-2J	C4SF-2J	
Metal bowl with level gauge	—	—	—	—	—	—	C3LF-8	C4LF-8	
	●	—	—	—	—	—	AD37-8	AD47-8	
	—	●	—	—	—	—	AD38-8	AD48-8	
	—	—	●	—	—	—	C3LF-8J	C4LF-8J	

Note 1) Assembly of a bracket and 2 mounting screws
Note 2) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47),
Please consult SMC separately for psi and °F unit display specifications.
Note 3) Please consult SMC for details on drain piping to fit NPT or G port sizes.
Note) • Bowl O-ring is included.
• Bowl assembly for the AFM30 to AFM40-06 models and AFD30 to AFD40-06 models comes with a bowl guard (steel band material). (except when the bowl material is metal)

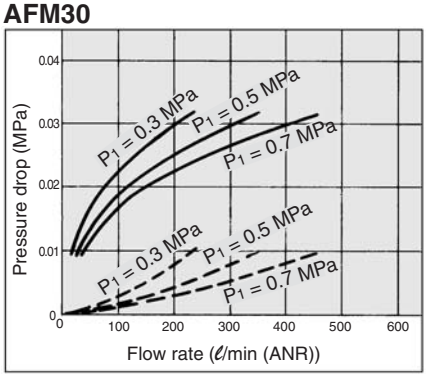
Flow Characteristics (Representative values)

——— : When saturated with oil
– – – – : Initial state

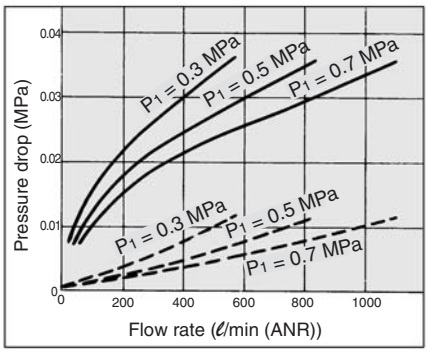
AFM20



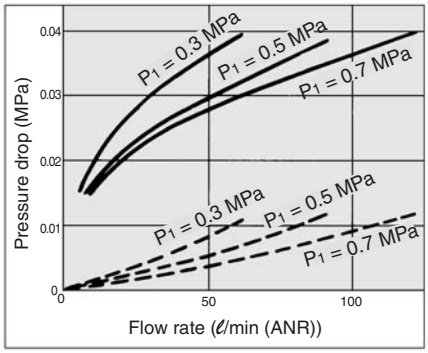
AFM30



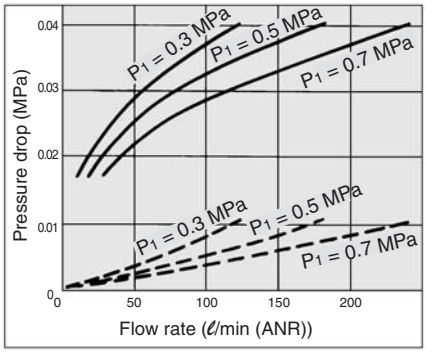
AFM40



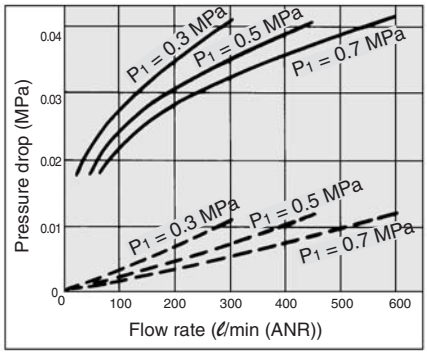
AFD20



AFD30



AFD40



⚠ Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

Air Supply

⚠ Caution

1. Install an air filter (AF series) as a pre-filter on the inlet side of the mist separator to prevent premature clogging.
2. Install a mist separator (AFM series) as a pre-filter on the inlet side of the micro mist separator to prevent premature clogging.
3. Do not install on the inlet side of the dryer as this can cause premature clogging of the element.

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.

Design

⚠ Caution

1. Design the system so that the mist separator is installed in a pulsation-free location. The difference between internal and external pressure inside the element should be kept within 0.1 MPa, as exceeding this value could cause damage.

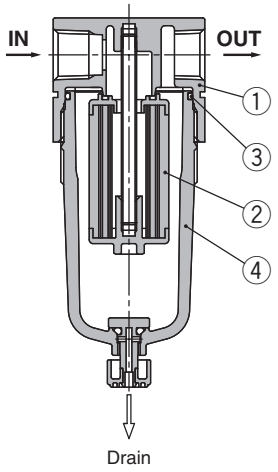
Selection

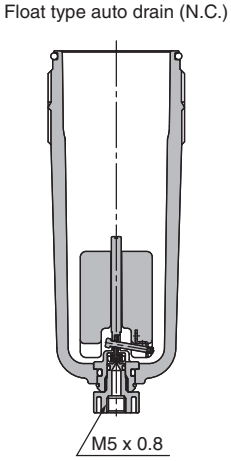
⚠ Caution

1. Do not allow air flow that exceeds the rated flow. If the air flow is allowed outside the range of the rated flow even momentarily, drainage and lubricant may splash at the outlet side or cause damage to the component.
2. Do not use in a low pressure application (such as a blower). F.R.L. unit has its own minimum operating pressure depending on the equipment and is designed specifically to function with compressed air. If used below the minimum operating pressure, a loss of performance and malfunction can occur. Please contact SMC if an application under such conditions cannot be avoided.

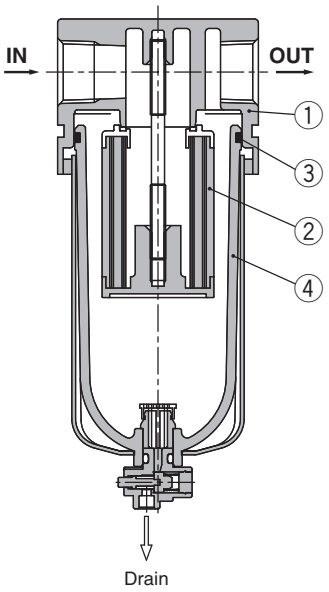
Construction

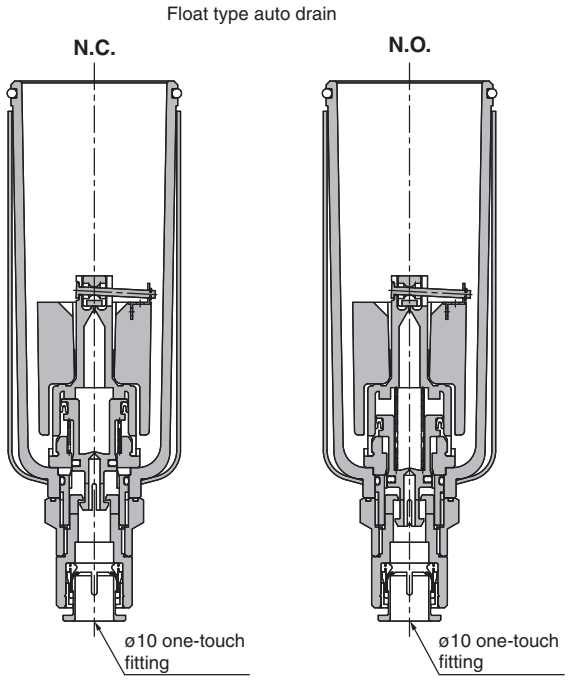
AFM20
AFD20





AFM30 to AFM40-06
AFD30 to AFD40-06





Component Parts

No.	Description	Material	Model	Colour
1	**Body**	Aluminum die-cast	AFM20 to AFM40-06, AFD20 to AFD40-06	Platinum silver

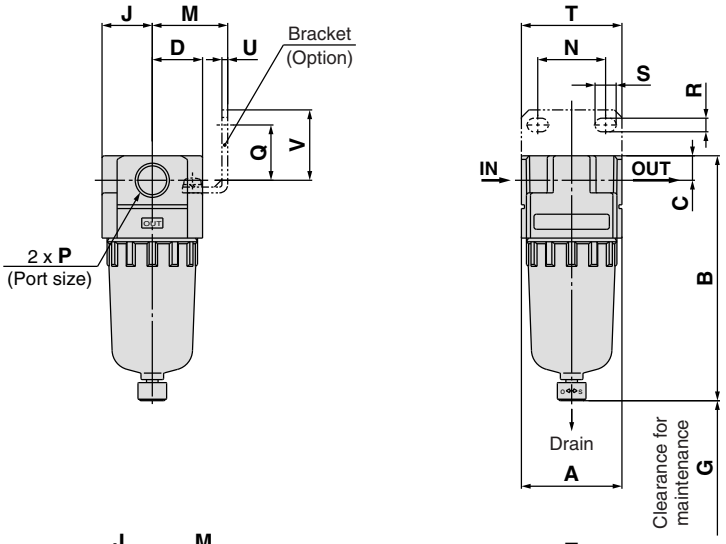
Replacement Parts

No.	Description		Material	Part no.			
				AFM20 AFD20	**AFM30 AFD30**	**AFM40 AFD40**	**AFM40-06 AFD40-06**
2	**Element assembly**	**AFM20 to 40**	—	AFM20P-060AS	AFM30P-060AS	AFM40P-060AS	
		AFD20 to 40	—	AFD20P-060AS	AFD30P-060AS	AFD40P-060AS	
3	**Bowl O-ring**		NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S	
4	**Bowl assembly** Note 1)		Polycarbonate	C2SF	C3SF Note 2)	C4SF Note 2)	

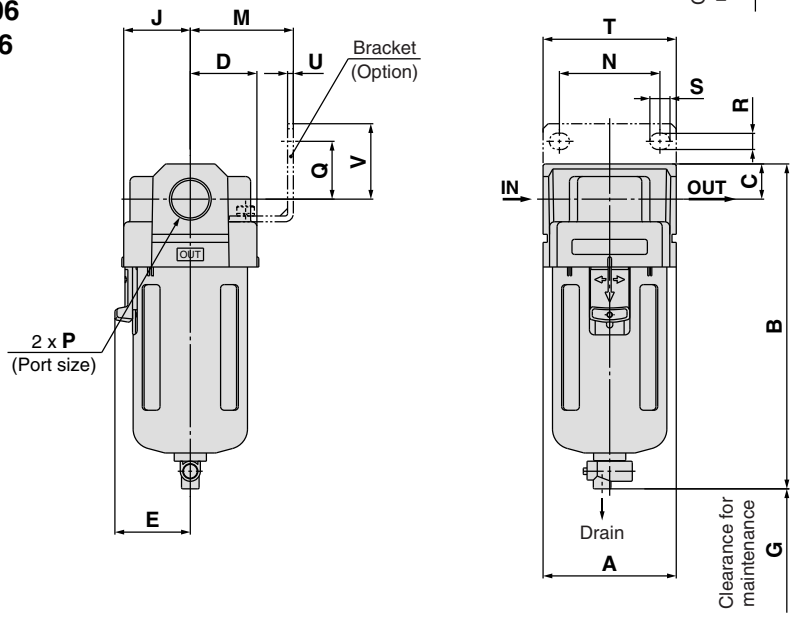
Note 1) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 2) Bowl assembly for the AFM30 to AFM40-06 models and the AFD30 to AFD40-06 models comes with a bowl guard (steel band material).

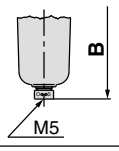
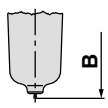
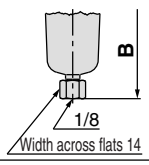
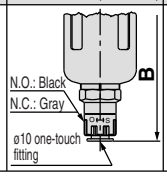
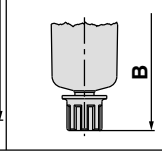
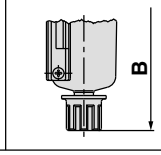
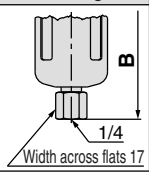
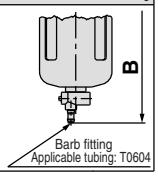
Dimensions

AFM20
AFD20



AFM30 to AFM40-06
AFD30 to AFD40-06



Applicable model	AFM20, AFD20			AFM30 to AFM40-06, AFD30 to AFD40-06				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications								Optional specifications								
									Bracket mount								With auto drain
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B
AFM20/AFD20	1/8, 1/4	40	97	10	20	—	40	20	30	27	22	5.4	8.4	40	2.3	28	115
AFM30/AFD30	1/4, 3/8	53	129	14	26.5	30	50	26.5	41	40	23	6.5	8	53	2.3	30	170
AFM40/AFD40	1/4, 3/8, 1/2	70	165	18	35	38	75	35	50	54	26	8.5	10.5	70	2.3	35	204
AFM40-06/AFD40-06	3/4	75	169	20	35	38	75	35	50	54	25	8.5	10.5	70	2.3	34	208

Model	Semi-standard specifications			
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AFM20/AFD20	—	101	97	—
AFM30/AFD30	137	136	142	162
AFM40/AFD40	173	172	178	198
AFM40-06/AFD40-06	177	176	182	202

Mist Separator *AFM20 to AFM40*
Micro Mist Separator *AFD20 to AFD40*
Made to Order

Made to Order

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

① Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

Model	AFM20, AFD20	AFM30, AFD30	AFM40, AFD40	AFM40-06, AFD40-06
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 SMC for dimensions.

AFM 30 - ☐ 03 ☐ - ☐ - X64

AFD 30 - ☐ 03 ☐ - ☐ - X64

❶ ❷ ❸ ❹ ❺ • Long bowl

• Semi-standard: Select one each for **a** to **d**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in ascending alphanumeric order.
Example) AFM30-03B-2R-X64

		Symbol	Description	❶ Body size 20	30	40
❷	Thread type	—	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)	—	Without mounting option	●	●	●
		B Note 3)	With bracket	●	●	●
		+				
❺ Semi-standard	a Bowl	—	Polycarbonate bowl	●	●	●
		2	Metal bowl	●	●	●
		6	Nylon bowl	●	●	●
		C	With bowl guard	●	—	—
		6C	Nylon bowl with bowl guard	●	—	—
		+				
	b Drain port	—	With drain cock	●	●	●
		J Note 4)	Drain guide 1/8	●	—	—
			Drain guide 1/4	—	●	●
		W Note 5)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	●	●
		+				
	c Flow direction	—	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	d Pressure unit	—	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 1) Drain guide is NPT1/8 (applicable to the AFM20, AFD20) and NPT1/4 (applicable to the AFM30/40, AFD30/40).
Note 2) Drain guide is G1/8 (applicable to the AFM20, AFD20) and G1/4 (applicable to the AFM30/40, AFD30/40).
Note 3) A bracket is not assembled and supplied loose at the time of shipment. Includes 2 mounting screws
Note 4) Without a valve function
Note 5) Metal bowl: The combination with 2 cannot be selected with W.
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

Mist Separator *AFM30 to AFM40*
Micro Mist Separator *AFD30 to AFD40*
Made to Order

Made to Order

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

② With Element Service Indicator

Clogging status of elements can be checked visually.

Applicable Model

Model	AFM30, AFD30	AFM40, AFD40	AFM40-06, AFD40-06
Port size	1/4, 3/8	1/4, 3/8, 1/2	3/4

AFM 30 - □ 03 □ - □ - X2141

AFD 30 - □ 03 □ - □ - X2141

❶ ❷ ❸ ❹ ❺

• **With element service indicator**

A special body type is required to mount the clogging checker. It cannot be mounted on a standard body.

• Option/Semi-standard: Select one each for **a** to **f**.
• Option/Semi-standard symbol: When more than one specification is required, indicate in ascending alphanumeric order.
Example) AF30-03BD-2R-X2141

			Symbol	Description	❶ Body size 30	❶ Body size 40
❷	Thread type		—	Rc	●	●
			N Note 1)	NPT	●	●
			F Note 2)	G	●	●
			+			
❸	Port size		02	1/4	●	●
			03	3/8	●	●
			04	1/2	—	●
			06	3/4	—	●
			+			
❹	Option Note 3)	a Mounting	—	Without mounting option	●	●
			B Note 3)	With bracket	●	●
			+			
		b Float type auto drain	—	Without auto drain	●	●
			C	Float type auto drain (N.C.)	●	●
			D	Float type auto drain (N.O.)	●	●
			+			
❺	Semi-standard	c Bowl	—	Polycarbonate bowl	●	●
			2	Metal bowl	●	●
			6	Nylon bowl	●	●
			8	Metal bowl with level gauge	●	●
			+			
		d Drain port Note 4)	—	With drain cock	●	●
			J Note 5)	Drain guide 1/4	●	●
			W Note 6)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	●	●
			+			
		e Flow direction	—	Flow direction: Left to right	●	●
			R	Flow direction: Right to left	●	●
			+			
		f Pressure unit	—	Name plate and caution plate for bowl in imperial units: MPa	●	●
			Z Note 7)	Name plate and caution plate for bowl in imperial units: psi, °F	○ Note 8)	○ Note 8)

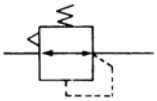
Note 1) Drain guide is NPT1/4. The auto drain port comes with a ø3/8" one-touch fitting.
Note 2) Drain guide is G1/4.
Note 3) Option B is not assembled and supplied loose at the time of shipment. Includes 2 mounting screws
Note 4) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 5) Without a valve function
Note 6) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 7) 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 8) ○: For thread type: NPT only

Modular Type Regulators
Series AR

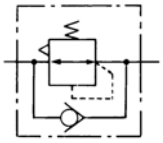
	Model	Port size	Options
Regulator Series AR **Page 47 through to 56**	**AR10**	M5	Bracket Square embedded type pressure gauge (except the AR10) Round type pressure gauge Digital pressure switch (except the AR10) Panel mount
	AR20	1/8, 1/4	
	AR25	1/4, 3/8	
	AR30	1/4, 3/8	
	AR40	1/4, 3/8, 1/2	
	AR40-06	3/4	
	AR50	3/4, 1	
	AR60	1	
Regulator with Backflow Function Series AR□K **Page 47 through to 56**	**AR20K**	1/8, 1/4	
	AR25K	1/4, 3/8	
	AR30K	1/4, 3/8	
	AR40K	1/4, 3/8, 1/2	
	AR40K-06	3/4	
	AR50K	3/4, 1	
	AR60K	1	

Regulator
AR10 to AR60
Regulator with Backflow Function
AR20K to AR60K

JIS Symbol
Regulator

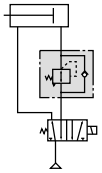


Regulator with Backflow Function

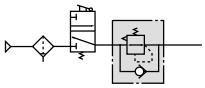


- **With the backflow function it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.**

Example 1)
When the pressure in the rear and the front of the cylinder differs:



Example 2)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.



How to Order

AR 30 K – 03 BE – ( ) – ( )

❶ ❷ ❸ ❹ ❺ ❻

Made to Order
(Refer to pages 55 and 56 for details.)

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

Example) AR30K-03BE-1NR

		Symbol	Description	❶ Body size 10	20	25	30	40	50	60
❷	With backflow function	—	Without backflow function	●	●	●	●	●	●	●
		K Note 1)	With backflow function	—	●	●	●	●	●	●
		+								
❸	Thread type	—	Metric thread (M5)	●	—	—	—	—	—	—
			Rc	—	●	●	●	●	●	●
		N	NPT	—	●	●	●	●	●	●
		F	G	—	●	●	●	●	●	●
		+								
❹	Port size	M5	M5	●	—	—	—	—	—	—
		01	1/8	—	●	—	—	—	—	—
		02	1/4	—	●	●	●	●	—	—
		03	3/8	—	—	●	●	●	—	—
		04	1/2	—	—	—	—	●	—	—
		06	3/4	—	—	—	—	●	●	—
		10	1	—	—	—	—	—	●	●
		+								
❺ Option Note 2)	a Mounting	—	Without mounting option	●	●	●	●	●	●	●
		B Note 3)	With bracket	●	●	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	●	●	—	—
		+								
	b Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●	●
		E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●	●	●
		G	Round type pressure gauge (without limit indicator)	●	—	—	—	—	—	—
			Round type pressure gauge (with limit indicator)	—	●	●	●	●	●	●
		M	Round type pressure gauge (with colour zone)	—	●	●	●	●	●	●
	b Digital pressure switch	E1 Note 4)	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●
		E2 Note 4)	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●
		E3 Note 4)	Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●	●	●
		E4 Note 4)	Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●	●	●

AR20, AR20K AR40, AR40K

			Symbol	Description	❶ Body size 10	20	25	30	40	50	60
❻ Semi-standard	c	Set pressure	— Note 5)	0.05 to 0.85 MPa setting	●	●	●	●	●	●	●
			1 Note 6)	0.02 to 0.2 MPa setting	●	●	●	●	●	●	●
			+								
	d	Exhaust mechanism	—	Relieving type	●	●	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●	●	●
			+								
	e	Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●	●
			+								
	f	Knob	—	Downward	●	●	●	●	●	●	●
			Y	Upward	●	●	●	●	●	●	●
			+								
	g	Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●	●
			Z Note 7)	Name plate and pressure gauge in imperial units: psi	○ Note 9)	○ Note 9)	○ Note 9)	○ Note 9)	○ Note 9)	○ Note 9)	○ Note 9)
			ZA Note 8)	Digital pressure switch: With unit conversion function	—	△ Note 10)	△ Note 10)	△ Note 10)	△ Note 10)	△ Note 10)	△ Note 10)

Note 1) The AR10 type comes with a backflow function as a standard feature. (K is not available.) When using the AR10 type as w/ backflow function, backflow may not occur with the set pressure 0.15 MPa or less. Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.
Note 2) Option B, G, H and M are not assembled and supplied loose at the time of shipment.
Note 3) Assembly of a bracket and set nuts (AR10, AR20(K) to AR40(K)) Including 2 mounting screws for the AR50(K) and AR60(K)
Note 4) When choosing with H (panel mount), the installation space for lead wires will be limited. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)
Note 5) Only the AR10 has a pressure setting of 0.05 to 0.7 MPa.
Note 6) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 7) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
Note 8) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 9) ○: For thread type: M5 and NPT only
Note 10) △: Select with options: E1, E2, E3, E4.

Standard Specifications

Model	AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
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	3/4, 1	1
Pressure gauge port size Note 1)	1/16 Note 2)	1/8			1/4			
Fluid	Air							
Ambient and fluid temperature Note 3)	–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	0.05 to 0.85 MPa						
Relief pressure Note 4)	Set pressure + 0.05 MPa [at relief flow rate of 0.1 ℓ/min (ANR)]							
Construction	Relieving type							
Mass (kg)	0.06	0.16	0.21	0.29	0.44	0.47	1.17	1.22

Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge (AR20(K) to AR60(K)).
Note 2) Use a bushing (part no:131368) when connecting the R1/8 pressure gauge to the Rc1/16.
Note 3) –5 to 50°C for the products with the digital pressure switch.
Note 4) Not applicable to the AR10.

Options/Part No.

Option \ Model			AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
Bracket assembly Note 1)			AR10P-270AS	AR20P-270AS	AR25P-270AS	AR30P-270AS	AR40P-270AS		AR50P-270AS Note 2)	
Set nut			AR10P-260S	AR20P-260S	AR25P-260S	AR30P-260S	AR40P-260S		— Note 3)	— Note 3)
Pressure gauge	Note 4) Round type	Standard	G27-10-R1	G36-10-□01			G46-10-□02			
		0.02 to 0.2 MPa setting	G27-10-R1 Note 5)	G36-2-□01			G46-2-□02			
	Note 4) Round type (with colour zone)	Standard	—	G36-10-□01-L			G46-10-□02-L			
		0.02 to 0.2 MPa setting	—	G36-2-□01-L			G46-2-□02-L			
	Note 6) Square embedded type	Standard	—	GC3-10AS [GC3P-010AS (Pressure gauge cover only)]						
		0.02 to 0.2 MPa setting	—	GC3-2AS [GC3P-010AS (Pressure gauge cover only)]						
Digital pressure switch	NPN output: Wiring bottom entry		—	ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)] Note 7)						
	NPN output: Wiring top entry			ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)] Note 7)						
	PNP output: Wiring bottom entry			ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)] Note 7)						
	PNP output: Wiring top entry			ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)] Note 7)						

Note 1) Assembly includes a bracket and set nuts
Note 2) Assembly includes a bracket and 2 mounting screws
Note 3) Please consult with SMC regarding the set nuts for the AR50(K) and AR60(K).
Note 4) □ 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 5) Pressure gauge for general purpose
Note 6) Including one O-ring and 2 mounting screws. [ ]: Pressure gauge cover only
Note 7) Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached. [ ]: Switch body only
Also, regarding how to order the digital pressure switch, please refer to page 89.

⚠ Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

Selection

⚠ Warning

1. Residual pressure disposal (outlet pressure removal) is not possible for the AR20 to AR60 even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the regulator with a backflow function (AR20K to AR60K).

Maintenance

⚠ Warning

1. When using the regulator with backflow function 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. The pressure gauge included with regulators for 0.02 to 0.2 MPa setting is for up to 0.2 MPa use only (except the AR10). Exceeding 0.2 MPa of pressure can damage the gauge.
3. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

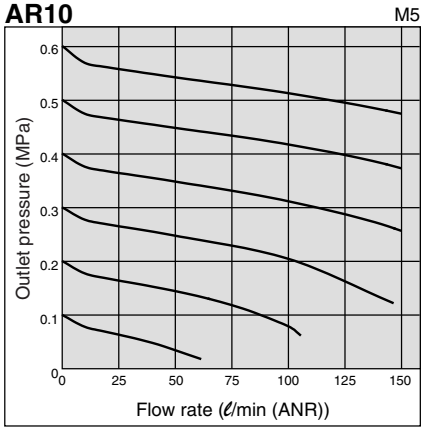
1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
   - Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" 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. A knob cover is available to prevent careless operation of the knob. Refer to page 90 for details.

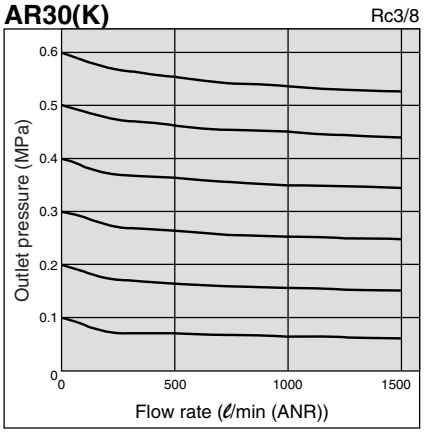
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

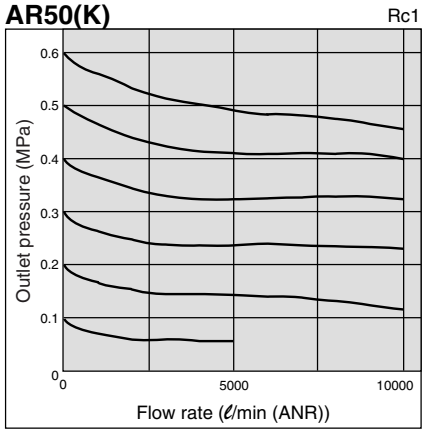
AR10 M5



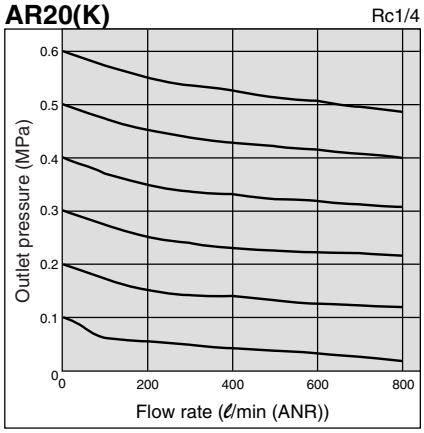
AR30(K) Rc3/8



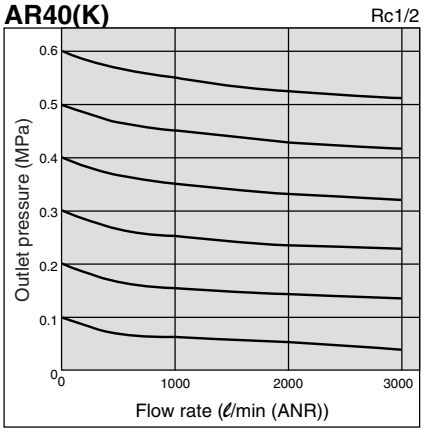
AR50(K) Rc1



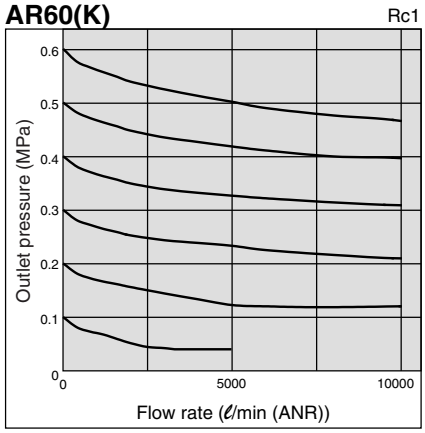
AR20(K) Rc1/4



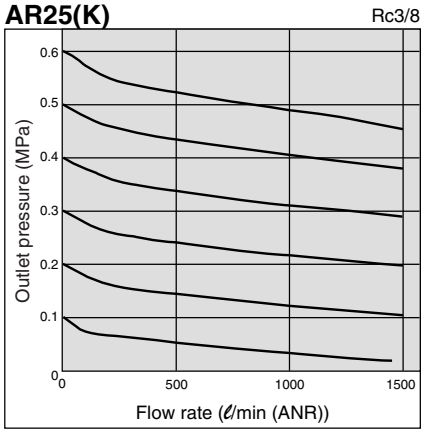
AR40(K) Rc1/2



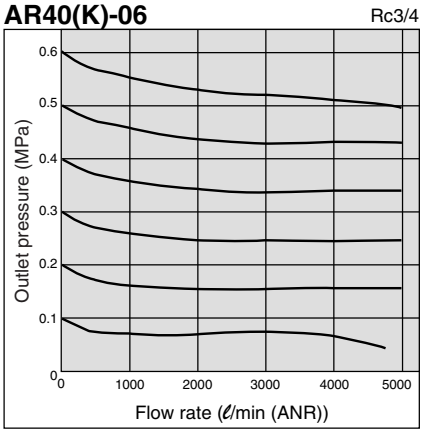
AR60(K) Rc1



AR25(K) Rc3/8



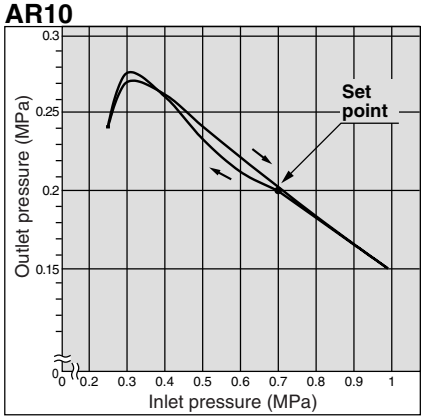
AR40(K)-06 Rc3/4



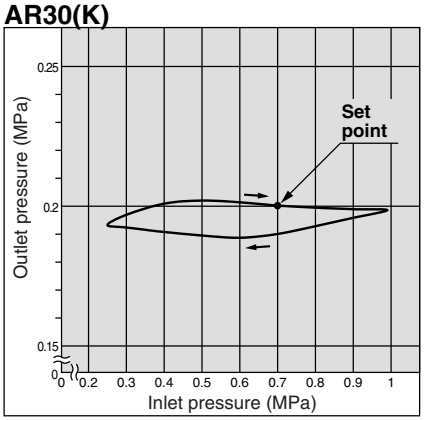
Pressure Characteristics (Representative values)

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

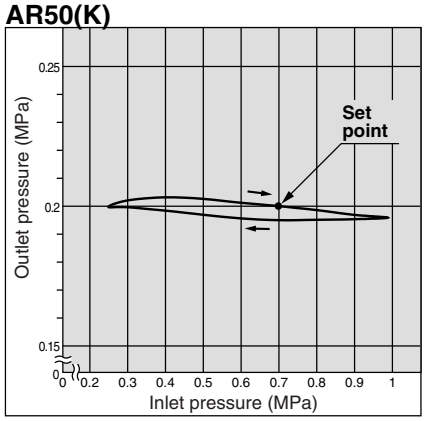
AR10



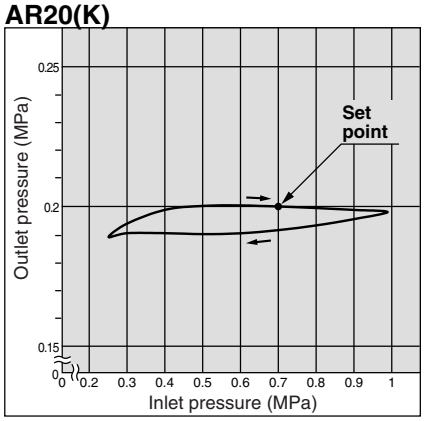
AR30(K)



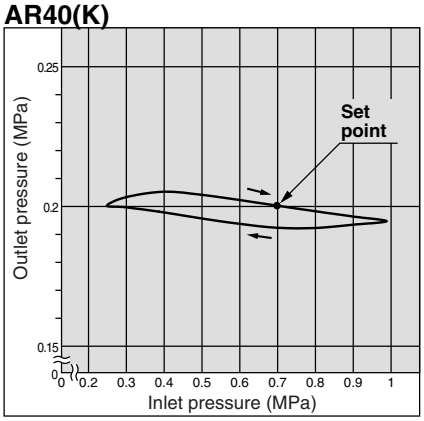
AR50(K)



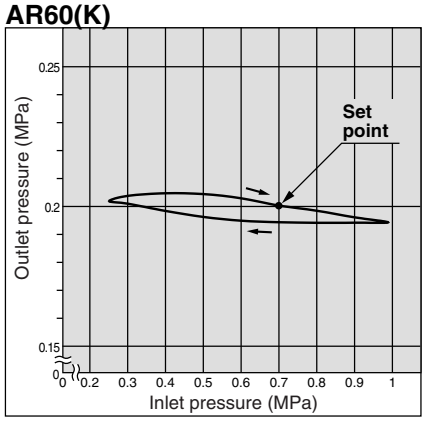
AR20(K)



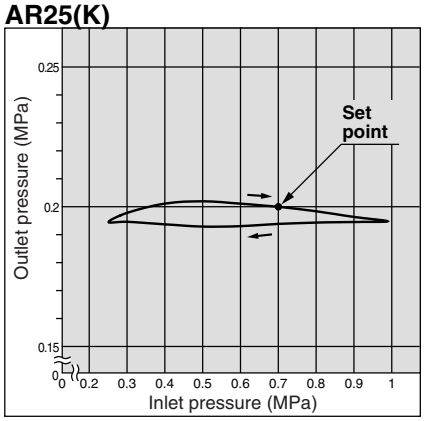
AR40(K)



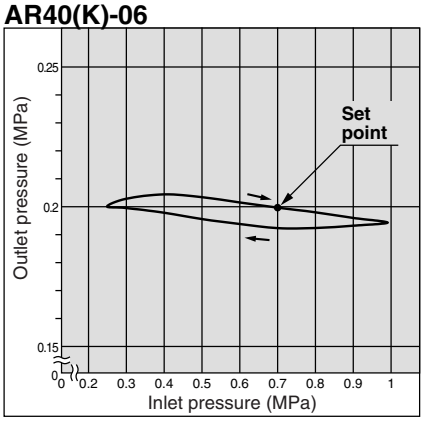
AR60(K)



AR25(K)

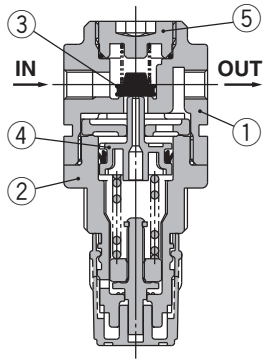


AR40(K)-06

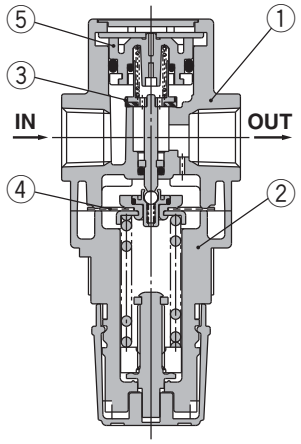


Construction

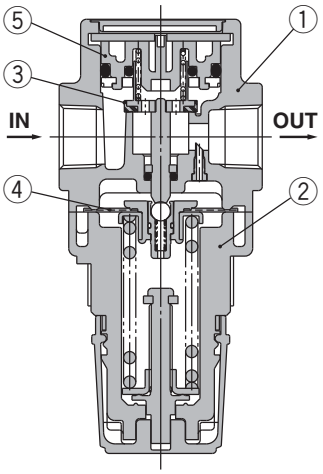
AR10



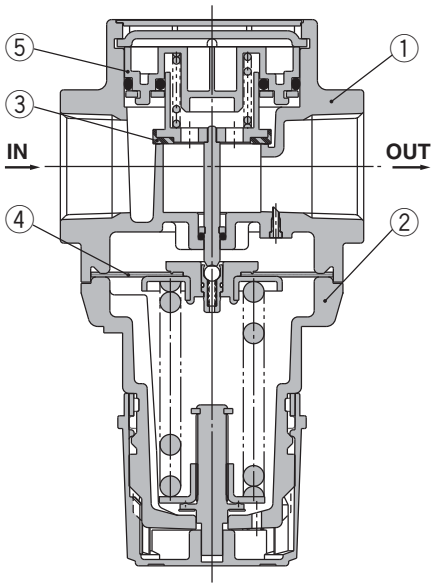
AR20(K), AR25(K)



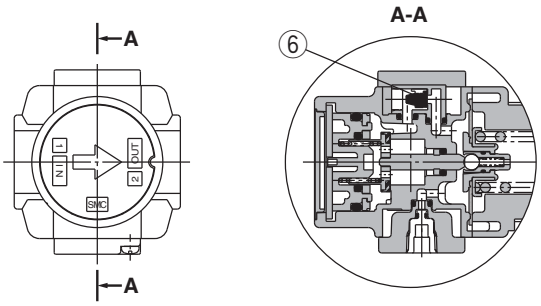
AR30(K), AR40(K)



AR50(K), AR60(K)



AR20K to AR60K (Regulator with Backflow Function)



Component Parts

No.	Description	Material	Model	Color
1	**Body**	Zinc die-cast	AR10)	Platinum silver
		Aluminum die-cast	AR20(K) to AR60(K)	
2	**Bonnet**	Polyacetal	AR10, AR20(K) to AR40(K)-06	Black
		Aluminum die-cast	AR50(K), AR60(K)	

Replacement Parts

No.	Description	Material	Part no.							
			AR10	**AR20(K)**	**AR25(K)**	**AR30(K)**	**AR40(K)**	**AR40(K)-06**	**AR50(K)**	**AR60(K)**
3	**Valve assembly**	Brass, HNBR	AR10P-090S	AR20P-410AS	AR25P-410AS	AR30P-410AS	AR40P-410AS	AR40P-440AS	AR50P-410AS	AR60P-410AS
4	**Diaphragm assembly**	Weatherable NBR	AR10P-150AS Note 1)	AR20P-150AS	AR25P-150AS	AR30P-150AS	AR40P-150AS		AR50P-150AS	
5	**Valve guide assembly**	Polyacetal	131329	AR20P-050AS	AR25P-050AS	AR30P-050AS	AR40P-050AS		AR50P-050AS	AR60P-050AS
6	**Check valve assembly** Note 2)	—	—	AR20KP-020AS						

Note 1) The AR10 is a piston type. Assembly of a piston and a seal (KSYP-13).
Note 2) Check valve assembly is applicable for a regulator with backflow function (AR20K to AR60K) only.
Assembly of a check valve cover, check valve body assembly and 2 screws

Working Principle (Regulator with Backflow Function)

AR10

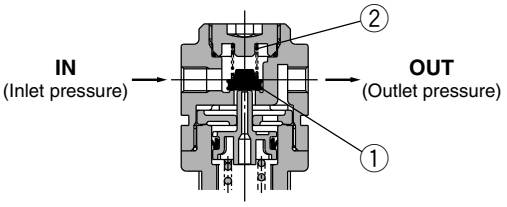


Figure 1

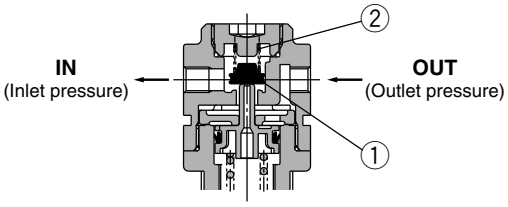


Figure 2

When the inlet pressure is higher than the regulating pressure, the check valve operates as a normal regulator (Figure 1).
When the inlet pressure is shut off and exhausted, any inlet pressure applied to the valve ① will be lost. The force for seating valve ① is the valve spring ② force only. When valve ① is opened using the outlet force, the outlet pressure will be exhausted at the inlet side. (Figure 2)
When the set pressure is 0.15 MPa or less, valve ① may not open due to the force of valve spring ②.

AR20K to AR60K

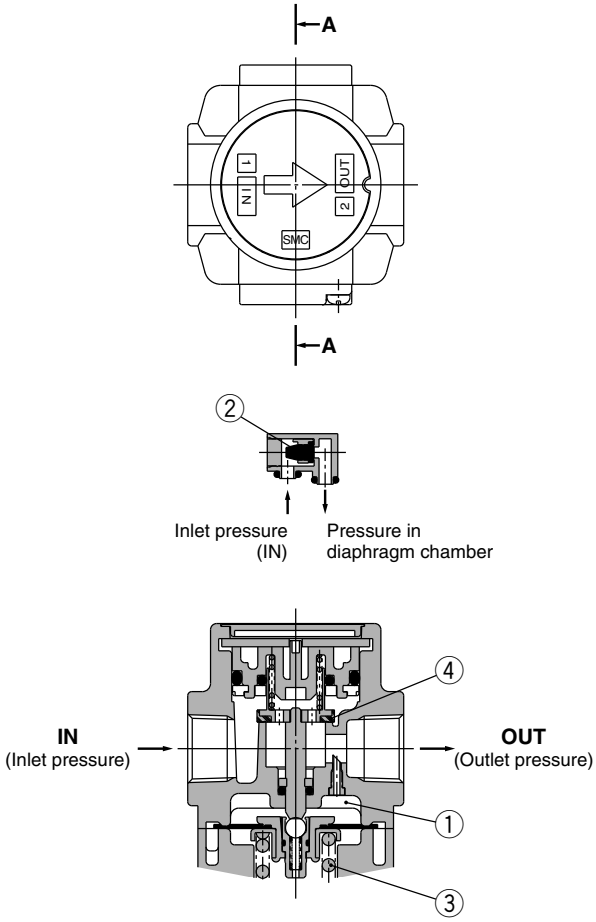


Figure 1 Normal

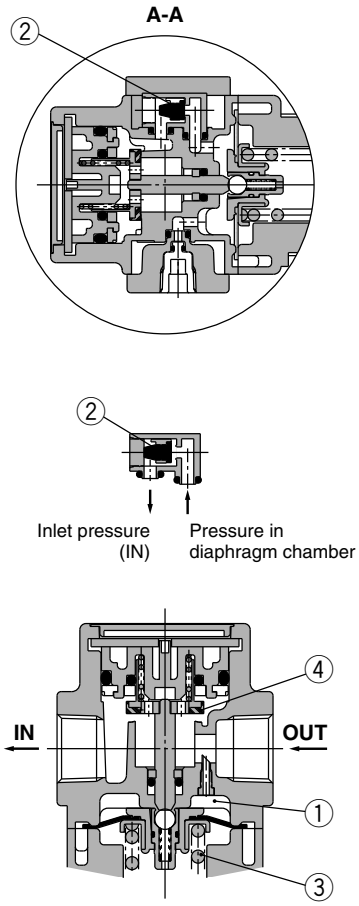
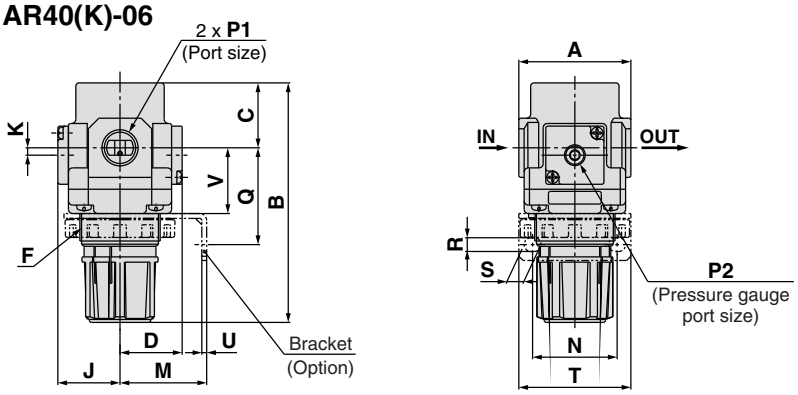


Figure 2 Backflow

When the inlet pressure is higher than the regulating pressure, check valve ② closes and operates as a normal regulator (Figure 1).
When the inlet pressure is shut off and released, check valve ② opens and the pressure in diaphragm chamber ① is released into the inlet side (Figure 2).
This lowers the pressure in diaphragm chamber ① and the force generated by pressure regulator spring ③ lifts the diaphragm. Valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 2).

Dimensions

AR10, AR20(K) to AR40(K)-06



Panel fitting dimension

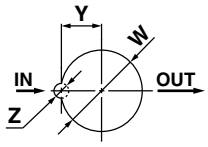
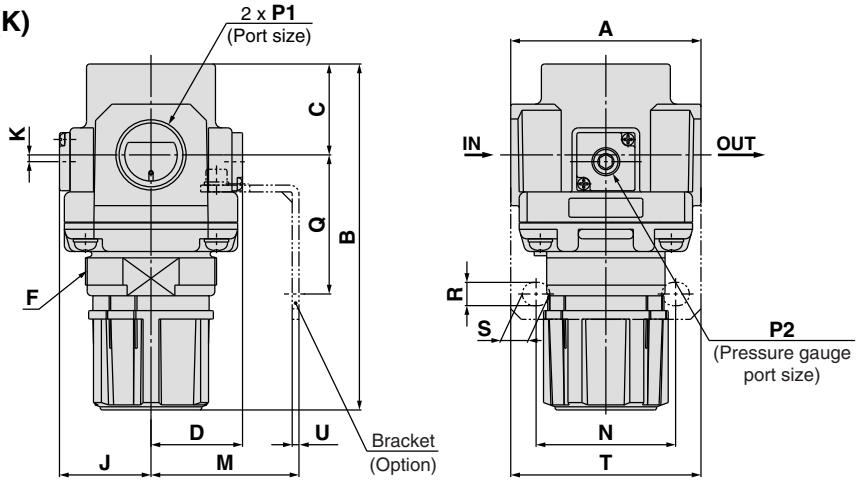
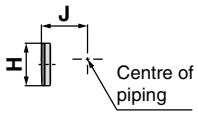
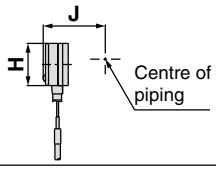
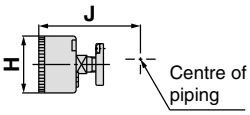


Plate thickness
AR10, AR20(K) to AR30(K): Max. 3.5
AR40(K): Max. 5

AR50(K), AR60(K)



Applicable model	AR20(K) to AR60(K)		AR10, AR20(K) to AR60(K)	AR20(K) to AR60(K)
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Model	Standard specifications									Optional specifications							
										Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B Note 1)	C	D	F	J	K	H	J	H	J	H	J	H	J
AR10	M5 x 0.8	1/16	25	58	11	12.5	M18 x 1	13	0	—	—	—	—	ø26	26	—	—
AR20(K)	1/8, 1/4	1/8	40	94	26.5	28.5	M28 x 1	28.5	2 Note 2)	□28	29.5	□27.8	40	ø37.5	65	ø37.5	65
AR25(K)	1/4, 3/8	1/8	53	101	28	27.5	M32 x 1.5	27.5	0	□28	28.5	□27.8	39	ø37.5	64	ø37.5	64
AR30(K)	1/4, 3/8	1/8	53	116	31	29.5	M38 x 1.5	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AR40(K)	1/4, 3/8, 1/2	1/4	70	128	36	34	M42 x 1.5	34	3.5	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AR40(K)-06	3/4	1/4	75	129	36	34	M42 x 1.5	34	3	□28	35	□27.8	45	ø42.5	74	ø42.5	74
AR50(K)	3/4, 1	1/4	90	169	43	43.5	M62 x 1.5	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84
AR60(K)	1	1/4	95	176	46	43.5	M62 x 1.5	43.5	3.3	□28	44.5	□27.8	55	ø42.5	84	ø42.5	84

Model	Optional specifications										
	Bracket mount							Panel mount			
	M	N	Q	R	S	T	U	V	W	Y	Z
AR10	25	28	30	4.5	6.5	40	2	18	18.5	—	—
AR20(K)	30	34	44	5.4	15.4	55	2.3	25	28.5	14	6
AR25(K)	30	34	44	5.4	15.4	55	2.3	26	32.5	16	6
AR30(K)	41	40	46	6.5	8	53	2.3	31	38.5	19	7
AR40(K)	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7
AR40(K)-06	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7
AR50(K)	70	66	65.8	11	13	90	3.2	—	—	—	—
AR60(K)	70	66	65.8	11	13	90	3.2	—	—	—	—

Note 1) The total length of B dimension is the length when the filter regulator knob is unlocked.
Note 2) For the AR20 only, the position of the pressure gauge is above the centre of the piping.

Regulator
AR20 to AR60
Made to Order

Made to Order

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

AR30-03-X425

① 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 part no.		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature (°C)		–30 to 60°C	–5 to 80°C
Fluid temperature (°C)		–5 to 60°C (with no freezing)	
Material	**Rubber parts**	Special NBR	FKM
	Main parts	Metal (Aluminum die-cast), etc.	

Applicable Model

Model	AR25	AR30	AR40	AR40-06	AR50	AR60
Port size	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

AR 30 - ☐ 03 BG - ☐ - X430

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 ascending alphanumeric order.

Example) AR30-03BG-1NR-X430

For high/low temperature

X430	Low temperature
X440	High temperature

		Symbol	Description	❶ Body size 25	30	40	50	60
❷	Thread type	—	Rc	●	●	●	●	●
		N	NPT	●	●	●	●	●
		F	G	●	●	●	●	●
❸	Port size	02	1/4	●	●	●	—	—
		03	3/8	●	●	●	—	—
		04	1/2	—	—	●	—	—
		06	3/4	—	—	●	●	—
		10	1	—	—	—	●	●
❹ Option (Note 1)	a Mounting	—	Without mounting option	●	●	●	●	●
		B (Note 2)	With bracket	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	—	—
	b Pressure gauge	G (Note 3)	Round type pressure gauge (without limit indicator)	●	●	●	●	●
❺ Semi-standard	c Set pressure	—	0.05 to 0.85 MPa setting	●	●	●	●	●
		1 (Note 4)	0.02 to 0.2 MPa setting	●	●	●	●	●
	d Exhaust mechanism	—	Relieving type	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●
	e Flow direction	—	Flow direction: Left to right	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●
	f Knob	—	Downward	●	●	●	●	●
		Y	Upward	●	●	●	●	●
	g Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●
		Z (Note 5)	Name plate and caution plate for bowl in imperial units: psi	(Note 6) ○	(Note 6) ○	(Note 6) ○	(Note 6) ○	(Note 6) ○

Note 1) Option B, G, H are not assembled and supplied loose at the time of shipment.
Note 2) Assembly includes a bracket and set nuts (AR25 to AR40)
Includes 2 mounting screws for the AR50 and AR60
Note 3) Mounting thread for pressure gauge: 1/8 for the AR25 to AR30; 1/4 for the AR40 to AR60. Pressure gauge type: G43
Note 4) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 5) 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 6) ○: For thread type: NPT only

② High Pressure

Strong materials are used in the manufacturing of air filters intended for high pressure operation. Also, construction modification allows a wider regulating pressure range.

Specifications

Made-to-order part no.	-X425
Proof pressure (MPa)	3.0
Maximum operating pressure (MPa)	2.0
Set pressure range (MPa)	0.1 to 1.6
Ambient and fluid temperature (°C)	–5 to 60°C (with no freezing)

Applicable Model

Model	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

AR 30 - ☐ 03 BG - ☐ - X425

❶ ❷ ❸ ❹ ❺

For high pressure

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

Example) AR30-03BG-NR-X425

		Symbol	Description	❶ Body size 20	25	30	40	50	60
❷	Thread type	—	Rc	●	●	●	●	●	●
		N	NPT	●	●	●	●	●	●
		F	G	●	●	●	●	●	●
❸	Port size	01	1/8	●	—	—	—	—	—
		02	1/4	●	●	●	●	—	—
		03	3/8	—	●	●	●	—	—
		04	1/2	—	—	—	●	—	—
		06	3/4	—	—	—	●	●	—
		10	1	—	—	—	—	●	●
❹ Option (Note 1)	a Mounting	—	Without mounting option	●	●	●	●	●	●
		B (Note 2)	With bracket	●	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	●	—	—
	b Pressure gauge	G (Note 3)	Round type pressure switch (with limit indicator)	●	●	●	●	●	●
❺ Semi-standard	c Exhaust mechanism	—	Relieving type	●	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●	●
	d Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●	●
	e Knob	—	Downward	●	●	●	●	●	●
		Y	Upward	●	●	●	●	●	●
	f Pressure unit	—	Name plate and pressure gauge 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 5) ○	(Note 5) ○

Note 1) Option B, G, H are not assembled and supplied loose at the time of shipment.
Note 2) Assembly includes a bracket and set nuts (AR20 to AR40)
Includes 2 mounting screws for the AR50 and AR60
Note 3) Mounting thread for pressure gauge: 1/8 for AR20 to AR30, 1/4 for AR40 to AR60. Pressure gauge type: G46-20-☐
Note 4) 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 5) ○: For thread type: NPT only

Regulator *AR10 to AR60*
Regulator with Backflow Function *AR20K to AR60K*
Made to Order

Made to Order

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

③ 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 0.4 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	AR10	AR20(K)	AR25(K)	AR30(K)	AR40(K)	AR40(K)-06	AR50(K)	AR60(K)
Port size	M5	1/8, 1/4	1/4, 3/8	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1

AR 30 ❶ ❷ - ❸ 03 ❹ ❺ - ❻ - X406

X406 → 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 ascending alphabetic order.

Example) AR30K-03BE-NR-X406

			Symbol	Description	❶ Body size 10	20	25	30	40	50	60
❷	With backflow function		—	Without backflow function	●	●	●	●	●	●	●
			K Note 1)	With backflow function	–	●	●	●	●	●	●
			+								
❸	Thread type		—	Metric thread (M5)	●	–	–	–	–	–	–
				Rc	–	●	●	●	●	●	●
			N	NPT	–	●	●	●	●	●	●
			F	G	–	●	●	●	●	●	●
			+								
❹	Port size		M5	M5	●	–	–	–	–	–	–
			01	1/8	–	●	–	–	–	–	–
			02	1/4	–	●	●	●	●	–	–
			03	3/8	–	–	●	●	●	–	–
			04	1/2	–	–	–	–	●	–	–
			06	3/4	–	–	–	–	●	●	–
			10	1	–	–	–	–	–	●	●
			+								
❺	Option Note 2)	a Mounting	—	Without mounting option	●	●	●	●	●	●	●
			B Note 3)	With bracket	●	●	●	●	●	●	●
			H	With set nut (for panel fitting)	●	●	●	●	●	–	–
			+								
		b Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	–	●	●	●	●	●	●
			G	Round type pressure gauge (without limit indicator)	●	–	–	–	–	–	–
				Round type pressure gauge (with limit indicator)	–	●	●	●	●	●	●
			M	Round type pressure gauge (with colour zone)	–	●	●	●	●	●	●
		b Digital pressure switch	E1 Note 4)	Output: NPN output / Electrical entry: Wiring bottom entry	–	●	●	●	●	●	●
			E2 Note 4)	Output: NPN output / Electrical entry: Wiring top entry	–	●	●	●	●	●	●
			E3 Note 4)	Output: PNP output / Electrical entry: Wiring bottom entry	–	●	●	●	●	●	●
			E4 Note 4)	Output: PNP output / Electrical entry: Wiring top entry	–	●	●	●	●	●	●
			+								
❻	Semi-standard	c Exhaust mechanism	—	Relieving type	●	●	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●	●	●
			+								
		d Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●	●
			+								
		e Knob	—	Downward	●	●	●	●	●	●	●
			Y	Upward	●	●	●	●	●	●	●
			+								
		f Pressure unit	—	Name plate and pressure gauge in imperial units: MPa	●	●	●	●	●	●	●
			Z Note 5)	Name plate and pressure gauge in imperial units: psi	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)	○ Note 7)
			ZA Note 6)	Digital pressure switch: With unit switching function	—	△ Note 8)	△ Note 8)	△ Note 8)	△ Note 8)	△ Note 8)	△ Note 8)

Note 1) The AR10 type comes with a backflow function as a standard feature. (K is not available.) When using the AR10 type as w/ backflow function, backflow may not occur with the set pressure 0.15 MPa or less. Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

Note 2) Option B, G and H are not assembled and supplied loose at the time of shipment.

Note 3) Assembly of a bracket and set nuts (AR10, AR20(K) to AR40(K)) Includes 2 mounting screws for the AR50(K), AR60(K)

Note 4) When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)

Note 5) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.

Note 6) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)

Note 7) ○: For thread type: M5 and NPT only

Note 8) △: Select with options: E1, E2, E3, E4.

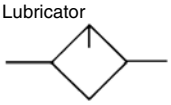
Modular Type Lubricators

Series AL

Lubricator Series AL	Model	Port size	Option
	AL10	M5	Bracket
	AL20	1/8, 1/4	
	AL30	1/4, 3/8	
	AL40	1/4, 3/8, 1/2	
	AL40-06	3/4	
	AL50	3/4, 1	
Page 59 through to 64	**AL60**	1	

Lubricator
AL10 to AL60

JIS Symbol
Lubricator



AL20

AL40

How to Order

AL 30 – ❑ 03 B – ❑
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 ascending alphanumeric order.

Example) AL30-03B-2R

		Symbol	Description	❶ Body size 10	20	30	40	50	60
❷	Thread type	—	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	—	—	—	●	●	—
		10	1	—	—	—	—	●	●
		+							
❹	Option (Mounting)	—	Without mounting option	●	●	●	●	●	●
		B Note 1)	With bracket	—	●	●	●	●	●
		+							
❺ Semi-standard	a Bowl	—	Polycarbonate bowl	●	●	●	●	●	●
		1	1000 cm³ tank	—	—	△ Note 2)	△ Note 2)	△ Note 2)	△ Note 2)
		2	Metal bowl	●	●	●	●	●	●
		6	Nylon bowl	●	●	●	●	●	●
		8	Metal bowl with level gauge	—	—	●	●	●	●
		C	With bowl guard	—	●	—	—	—	—
		6C	Nylon bowl with bowl guard	—	●	—	—	—	—
		+							
	b Lubricant exhaust port	—	Without drain cock	●	●	●	●	●	●
		3	With drain cock	●	●	●	●	●	●
		3W	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●
		+							
	c Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●	●
		+							
	d Pressure unit	—	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 4)	○ Note 4)	○ Note 4)

Note 1) Option B is not assembled and supplied loose at the time of shipment.
Note 2) △: Dedicated lubricant discharge function is equipped, and the combination with option 3 or 3W from semi-standard section b is not available.
Note 3) For thread type: M5 and 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: M5 and NPT only

Standard Specifications

Model	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
Port size	M5	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
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 Note) **[ℓ/min (ANR)]**	4	15	1/4: 30 3/8: 40	1/4: 30 3/8: 40 1/2: 50	50	190	220
Oil capacity (cm³)	7	25	55	135			
Recommended lubricant	Class 1 turbine oil (ISO VG32)						
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard	Standard				
Mass (kg)	0.07	0.11	0.24	0.47	0.52	1.06	1.13

Note) • The flow rate is 5 drips 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						
	AL10	**AL20**	**AL30**	**AL40**	**AL40-06**	**AL50**	**AL60**
Bracket assembly Note)	—	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS	AF50P-050AS	AF50P-050AS

Note) Assembly includes a bracket and 2 mounting screws. The part number for bracket assembly for 1000 cm³ is AF50P-050AS (applicable to the AL30 to AL60).

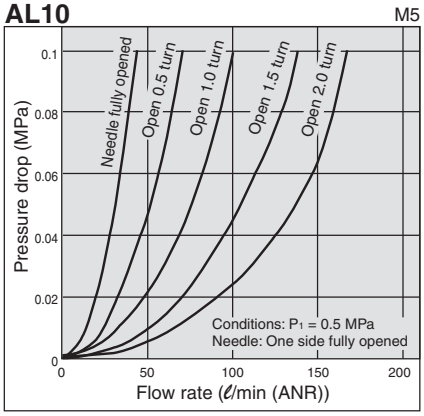
Semi-standard/Bowl Assembly Part No.

Semi-standard specifications				Model						
Bowl material	With drain guide	With barb fitting	With bowl guard	**AL10**	**AL20**	**AL30**	**AL40**	**AL40-06**	**AL50**	**AL60**
Polycarbonate	●	—	—	C1SL-3	C2SL-3	C3SL-3	C4SL-3			
	—	—	●	—	C2SL-C	—	—	—	—	—
	●	—	●	—	C2SL-3C	—	—	—	—	—
	●	●	—	—	—	C3SL-3W	C4SL-3W			
Nylon	—	—	—	C1SL-6	C2SL-6	C3SL-6	C4SL-6			
	●	—	—	C1SL-36	C2SL-36	C3SL-36	C4SL-36			
	—	—	●	—	C2SL-6C	—	—	—	—	—
	●	—	●	—	C2SL-36C	—	—	—	—	—
	●	●	—	—	—	C3SL-36W	C4SL-36W			
Metal	—	—	—	C1SL-2	C2SL-2	C3SL-2	C4SL-2			
	●	—	—	C1SL-23	C2SL-23	C3SL-23	C4SL-23			
Metal bowl with level gauge	—	—	—	—	—	C3LL-8	C4LL-8			
	●	—	—	—	—	C3LL-38	C4LL-38			
1000 cm³ tank (Metal bowl with level gauge)	—	—	—	—	—	121538-1A				

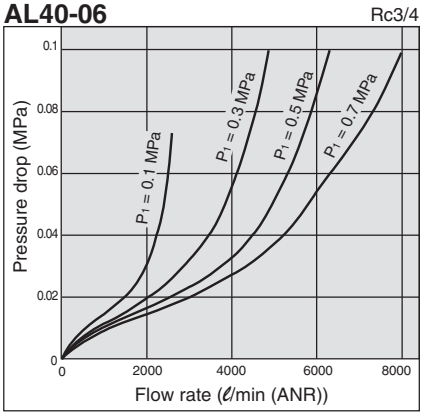
Note) • Bowl O-ring (or seal) is included for the AL20 to AL60.
• Bowl assembly for the AL30 to AL60 models comes with a bowl guard (steel band material). (except when the bowl material is metal)
• Please consult SMC for psi and °F unit display specifications.
• When switching bowl materials from a polycarbonate or nylon product to a metal bowl with a level gauge, the oil feed tube assembly must be replaced. (Also, when switching bowl materials from a metal bowl with a level gauge to a polycarbonate or nylon product, the oil feed tube assembly must be replaced.)
Please consult SMC separately.
• It is not possible to switch from a polycarbonate, nylon or metal bowl, or from a metal bowl with a level gauge to a 1000 cm³ tank. Please order the product separately.

Flow Characteristics (Representative values)

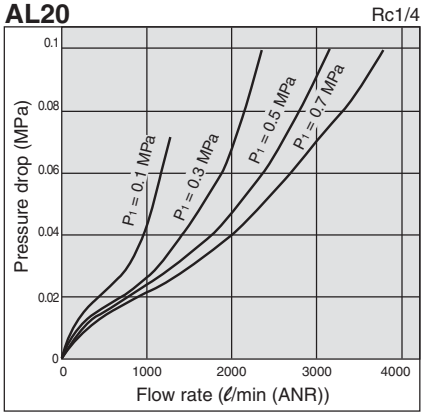
AL10 M5



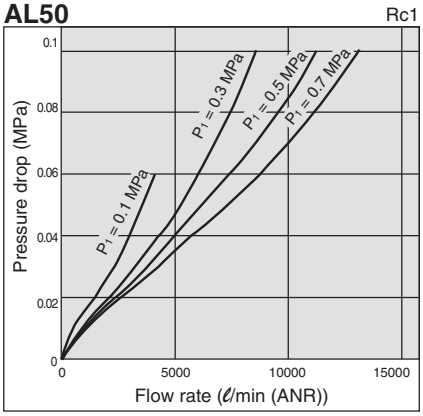
AL40-06 Rc3/4



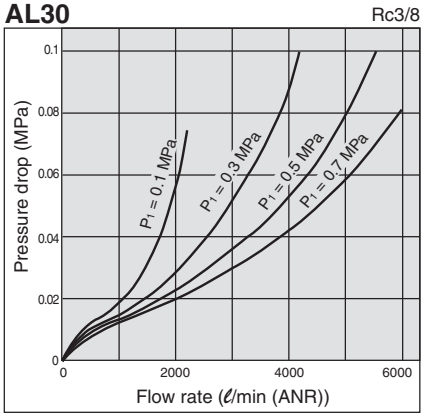
AL20 Rc1/4



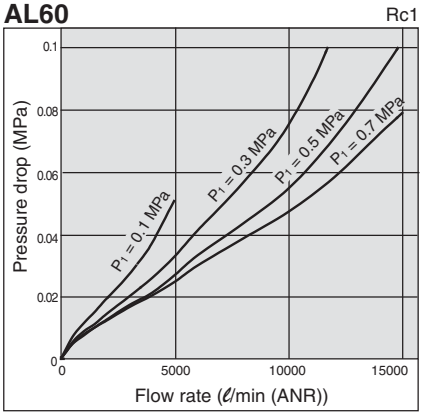
AL50 Rc1



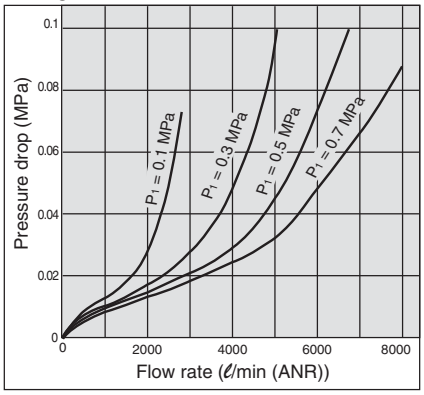
AL30 Rc3/8



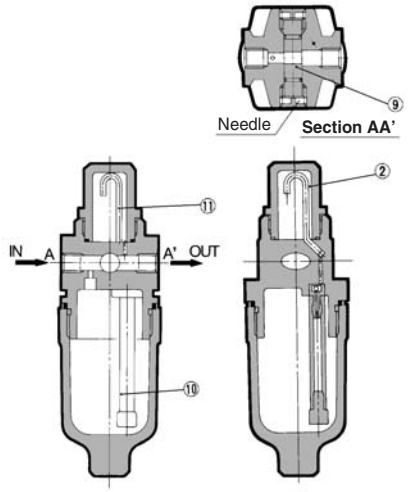
AL60 Rc1



AL40 Rc1/2



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 needles ⑨, and flows to the OUT side. The pressure differential 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 opened shuts off the lubricant. The needle on the side that is not used should be left fully opened.

⚠ Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units

Selection

⚠ Warning

1. Do not introduce air from the outlet side as this can damage the damper.

⚠ Caution

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

Maintenance

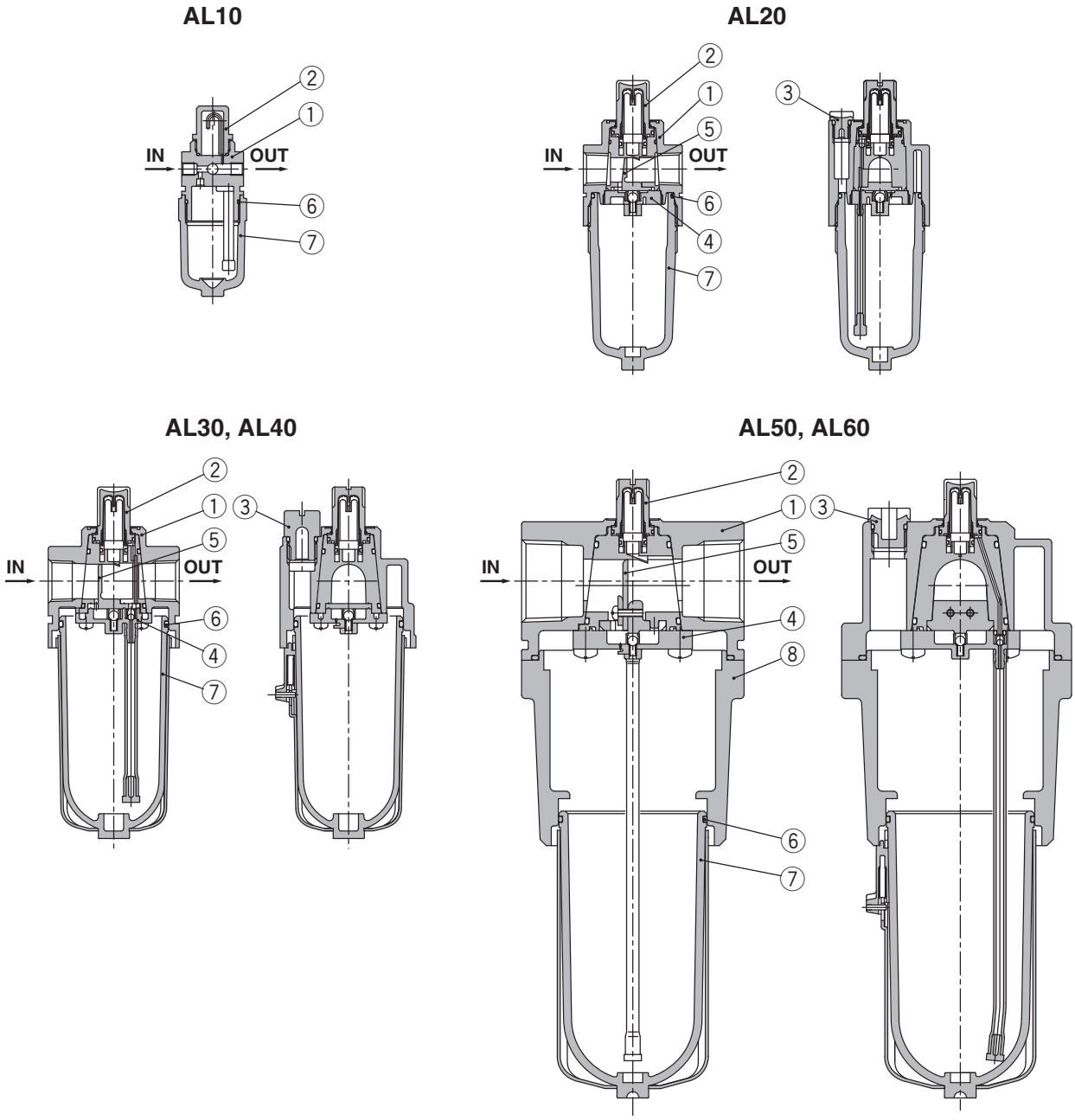
⚠ Warning

1. For the AL10/20 type, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.
2. Adjustment of the oil regulating valve (sight dome assembly) for models from the AL20 to AL60 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.

Construction



Component Parts

No.	Description	Material	Model	Colour
1	**Body**	Zinc die-cast	AL10	Platinum silver
		Aluminum die-cast	AL20 to AL60	
8	**Housing**	Aluminum die-cast	AL50, AL60	Platinum silver

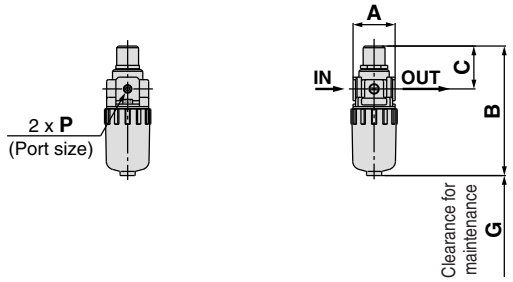
Replacement Parts

No.	Description	Material	Part no.						
			AL10	**AL20**	**AL30**	**AL40**	**AL40-06**	**AL50**	**AL60**
2	**Sight dome assembly**	Polycarbonate	AL10P-080AS	AL20P-080AS					
3	**Lubrication plug assembly**	—	—	AL20P-060AS	AL30P-060AS	AL40P-060AS			
4	**Damper retainer assembly** Note 1)	—	—	AL20P-030AS	AL30P-030AS	AL40P-030AS		AL50P-030AS	AL60P-030AS
5	**Damper (assembly)**	Synthetic resin	—	AL20P-040S	AL30P-040S	AL40P-040S		AL50P-040AS	AL60P-040AS
6	**Bowl O-ring**	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S			
7	**Bowl assembly** Note 2)	Polycarbonate	C1SL	C2SL	C3SL Note 3)	C4SL Note 3)			

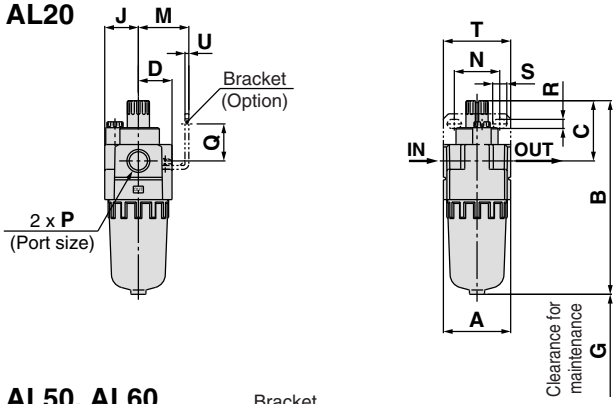
Note 1) Add "–1" at the end of the part number when ordering a damper retainer assembly for 1000 cm^3. Example) AL30P-030AS-1
Note 2) Bowl O-ring is included for the AL20 to AL60. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 3) Bowl assembly for the AL30 to AL60 models comes with a bowl guard (steel band material).

Dimensions

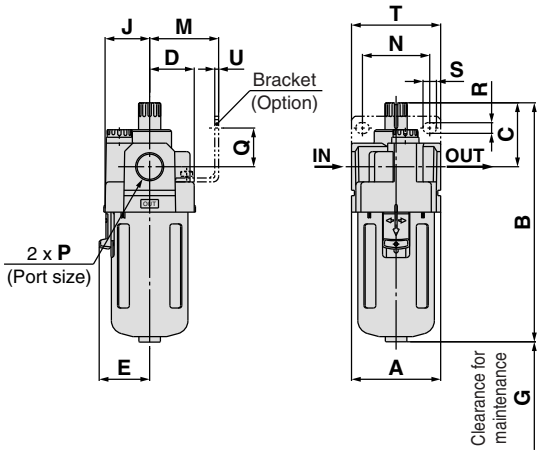
AL10



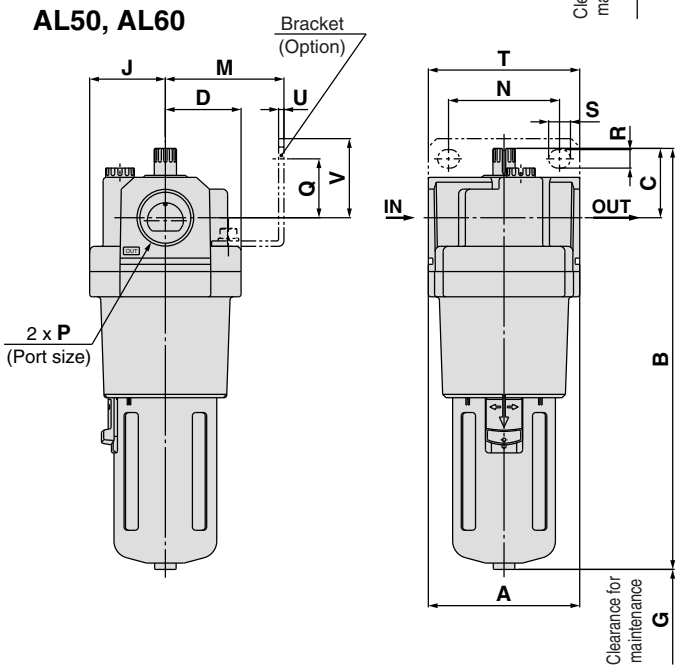
AL20

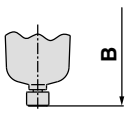
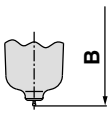
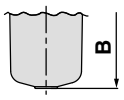
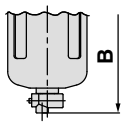
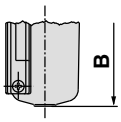
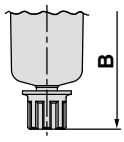
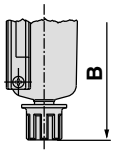
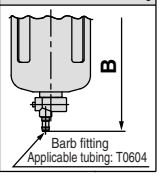


AL30, AL40



AL50, AL60



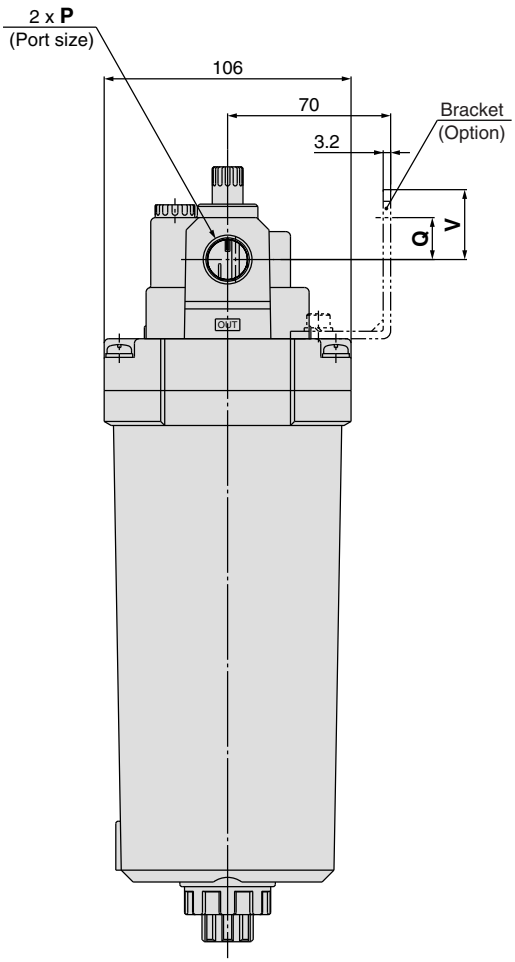
Applicable model	AL10/20		AL30 to AL60					
Optional/Semi-standard specifications	With drain cock	Metal bowl with drain cock	Metal bowl	With drain cock	Metal bowl with level gauge	Metal bowl with drain cock	Metal bowl with drain cock & level gauge	Drain cock with barb fitting
Dimensions								 Barb fitting Applicable tubing: T0604

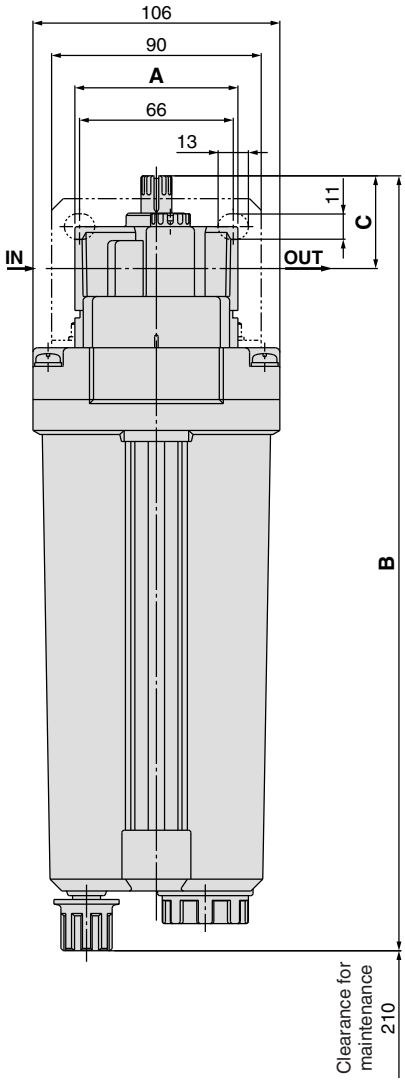
Model	Standard specifications								Optional specifications Bracket mounting size						
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U
AL10	M5	25	77	26	12.5	—	35	12.5	—	—	—	—	—	—	—
AL20	1/8, 1/4	40	115	36	20	—	60	20	30	27	22	5.4	8.4	40	2.3
AL30	1/4, 3/8	53	142	38	26.5	30	80	26.5	41	40	23	6.5	8	53	2.3
AL40	1/4, 3/8, 1/2	70	176	40	35	38	110	35	50	54	26	8.5	10.5	70	2.3
AL40-06	3/4	75	176	38	35	38	110	35	50	54	25	8.5	10.5	70	2.3
AL50	3/4, 1	90	250	41	45	45	110	45	70	66	35	11	13	90	3.2
AL60	1	95	268	45	47.5	—	110	47.5	70	66	35	11	13	90	3.2

Model	Semi-standard specifications					
	With drain cock	With barb fitting	Metal bowl	Metal bowl with drain cock	Metal bowl with level gauge	Metal bowl with drain cock & level gauge
	B	B	B	B	B	B
AL10	85	—	82	85	—	—
AL20	123	—	121	124	—	—
AL30	153	161	142	166	162	186
AL40	187	195	176	200	196	220
AL40-06	187	195	176	200	196	220
AL50	261	269	250	274	270	294
AL60	279	287	268	292	288	312

Dimensions

Semi-standard specifications: 1000 cm³ tank





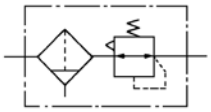
Model	P	A	B	C	Bracket mount		With float switch
					Q	V	B
AL30	1/4, 3/8	53	324	38	25	—	374
AL40	1/4, 3/8, 1/2	70	333	40	18	—	383
AL40-06	3/4	75	333	38	16	—	383
AL50	3/4, 1	90	332	41	35	47	382
AL60	1	95	335	45	35	47	385

Modular Type
Filter Regulators
Series AW

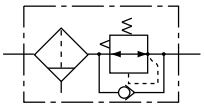
	Model	Port size	Options
Filter Regulator Series AW **Page 67 through to 78**	**AW10**	M5	Bracket Float type auto drain Square embedded type pressure gauge (except the AW10) Round type pressure gauge Digital pressure switch (except the AW10) Panel mount
	AW20	1/8, 1/4	
	AW30	1/4, 3/8	
	AW40	1/4, 3/8, 1/2	
	AW40-06	3/4	
	AW60	3/4, 1	
Filter Regulator with Backflow Function Series AW□K **Page 67 through to 78**	**AW20K**	1/8, 1/4	
	AW30K	1/4, 3/8	
	AW40K	1/4, 3/8, 1/2	
	AW40K-06	3/4	
	AW60K	3/4, 1	
Mist Separator Regulator Series AWM **Page 79 through to 88**	**AWM20**	1/8, 1/4	
	AWM30	1/4, 3/8	
	AWM40	1/4, 3/8, 1/2	
Micro Mist Separator Regulator Series AWD **Page 79 through to 88**	**AWD20**	1/8, 1/4	
	AWD30	1/4, 3/8	
	AWD40	1/4, 3/8, 1/2	

Filter Regulator
AW10 to AW60
Filter Regulator with Backflow Function
AW20K to AW60K

JIS Symbol
Filter Regulator

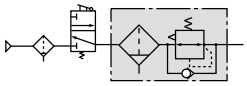


Filter Regulator with Backflow Function



- **Integrated filter and regulator units save space and require less piping.**
- **With the backflow function it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.**

Example)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.



How to Order

AW 30 K – ☐ 03 BE – ☐ – ☐

❶ ❷ ❸ ❹ ❺ ❻

- **Made to Order**
  Refer to page 75 through to 78 for details.

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

Example) AW30K-03BE-1N

			Symbol	Description	❶ Body size 10	20	30	40	60
❷	With backflow function		—	Without backflow function	●	●	●	●	●
			K Note 1)	With backflow function	—	●	●	●	●
			+						
❸	Thread type		—	Metric thread (M5)	●	—	—	—	—
				Rc	—	●	●	●	●
			N Note 2)	NPT	—	●	●	●	●
			F Note 3)	G	—	●	●	●	●
			+						
❹	Port size		M5	M5	●	—	—	—	—
			01	1/8	—	●	—	—	—
			02	1/4	—	●	●	●	—
			03	3/8	—	—	●	●	—
			04	1/2	—	—	—	●	—
			06	3/4	—	—	—	●	●
			10	1	—	—	—	—	●
			+						
❺ Option Note 4)	a	Mounting	—	Without mounting option	●	●	●	●	●
			B Note 5)	With bracket	●	●	●	●	●
			H	With set nut (for panel fitting)	●	●	●	●	—
			+						
	b	Float type auto drain	—	Without auto drain	●	●	●	●	●
			C	Float type auto drain (N.C.)	●	●	●	●	●
			D	Float type auto drain (N.O.)	—	—	●	●	●
			+						
	c	Pressure gauge	—	Without pressure gauge	●	●	●	●	●
			E	Square embedded type pressure gauge (with limit indicator)	—	●	●	●	●
			G	Round type pressure gauge (without limit indicator)	●	—	—	—	—
				Round type pressure gauge (with limit indicator)	—	●	●	●	●
			M	Round type pressure gauge (with colour zone)	—	●	●	●	●
		Digital pressure switch	E1 Note 6)	Output: NPN output / Electrical entry: Wiring bottom entry	—	●	●	●	●
			E2 Note 6)	Output: NPN output / Electrical entry: Wiring top entry	—	●	●	●	●
			E3 Note 6)	Output: PNP output / Electrical entry: Wiring bottom entry	—	●	●	●	●
			E4 Note 6)	Output: PNP output / Electrical entry: Wiring top entry	—	●	●	●	●
			+						
❻ Semi-standard	d	Set pressure	— Note 7)	0.05 to 0.85 MPa setting	●	●	●	●	●
			1 Note 8)	0.02 to 0.2 MPa setting	●	●	●	●	●
			+						
	e	Bowl	—	Polycarbonate bowl	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●
			C	With bowl guard	—	●	—	—	—
			6C	Nylon bowl with bowl guard	—	●	—	—	—

AW20, AW20K **AW40, AW40K**

		Symbol	Description	❶ Body size 10	20	30	40	60
❻ Semi-standard	f Drain port Note 9)	—	With drain cock	●	●	●	●	●
		J Note 10)	Drain guide 1/8	—	●	—	—	—
			Drain guide 1/4	—	—	●	●	●
		W Note 11)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●
		+						
	g Exhaust mechanism	—	Relieving type	●	●	●	●	●
		N	Non-relieving type	●	●	●	●	●
		+						
	h Flow direction	—	Flow direction: Left to right	●	●	●	●	●
		R	Flow direction: Right to left	●	●	●	●	●
		+						
	i Pressure unit	—	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 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)
		ZA Note 13)	Digital pressure switch: With unit conversion function	—	△ Note 15)	△ Note 15)	△ Note 15)	△ Note 15)

Note 1) The AW10 type comes with a backflow function as a standard feature. (K is not available.) When using the AW10 type as w/ backflow function, backflow may not occur with the set pressure 0.15 MPa or less. Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.
Note 2) Drain guide is NPT1/8 (applicable to the AW20(K)) and NPT1/4 (applicable to the AW30(K) to AW60(K)). The auto drain port comes with ø3/8" one-touch fitting (applicable to the AW30(K) to AW60(K)).
Note 3) Drain guide is G1/8 (applicable to the AW20(K)) and G1/4 (applicable to the AW30(K) to AW60(K)).
Note 4) Option B, G, H and M are not assembled and supplied loose at the time of shipment.
Note 5) Assembly of a bracket and set nuts (AW10, AW20(K) to AW40(K))
Includes 2 mounting screws for the AW60(K)
Note 6) When choosing with H (panel mount), the installation space for lead wires will be limited. In this case, select "wiring top entry" for the electrical entry.
Note 7) Only the AW10 has a pressure setting of 0.05 to 0.7 MPa.
Note 8) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 9) Float type auto drain: The combination between C or D is not available with the drain port options.
Note 10) Without a valve function
Note 11) Metal bowl: The combination of 2 cannot be selected with W.
Note 12) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
Note 13) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 14) ○: For thread type: M5 and NPT only
Note 15) △: Select with options: E1, E2, E3, E4.

Standard Specifications

Model	AW10	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)
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
Pressure gauge port size Note 1)	1/16 Note 2)	1/8		1/4		
Fluid	Air					
Ambient and fluid temperature Note 3)	–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	0.05 to 0.85 MPa				
Relief pressure Note 4)	Set pressure + 0.05 MPa [at relief flow rate of 0.1 ℓ/min (ANR)]					
Nominal filtration rating	5 µm					
Drain capacity (cm³)	2.5	8	25	45	45	45
Bowl material	Polycarbonate					
Bowl guard	—	Semi-standard	Standard			
Construction	Relieving type					
Mass (kg)	0.09	0.20	0.40	0.72	0.75	2.00

Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge (AW20(K) to AW60(K)).
Note 2) Use a bushing (part no:131368) when connecting the R1/8 pressure gauge to the Rc1/16.
Note 3) –5 to 50°C for the products with the digital pressure switch
Note 4) Not applicable to the AW10.

Options/Part No.

Optional specifications			Model					
			AW10(K)	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)
Bracket assembly Note 1)			AR10P-270AS	AW20P-270AS	AR30P-270AS	AR40P-270AS		AW60P-270AS Note 6)
Set nut			AR10P-260S	AR20P-260S	AR30P-260S	AR40P-260S		— Note 7)
Pressure gauge	Round type Note 2)	Standard	G27-10-R1	G36-10-□01		G46-10-□02		
		0.02 to 0.2 MPa setting	G27-10-R1 Note 3)	G36-2-□01		G46-2-□02		
	Round type Note 2) (with colour zone)	Standard	—	G36-10-□01-L		G46-10-□02-L		
		0.02 to 0.2 MPa setting	—	G36-2-□01-L		G46-2-□02-L		
	Square embedded type Note 4)	Standard	—	GC3-10AS [GC3P-010AS (Pressure gauge cover only)]				
		0.02 to 0.2 MPa setting	—	GC3-2AS [GC3P-010AS (Pressure gauge cover only)]				
Digital pressure Note 5) switch		NPN output / Wiring bottom entry	—	ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)]				
		NPN output / Wiring top entry		ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)]				
		PNP output / Wiring bottom entry		ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)]				
		PNP output / Wiring top entry		ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)]				
Float type auto drain Note 8) Note 9)		N.C.	AD17	AD27	AD37	AD47		
		N.O.	—	—	AD38	AD48		

Semi-standard/Bowl Assembly Part No.

Semi-standard specifications						Model					
Bowl material	Float type auto drain Note 8) Note 9)		With drain guide Note 9)	With barb fitting	With bowl guard	AW10(K)	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)
	N.C.	N.O.									
Polycarbonate	—	—	—	—	●	—	C2SF-C	—	—		
	●	—	—	—	●	—	AD27-C	—	—		
	—	—	●	—	—	—	C2SF-J	C3SF-J	C4SF-J		
	—	—	—	●	—	—	—	C3SF-W	C4SF-W		
	—	—	●	—	●	—	C2SF-CJ	—	—		
Nylon	—	—	—	—	—	C1SF-6	C2SF-6	C3SF-6	C4SF-6		
	—	—	—	—	●	—	C2SF-6C	—	—		
	●	—	—	—	—	AD17-6	AD27-6	AD37-6	AD47-6		
	—	●	—	—	—	—	—	AD38-6	AD48-6		
	●	—	—	—	●	—	AD27-6C	—	—		
	—	—	●	—	—	—	C2SF-6J	C3SF-6J	C4SF-6J		
	—	—	—	●	—	—	—	C3SF-6W	C4SF-6W		
	—	—	●	—	●	—	C2SF-6CJ	—	—		
Metal	—	—	—	—	—	C1SF-2	C2SF-2	C3SF-2	C4SF-2		
	●	—	—	—	—	AD17-2	AD27-2	AD37-2	AD47-2		
	—	●	—	—	—	—	—	AD38-2	AD48-2		
	—	—	●	—	—	—	C2SF-2J	C3SF-2J	C4SF-2J		
Metal bowl with level gauge	—	—	—	—	—	—	—	C3LF-8	C4LF-8		
	●	—	—	—	—	—	—	AD37-8	AD47-8		
	—	●	—	—	—	—	—	AD38-8	AD48-8		
	—	—	●	—	—	—	—	C3LF-8J	C4LF-8J		

Note 1) Assembly includes 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) Standard pressure gauge
Note 4) Including one O-ring and 2 mounting screws. [ ]: Pressure gauge cover only
Note 5) Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached. [ ]: Switch body only. Also, regarding how to order the digital pressure switch, please refer to page 89. A pressure switch adapter assembly (AW60P-310AS) will be additionally required for the AW60(K) only. Use the attached mounting screw (M3 x 0.5 x 14) for mounting. The mounting screw (M3 x 0.5 x 7) attached to the digital pressure switch assembly will not be required.
Note 6) Assembly of a bracket and 2 mounting screws
Note 7) Please consult SMC regarding the set nuts for the AW60(K).
Note 8) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.
Note 9) Please consult SMC for details on drain piping to fit NPT or G port sizes.
Note) • Bowl O-ring is included for the AW20(K) to AW60(K).
• Bowl assembly for the AW30(K) to AW60(K) models comes with a bowl guard (steel band material). (except when the bowl material is metal)

Series AW10 to AW60
Series AW20K to AW60K
Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

Selection

⚠ Warning

1. Residual pressure disposal (outlet pressure removal) is not possible for the AW20 to AW60 even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the filter regulator with backflow function (AW20K to AW60K).

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. The pressure gauge included with regulators for 0.02 to 0.2 MPa setting is for up to 0.2 MPa use only (except the AW10). Exceeding 0.2 MPa of pressure can damage the gauge.
3. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

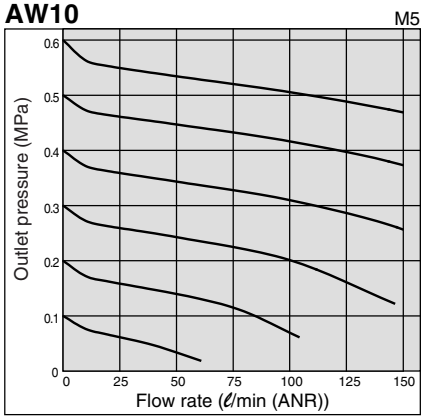
1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
   - Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" 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. A knob cover is available to prevent careless operation of the knob. Refer to page 90 for details.

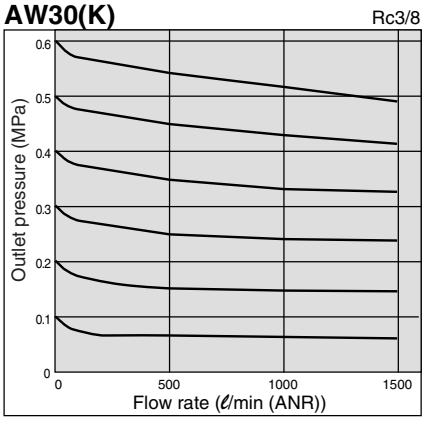
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

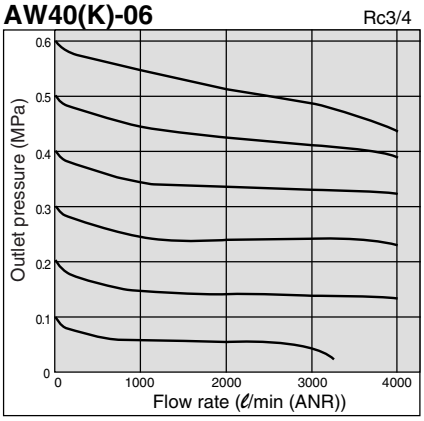
AW10 M5



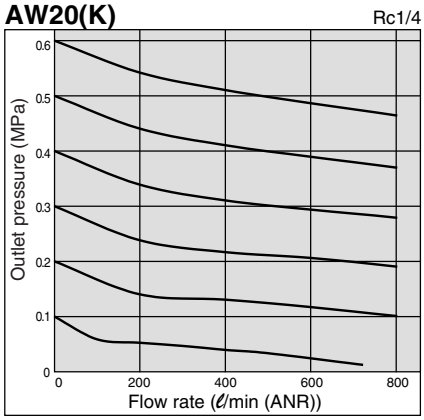
AW30(K) Rc3/8



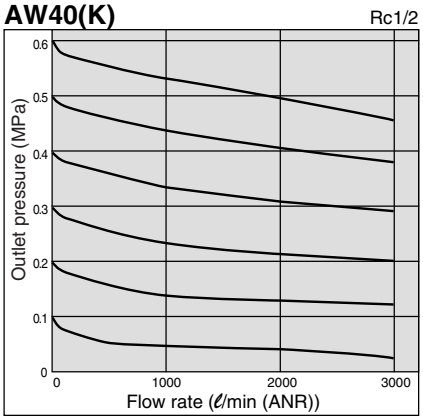
AW40(K)-06 Rc3/4



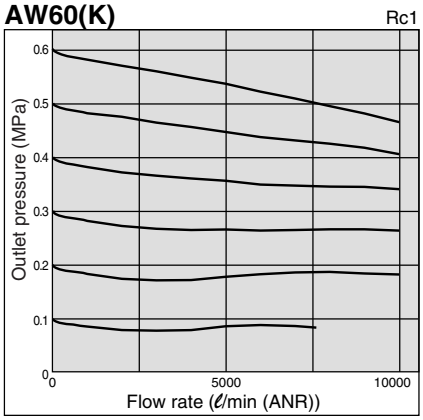
AW20(K) Rc1/4



AW40(K) Rc1/2



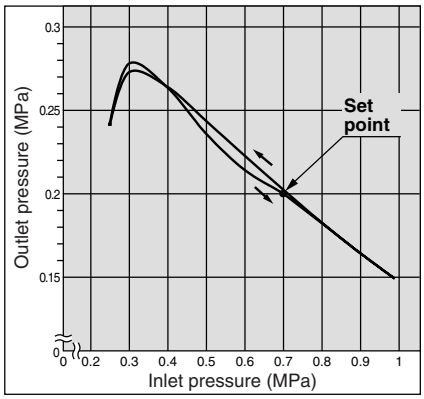
AW60(K) Rc1



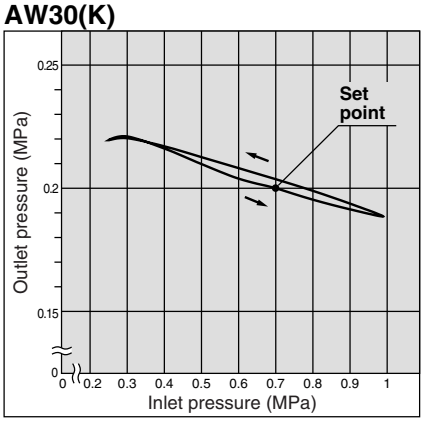
Pressure Characteristics (Representative values)

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

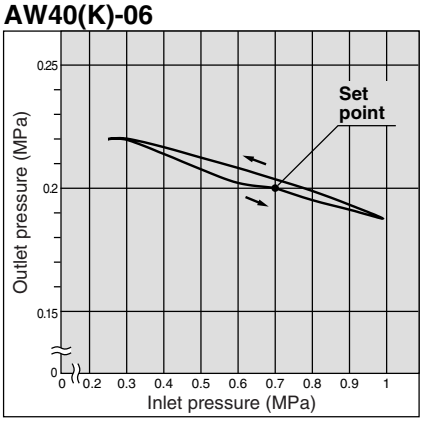
AW10



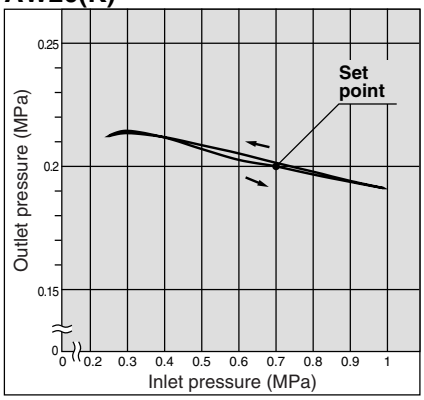
AW30(K)



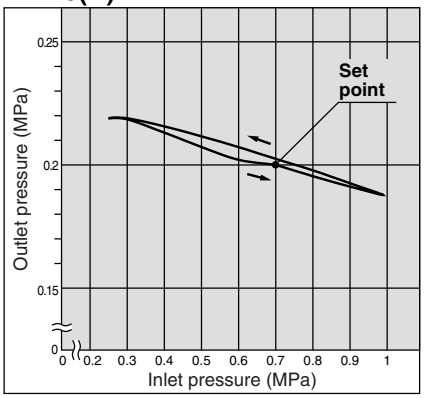
AW40(K)-06



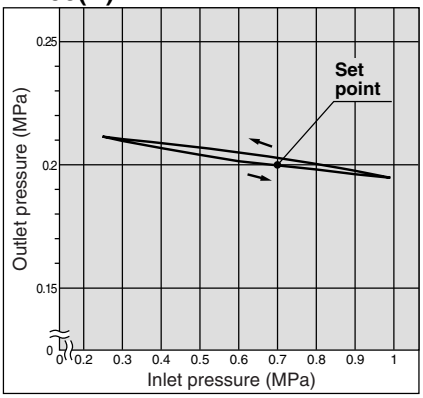
AW20(K)



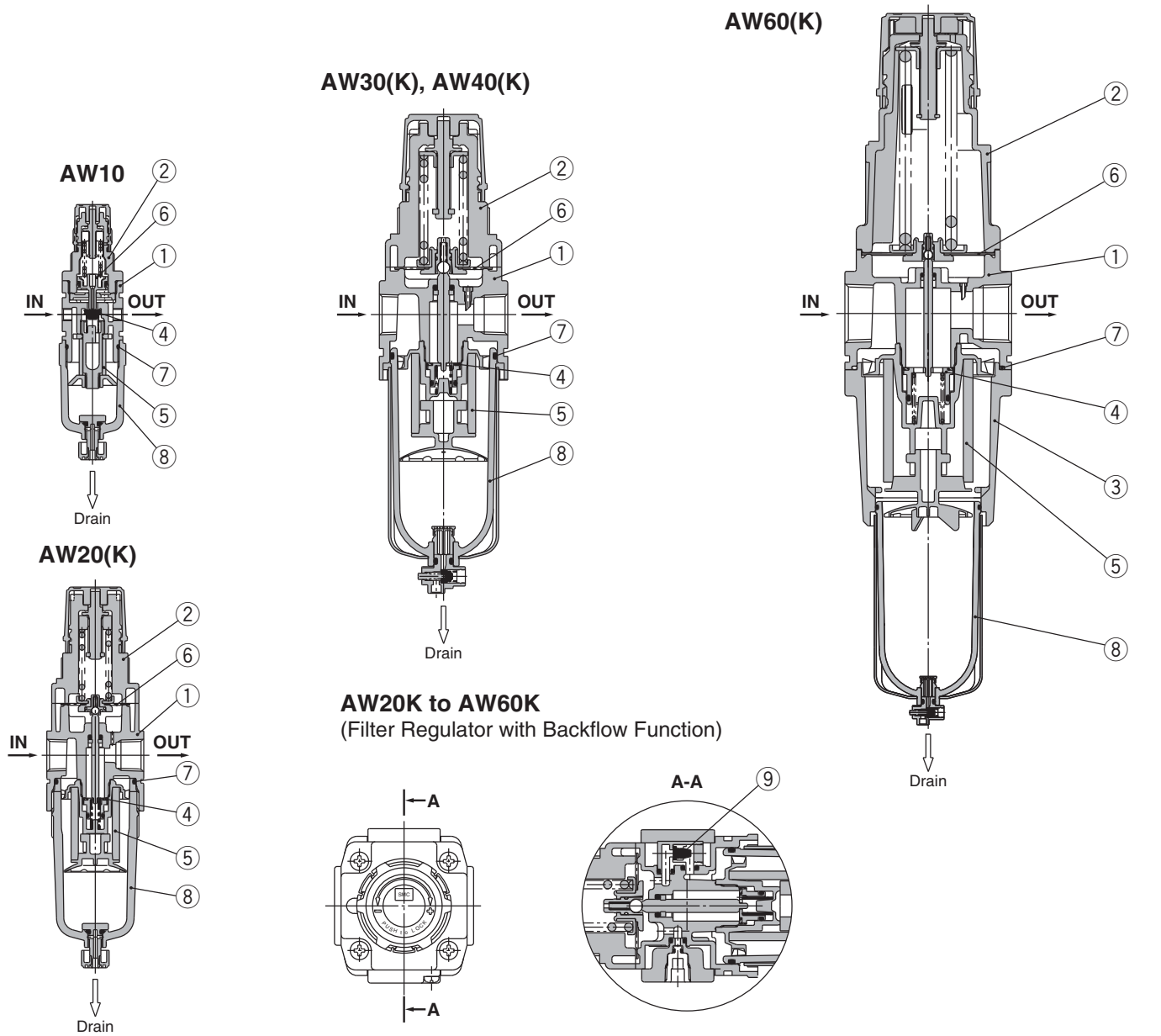
AW40(K)



AW60(K)



Construction



Component Parts

No.	Description	Material	Model	Colour
1	**Body**	Zinc die-cast	AW10	Platinum silver
		Aluminum die-cast	AW20(K) to AW60(K)	
2	**Bonnet**	Polyacetal	AW10 to AW40(K)	Black
		Aluminum die-cast	AW60(K)	
3	**Housing**	Aluminum die-cast	AW60(K)	Platinum silver

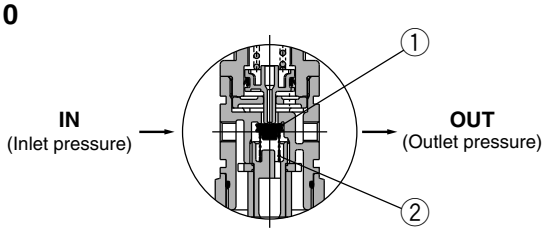
Replacement Parts

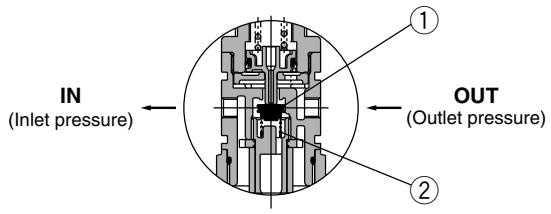
No.	Description	Material	Part no.					
			AW10	**AW20(K)**	**AW30(K)**	**AW40(K)**	**AR40(K)-06**	**AW60(K)**
4	**Valve assembly**	Brass, HNBR	AR10P-090S	AW20P-340AS	AW30P-340AS	AW40P-340AS	AW40P-380AS	AW60P-090AS
5	**Filter element**	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S		AW60P-060S
6	**Diaphragm assembly**	Weatherable NBR	AR10P-150AS Note 1)	AR20P-150AS	AR30P-150AS	AR40P-150AS		AR50P-150AS
7	**Bowl O-ring**	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S		
8	**Bowl assembly** Note 2)	Polycarbonate	C1SF	C2SF	C3SF Note 3)	C4SF Note 3)		
9	**Check valve assembly** Note 4)	—	—	AR20KP-020AS				

Note 1) The AW10 is a piston type. Assembly of a piston and a seal (KSYP-13).
Note 2) Bowl O-ring is included for the AW20(K) to AW60(K). Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 3) Bowl assembly for the AW30(K) to AW60(K) models comes with a bowl guard (steel band material).
Note 4) Check valve assembly is applicable for a filter regulator with backflow function (AW20K to AW60K) only.
Assembly of a check valve cover, check valve body assembly and 2 screws

Working Principle (Filter Regulator with Backflow Function)

AW10





When the inlet pressure is higher than the regulating pressure, the check valve operates as a normal regulator (Figure 1).
When the inlet pressure is shut off and exhausted, any inlet pressure applied to valve ① will be lost. The force for seating valve ① is the valve spring ② force only. When the valve ① is opened using the outlet force, the outlet pressure will be exhausted at the inlet side. (Figure 2)
When the set pressure is 0.15 MPa or less, valve ① may not open due to the force of valve spring ②.

AW20K to AW60K

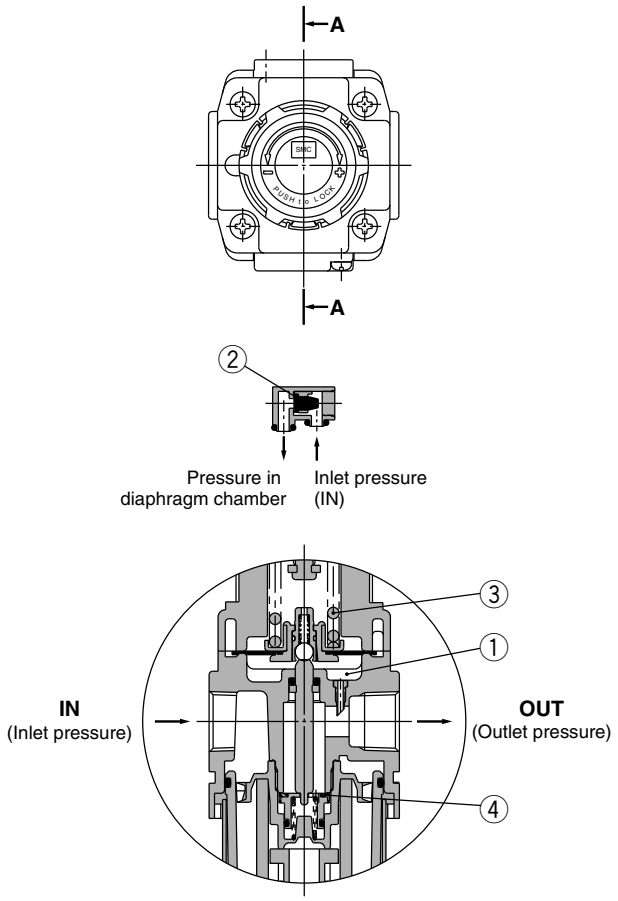


Figure 1 Normal

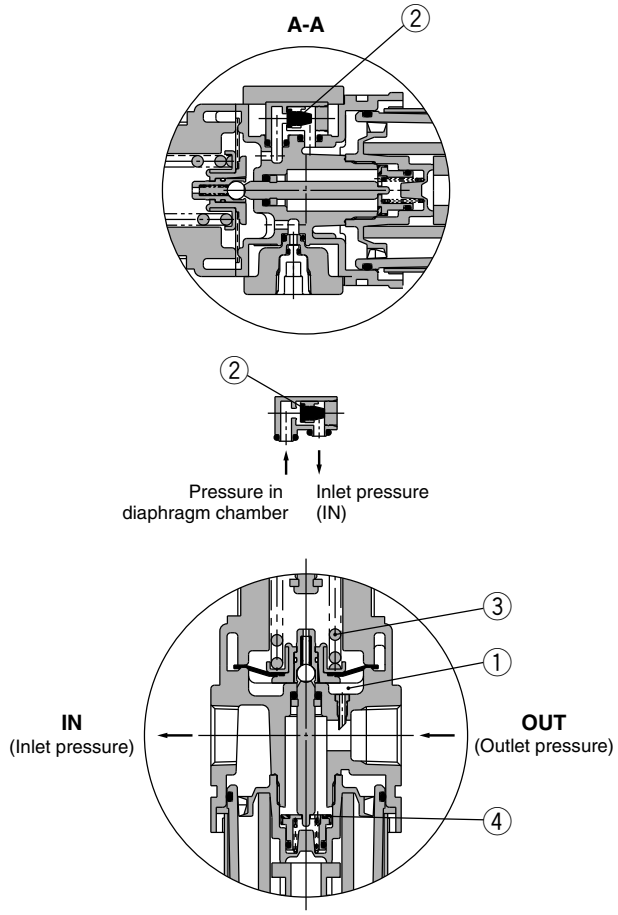
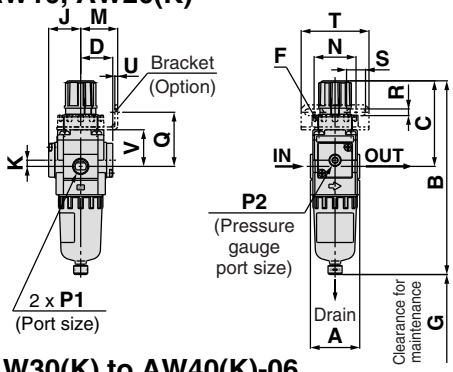


Figure 2 Backflow

When the inlet pressure is higher than the regulating pressure, check valve ② closes and operates as a normal regulator (Figure 1).
When the inlet pressure is shut off and released, check valve ② opens and the pressure in the diaphragm chamber ① is released into the inlet side (Figure 2).
This lowers the pressure in diaphragm chamber ① and the force generated by pressure regulator spring ③ lifts the diaphragm. Valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 2).

Dimensions

AW10, AW20(K)



Panel fitting dimension

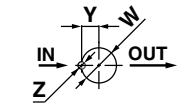
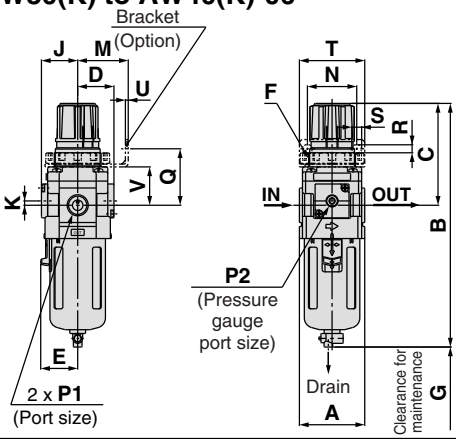


Plate thickness
AW10, AW20(K): Max. 3.5

AW30(K) to AW40(K)-06



Panel fitting dimension

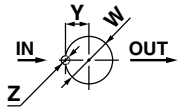
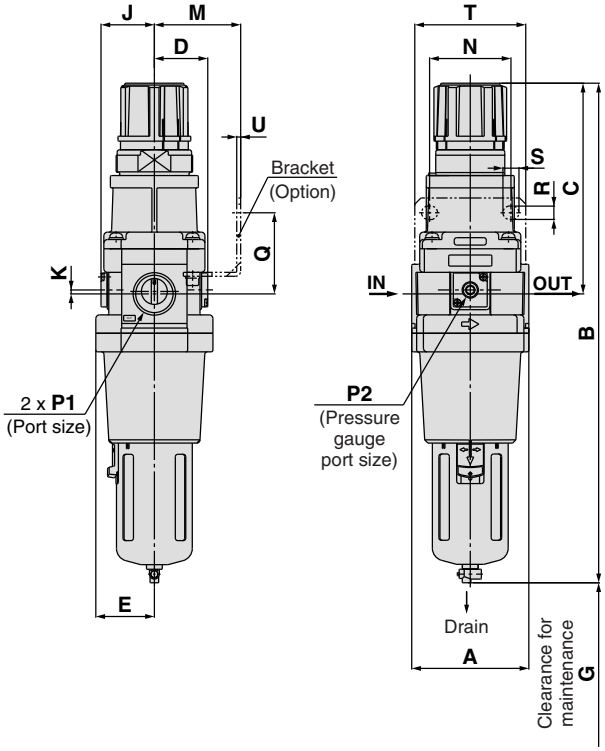
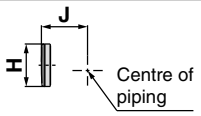
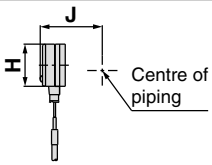
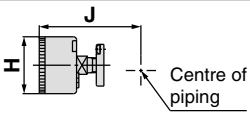
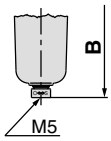
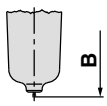
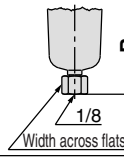
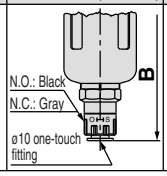
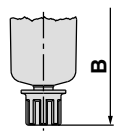
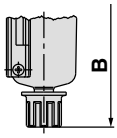
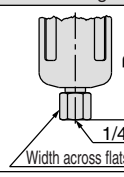
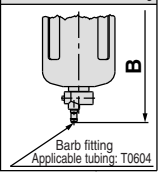


Plate thickness
AW30(K): Max. 3.5
AW40(K): Max. 5

AW60(K)



Applicable model	AW20(K) to AW60(K)		AW10, AW20(K) to AW60(K)	AW20(K) to AW60(K)
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AW10, AW20(K)		AW20(K)	AW30(K) to AW60(K)				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications											Optional specifications							
												Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B Note)	C	D	E	F	G	J	K	H	J	H	J	H	J	H	J
AW10	M5	1/16	25	108	48	12.5	—	M18 x 1	25	13	0	—	—	—	—	ø26	26	—	—
AW20(K)	1/8, 1/4	1/8	40	160	73	26	—	M28 x 1	40	26	5	□28	27	□27.8	37.5	ø37.5	63	ø37.5	63
AW30(K)	1/4, 3/8	1/8	53	201	86	29.5	30	M38 x 1.5	55	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AW40(K)	1/4, 3/8, 1/2	1/4	70	239	92	37.5	38	M42 x 1.5	80	37.5	1.5	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76
AW40(K)-06	3/4	1/4	75	242	93	37.5	38	M42 x 1.5	80	37.5	1.2	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76
AW60(K)	3/4, 1	1/4	95	409	175	43.5	47.5	—	20	43.5	3.2	□28	44.5	□27.8	61.5	ø42.5	84	ø42.5	84

Model	Optional specifications												Semi-standard specifications			
	Bracket mount							Panel mount				With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	N	Q	R	S	T	U	V	W	Y	Z	B Note)	B Note)	B Note)	B Note)	B Note)
AW10	25	28	30	4.5	6.5	40	2	18	18.5	—	—	125	—	—	107	—
AW20(K)	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	177	—	164	160	—
AW30(K)	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242	209	208	214	234
AW40(K)	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278	247	246	252	272
AW40(K)-06	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7	282	251	249	255	275
AW60(K)	70	66	66	11	13	90	3.2	—	—	—	—	448	417	416	422	442

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

Filter Regulator
AW20 to AW60
Made to Order

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

Made to Order

① 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 part no.		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature (°C)		–30 to 60°C	–5 to 80°C
Fluid temperature (°C)		–5 to 60°C (with no freezing)	
Material	**Rubber parts**	Special NBR	FKM
	Main parts	Metal (Aluminum die-cast), etc.	

Applicable Model

Model	AW30	AW40	AW40-06	AW60
Port size	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1

AW 30 – ❶ ❷ 03 ❸ BG ❹ – 2 ❺ ❻ – X430

For high/low temperature

X430	Low temperature
X440	High temperature

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

Example) AW30-03BG-2N-X430

		Symbol	Description	❶ Body size 30	40	60
❷	Thread type	—	Rc	●	●	●
		N	NPT	●	●	●
		F	G	●	●	●
		+				
❸	Port size	**02**	1/4	●	●	—
		03	3/8	●	●	—
		04	1/2	—	●	—
		06	3/4	—	●	●
		10	1	—	—	●
		+				
❹ Option Note 1)	a Mounting	—	Without mounting option	●	●	●
		B Note 2)	With bracket	●	●	●
		H	With set nut (for panel fitting)	●	●	—
		+				
	b Pressure gauge	—	Without pressure gauge	●	●	●
		G Note 3)	Round type pressure gauge (without limit indicator)	●	●	●
		+				
❺	Bowl Note 4)	**2**	Metal bowl	●	●	●
		+				
❻ Semi-standard	c Set pressure	—	0.05 to 0.85 MPa setting	●	●	●
		1 Note 5)	0.02 to 0.2 MPa setting	●	●	●
		+				
	d Drain port	—	With drain cock	●	●	●
		J Note 6)	Drain guide 1/4	●	●	●
		+				
	e Exhaust mechanism	—	Relieving type	●	●	●
		N	Non-relieving type	●	●	●
		+				
	f Flow direction	—	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	g Pressure unit	—	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa	●	●	●
		Z Note 7)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 8)	○ Note 8)	○ Note 8)

Note 1) Option B, G, H are not assembled and supplied loose at the time of shipment.
Note 2) Assembly includes a bracket and set nuts (AW30 to AW40)
Includes 2 mounting screws for the AW60
Note 3) Mounting thread for pressure gauge: 1/8 for the AW30, 1/4 for the AW40 and AW60. Pressure gauge type: G43
Note 4) Only metal bowl 2 is available.
Note 5) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 6) Without a valve function
Note 7) 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 8) ○: For thread type: NPT only

② High Pressure

Strong materials are used in the manufacturing of air filters intended for high pressure operation. Also, construction modification allows a wider regulating pressure range.

Specifications

Made-to-order part no.	-X425
Proof pressure (MPa)	3.0
Maximum operating pressure (MPa)	2.0
Set pressure range (MPa)	0.1 to 1.6
Ambient and fluid temperature (°C)	–5 to 60°C (with no freezing)

AW30-03-2-X425

Applicable Model

Model	AW20	AW30	AW40	AW40-06	AW60
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1

AW 30 – ☐ 03 BG – 2 ☐ – X425

❶ ❷ ❸ ❹ ❺ ❻

For high pressure

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

Example) AW30-03BG-2N-X425

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

Note 1) Option B, G, H are not assembled and supplied loose at the time of shipment.
Note 2) Assembly includes a bracket and set nuts (AW20 to AW40)
Includes 2 mounting screws for the AW60
Note 3) Mounting thread for pressure gauge: 1/8 for the AW20 and AW30, 1/4 for the AW40 and AW60. Pressure gauge type: G46-20-☐
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

Filter Regulator *AW10 to AW60*
Filter Regulator with Backflow Function *AW20K to AW60K*
Made to Order

Made to Order

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

③ 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 0.4 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	AW10	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)
Port size	M5	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1

④ Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

Model	AW10	AW20(K)	AW30(K)	AW40(K)	AW40(K)-06	AW60(K)
Port size	M5	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1
Drain capacity (cm^3)	9	19	43	88		

Note) Please consult SMC for dimensions.

How to Order

AW 30 ❑ – ❑ 03 ❑ – ❑ – X406

❶ ❷ ❸ ❹ ❺ ❻

X406	0.4 MPa setting
X64	Long bowl

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

Example) AW30K-03BE-2N-X406

		Symbol	Description	0.4 MPa Setting ❶ Body size 10	20	30	40	60	Long Bowl ❶ Body size 10	20	30	40	60
❷	With backflow function	—	Without backflow function	●	●	●	●	●	●	●	●	●	●
		K Note 1)	With backflow function	–	●	●	●	●	–	●	●	●	●
		+											
❸	Thread type	—	Metric thread (M5)	●	–	–	–	–	●	–	–	–	–
			Rc	–	●	●	●	●	–	●	●	●	●
		N Note 2)	NPT	–	●	●	●	●	–	●	●	●	●
		F Note 3)	G	–	●	●	●	●	–	●	●	●	●
		+											
❹	Port size	M5	M5	●	–	–	–	–	●	–	–	–	–
		01	1/8	–	●	–	–	–	–	●	–	–	–
		02	1/4	–	●	●	●	–	–	●	●	●	–
		03	3/8	–	–	●	●	–	–	–	●	●	–
		04	1/2	–	–	–	●	–	–	–	–	●	–
		06	3/4	–	–	–	●	●	–	–	–	●	●
		10	1	–	–	–	–	●	–	–	–	–	●
		+											
❺ Option Note 4)	a Mounting	—	Without mounting option	●	●	●	●	●	●	●	●	●	●
		B Note 5)	With bracket	●	●	●	●	●	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	●	–	●	●	●	●	–
		+											
	b Float type auto drain	—	Without auto drain	●	●	●	●	●	–	–	–	–	–
		C	Float type auto drain (N.C.)	●	●	●	●	●	–	–	–	–	–
		D	Float type auto drain (N.O.)	–	–	●	●	●	–	–	–	–	–
		+											
	c Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●	●	●	●	●
		E	Square embedded type pressure gauge (with limit indicator)	–	●	●	●	●	–	●	●	●	●
		G	Round type pressure gauge (without limit indicator)	●	–	–	–	–	●	–	–	–	–
			Round type pressure gauge (with limit indicator)	–	●	●	●	●	–	●	●	●	●
		M	Round type pressure gauge (with colour zone)	–	●	●	●	●	–	●	●	●	●
	c Digital pressure switch	E1 Note 6)	Output: NPN output / Electrical entry: Wiring bottom entry	–	●	●	●	●	–	●	●	●	●
		E2 Note 6)	Output: NPN output / Electrical entry: Wiring top entry	–	●	●	●	●	–	●	●	●	●
		E3 Note 6)	Output: PNP output / Electrical entry: Wiring bottom entry	–	●	●	●	●	–	●	●	●	●
		E4 Note 6)	Output: PNP output / Electrical entry: Wiring top entry	–	●	●	●	●	–	●	●	●	●

Note 1) The AW10 type comes with a backflow function as a standard feature. (K is not available.) When using the AW10 type as w/ backflow function, backflow may not occur with the set pressure 0.15 MPa or less. Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

Note 2) Drain guide is NPT1/8 (applicable to the AW20(K)) and NPT1/4 (applicable to the AW30(K) to AW60(K)). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AW30(K) to AW60(K)).

Note 3) Drain guide is G1/8 (applicable to the AW20(K)) and G1/4 (applicable to the AW30(K) to AW60(K)).

Note 4) Option B, G, H and M are not assembled and supplied loose at the time of shipment.

Note 5) Assembly of a bracket and set nuts. (AW10, AW20(K) to AW40(K)). Includes 2 mounting screws for the AW60(K)

Note 6) When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring down entry" for the electrial entry.

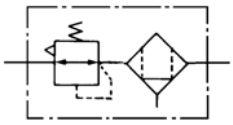
			Symbol	Description	0.4 MPa Setting					Long Bowl				
					❶ Body size					❶ Body size				
					10	20	30	40	60	10	20	30	40	60
❻	Semi-standard	d	Set pressure	— Note 7)	0.05 to 0.85 MPa setting	—	—	—	—	—	●	●	●	●	●
				1 Note 8)	0.02 to 0.2 MPa setting	—	—	—	—	—	●	●	●	●	●
			+												
		e	Bowl	—	Polycarbonate bowl	●	●	●	●	●	●	●	●	●	●
				2	Metal bowl	●	●	●	●	●	●	●	●	●	●
				6	Nylon bowl	●	●	●	●	●	●	●	●	●	●
				8	Metal bowl with level gauge	—	—	●	●	●	—	—	—	—	—
				C	With bowl guard	—	●	—	—	—	—	●	—	—	—
				6C	Nylon bowl with bowl guard	—	●	—	—	—	—	●	—	—	—
			+												
		f	Drain port Note 9)	—	With drain cock	●	●	●	●	●	●	●	●	●	●
				J Note 10)	Drain guide 1/8	—	●	—	—	—	—	●	—	—	—
					Drain guide 1/4	—	—	●	●	●	—	—	●	●	●
				W Note 11)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	—	—	●	●	●
			+												
		g	Exhaust mechanism	—	Relieving type	●	●	●	●	●	●	●	●	●	●
				N	Non-relieving type	●	●	●	●	●	●	●	●	●	●
			+												
		h	Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●	●	●	●	●
				R	Flow direction: Right to left	●	●	●	●	●	●	●	●	●	●
			+												
		i	Pressure unit	—	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 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)	○ Note 14)
				ZA Note 13)	Digital pressure switch: With unit conversion function	—	△ Note 15)	△ Note 15)	△ Note 15)	△ Note 15)	—	△ Note 15)	△ Note 15)	△ Note 15)	△ Note 15)

Note 7) Only the AW10 has a pressure setting of 0.05 to 0.7 MPa.
Note 8) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 9) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 10) Without a valve function
Note 11) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 12) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
Note 13) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 14) ○: For thread type: M5 and NPT only
Note 15) △: Select with options: E1, E2, E3, E4.

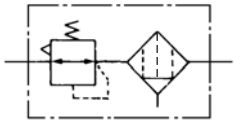
Mist Separator Regulator
AWM20 to AWM40
Micro Mist Separator Regulator
AWD20 to AWD40

JIS Symbol

Mist Separator Regulator



Micro Mist Separator Regulator



- **The AWM series is made up of a regulator and a mist separator to provide optimum results in applications such as clean air blow operations. (Nominal filtration rating: 0.3 μm)**
- **The AWD series is made up of a regulator and a micro mist separator to provide optimum results in applications such as ultraclean air blow operations. (Nominal filtration rating: 0.01 μm)**

How to Order

AWM 30 – ☐ 03 BE – ☐ – ☐

AWD 30 – ☐ 03 BE – ☐ – ☐

❶ ❷ ❸ ❹ ❺

- **Made to Order**
  For details, refer to pages 87 and 88.

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

Example) AWM30-03BE-1N

			Symbol	Description	❶ Body size 20	30	40
❷	Thread type		—	Rc	●	●	●
			N Note 1)	NPT	●	●	●
			F Note 2)	G	●	●	●
			+				
❸	Port size		01	1/8	●	—	—
			02	1/4	●	●	●
			03	3/8	—	●	●
			04	1/2	—	—	●
			+				
❹ Option Note 3)	a	Mounting	—	Without mounting option	●	●	●
			B Note 4)	With bracket	●	●	●
			H	With set nut	●	●	●
			+				
	b	Float type auto drain	—	Without auto drain	●	●	●
			C	Float type auto drain (N.C.)	●	●	●
			D	Float type auto drain (N.O.)	—	●	●
			+				
	c	Pressure gauge	—	Without pressure gauge	●	●	●
			E	Square embedded type pressure gauge	●	●	●
			G	Round type pressure gauge	●	●	●
			M	Round type pressure gauge (with colour zone)	●	●	●
		Digital pressure switch	1 Note 5)	Output: NPN output / Electrical entry: Wiring bottom entry	●	●	●
			E2 Note 5)	Output: NPN output / Electrical entry: Wiring top entry	●	●	●
			E3 Note 5)	Output: PNP output / Electrical entry: Wiring bottom entry	●	●	●
			E4 Note 5)	Output: PNP output / Electrical entry: Wiring top entry	●	●	●
			+				
❺ Semi-standard	d	Set pressure Note 6)	—	0.05 to 0.85 MPa setting	●	●	●
			1 Note 7)	0.05 to 0.2 MPa setting	●	●	●
			+				
	e	Bowl	—	Polycarbonate bowl	●	●	●
			2	Metal bowl	●	●	●
			6	Nylon bowl	●	●	●
			8	Metal bowl with level gauge	—	●	●
			C	With bowl guard	●	—	—
			6C	Nylon bowl with bowl guard	●	—	—
			+				
	f	Drain port Note 8)	—	With drain cock	●	●	●
			J Note 9)	Drain guide 1/8	●	—	—
				Drain guide 1/4	—	●	●
			W Note 10)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	●	●

AWM20, AWD20

AWM40, AWD40

		Symbol	Description	❶ Body size 20	30	40
❺ Semi-standard	g Exhaust mechanism	—	Relieving type	●	●	●
		N	Non-relieving type	●	●	●
		+				
	h Flow direction	—	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
		+				
	i Pressure unit	—	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa	●	●	●
		Z Note 11)	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 13)	○ Note 13)	○ Note 13)
		ZA Note 12)	Digital pressure switch: With unit conversion function	△ Note 14)	△ Note 14)	△ Note 14)

Note 1) Drain guide is NPT1/8 (applicable to the AWM20, AWD20) and NPT1/4 (applicable to the AWM30 to AWM40, AWD30 to AWD40). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AWM30 to AWM40, AWD30 to AWD40).
Note 2) Drain guide is G1/8 (applicable to the AWM20, AWD20) and G1/4 (applicable to the AWM30 to AWM40, AWD30 to AWD40).
Note 3) Option B, G, H and M are not assembled and supplied loose at the time of shipment.
Note 4) Assembly includes a bracket and set nuts
Note 5) When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.
Note 6) Float type auto drain: when used in combination with C or D, minimum set pressure is: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47).
Note 7) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 8) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 9) Without a valve function.
Note 10) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 11) 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.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
Note 12) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 13) ○: For thread type: NPT only
Note 14) △: Select with options: E1, E2, E3, E4.

Standard Specifications

Model		AWM20 AWD20	AWM30 AWD30	AWM40 AWD40
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air		
Proof pressure		1.5 MPa		
Maximum operating pressure		1.0 MPa		
Set pressure range		0.05 to 0.85 MPa		
Pressure gauge port size Note 1)		1/8		1/4
Ambient and fluid temperature Note 2)		–5 to 60°C (with no freezing)		
Nominal filtration rating	**AWM20 to AWM40**	0.3 µm (99.9% filtered particle size)		
	AWD20 to AWD40	0.01 µm (99.9% filtered particle size)		
Outlet side oil mist concentration	**AWM20 to AWM40**	Max. 1.0 mg/m^3 (ANR) (≈ 0.8 ppm) Note 3) Note 4)		
	AWD20 to AWD40	Max. 0.1 mg/m^3 (ANR) (Before saturated with 0.01 mg/m^3 (ANR) or less ≈ 0.008 ppm) Note 3) Note 4)		
Rated flow (ℓ/min (ANR)) Note 5)	**AWM20 to AWM40**	150	330	820
	AWD20 to AWD40	90	180	450
Drain capacity (cm^3)		8	25	45
Bowl material		Polycarbonate		
Bowl guard		Semi-standard	Standard	
Construction		Relieving type		
Mass (kg)		0.29	0.59	1.25

Note 1) Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge.
Note 2) –5 to 50°C for the products with the digital pressure switch.
Note 3) When the compressor oil mist discharge concentration is 30 mg/m^3 (ANR).
Note 4) Bowl O-ring and other O-rings are slightly lubricated.
Note 5) Conditions: Mist separator inlet pressure: 0.7 MPa; outlet pressure: 0.5 MPa. The rated flow varies depending on the inlet pressure. Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.

Options/Part No.

Optional specifications			Model		
			AWM20 AWD20	**AWM30 AWD30**	**AWM40 AWD40**
Bracket assembly Note 1)			AW20P-270AS	AR30P-270AS	AR40P-270AS
Set nut			AR20P-260S	AR30P-260S	AR40P-260S
Pressure gauge	**Round type** Note 2)	**Standard**	G36-10-□01		G46-10-□02
		0.02 to 0.2 MPa setting	G36-2-□01		G46-2-□02
	Round type Note 2) **(with colour zone)**	**Standard**	G36-10-□01-L		G46-10-□02-L
		0.02 to 0.2 MPa setting	G36-2-□01-L		G46-2-□02-L
	Square embedded type Note 3)	**Standard**	GC3-10AS [GC3P-010AS (Pressure gauge cover only)]		
		0.02 to 0.2 MPa setting	GC3-2AS [GC3P-010AS (Pressure gauge cover only)]		
Digital pressure switch Note 4)		**NPN output / Wiring bottom entry**	ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)]		
		NPN output / Wiring top entry	ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)]		
		PNP output / Wiring bottom entry	ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)]		
		PNP output / Wiring top entry	ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)]		
Float type auto drain Note 5) Note 6)		**N.C.**	AD27	AD37	AD47
		N.O.	—	AD38	AD48

Semi-standard/Bowl Assembly Part No.

Semi-standard specifications						Model		
Bowl material	Float type auto drain Note 5) Note 6)		With drain guide Note 6)	With barb fitting	With bowl guard	**AWM20 AWD20**	**AWM30 AWD30**	**AWM40 AWD40**
	N.C.	N.O.						
Polycarbonate	—	—	—	—	●	C2SF-C	—	—
	●	—	—	—	●	AD27-C	—	—
	—	—	●	—	—	C2SF-J	C3SF-J	C4SF-J
	—	—	—	●	—	—	C3SF-W	C4SF-W
	—	—	●	—	●	C2SF-CJ	—	—
Nylon	—	—	—	—	—	C2SF-6	C3SF-6	C4SF-6
	—	—	—	—	●	C2SF-6C	—	—
	●	—	—	—	—	AD27-6	AD37-6	AD47-6
	—	●	—	—	—	—	AD38-6	AD48-6
	●	—	—	—	●	AD27-6C	—	—
	—	—	●	—	—	C2SF-6J	C3SF-6J	C4SF-6J
	—	—	—	●	—	—	C3SF-6W	C4SF-6W
	—	—	●	—	●	C2SF-6CJ	—	—
Metal	—	—	—	—	—	C2SF-2	C3SF-2	C4SF-2
	●	—	—	—	—	AD27-2	AD37-2	AD47-2
	—	●	—	—	—	—	AD38-2	AD48-2
	—	—	●	—	—	C2SF-2J	C3SF-2J	C4SF-2J
Metal bowl with level gauge	—	—	—	—	—	—	C3LF-8	C4LF-8
	●	—	—	—	—	—	AD37-8	AD47-8
	—	●	—	—	—	—	AD38-8	AD48-8
	—	—	●	—	—	—	C3LF-8J	C4LF-8J

Note 1) Assembly includes 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) Includes one O-ring and 2 mounting screws. [ ]: Pressure gauge cover only
Note 4) Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached. [ ]: Switch body only.
Also, regarding how to order the digital pressure switch, please refer to page 89.
A separate pressure switch adapter assembly (AW60P-310AS) is required only for AW60(K). For mounting, please use the included mounting screws (M3 x 0.5 x 14).
The mounting screw (M3 x 0.5 x 7) attached to the digital pressure switch assembly will not be required.
Note 5) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.
Note 6) Please consult SMC for details on drain piping to fit NPT or G port sizes.
Note) • Including O-ring.
• Bowl assembly for the AWM30/40, AWD30/40 comes with a bowl guard (steel band material). (except when the bowl material is metal)

Series AWM20 to AWM40
Series AWD20 to AWD40
Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

Selection

⚠ Warning

1. Residual pressure release (outlet pressure release) is not complete by releasing inlet pressure. Please contact SMC regarding residual pressure release.

Air Supply

⚠ Caution

1. Install an air filter (AF series) as a pre-filter on the inlet side of the mist separator regulator to prevent premature clogging.
2. Install a mist separator (AFM series) as a pre-filter on the inlet side of the micro mist separator regulator to prevent premature clogging.

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

⚠ Caution

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. The pressure gauge included with regulators for 0.02 to 0.2 MPa setting is for up to 0.2 MPa use only. Exceeding 0.2 MPa of pressure can damage the gauge.
3. Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

Mounting and Adjustment

⚠ Warning

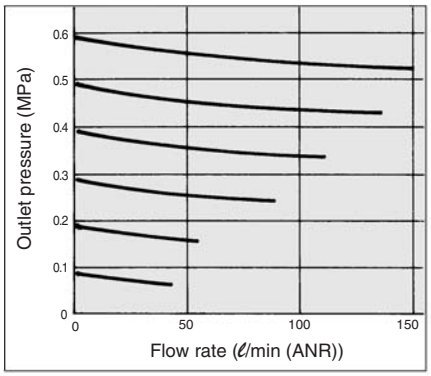
1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
   - Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" 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. A knob cover is available to prevent careless operation of the knob. Refer to page 90 for details.

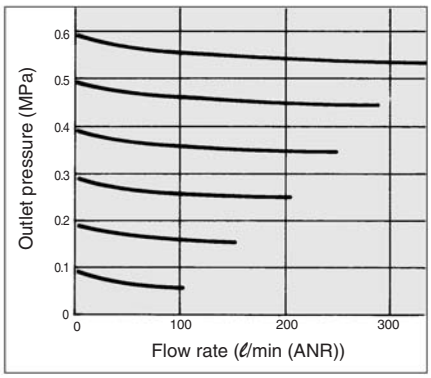
Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

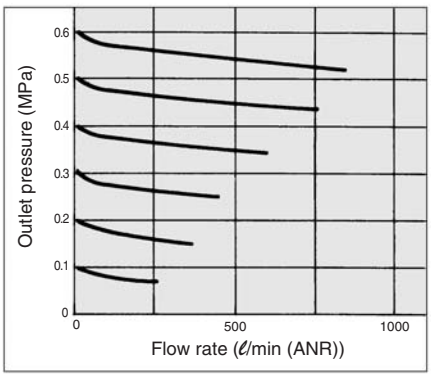
AWM20 Rc1/4



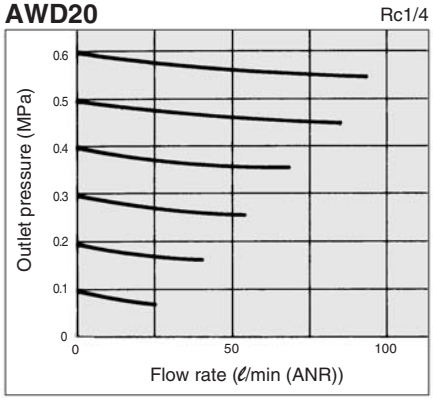
AWM30 Rc3/8



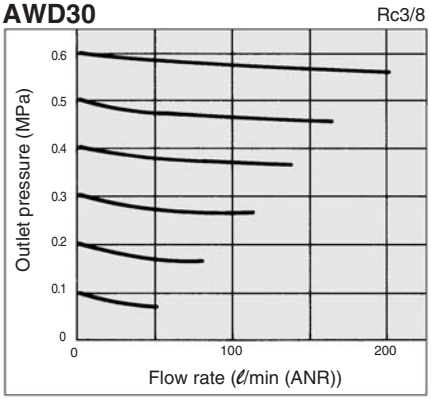
AWM40 Rc1/2



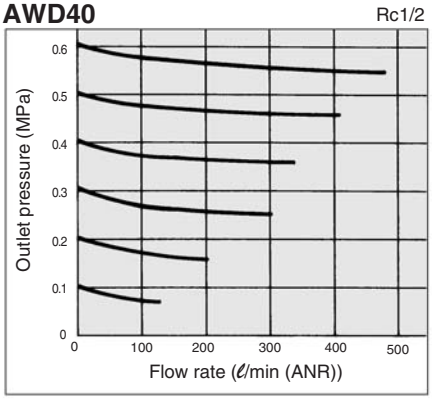
AWD20 Rc1/4



AWD30 Rc3/8



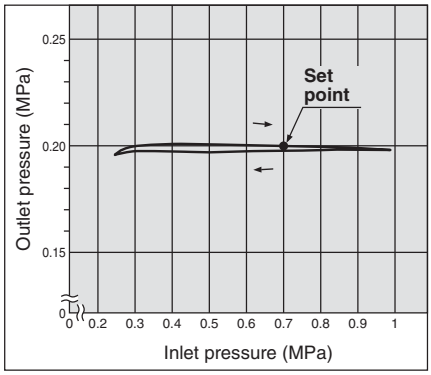
AWD40 Rc1/2



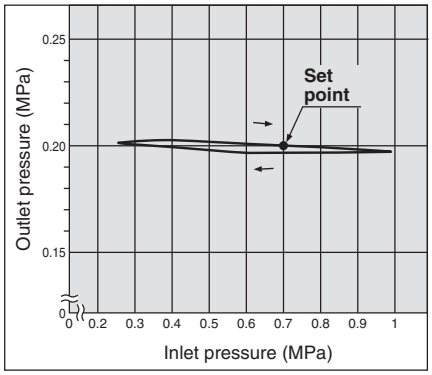
Pressure Characteristics (Representative values)

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

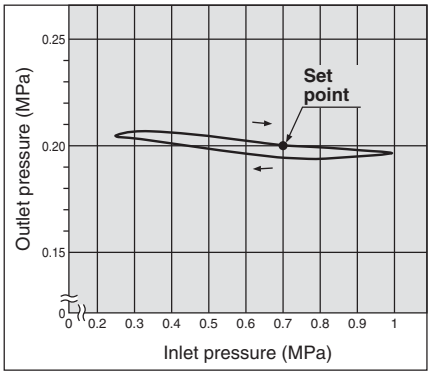
AWM20



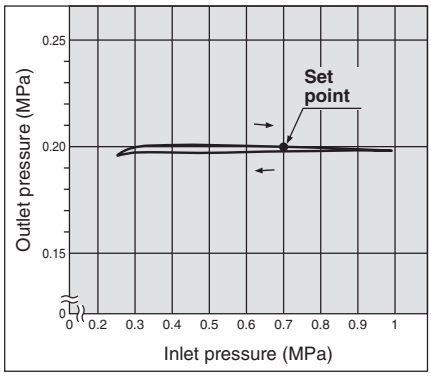
AWM30



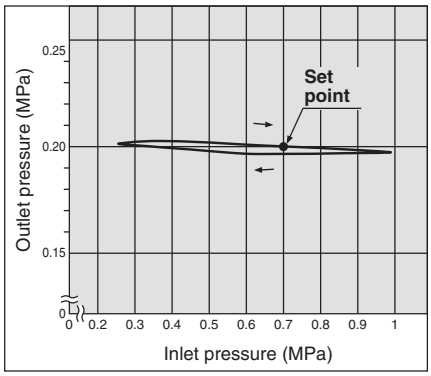
AWM40



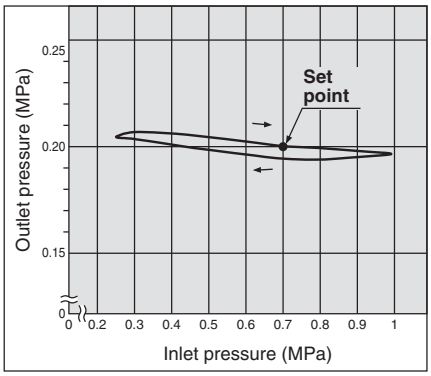
AWD20



AWD30

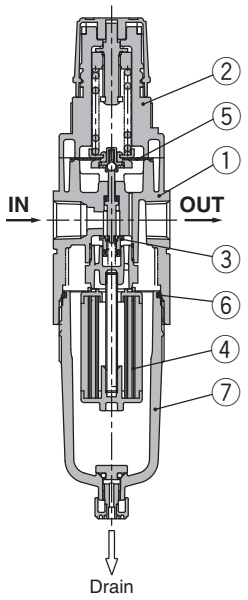


AWD40

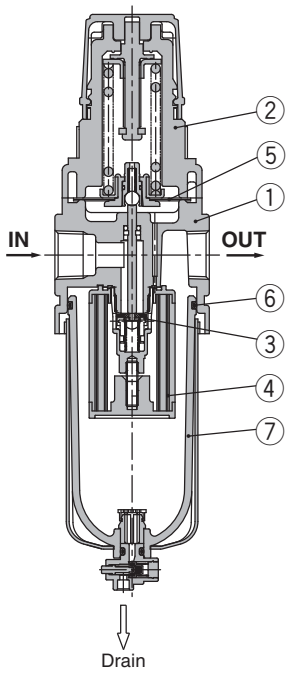


Construction

AWM20
AWD20



AWM30, AWM40
AWD30, AWD40



Component Parts

No.	Description	Material	Model	Colour
1	**Body**	Aluminum die-cast	AWM20, AWM40 AWD20, AWD40	Platinum silver
2	**Bonnet**	Polyacetal	AWM20 to AWM40 AWD20 to AWD40	Black

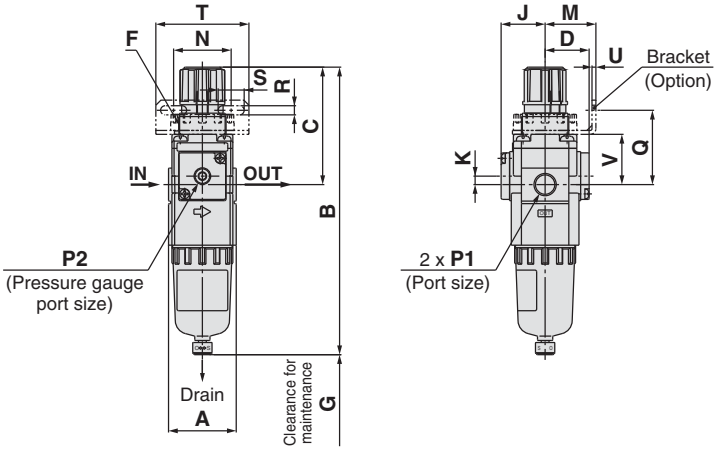
Replacement Parts

No.	Description		Material	Part no.		
				AWM20 AWD20	**AWM30 AWD30**	**AWM40 AWD40**
3	**Valve assembly**		Brass, HNBR	AWM20P-090AS	AWM30P-090AS	AWM40P-090AS
4	**Element assembly**	AWM20 to AWM40	—	AFM20P-060AS	AFM30P-060AS	AFM40P-060AS
		AWD20 to AWD40	—	AFD20P-060AS	AFD30P-060AS	AFD40P-060AS
5	**Diaphragm assembly**		Weatherable NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
6	**Bowl O-ring**		NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S
7	**Bowl assembly** Note 1)		Polycarbonate	C2SF	C3SF Note 2)	C4SF Note 2)

Note 1) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 2) Bowl assembly for the AWM30/40, AWD30/40 comes with a bowl guard (steel band material).

Dimensions

AWM20
AWD20



Panel fitting dimension

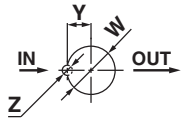
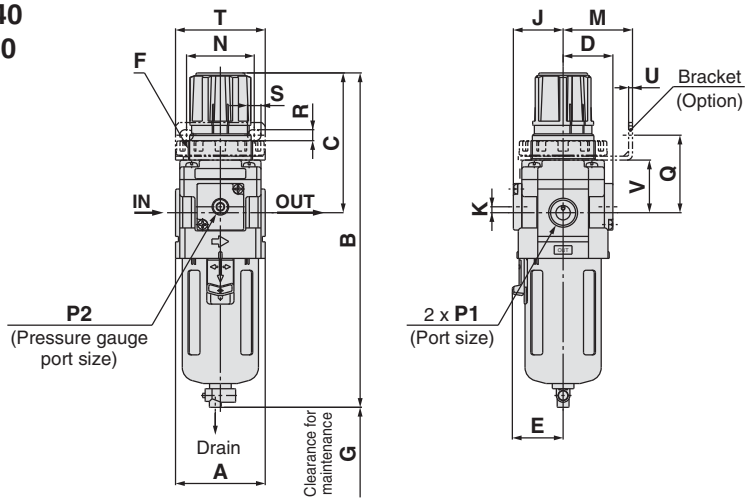


Plate thickness
AWM20, AWD20: Max. 3.5

AWM30, AWM40
AWD30, AWD40



Panel fitting dimension

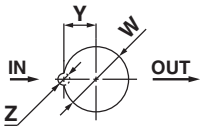
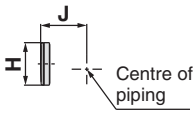
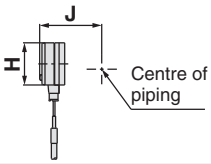
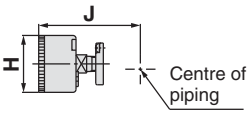
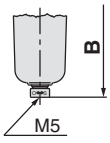
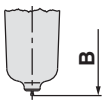
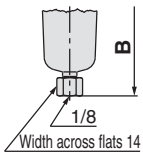
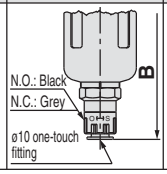
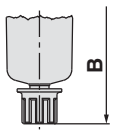
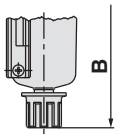
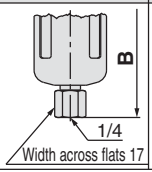
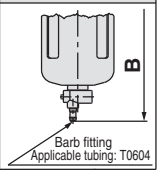


Plate thickness
AWM30, AWD30: Max. 3.5
AWM40, AWD40: Max. 5

Applicable model	AWM20 to AWM40, AWD20 to AWD40			
Option	Square embedded type pressure gauge	Digital pressure switch	Round type pressure gauge	Round type pressure gauge (with colour zone)
Dimensions				

Applicable model	AWM20, AWD20			AWM30/40, AWD30/40				
Optional/Semi-standard specifications	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions								

Model	Standard specifications											Optional specifications							
												Square type pressure gauge		Digital pressure switch		Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B Note)	C	D	E	F	G	J	K	H	J	H	J	H	J	H	J
AWM20/AWD20	1/8, 1/4	1/8	40	173	73	26	—	M28 x 1	40	26	5	□28	27	□27.8	37.5	ø37.5	63	ø37.5	63
AWM30/AWD30	1/4, 3/8	1/8	53	201	86	29.5	30	M38 x 1.5	55	29.5	3.5	□28	30.5	□27.8	41	ø37.5	66	ø37.5	66
AWM40/AWD40	1/4, 3/8, 1/2	1/4	70	239	92	37.5	38	M42 x 1.5	80	37.5	1.5	□28	38.5	□27.8	49	ø42.5	76	ø42.5	76

Model	Optional specifications												Semi-standard specifications			
	Bracket mount							Panel mount				With auto drain	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	M	N	Q	R	S	T	U	V	W	Y	Z	B Note)	B Note)	B Note)	B Note)	B Note)
AWM20/AWD20	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	190	—	164	160	—
AWM30/AWD30	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242	209	208	214	234
AWM40/AWD40	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278	247	246	252	272

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

Mist Separator Regulator *AWM20 to AWM40*
Micro Mist Separator Regulator *AWD20 to AWD40*
Made to Order

Made to Order

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

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 0.4 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	AWM20 AWD20	AWM30 AWD30	AWM40 AWD40
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2

② Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

Model	AWM20 AWD20	AWM30 AWD30	AWM40 AWD40
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Drain capacity (cm^3)	19	43	88

Note) Please consult SMC for dimensions.

How to Order

AWM 30 – ❶ ❷ 03 ❸ ❹ – ❺ – X406

AWD 30 – ❶ ❷ 03 ❸ ❹ – ❺ – X406

X406	0.4 MPa setting
X64	Long bowl

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

Example) AWM30-03BE-2N-X406

		Symbol	Description	0.4 MPa Setting ❶ Body size 20	30	40	Long Bowl ❶ Body size 20	30	40
❷	Thread type	—	Rc	●	●	●	●	●	●
		N Note 1)	NPT	●	●	●	●	●	●
		F Note 2)	G	●	●	●	●	●	●
		+							
❸	Port size	**01**	1/8	●	–	–	●	–	–
		02	1/4	●	●	●	●	●	●
		03	3/8	–	●	●	–	●	●
		04	1/2	–	–	●	–	–	●
		+							
❹ Option Note 3)	a Mounting	—	Without mounting option	●	●	●	●	●	●
		B Note 4)	With bracket	●	●	●	●	●	●
		H	With set nut (for panel fitting)	●	●	●	●	●	●
		+							
	b Float type auto drain	—	Without auto drain	●	●	●	–	–	–
		C	Float type auto drain (N.C.)	●	●	●	–	–	–
		D	Float type auto drain (N.O.)	–	●	●	–	–	–
		+							
	c Pressure gauge	—	Without pressure gauge	●	●	●	●	●	●
		E	Square embedded type pressure gauge (with limit indicator)	●	●	●	●	●	●
		G	Round type pressure gauge	●	●	●	●	●	●
		M	Round type pressure gauge (with colour zone)	●	●	●	●	●	●
	c Digital pressure switch	**E1** Note 5)	Output: NPN output / Electrical entry: Wiring bottom entry	●	●	●	●	●	●
		E2 Note 5)	Output: NPN output / Electrical entry: Wiring top entry	●	●	●	●	●	●
		E3 Note 5)	Output: PNP output / Electrical entry: Wiring bottom entry	●	●	●	●	●	●
		E4 Note 5)	Output: PNP output / Electrical entry: Wiring top entry	●	●	●	●	●	●

Note 1) Drain guide is NPT1/8 (applicable to the AWM20, AWD20) and NPT1/4 (applicable to the AWM30 to AWM40, AWD30 to AWD40). The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AWM30 to AWM40, AWD30 to AWD40).
Note 2) Drain guide is G1/8 (applicable to the AWM20, AWD20) and G1/4 (applicable to the AWM30 to AWM40, AWD30 to AWD40).
Note 3) Option B, G, H and M are not assembled and supplied loose at the time of shipment.
Note 4) Assembly of a bracket and set nuts
Note 5) When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.

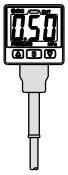
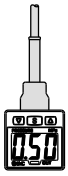
			Symbol	Description	0.4 MPa Setting			Long Bowl		
					❶ Body size			❶ Body size		
					20	30	40	20	30	40
❺	Semi-standard	d Set pressure Note 6)	—	0.05 to 0.85 MPa setting	–	–	–	●	●	●
			1 Note 7)	0.05 to 0.2 MPa setting	–	–	–	●	●	●
		+								
		e Bowl	—	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	–	●	●	–	–	–
			C	With bowl guard	●	–	–	●	–	–
			6C	Nylon bowl with bowl guard	●	–	–	●	–	–
		+								
		f Drain port Note 8)	—	With drain cock	●	●	●	●	●	●
			J Note 9)	Drain guide 1/8	●	–	–	●	–	–
				Drain guide 1/4	–	●	●	–	●	●
			W Note 10)	Drain cock with barb fitting: For ø6 x ø4 nylon tube	–	●	●	–	●	●
		+								
		g Exhaust mechanism	—	Relieving type	●	●	●	●	●	●
			N	Non-relieving type	●	●	●	●	●	●
		+								
		h Flow direction	—	Flow direction: Left to right	●	●	●	●	●	●
			R	Flow direction: Right to left	●	●	●	●	●	●
		+								
		i Pressure unit	—	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●	●
			Z Note 11)	Name plate and caution plate for bowl, and pressure gauge in imperial units: psi, °F	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)	○ Note 13)
			ZA Note 12)	Digital pressure switch: With unit conversion function	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)	△ Note 14)

Note 6) Float type auto drain: when used in combination with C or D, minimum set pressure is: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47).
Note 7) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.
Note 8) Float type auto drain: The combination between C or D is not available with the drain port option.
Note 9) Without a valve function
Note 10) Metal bowl: The combination of 2 and 8 cannot be selected with W.
Note 11) 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.) The digital pressure switch will be equipped with the unit conversion function, setting to psi initially.
Note 12) For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)
Note 13) ○: For thread type: NPT only
Note 14) △: Select with options: E1, E2, E3, E4.

Option
Digital Pressure Switch

ISE35 – N – 25 – M L A

❶ ❷ ❸ ❹ ❺

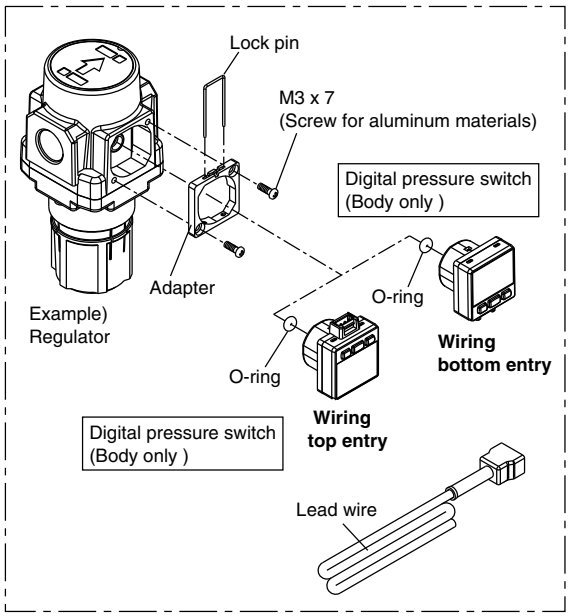
		Symbol	Description
❶	Electrical entry	N	Wiring bottom entry 
		R	Wiring top entry 
		+	
❷	Output	25	NPN output
		65	PNP output
		+	
❸	Display unit Note 1)	— Note 1)	With unit conversion function
		M	Fixed SI unit
		P Note 1)	Pressure unit: psi (initial value) with unit conversion function
		+	
❹	Lead wire	—	Without lead wire
		L	Lead wire (2 m) with connector
		+	
❺	Accessories	—	Without accessories (switch body only)
		A	With accessories (adapter, O-ring (1 pc.), mounting screw (2 pcs.), lock pin)

Note 1) This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.) Name plate is included.
Note 2) Instruction manual is attached.
Note 3) When ordering the body only, select the symbol from ❶ to ❸ respectively.

Applicable Series

F.R.L. unit	**AC20, AC25, AC30, AC40, AC50, AC55, AC60**
	AC20A, AC30A, AC40A, AC50A, AC60A
	AC20B, AC25B, AC30B, AC40B, AC50B, AC55B, AC60B
	AC20C, AC25C, AC30C, AC40C
	AC20D, AC30D, AC40D
Regulator	**AR20(K), AR25(K), AR30(K), AR40(K), AR50(K), AR60(K)**
Filter regulator	**AW20(K), AW30(K), AW40(K), AW60(K)**
Mist separator regulator	**AWM20, AWM30, AWM40**
Micro mist separator regulator	**AWD20, AWD30, AWD40**

Diigtal Pressure Switch Details



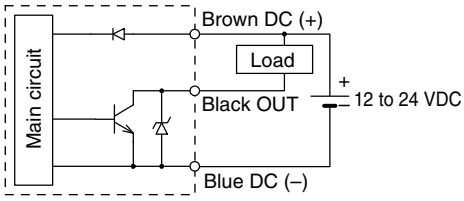
Specifications

Rated pressure range		0 to 1 MPa
Set pressure range		–0.1 to 1 MPa
Withstand pressure		1.5 MPa
Set pressure resolution		0.01 MPa
Power supply voltage		12 to 24 VDC, Ripple (p-p) 10% or less (with power supply polarity protection)
Current consumption		55 mA or less (at no load)
Switch output		NPN or PNP open collector 1 output
	Max. load current	80 mA
	Max. applied voltage	30 V (with NPN output)
	Residual voltage	1 V or less (with load current of 80 mA)
	Response time Anti-chattering function	1 s (Response time selections: 0.25, 0.5, 2, 3)
	Short circuit protection	With short circuit protection
Repeatability		±1%F.S. or less
Hysteresis	**Hysteresis mode**	Variable (can be set from 0)
	Window comparator mode	
Display		3-digit, 7-segment indicator, 2-color display (Red/Green) can be interlocked with the switch output.
Display accuracy		±2%F.S. ±1 digit (at 25°C ± 3°C)
Indication light		Illuminates when output is turned ON. (Green)
Environmental resistance	**Enclosure**	IP40
Lead wire with connector		ø3.4 3-wire 25AWG 2 m

Output

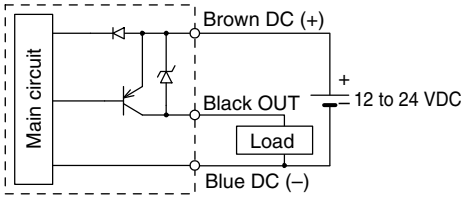
NPN open collector

Max. 30 V, 80 mA
Residual output voltage 1 V or less



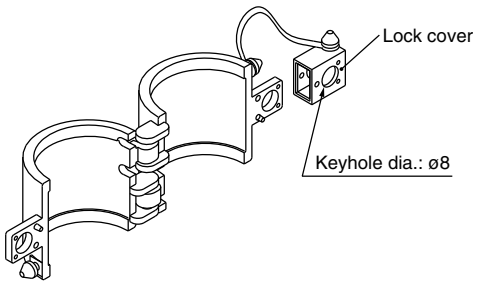
PNP open collector

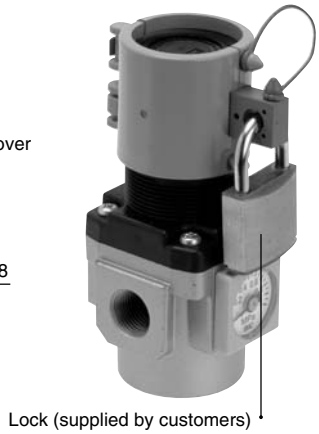
Max. 80 mA
Residual output voltage 1 V or less



Option
Knob Cover

Prevents careless knob operation.





Part no.	Applicable model
AR20P-580AS	AC20□, AR20(K), AW20(K). AWM20, AWD20
AR25P-580AS	AC25□, AR25(K)
AR30P-580AS	AC30□, AR30(K), AW3(K), AWM30, AWD30
AR40P-580AS	AC40□(-06), AR40(K)(-06), AW40(K)(-06), AWM40, AWD40

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), Japan Industrial Standards (JIS)*1) and other safety regulations*2).

* 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 10218-1992: Manipulating industrial robots -Safety.
  JIS B 8370: General rules for pneumatic equipment.
  JIS B 8361: General rules for hydraulic equipment.
  JIS B 9960-1: Safety of machinery – Electrical equipment of machines. (Part 1: General requirements)
  JIS B 8433-1993: Manipulating industrial robots - Safety.
  etc.
* 2) Labor Safety and Sanitation Law, etc.

⚠ Caution: Operator error could result in injury or equipment damage.

⚠ Warning: Operator error could result in serious injury or loss of life.

⚠ Danger : In extreme conditions, there is a possibility of serious injury or loss of life.

⚠ 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.

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