

Modular F.R.L. Unit



Introducing our latest F.R.L. Unit!

Series AC

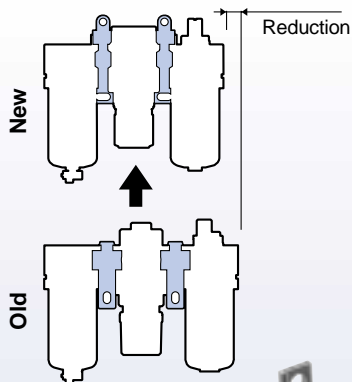


Modular F.R.L. Unit Series AC

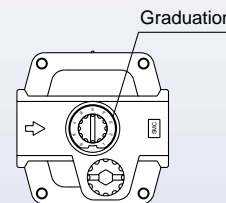
Space-saving design

The use of compact spacer with bracket reduces the total assembling space.

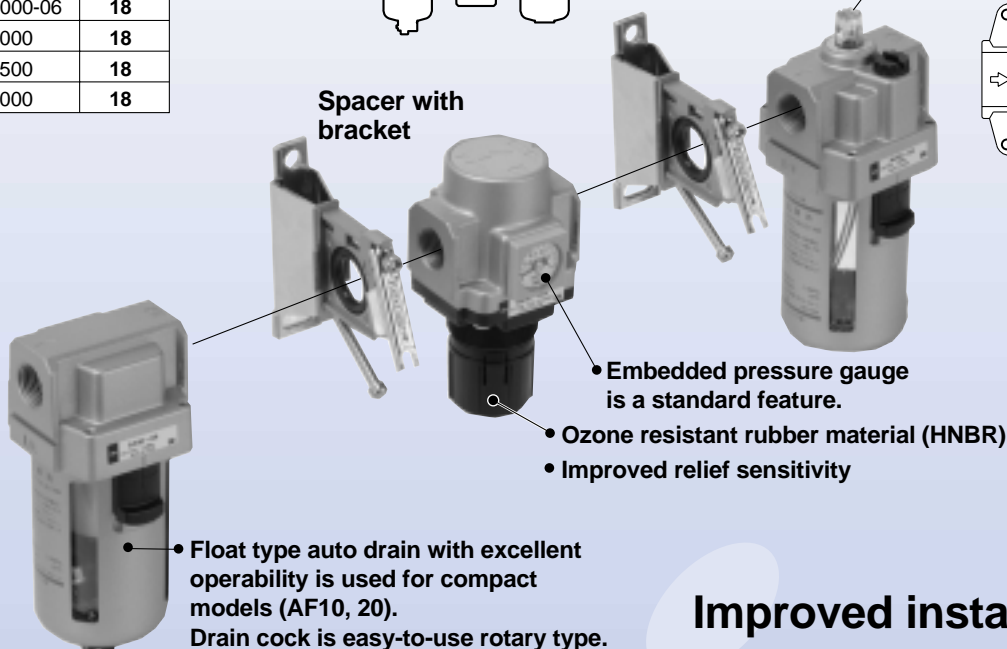
Model		Reduction (mm)
New	Old	
AC10	AC1000	4
AC20	AC2000	14
AC25	AC2500	14
AC30	AC3000	14
AC40	AC4000	18
AC40-06	AC4000-06	18
AC50	AC5000	18
AC55	AC5500	18
AC60	AC6000	18



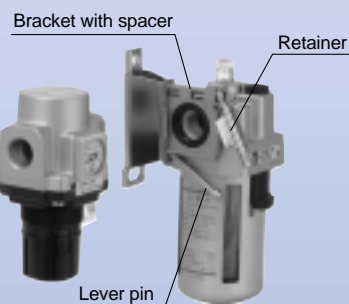
Improved visibility for lubricant drip with graduation for lubricant control



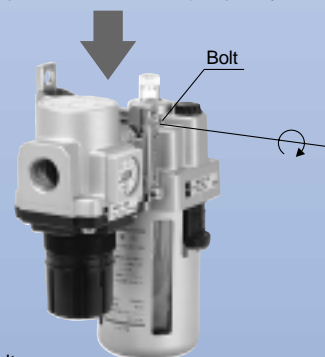
Spacer with bracket



Improved installation



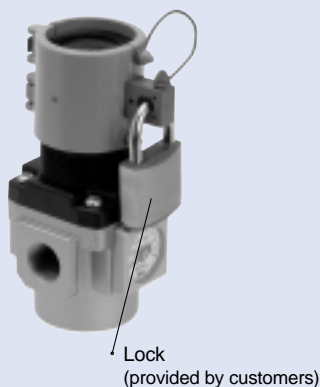
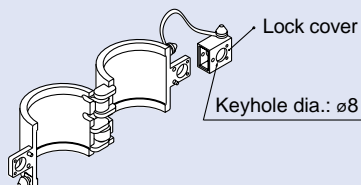
- ① Place the component and the fitting of the spacer with bracket together for installation.
- ② Lock the lever pin into the retainer. (temporary installation)



- ③ Tighten the bolt.

Knob cover

Prevents careless knob operation.



Part no.	Model
AR20P-580AS	AC20□, AR20, AR20K, AW20, AW20K, AWM20, AWD20
AR25P-580AS	AC25□, AR25, AR25K
AR30P-580AS	AC30□, AR30, AR30K, AW30, AW30K, AWM30, AWD30
AR40P-580AS	AC40□(-06), AR40(-06), AR40K(-06), AW40(-06), AW40K(-06), AWM40, AWD40

Standard Combination






Combination	Model	Port size	Component				
			Air filter AF	Regulator AR	Lubricator AL	Filter regulator AW	Mist separator AFM
AF + AR + AL 	AC10	M5 x 0.8	AF10	AR10	AL10		
	AC20	1/8, 1/4	AF20	AR20	AL20		
	AC25	1/4, 3/8	AF30	AR25	AL30		
	AC30	1/4, 3/8	AF30	AR30	AL30		
	AC40	1/4, 3/8, 1/2	AF40	AR40	AL40		
	AC40-06	3/4	AF40-06	AR40-06	AL40-06		
	AC50	3/4, 1	AF50	AR50	AL50		
	AC55	1	AF60	AR50	AL60		
	AC60	1	AF60	AR60	AL60		
AW + AL 	AC10A	M5 x 0.8			AL10	AW10	
	AC20A	1/8, 1/4			AL20	AW20	
	AC30A	1/4, 3/8			AL30	AW30	
	AC40A	1/4, 3/8, 1/2			AL40	AW40	
	AC40A-06	3/4			AL40-06	AW40-06	
AF + AR 	AC10B	M5 x 0.8	AF10	AR10			
	AC20B	1/8, 1/4	AF20	AR20			
	AC25B	1/4, 3/8	AF30	AR25			
	AC30B	1/4, 3/8	AF30	AR30			
	AC40B	1/4, 3/8, 1/2	AF40	AR40			
	AC40B-06	3/4	AF40-06	AR40-06			
	AC50B	3/4, 1	AF50	AR50			
	AC55B	1	AF60	AR50			
	AC60B	1	AF60	AR60			
AF + AFM + AR 	AC20C	1/8, 1/4	AF20	AR20			AFM20
	AC25C	1/4, 3/8	AF30	AR25			AFM30
	AC30C	1/4, 3/8	AF30	AR30			AFM30
	AC40C	1/4, 3/8, 1/2	AF40	AR40			AFM40
	AC40C-06	3/4	AF40-06	AR40-06			AFM40-06
AW + AFM 	AC20D	1/8, 1/4				AW20	AFM20
	AC30D	1/4, 3/8				AW30	AFM30
	AC40D	1/4, 3/8, 1/2				AW40	AFM40
	AC40D-06	3/4				AW40-06	AFM40-06

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Simple Specials System

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

Simple Special Order Specifications

- ① Modular/Attachment combination, Combination order
 - Attachment symbol
 - Piping adapter: E□0
 - Pressure switch: IS1000□
 - Check valve: AKM
 - Cross interface: Y□4
 - 3-port valve for releasing residual pressure: VHS□□00
- ② Modular products, Combination of special order numbers, Combination order
 - Special order such as AF, AR, AL, AW, AF□, AW□

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

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

Detailed information for Simple Specials System are available in its specification sheet or CD-ROM. Please contact SMC.

How to Order

AC 30 A F 03 DE KV 12R

F.R.L. Unit

Body size

10	M5
20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
55	1
60	1

Model combination

Symbol	Combination				
	Air filter	Regulator	Lubricator	Filter regulator	Mist separator
Nil	①	②	③	—	—
A	—	—	②	①	—
B	①	②	—	—	—
C	①	③	—	—	②
D	—	—	—	①	②

* The number inside ○ indicates the combination order counted from the inlet side.

Thread type

Nil	Metric system thread (M5)
	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide: NPT1/4 (applicable to AC25 to 60)
The exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AC25 to 60).

Note 2) Drain guide: G1/4 (applicable to AC25 to 60)

Port size

M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessory

Symbol	Description	Applicable models
Nil	—	—
C	Float type auto drain (N.C.)	AC10□ to 60□
D	Float type auto drain (N.O.)	AC25□ to 60□
E	With square embedded type pressure gauge (with limit indicator)	AC20□ to 60□
G Note)	With round pressure gauge (without limit indicator)	AC10□
	With round pressure gauge (with limit indicator)	AC20□ to 60□

Note) Pressure gauge port size:
AC10: 1/16; AC20 to 30: 1/8; AC40 to 60: 1/4.
A pressure gauge is not mounted, but rather packaged and shipped together with the F.R.L. Unit.

Optional specifications

Symbol	Description	Applicable models
1 Note 1)	0.02 to 0.2MPa setting	AC10□ to 60□
2	Metal bowl	AC10□ to 60□
3	Lubricator with drain cock	AC10□ to 60□
6	Bowl/Sight dome material: Nylon	AC25□ to 60□
8	Metal bowl with level gauge	AC20□
C	With bowl guard	AC25□ to 60□
J Note 2)	Drain guide 1/4	AC10□ to 60□
N	Non-relieving type	AC10□ to 60□
R	Flow direction: Right to left	AC10□ to 60□
W	Drain cock with barb fitting (for ø6, ø4 nylon tube)	AC25□ to 60□
Z Note 3)	Product name plate, Caution plate for bowl Pressure gauge display units: PSI, °F	AC10□ to 60□

* When more than one specification is required, order in ascending alphanumeric order.



Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) Without a valve function.

Note 3) For thread types M5 and NPT.

Attachment

Symbol	Description	Attachment mounting position	Applicable models	Port size for intermediate air release
Nil	None	—	—	—
K	Check valve	AF + AR + [K] + AL	AC20 to 40	AC20□: 1/8 AC25□: 1/4 AC30□: 1/4 AC40□: 3/8
		AW + [K] + AL	AC20A to 40A	
S	Pressure switch	AF + AR + [S] + AL	AC20 to 60	—
		AW + [S] + AL	AC20A to 40A	
		AF + [S] + AR	AC20B to 60B	
		AF + AFM + [S] + AR	AC20C to 40C	
T	T-interface	AF + [T] + AR + AL	AC10 to 60	AC10□: M5 x 0.8 AC20□: 1/8 AC25□: 1/4 AC30□: 1/4 AC40□: 3/8 AC50□: 3/8 AC60□: 1/2
		AF + [T] + AR	AC10B to 60B	
		AF + AFM + [T] + AR	AC20C to 40C	
V	3-port valve for residual pressure release	AF + AR + AL + [V]	AC20 to 40	—
		AW + AL + [V]	AC20A to 40A	
		AF + AR + [V]	AC20B to 40B	
		AF + AFM + AR + [V]	AC20C to 40C	
		AW + AFM + [V]	AC20D to 40D	



* When more than one attachment is required, order in alphabetical order.
* Piping adapter, pressure switch with piping adapter, and cross interface need to be ordered separately.

* Contact SMC when using a pressure switch and T-interface together for AC□B.

* The bracket position varies depending on the T-interface or pressure switch mounting.

Refer to the table on page 19 for standard bracket position.


Accessory/Optional Specifications Combination


⊙: Combination available ◻: Combination not available ○: Varies depending on the model △: Available only with NPT thread

Accessory/ Optional specifications	Combination Symbol	Accessory													Optional specifications											F.R.L. unit applicable models											
		C	D	E	G	1	2	3	6	8	C	J	N	R	W	Z	AC10	AC10B	AC20	AC20B AC20C AC20D	AC25	AC25B AC25C	AC30 to AC60	AC30A AC40A	AC30B to AC60B	AC30C AC40C	AC30D AC40D										
		AC10A	AC10B	AC20A	AC20B AC20C AC20D	AC25	AC25B AC25C	AC30 to AC60	AC30A AC40A	AC30B to AC60B	AC30C AC40C	AC30D AC40D																									
Accessory	Float type auto drain (N.C.)	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Float type auto drain (N.O.)	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Square embedded type pressure gauge	○	○	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Round pressure gauge	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
Optional specifications	0.02 to 0.2MPa setting	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Metal bowl	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Lubricator with drain cock	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Nylon bowl	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Metal bowl with level gauge	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	With bowl guard	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Drain guide 1/4	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Non-relieving type	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Flow direction: Right to left	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Drain cock with barb fitting: For ø6 x ø4 nylon	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	△	△	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙										
	Product name plate, Caution plate for bowl Pressure gauge with display units: PSI, °F	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△									

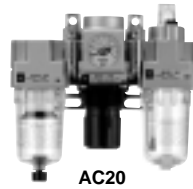
Attachment

	Port size	Function	
Piping adapter	M5 x 0.8 1/8, 1/4, 3/8, 1/2, 3/4, 1	Allows installation/removal of the component without removing the piping.	Page 13
T-interface	M5 x 0.8 1/8, 1/4, 3/8, 1/2	Redirects the air flow.	Page 13
Pressure switch with piping adapter	1/8, 1/4, 3/8, 1/2, 3/4	Compact switch and piping adapter integrated into one piece.	Page 14
Check valve	1/8, 1/4, 3/8	Prevents back flow from lubricator.	Page 15
Pressure switch	—	Compact switch	Page 16
Cross interface	M5 x 0.8 1/8, 1/4, 3/8, 1/2	Allows piping in all 4 directions.	Page 17
3-port valve for residual pressure release	1/8, 1/4, 3/8, 1/2	Releases residual pressure in lines.	Page 17

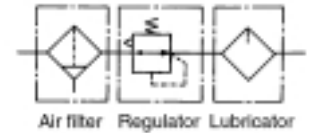
 **Accessories**
Refer to pages 18 and 19 for interfaces and brackets.

 **Made to Order specification**
Refer to page 20 for details.

AC10 to 60



JIS symbol



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 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	1
Pressure gauge port size ^{Note 1)}		1/16	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4
Fluid		Air								
Proof pressure		1.5MPa								
Max. operating pressure		1.0MPa								
Regulating pressure range		0.05 to 0.7MPa	0.05 to 0.85MPa							
Relief pressure		Set pressure + 0.05MPa ^{Note 2)} [at relief flow rate of 0.1L/min (ANR)]								
Ambient and fluid temperature		-5° to 60°C (with no freezing)								
Nominal filtration rating		5µm								
Recommended lubricant		Class 1 turbine oil (ISO VG32)								
Bowl material		Polycarbonate								
Regulator construction		Relieving type								
Weight kg		0.27	0.73	0.91	1.00	1.74	1.95	4.17	4.25	4.34
Accessories	Bowl guard	—	—	●	●	●	●	●	●	●



Note 1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20 to AC60).

Note 2) Not applicable to AC10.

Attachment/Accessory Part No.

Description	Model	Part no.									
		AC10	AC20	AC25	AC30	AC40	AC40-06	AC50	AC55	AC60	
Accessory	Pressure gauge ^{Note 1)} 1.0MPa	Round	G-27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02
		Square ^{Note 2)} embedded type	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	Pressure gauge ^{Note 1)} 0.2MPa	Round	G-27-10-R1 ^{Note 3)}	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
		Square ^{Note 2)} embedded type	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS
Float type ^{Note 4)} auto drain	N.O.	—	—	AD38	AD38	AD48	AD48	AD48	AD48	AD48	
	N.C.	AD17	AD27	AD37	AD37	AD47	AD47	AD47	AD47	AD47	
Spacer		Y100	Y200	Y300	Y300	Y400	Y500	Y600	Y600	Y600	
Check valve ^{Note 5)} ^{Note 6)}		—	AKM2000-□01 □02	AKM3000-□01 □02	AKM3000-□01 □02	AKM4000-□02 □03	—	—	—	—	
Pressure switch ^{Note 6)}		—	IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40	IS1000M-50	IS1000M-60	IS1000M-60	IS1000M-60	
T-interface ^{Note 5)} ^{Note 6)}		Y110-M5	Y210-□01 □02	Y310-□01 □02	Y310-□01 □02	Y410-□02 □03	Y510-□02 □03	Y610-□03 □04	Y610-□03 □04	Y610-□03 □04	
3-port valve for residual ^{Note 6)} pressure release		—	VHS2000-□01 □02	VHS3000-□02 □03	VHS3000-□02 □03	VHS4000-□02 □03 □04	—	—	—	—	
Piping adapter ^{Note 6)}		E100-M5	E200-□01 □02 □03	E300-□02 □03 □04	E300-□02 □03 □04	E400-□02 □03 □04 □06	E500-□06	E600-□06 □10	E600-□06 □10	E600-□06 □10	
Pressure switch ^{Note 6)} with piping adapter		—	IS1000E-20-□01 □02 □03	IS1000E-30-□02 □03 □04	IS1000E-30-□02 □03 □04	IS1000E-40-□02 □03 □04 □06	—	—	—	—	
Cross interface ^{Note 6)}		Y14-M5	Y24-□01 □02	Y34-□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. Use Nil for R and N for NPT.

Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Includes one O-ring and 2 mounting screws.

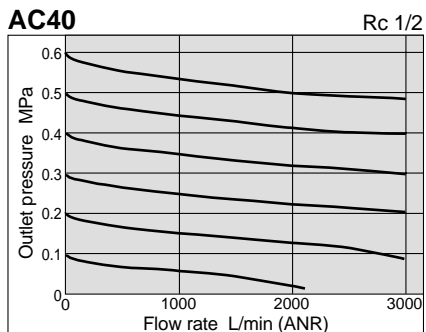
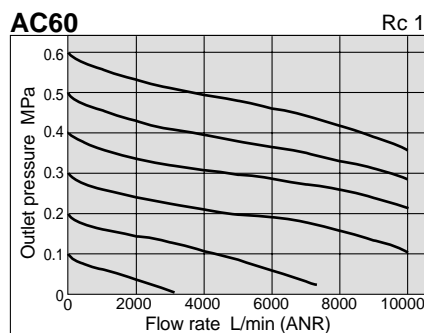
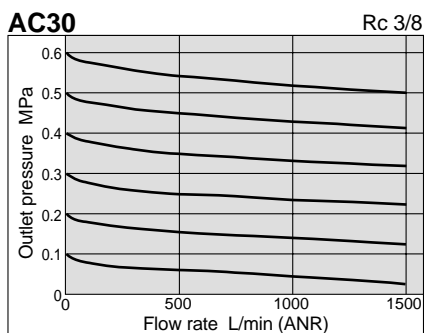
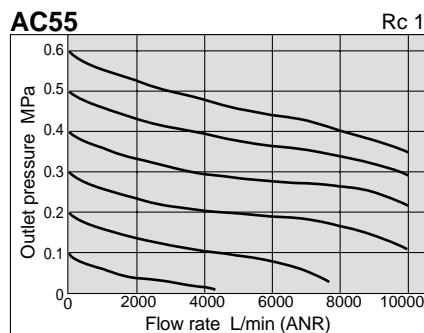
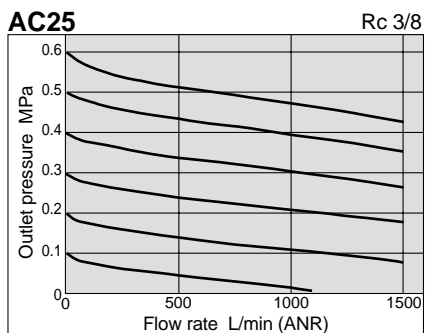
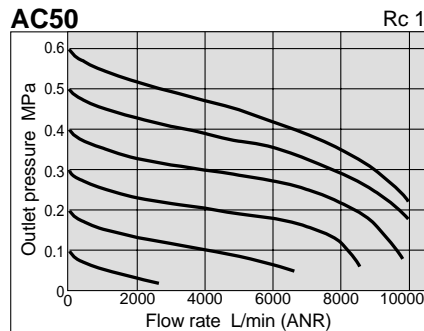
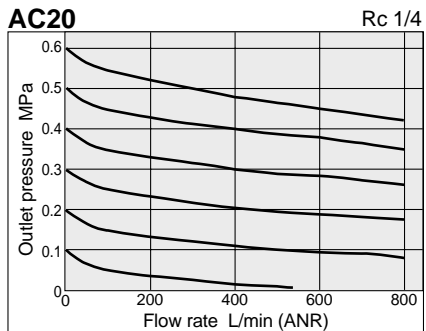
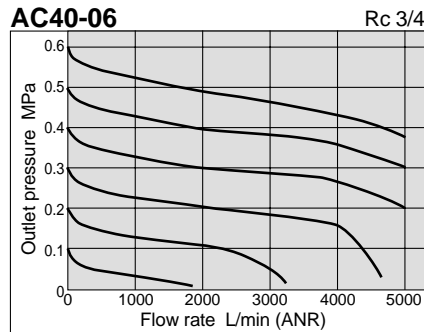
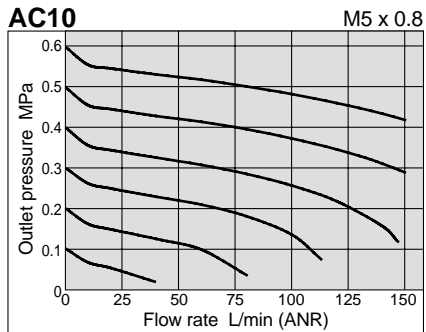
Note 3) For 1.0MPa.

Note 4) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.15MPa. Contact SMC regarding the specifications for PSI unit and F°.

Note 5) For F.R.L. units, port sizes not in () are for standard application.

Note 6) Separate interfaces are required for modular unit.

Flow Rate Characteristics (Representative values) Condition: Inlet pressure: 0.7MPa



Selection

Warning

1. Float type auto drain

Operate under the following conditions to avoid malfunction.

<N.O. type>

- Operating compressor: 0.75kW (100L/min (ANR)) or more.

Multiply the following values by the number of auto drains to find the capacity of the compressors you will need when using 2 or more auto drains.

When using 2 auto drains, 1.5kW (200L/min (ANR)) of the compressor capacity is required.

- Operating pressure: 0.1MPa or more.

<N.C. type>

- Operating pressure for AD17, 27: 0.1MPa or more.

- Operating pressure for AD37, 47: 0.15MPa or more.

2. Use a regulator or filter regulator with a back flow mechanism 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 (Series AKM) on the inlet side of the lubricator to prevent a back flow of the lubricant.

2. Mounting a 3-port valve for residual pressure release on the IN side of the lubricator can cause lubricant to back flow. Take measures to prevent lubricant from splashing by installing a filter on the EXH port.

3. An F.R.L. units shipped from the plant have its model number labeled. However, components that are combined together during the distribution process do not have a label on them.

4. Contact SMC when mounting a pressure switch, T-interface, or filter regulator on the OUT side of the 3-port valve for residual pressure release.

Specific Product Precautions

Mounting and Adjustment

Caution

1. A knob cover is available to prevent careless operation of the knob. Refer to Features 1 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

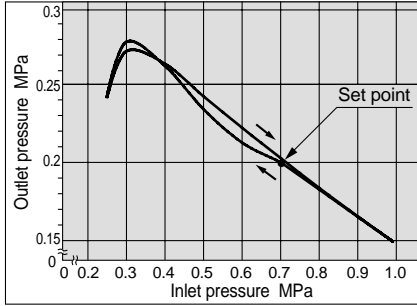
1. Use an air filter with 5 μ m or less filtration rating on the inlet side of the valve to avoid any damage to a sheet caused by dust when mounting a 3-port valve for residual pressure release on the inlet side.

AC10 to 60

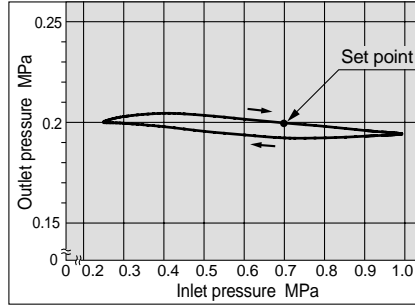
Conditions:
Inlet pressure: 0.7MPa
Outlet pressure: 0.2MPa
Flow rate: 20L/min (ANR)

Pressure Characteristics (Representative values)

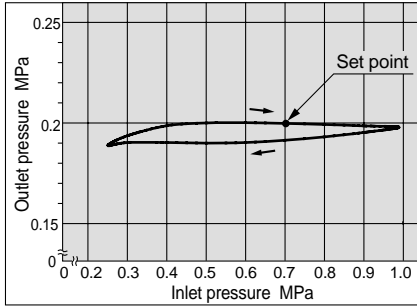
AC10



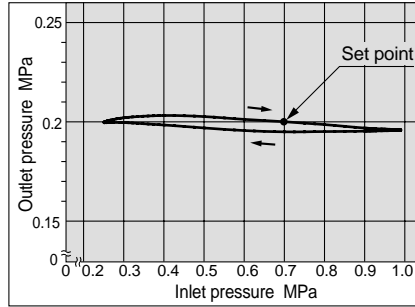
AC40-06



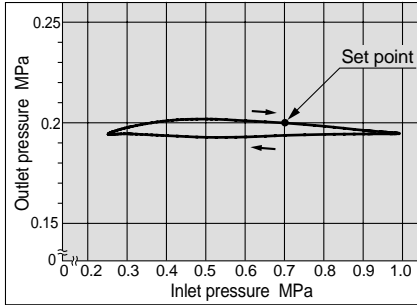
AC20



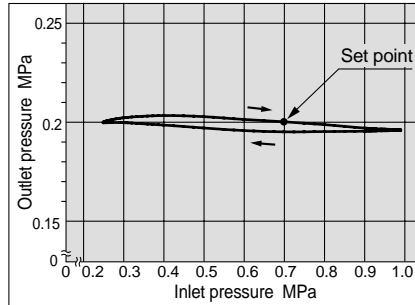
AC50



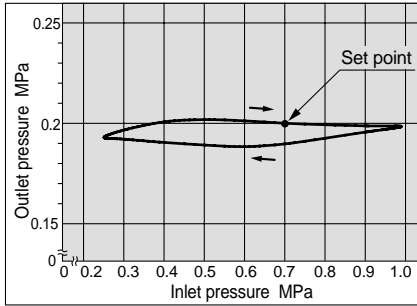
AC25



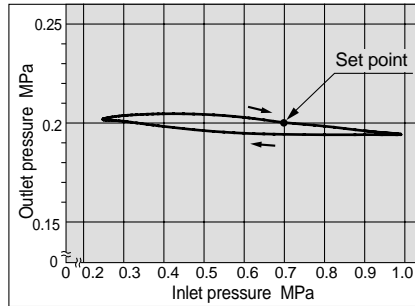
AC55



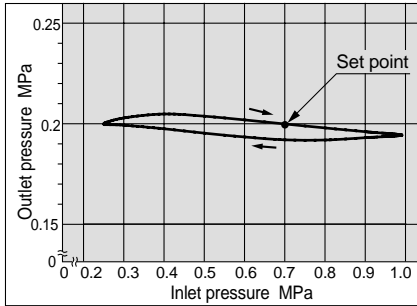
AC30



AC60

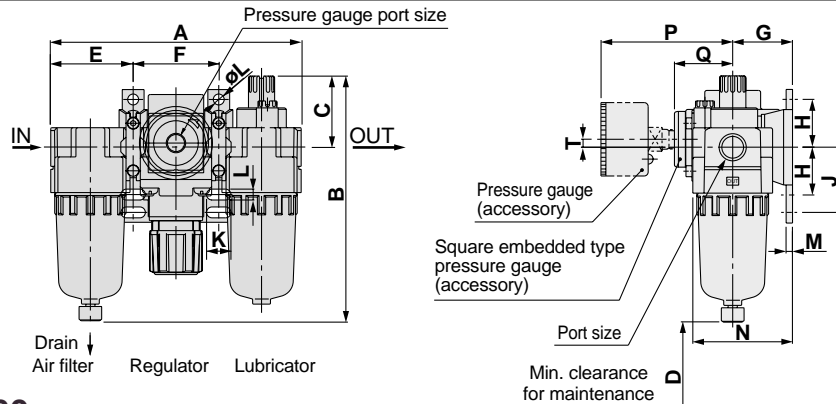


AC40

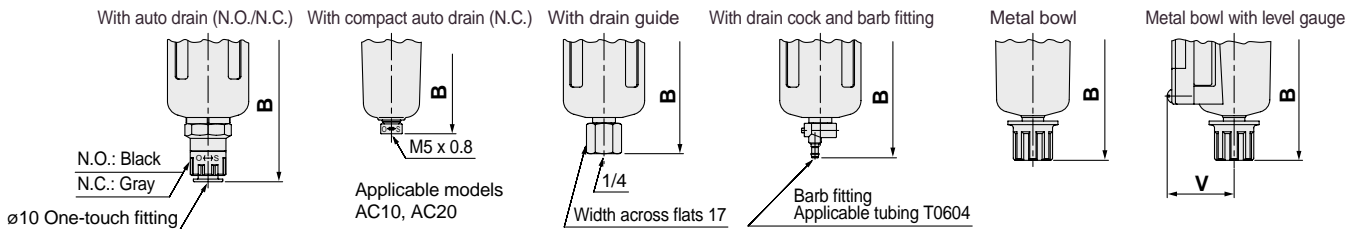
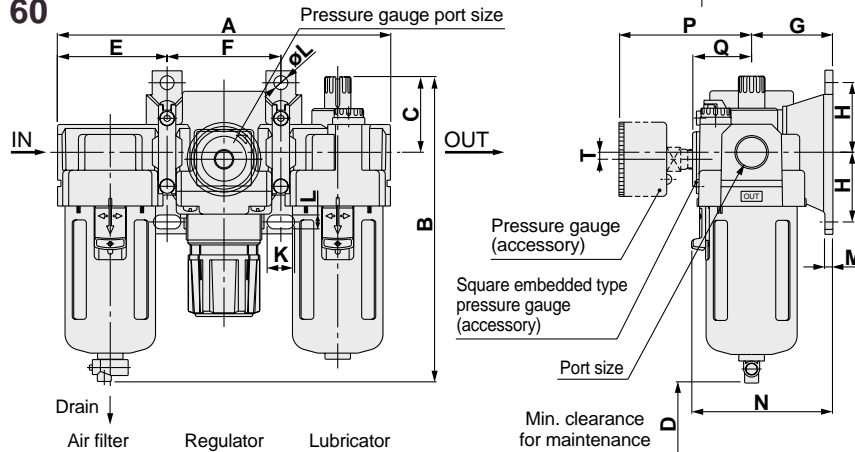


Dimensions

AC10, 20



AC25, 30, 40, 50, 55, 60



Model	Port size	Standard specifications														Accessory specifications			
		A	B	C	D	Bracket mounting size										With pressure gauge		With auto drain	
						E	F	G	H	J	K	L	ØL	M	N	P	Q		T
AC10	M5 x 0.8	87	85	26	50	28	31	25	20	27	7	4.5	4.5	2.8	40	26	—	0	104
AC20	1/8, 1/4	126	123	36	80	41.5	43	30	24	33	12	5.5	5.5	3.2	50	65	29.5	2 Note 1)	141
AC25	1/4, 3/8	167	153	38	80	55	57	41	35	—	14	7	7	4	71	64	28.5	0	194
AC30	1/4, 3/8	167	153	38	80	55	57	41	35	—	14	7	7	4	71	66	30.5	3.5	194
AC40	1/4, 3/8, 1/2	220	187	40	105	72.5	75	50	40	—	18	9	9	4	88	74	35	3.5	226
AC40-06	3/4	235	187	38	105	77.5	80	50	40	—	18	9	9	4.6	88	74	35	3	226
AC50	3/4, 1	282	264	43	105	93	96	70	50	—	20	11	11	6.4	115	84	44.5	3.3	303
AC55	1	292	279	45	105	98	96	70	50	—	20	11	11	6.4	117.5	84	44.5	3.3	318
AC60	1	297	280	46	105	98	101	70	50	—	20	11	11	6.4	117.5	84	44.5	3.3	318

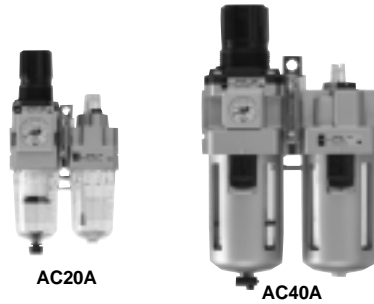
Model	Optional specifications ^{Note 2)}				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	V
AC10	—	—	85	—	—
AC20	—	—	123	—	—
AC25	161	160	166	186	38
AC30	161	160	166	186	38
AC40	195	194	200	220	45
AC40-06	195	194	200	220	45
AC50	272	271	276	296	45
AC55	287	286	292	312	45
AC60	288	287	293	313	45



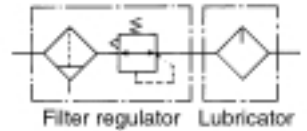
Note 1) For AC20 only, the position of the pressure gauge is above the piping center.

Note 2) For optional specifications (with barb fitting, with drain guide, with metal bowl, with level gauge), the total length (dimension for B) will vary.

AC10A to 40A



JIS symbol



Standard Specifications

Model		AC10A	AC20A	AC30A	AC40A	AC40A-06
Component	Filter regulator	AW10	AW20	AW30	AW40	AW40-06
	Lubricator	AL10	AL20	AL30	AL40	AL40-06
Port size		M5 x 0.8	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Pressure gauge port size ^{Note 1)}		1/16	1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		1.5MPa				
Maximum operating pressure		1.0MPa				
Regulating pressure range		0.05 to 0.7MPa	0.05 to 0.85MPa			
Relief pressure		Set pressure + 0.05MPa ^{Note 2)} [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		-5° to 60°C (with no freezing)				
Nominal filtration rating		5µm				
Recommended lubricant		Class 1 turbine oil (ISO VG32)				
Bowl material		Polycarbonate				
Filter regulator construction		Relieving type				
Weight kg		0.20	0.59	0.75	1.41	1.46
Accessories		Bowl guard		—	●	●



Note 1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20A to AC40A).
 Note 2) Not applicable to AC10A.

Attachment/Accessory Part No.

Description	Model	Part no.						
		AC10A	AC20A	AC30A	AC40A	AC40A-06		
Accessory	Pressure gauge ^{Note 1)}	1.0MPa	Round	G27-10-R1	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	Square embedded type ^{Note 2)}	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	Round		G27-10-R1 ^{Note 3)}	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	
		Square embedded type ^{Note 2)}	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	
Float type auto drain ^{Note 4)}	N.O.	—	—	AD38	AD48	AD48		
	N.C.	AD17	AD27	AD37	AD47	AD47		
Spacer		Y100	Y200	Y300	Y400	Y500		
Check valve ^{Note 5)} ^{Note 6)}		—	AKM2000-□01 □02	AKM3000-□01 □02	AKM4000-□02 □03	—		
Pressure switch ^{Note 6)}		—	IS1000M-20	IS1000M-30	IS1000M-40	IS1000M-50		
T-interface ^{Note 5)} ^{Note 6)}		Y110-M5	Y210-□01 □02	Y310-□01 □02	Y410-□02 □03	Y510-□02 □03		
3-port valve for residual pressure release ^{Note 6)}		—	VHS2000-□01 □02	VHS3000-□02 □03	VHS4000-□02 □03 □04	—		
Piping adapter ^{Note 6)}		E100-M5	E200-□01 □02 □03	E300-□02 □03 □04	E400-□02 □03 □04 □06	E500-□06		
Pressure switch with piping adapter ^{Note 6)}		—	IS1000E-20 □01 □02 □03	IS1000E-30 □02 □03 □04	IS1000E-40 □02 □03 □04 □06	—		
Cross interface ^{Note 6)}		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. Use Nil for R and N for NPT.
 Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Includes one O-ring and 2 mounting screws.

Note 3) For 1.0MPa.

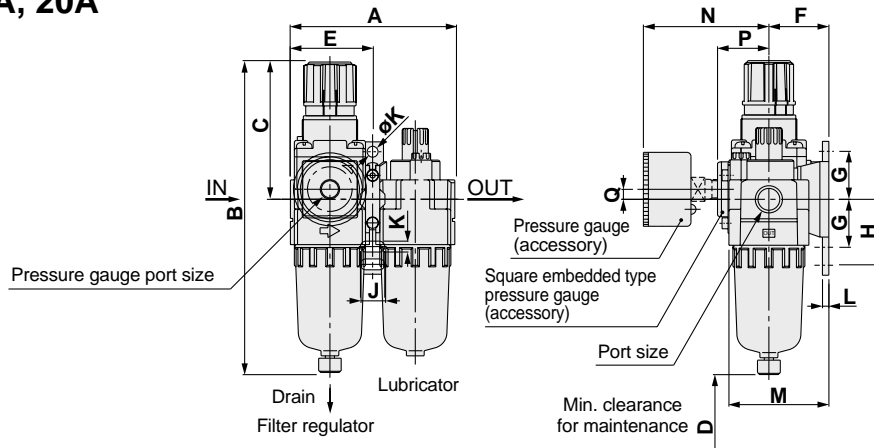
Note 4) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.15MPa. Contact SMC regarding the specifications for PSI unit and F°.

Note 5) For F.R.L. units, port sizes not in () are for standard application.

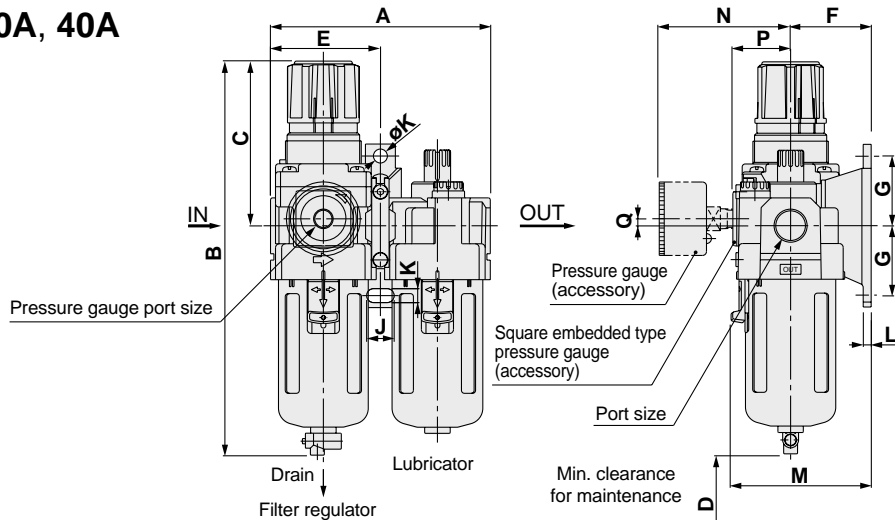
Note 6) Separate interfaces are required for modular unit.

Dimensions

AC10A, 20A



AC30A, 40A



With auto drain (N.O./N.C.)

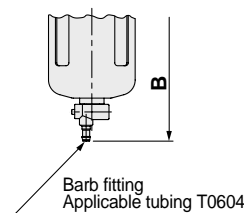
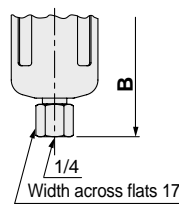
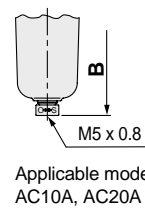
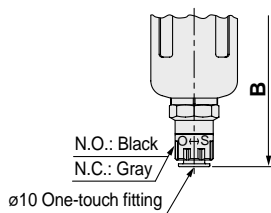
With compact auto drain (N.C.)

With drain guide

With drain cock and barb fitting

Metal bowl

Metal bowl with level gauge



Model	Port size	Standard specifications													Accessory specifications			
		A	B	C	D	Bracket mounting size								With pressure gauge		With auto drain		
						E	F	G	H	J	K	øK	L	M	N	P	Q	B
AC10A	M5 x 0.8	56	108	48	50	28	25	20	27	7	4.5	4.5	2.8	40	26	-	0	126
AC20A	1/8, 1/4	83	160	73	80	41.5	30	24	33	12	5.5	5.5	3.2	50	63	27	5	177
AC30A	1/4, 3/8	110	201	86	80	55	41	35	-	14	7	7	4	71	66	30.5	3.5	242
AC40A	1/4, 3/8, 1/2	145	239	92	105	72.5	50	40	-	18	9	9	4	88	76	38.5	1.5	278
AC40A-06	3/4	155	242	93	105	77.5	50	40	-	18	9	9	4.6	88	76	38.5	1.2	278

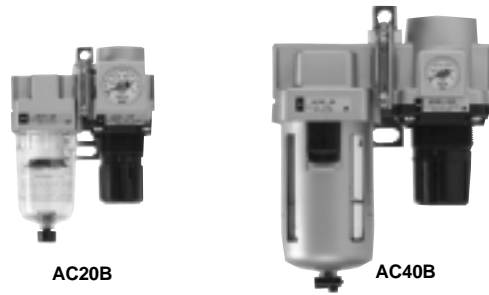
Model	Optional specifications ^{Note 1)}				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	U
AC10A	-	-	107	-	-
AC20A	-	-	160	-	-
AC30A	209	208	214	234	38
AC40A	247	246	251	272	45
AC40A-06	250	249	255	272	45



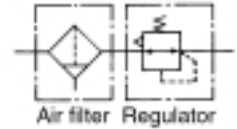
Note 1) For optional specifications (with barb fitting, with drain guide, with metal bowl, with level gauge), the total length (dimension for B) will vary.

F.R.L. Unit Air Filter + Regulator

AC10B to 60B



JIS symbol



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 x 0.8	1/8 1/4	1/4 3/8	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	1/8	1/8	1/8	1/4	1/4	1/4	1/4	1/4
Fluid	Air									
Proof pressure	1.5MPa									
Max. operating pressure	1.0MPa									
Regulating pressure range	0.05 to 0.7MPa	0.05 to 0.85MPa								
Relief pressure	Set pressure + 0.05MPa ^{Note 2)} [at relief flow rate of 0.1L/min (ANR)]									
Ambient and fluid temperature	-5° to 60°C (with no freezing)									
Nominal filtration rating	5µm									
Bowl material	Polycarbonate									
Regulator construction	Relieving type									
Weight kg	0.16	0.51	0.55	0.63	1.12	1.16	2.44	2.45	2.54	
Accessories Bowl guard	—	—	●	●	●	●	●	●	●	



Note 1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20B to AC60B).
 Note 2) Not applicable to AC10B.

Attachment/Accessory Part No.

Description	Model	Part no.									
		AC10B	AC20B	AC25B	AC30B	AC40B	AC40B-06	AC50B	AC55B	AC60B	
Accessory ^{Note 1)} Pressure gauge	1.0MPa	Round ^{Note 2)} Square embedded type	G27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02	G46-10-□02
		Round ^{Note 2)} Square embedded type	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round ^{Note 2)} Square embedded type	G27-10-R1 ^{Note 3)}	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
		Round ^{Note 2)} Square embedded type	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS
Float type auto drain ^{Note 4)}	N.O.	—	—	AD38	AD38	AD48	AD48	AD48	AD48	AD48	
	N.C.	AD17	AD27	AD37	AD37	AD47	AD47	AD47	AD47	AD47	
Spacer		Y100	Y200	Y300	Y300	Y400	Y500	Y600	Y600	Y600	
Pressure switch ^{Note 6)}		—	IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40	IS1000M-50	IS1000M-60	IS1000M-60	IS1000M-60	
T-interface ^{Note 5)} ^{Note 6)}		Y110-M5	Y210-□01 □02	Y310-□01 □02	Y310-□01 □02	Y410-□02 □03	Y510-□02 □03	Y610-□03 □04	Y610-□03 □04	Y610-□03 □04	
3-port valve for residual pressure release ^{Note 6)}		—	VHS2000-□01 □02	VHS3000-□02 □03	VHS3000-□02 □03	VHS4000-□02 □03 □04	—	—	—	—	
Piping adapter ^{Note 6)}		E100-M5	E200-□01 □02 □03	E300-□02 □03 □04	E300-□02 □03 □04	E400-□02 □03 □04 □06	E500-□06	E600-□06 □10	E600-□06 □10	E600-□06 □10	
Pressure switch with piping adapter ^{Note 6)}		—	IS1000E-20-□01 □02 □03	IS1000E-30-□02 □03 □04	IS1000E-30-□02 □03 □04	IS1000E-40-□02 □03 □04 □06	—	—	—	—	
Cross interface ^{Note 6)}		Y14-M5	Y24-□01 □02	Y34-□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. Nil for R and N for NPT.
 Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Includes one O-ring and 2 mounting screws.

Note 3) For 1.0MPa.

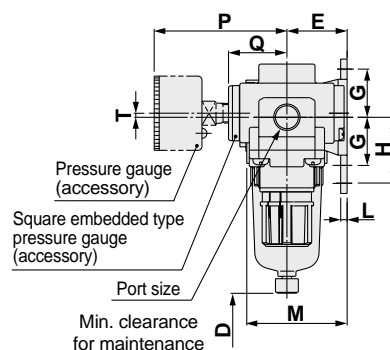
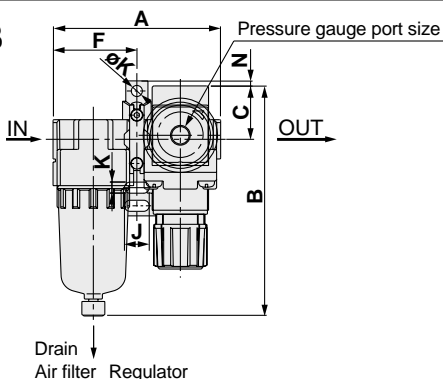
Note 4) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.15MPa. Contact SMC regarding the specifications for PSI unit and F².

Note 5) For F.R.L. units, port sizes not in () are for standard application.

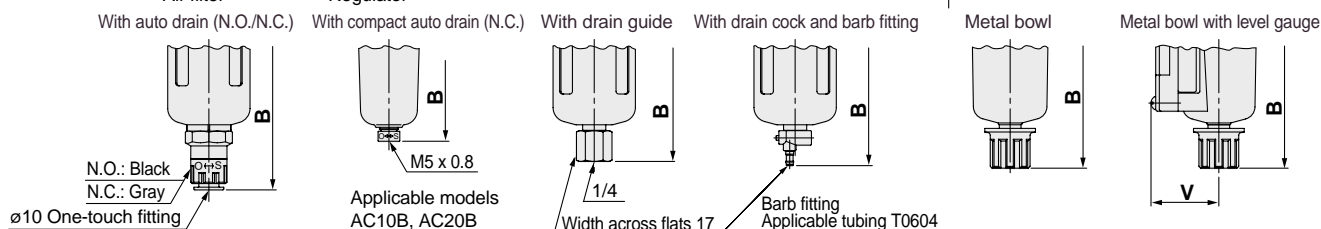
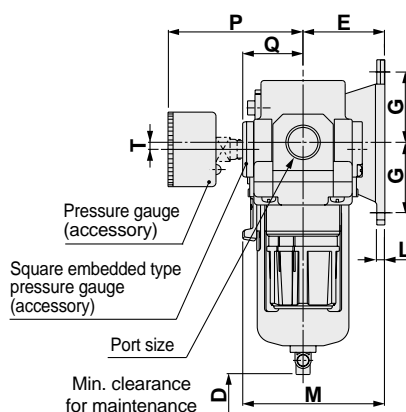
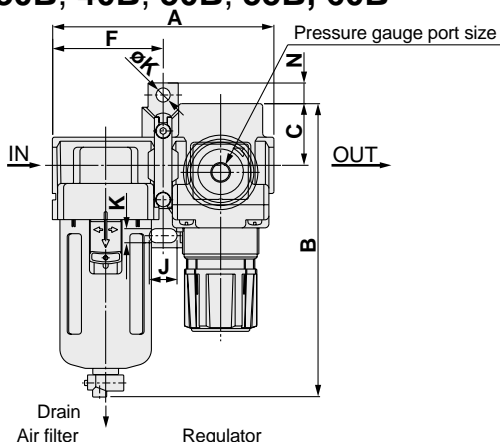
Note 6) Separate interfaces are required for modular unit.

Dimensions

AC10B, 20B



AC25B, 30B, 40B, 50B, 55B, 60B



Model	Port size	Standard specifications														Accessory specifications			
		A	B	C	D	Bracket mounting size										With pressure gauge		With auto drain	
						E	F	G	H	J	K	ØK	L	M	N	P	Q		T
AC10B	M5 x 0.8	56	71	11	50	25	28	20	27	7	4.5	4.5	2.8	40	13.5	26	—	0	89
AC20B	1/8, 1/4	83	114	26.5	80	30	41.5	24	33	12	5.5	5.5	3.2	50	2.5	65	29.5	2 ^{Note 1)}	132
AC25B	1/4, 3/8	110	143	28	80	41	55	35	—	14	7	7	4	71	13	64	28.5	0	184
AC30B	1/4, 3/8	110	146	31	80	41	55	35	—	14	7	7	4	71	10	66	30.5	3.5	187
AC40B	1/4, 3/8, 1/2	145	183	36	105	50	72.5	40	—	18	9	9	4	88	12	74	35	3.5	222
AC40B-06	3/4	155	185	36	105	50	77.5	40	—	18	9	9	4.6	88	12	74	35	3	224
AC50B	3/4, 1	186	264	43	105	70	93	50	—	20	11	11	6.4	115	16	84	44.5	3.3	303
AC55B	1	191	277	43	105	70	98	50	—	20	11	11	6.4	117.5	16	84	44.5	3.3	316
AC60B	1	196	280	46	105	70	98	50	—	20	11	11	6.4	117.5	13	84	44.5	3.3	319

Model	Optional specifications ^{Note 2)}				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	V
AC10B	—	—	70	—	—
AC20B	—	—	114	—	—
AC25B	151	150	156	176	38
AC30B	154	153	159	179	38
AC40B	191	190	196	216	45
AC40B-06	193	192	198	218	45
AC50B	272	271	277	297	45
AC55B	285	284	290	310	45
AC60B	288	287	293	313	45

Note 1) For AC20B only, the position of the pressure gauge is above the piping center.

Note 2) For optional specifications (with barb fitting, with drain guide, with metal bowl, with level gauge), the total length (dimension for B) will vary.

F.R.L. Unit Air Filter + Mist Separator + Regulator AC20C to 40C



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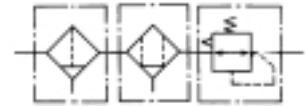


AC20C



AC40C

JIS symbol



Air filter Mist separator Regulator

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	1/4	3/4
		1/4	3/8	3/8	3/8	1/2
Pressure gauge port size	Note 1)	1/8	1/8	1/8	1/4	1/4
Fluid		Air				
Proof pressure		1.5MPa				
Maximum operating pressure		1.0MPa				
Minimum operating pressure		0.05MPa				
Regulating pressure range		0.05 to 0.85MPa				
Flow rate L/min (ANR)	Note 2)	200	450	450	1100	1100
Relief pressure		Set pressure + 0.05MPa [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		-5° to 60°C (with no freezing)				
Nominal filtration rating		AF: 5µm; AFM: 0.3µm (95% filtered particle size)				
Downstream side oil mist concentration		Maximum 1.0mgf/Nm ³ (approx. 0.8ppm) Note 3)				
Bowl material		Polycarbonate				
Filter regulator construction		Relieving type				
Weight kg		0.74	0.88	0.95	1.76	1.83
Accessories	Bowl guard	—	●	●	●	●



Note 1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20C to AC40C).

Note 2) Conditions: Inlet pressure: 0.7MPa; Set pressure: 0.5MPa. The flow rate varies depending on the inlet pressure.

Note 3) At compressor discharge 30mgf/Nm³.

Attachment/Accessory Part No.

Description	Model	Part no.						
		AC20C	AC25C	AC30C	AC40C	AC40C-06		
Accessory	Pressure gauge Note 1)	1.0MPa	Round	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
		0.2MPa	Square embedded type Note 2)	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	Round		G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	
		Square embedded type Note 2)	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	
Float type auto drain Note 3)	N.O.	—	AD38	AD38	AD48	AD48		
		N.C.	AD27	AD37	AD37	AD47	AD47	
Spacer		Y200	Y300	Y300	Y400	Y500		
Pressure switch Note 5)		IS1000M-20	IS1000M-30	IS1000M-30	IS1000M-40	IS1000M-50		
T-interface Note 4) Note 5)		Y210- □01 □02	Y310- □01 □02	Y310- □01 □02	Y410- □02 □03	Y510- □02 □03		
3-port valve for residual pressure release Note 5)		VHS2000- □01 □02	VHS3000- □02 □03	VHS3000- □02 □03	VHS4000- □02 □03 □04	—		
Piping adapter Note 5)		E200- □01 □02 □03	E300- □02 □03 □04	E300- □02 □03 □04	E400- □02 □03 □04 □06	E500-□06		
Pressure switch with piping adapter Note 5)		IS1000E-20 □01 □02 □03	IS1000E-30 □02 □03 □04	IS1000E-30 □02 □03 □04	IS1000E-40 □02 □03 □04 □06	—		
Cross interface Note 5)		Y24- □01 □02	Y34- □01 □02	Y34- □01 □02	Y44- □02 □03	Y54- □03 □04		



Note 1) □ in part number for the round pressure gauge indicates a type of connection thread. Use Nil for R and N for NPT.

Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Includes one O-ring and 2 mounting screws.

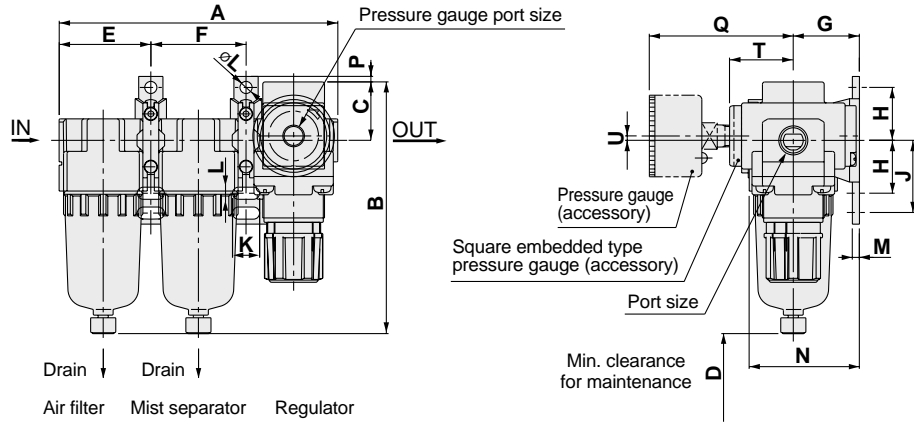
Note 3) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.15MPa. Contact SMC regarding the specifications for PSI unit and F°.

Note 4) For F.R.L. units, port sizes not in () are for standard application.

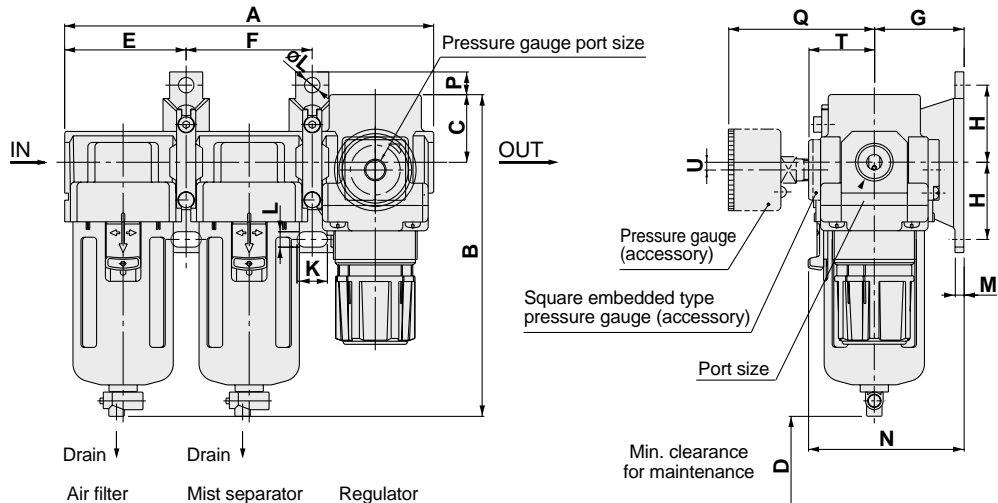
Note 5) Separate interfaces are required for modular unit.

Dimensions

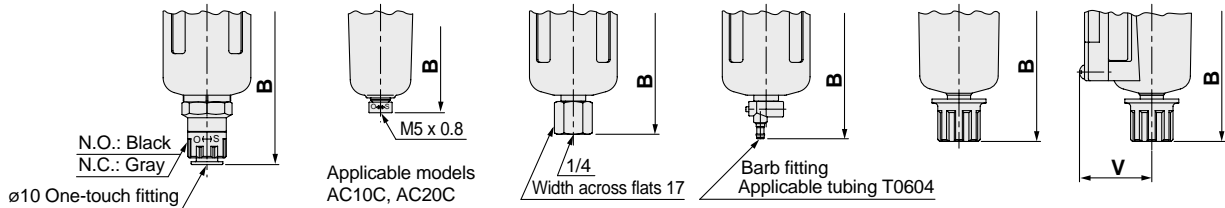
AC20C



AC25C, 30C, 40C



With auto drain (N.O./N.C.) With compact auto drain (N.C.) With drain guide Drain cock with barb fitting Metal bowl Metal bowl with level gauge



Model	Port size	Standard specifications														Accessory specifications				
		A	B	C	D	Bracket mounting size										With pressure gauge		With auto drain		
						E	F	G	H	J	K	L	øL	M	N	P	Q	T	U	B
AC20C	1/8, 1/4	126	114	26.5	80	41.5	43	30	24	33	12	5.5	5.5	3.2	50	2.5	65	29.5	2 ^{Note 1)}	132
AC25C	1/4, 3/8	167	143	28	80	55	57	41	35	—	14	7	7	4	71	13	64	28.5	0	184
AC30C	1/4, 3/8	167	146	31	80	55	57	41	35	—	14	7	7	4	71	10	66	30.5	3.5	187
AC40C	1/4, 3/8, 1/2	220	183	36	105	72.5	75	50	40	—	18	9	9	4	88	12	74	35	3.5	222
AC40C-06	3/4	235	185	36	105	77.5	80	50	40	—	18	9	9	4.6	88	12	74	35	3	224

Model	Optional specifications ^{Note 2)}				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	V
AC20C	—	—	114	—	—
AC25C	151	150	156	176	38
AC30C	154	153	159	179	38
AC40C	191	190	196	216	45
AC40C-06	193	192	198	218	45

Note 1) For AC20C only, the position of the pressure gauge is above the piping center.

Note 2) For optional specifications (with barb fitting, with drain guide, with metal bowl, with level gauge), the total length (dimension for B) will vary.

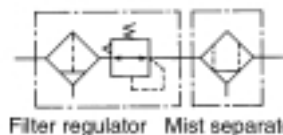
F.R.L. Unit Filter Regulator + Mist Separator

AC20D to 40D



Page 20

JIS symbol



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	1/8	1/4	1/4
Fluid		Air			
Proof pressure		1.5MPa			
Maximum operating pressure		1.0MPa			
Minimum operating pressure		0.05MPa			
Regulating pressure range		0.05 to 0.85MPa			
Flow rate L/min (ANR) ^{Note 2)}		150	330	800	800
Relief pressure		Set pressure + 0.05MPa [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature		-5° to 60°C (with no freezing)			
Nominal filtration rating		AW: 5µm; AFM: 0.3µm (95% filtered particle size)			
Downstream side oil mist concentration		Maximum 1.0mgf/Nm ³ (approx. 0.8ppm) ^{Note 3)}			
Bowl material		Polycarbonate			
Filter regulator construction		Relieving type			
Weight kg		0.57	0.74	1.38	1.43
Accessories	Bowl guard	—	●	●	●



Note 1) Pressure gauge connection threads are not required for F.R.L. unit with a square embedded type pressure gauge (AC20D to AC40D).

Note 2) Conditions: Inlet pressure: 0.7MPa; Set pressure: 0.5MPa. The flow rate varies depending on the inlet pressure.

Note 3) At compressor discharge 30mgf/Nm³.

Attachment/Accessory Part No.

Description	Model	Part no.					
		AC20D	AC30D	AC40D	AC40D-06		
Accessory	Pressure gauge ^{Note 1)}	1.0MPa	Round ^{Note 2)}	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02
			Square embedded type	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round ^{Note 2)}	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	
		Square embedded type	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	
Float type auto drain ^{Note 3)}	N.O.	—	AD38	AD48	AD48		
	N.C.	AD27	AD37	AD47	AD47		
Spacer		Y200	Y300	Y400	Y500		
Pressure switch ^{Note 5)}		IS1000M-20	IS1000M-30	IS1000M-40	IS1000M-50		
T-Interface ^{Note 4)} ^{Note 5)}		Y210-□01 □02	Y310-□01 □02	Y410-□02 □03	Y510-□02 □03		
3-port valve for residual pressure release ^{Note 5)}		VHS2000-□01 □02	VHS3000-□02 □03	VHS4000-□02 □03 □04	—		
Piping adapter ^{Note 5)}		E200-□01 □02 □03	E300-□02 □03 □04	E400-□02 □03 □04 □06	E500-□06		
Pressure switch with piping adapter ^{Note 5)}		IS1000E-20-□01 □02 □03	IS1000E-30-□02 □03 □04	IS1000E-40-□02 □03 □04 □06	—		
Cross interface ^{Note 5)}		Y24-□01 □02	Y34-□01 □02	Y44-□02 □03	Y54-□03 □04		



Note 1) □ in part number for the round pressure gauge indicates a type of connection thread. Use Nil for R and N for NPT. Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

Note 2) Includes one O-ring and 2 mounting screws.

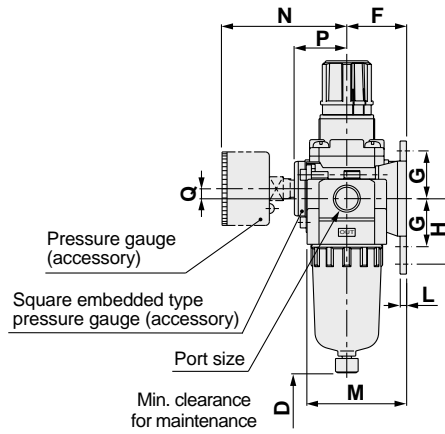
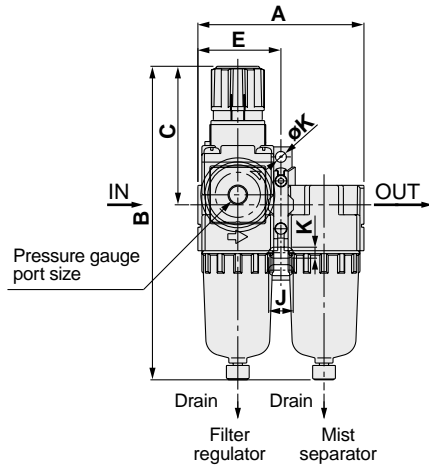
Note 3) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.15MPa. Contact SMC regarding the specifications for PSI unit and F⁹.

Note 4) For F.R.L. units, port sizes not in () are for standard application.

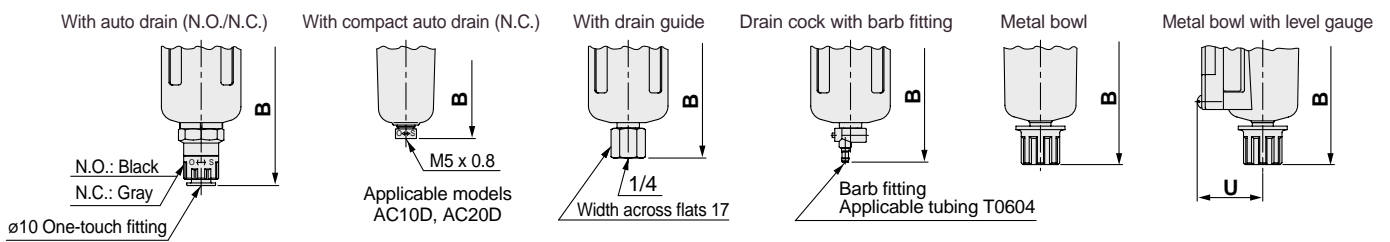
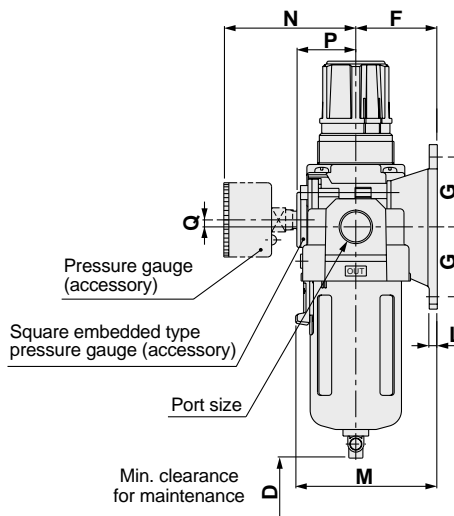
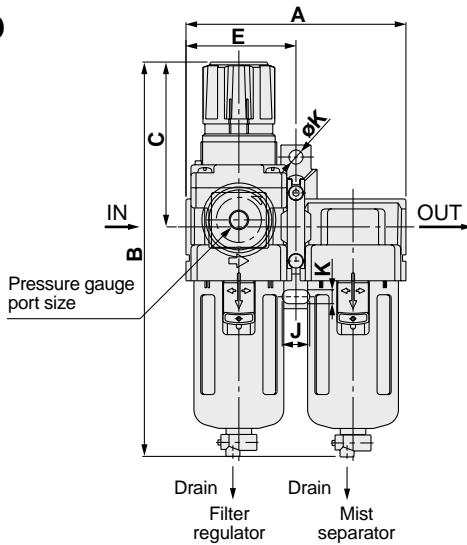
Note 5) Separate interfaces are required for modular unit.

Dimensions

AC20D



AC30D, 40D



Model	Port size	Standard specifications													Accessory specifications			
		A	B	C	D	Bracket mounting size										With pressure gauge		With auto drain
						E	F	G	H	J	K	øK	L	M	N	P	Q	B
AC20D	1/8, 1/4	83	160	73	50	41.5	30	24	33	12	5.5	5.5	3.2	50	63	27	5	177
AC30D	1/4, 3/8	110	201	86	80	55	41	35	—	14	7	7	4	71	66	30.5	3.5	242
AC40D	1/4, 3/8, 1/2	145	239	92	105	72.5	50	40	—	18	9	9	4	88	76	38.5	1.5	278
AC40D-06	3/4	155	242	93	105	77.5	50	40	—	18	9	9	4.6	88	76	38.5	1.2	278

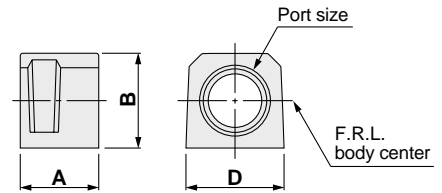
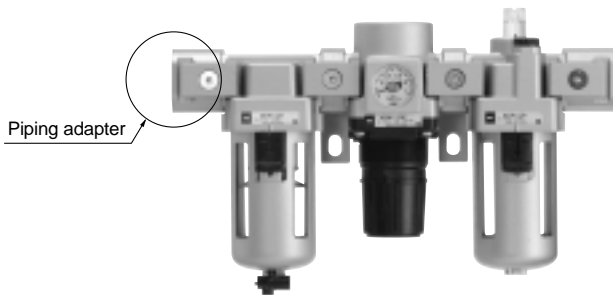
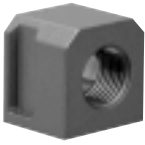
Model	Optional specifications ^{Note 1)}				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	U
AC20D	—	—	160	—	—
AC30D	209	208	214	234	38
AC40D	247	246	251	272	45
AC40D-06	250	249	255	272	45

Note 1) For optional specifications (with barb fitting, with drain guide, with metal bowl, with level gauge), the total length (dimension for B) will vary.

F.R.L. Unit *Series AC* Attachment Specifications

Piping Adapter: (E) M5 x 0.8, 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)}	Port size	A	B	D	Applicable models
E100-M5	M5 x 0.8	10	14	14	AC10□, AW10, AF10, AR10, AL10
E200-□01	1/8	30	23.5	28	AC20□
E200-□02	1/4				AF20, AR20, AW20
E200-□03	3/8				AL20, AFM20, AFD20, AWM20, AWD20
E300-□02	1/4	32	30	30	AC25□, AC30□
E300-□03	3/8				AF30, AR30, AW30
E300-□04	1/2				AL30, AFM30, AFD30, AWM30, AWD30
E400-□02	1/4	32	36	36	AC40□
E400-□03	3/8				AF40, AR40, AW40
E400-□04	1/2				AL40, AFM40, AFD40
E400-□06	3/4				AWM40, AWD40
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, AC50B, AC55B, AC60B
E600-□10	1				AF50, AR50, AL50, AF60, AR60, AL60

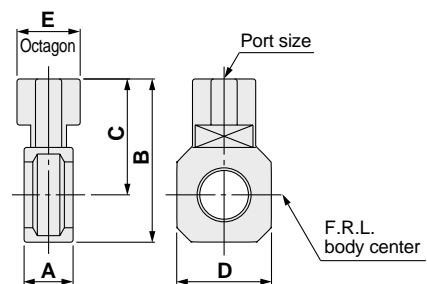
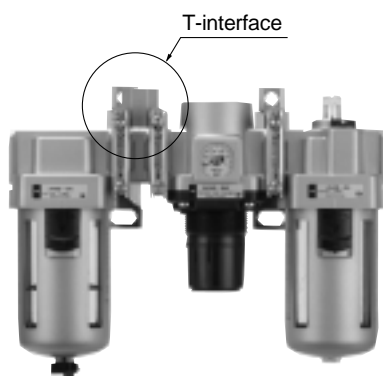
Notes) • □ in model numbers indicates a thread type. Use Nil for Rc, N for NPT, and F for G.

• Separate interfaces are required for modular unit.

* Factory mounting of a piping adapter on the AC models is available as a special order.

T-interface: (T) M5 x 0.8, 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 models
Y110-M5	M5 x 0.8	11	19	12	14	8	AC10, AC10B
Y210-□01	1/8	15	42	32	28	19	AC20, AC20B
Y210-□02	1/4						AR20C
Y310-□01	1/8	15	53	39	30	19	AC25, AC25B
Y310-□02	1/4						AC25C, AC30
Y410-□02	1/4	19	62	44	36	24	AC30B, AC30C
Y410-□03	3/8						AC40, AC40B
Y510-□02	1/4	19	66	46	44	24	AC40C
Y510-□03	3/8						AC40-06, AC40B-06
Y610-□03	3/8	22	81	57	53	30	AC40C-06
Y610-□04	1/2						AC50, AC55
							AC60, AC50B
							AC55B, AC60B

Notes) • □ in model numbers indicates a thread type. Use Nil for Rc, N for NPT, and F for G.

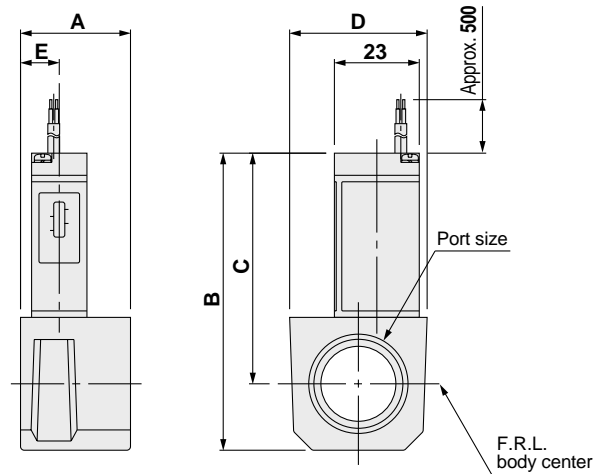
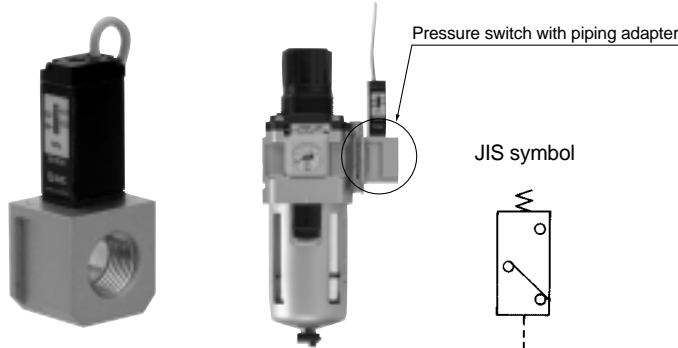
• Separate interfaces are required for modular unit.

* Refer to the attachment table on Features 4 for standard port sizes when using with AC.

Mounting-Caution

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

Pressure Switch with Piping Adapter: (P)



Specifications

Fluid	Air
Proof pressure	1.0MPa
Maximum operating pressure	0.7MPa
Regulating pressure range (when OFF)	0.1 to 0.4MPa
Differential	0.08MPa
Ambient and fluid temperature	-5° to 60°C (with no freezing)

Switch characteristics

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

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



Note 1) □ in the model numbers indicates a thread type. Use Nil for Rc, N for NPT, and F for G.

Note 2) A pressure switch cannot be mounted on AC40□-06 and AW40□-06.

* Separate interfaces are required for modular unit.

** The pressure switch on AC40□-06 and above and 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.

How to Order

IS1000E-30□03□□

Pressure switch with piping adapter

Body size

20	For AC20
30	For AC25, AC30
40	For AC40-02 to 04

Thread type

Nil	Rc
N	NPT
F	G

Option

X201	Lead wire length: 3m
X202	Regulating pressure range: 0.1 to 0.6MPa
X215	Lead wire length: 3m; Regulating pressure range: 0.1 to 0.6MPa
X250	Opposite-side mounting (Left-side mounting type)
X251	Lead wire length: 3m; Opposite-side mounting (Left-side mounting type)
X252	Regulating pressure range: 0.1 to 0.6MPa; Opposite-side mounting (Left-side mounting type)
X253	Lead wire length: 3m; Regulating pressure range: 0.1 to 0.6MPa; Opposite-side mounting (Left-side mounting type)

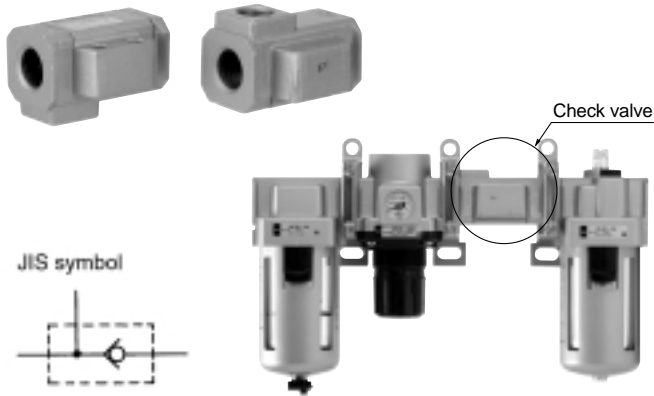
Piping adapter port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Series AC

Check Valve: (K) Rc1/8, 1/4, 3/8

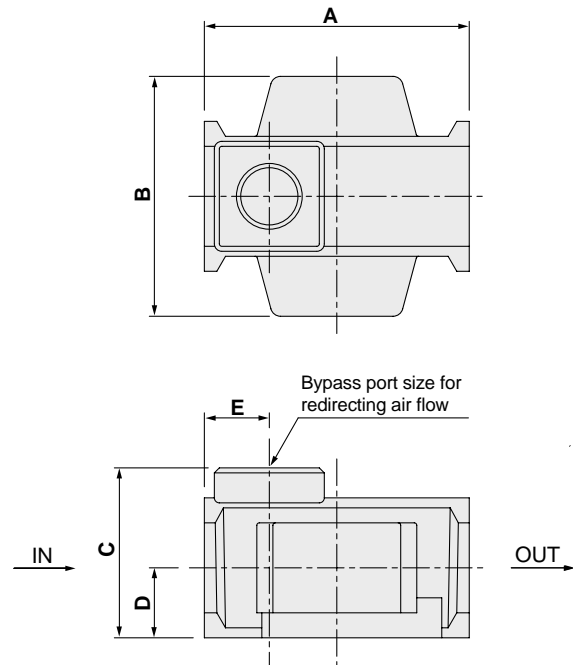
A check valve with intermediate air release port can be easily installed to prevent a back flow of lubricant when redirecting the air flow and releasing the air on the outlet side of the regulator.



Specifications

Model	Effective area (mm ²)
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	Bypass port size	A	B	C	D	E	Applicable models
AKM2000	1/8, 1/4	40	40	28	11	11	AC20, AC20A
AKM3000	1/8, 1/4	53	48	34	14	13	AC25, AC25A AC30, AC30A
AKM4000	1/4, 3/8	70	54	42	18	15	AC40, AC40A ^{Note)}

Note) Not applicable to AC40□-06.

* Refer to the attachment table on page 1 or 5 for standard bypass port sizes applicable to AC.

How to Order

AKM 30 00 - 01

Check valve

Body size

20	1/8
30	3/8
40	1/2

Bypass port size for redirecting air flow

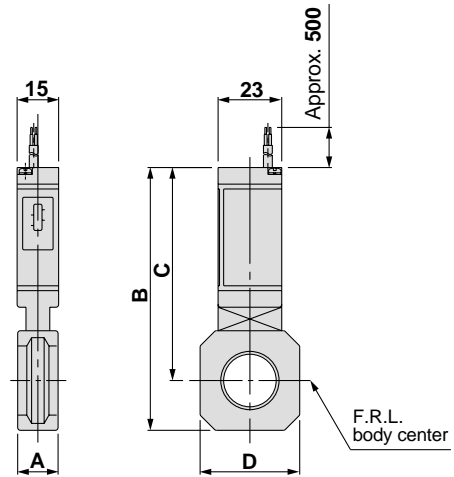
01	1/8
02	1/4
03	3/8

Thread type

Nil	Rc
N	NPT
F	G

Pressure Switch: (S)

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



Specifications

Fluid	Air
Proof pressure	1.0MPa
Maximum operating pressure	0.7MPa
Regulating pressure range (off)	0.1 to 0.4MPa
Differential	0.08MPa
Ambient and fluid temperature	-5° to 60°C (with no freezing)

Model	A	B	C	D	Applicable models
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 AC50B, AC55B, AC60B

Note) Separate interfaces are required for modular unit.

Switch characteristics

Contact point configuration	1a
Maximum contact point capacity	AC2VA, DC2W
Operating voltage: AC, DC	100V or less
Maximum operating current	12 to 24VAC or VDC: 50mA 48VAC or VDC: 40mA 100VAC or VDC: 20mA

How to Order

IS1000M-30

Pressure switch

Body size

20	For AC20
30	For AC25, AC30
40	For AC40-02 to 04
50	For AC40-06
60	For AC50, AC55, AC60


Option

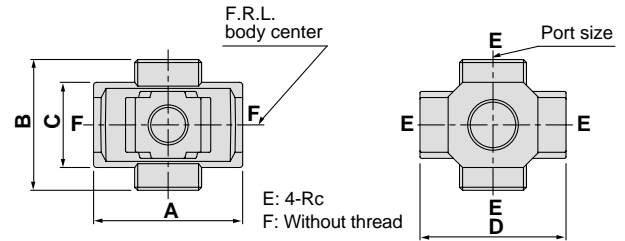
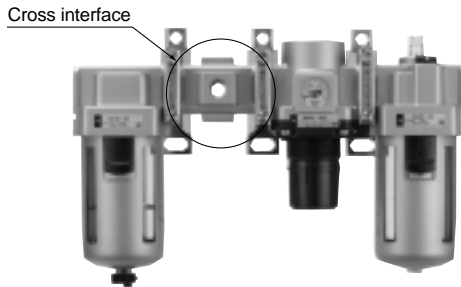
X201	Lead wire length: 3m
X202	Regulating pressure range: 0.1 to 0.6MPa
X215	Lead wire length: 3m; Regulating pressure range: 0.1 to 0.6MPa

Series AC

Cross Interface: (C) M5 x 0.8, 1/8, 1/4, 3/8, 1/2

Pipings are possible in all 4 directions.

 IN/OUT ports are not machined for threads. Contact SMC if threaded (machined) ports are required.



Model	Port size	A	B	C	D	Applicable models
Y14-M5	M5	23	16	14	25	AC10, AC10A, AC10B
Y24-□01	1/8	40	40	22	40	AC20, AC20A, AC20B AC20C, AC20D
Y24-□02	1/4					
Y34-□01	1/8	49	43	28	48	AC25, AC25B, AC25C AC30, AC30A, AC30B AC30C, AC30D
Y34-□02	1/4					
Y44-□02	1/4	60	48	36	54	AC40, AC40A, AC40B AC40C, AC40D
Y44-□03	3/8					
Y54-□03	3/8	72	62	40	62	AC40-06, AC40A-06 AC40B-06, AC40C-06 AC40D-06
Y54-□04	1/2					

Note 1) □ in the model numbers indicates a thread type. Use Nil for Rc, N for NPT, and F for G.

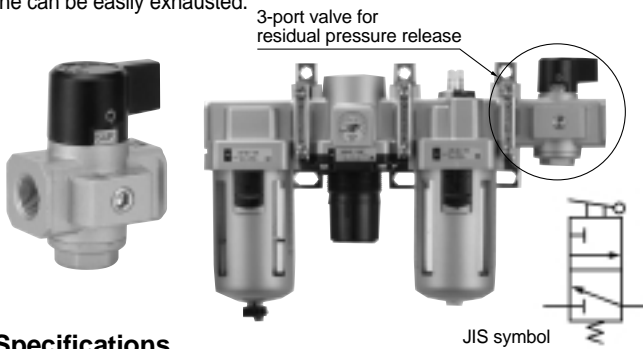
Note 2) If threaded ports are required, they are available as a special order. Contact SMC.

Mounting-Caution

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

3-Port Valve for Residual Pressure Release: (V)

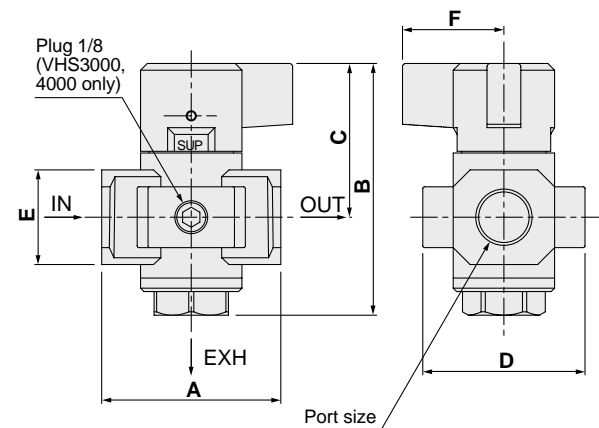
With the use of a 3-port valve for residual pressure release, pressure left in the line can be easily exhausted.



Specifications

Model	Port size	Effective area (mm ²)	
		IN to OUT	OUT to EXH
VHS2000	1/8	10	11
	1/4	14	16
VHS3000	1/4	16	14
	3/8	31	29
VHS4000	1/4	22	15
	3/8	38	29
	1/2	57	51

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



Model	IN/OUT port size	EXH port size	A	B	C	D	E	F
VHS2000	1/8, 1/4	1/8	40	56	36	28	22	25
VHS3000	1/4, 3/8	1/4	53	74	45	48	28	30
VHS4000 ^{Note)}	1/4, 3/8, 1/2	3/8	70	80	48	54	36	30

Note) Series VHS4510 and 5510 are 3-port valves for residual pressure release that are applicable to AC40□-06 and above models. Consult with SMC regarding dimensions.

Mounting-Caution

Consult SMC when mounting a pressure switch, T-interface, or filter regulator on the OUT side of the 3-port valve for residual pressure release.

How to Order

VHS 30 00 - □ 02

3-port valve for residual pressure release

Body size

20	1/8
30	3/8
40	1/2

Thread type

Nil	Rc
N	NPT
F	G

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Series AC Spacers and Brackets Accessories

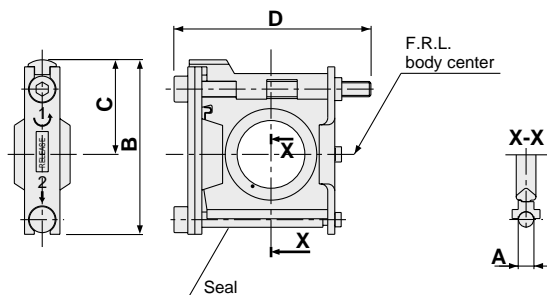
Spacer (X)



Y200



Y400



Model	A	B	C	D	Applicable models
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	70	AC40□-06
Y600	6	75.5	41	86	AC50, AC55, AC60 AC50B, AC55B, AC60B

Replacement parts

Description	Material	Part no.					
		Y100	Y200	Y300	Y400	Y500	Y600
Seal	NBR	Y100P-060AS ^{Note)}	Y200P-060S	Y300P-060S	Y400P-060S	Y500P-060S	Y600P-060S

Note) Y-100 comes with 2 O-rings.

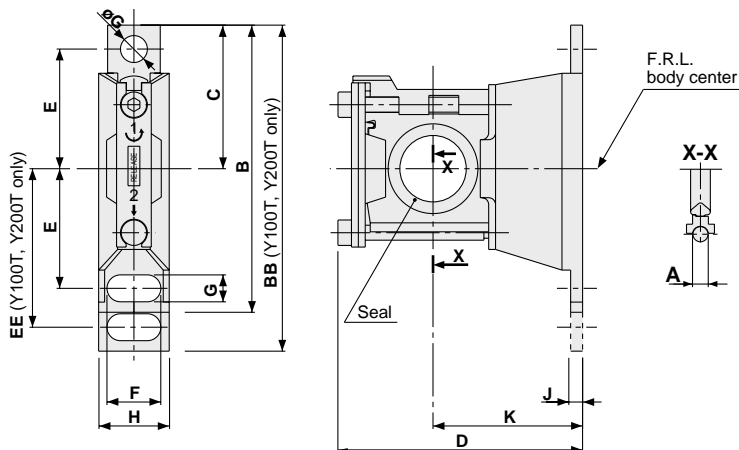
Spacer with Bracket: (Z)



Y200T



Y400T



Model	A	B	BB	C	D	E	EE	F	G	øG	H	J	K	Applicable models
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, AC50B, AC55B, AC60B

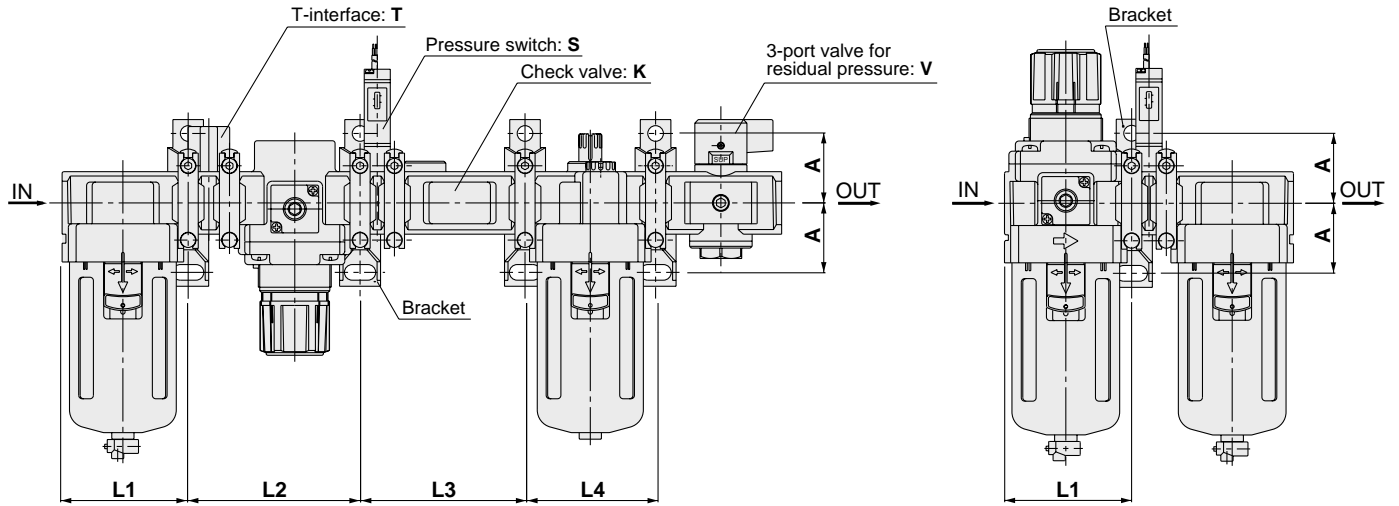
Replacement parts

Description	Material	Part no.					
		Y100T	Y200T	Y300T	Y400T	Y500T	Y600T
Seal	NBR	Y100P-060AS ^{Note)}	Y200P-060S	Y300P-060S	Y400P-060S	Y500P-060S	Y600P-060S

Note) Y-100T comes with 2 O-rings.

Series AC

Mounting Position for Spacer with Bracket



Attachment Model	K			S		T		V			KS			KT			KV				KST		
	L1	L2	L3	L1	L2	L1	L2	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3	L4	L1	L2	L3
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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC50	—	—	—	93	96	93	124	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC55	—	—	—	98	96	98	124	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
AC60	—	—	—	98	101	98	129	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Attachment Model	KSV				KTV				KSTV				ST		SV			STV			TV		
	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L3	L4	L1	L2	L1	L2	L3	L1	L2	L3	L1	L2	L3
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	—	—	—	—	—	—	—	—
AC50	—	—	—	—	—	—	—	—	—	—	—	—	—	93	124	—	—	—	—	—	—	—	—
AC55	—	—	—	—	—	—	—	—	—	—	—	—	—	98	124	—	—	—	—	—	—	—	—
AC60	—	—	—	—	—	—	—	—	—	—	—	—	—	98	129	—	—	—	—	—	—	—	—

Attachment Model	K		S		V		KS		KV			KSV			SV	
	L1	L2	L1	L1	L1	L2	L1	L2	L1	L2	L3	L1	L2	L3	L1	L2
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	—	—	—	—	—	—	—	—	—	—	—	—	

Attachment Model	S		T		V		SV		TV	
	L1	L1	L1	L2	L1	L2	L1	L2	L1	L2
AC10B	—	28	—	—	—	—	—	—	—	—
AC20B	41.5	41.5	41.5	43	41.5	57	41.5	61	—	—
AC25B	55	55	55	57	55	74	55	76	—	—
AC30B	55	55	55	57	55	74	55	76	—	—
AC40B	72.5	72.5	72.5	75	72.5	95	72.5	99	—	—
AC40B-06	77.5	77.5	—	—	—	—	—	—	—	—
AC50B	93	93	—	—	—	—	—	—	—	—
AC55B	98	98	—	—	—	—	—	—	—	—
AC60B	98	98	—	—	—	—	—	—	—	—

Attachment Model	S		T		V			SV			TV		
	L1	L2	L1	L2	L1	L2	L3	L1	L2	L3	L1	L2	L3
AC20C	41.5	43	41.5	43	41.5	43	43	41.5	43	57	41.5	43	61
AC25C	55	57	55	57	55	57	57	55	57	74	55	57	76
AC30C	55	57	55	57	55	57	57	55	57	74	55	57	76
AC40C	72.5	75	72.5	75	72.5	75	75	72.5	75	95	72.5	75	99
AC40C-06	77.5	80	77.5	80	—	—	—	—	—	—	—	—	—

Attachment Model	S		V		SV	
	L1	L1	L2	L1	L2	L2
AC20D	41.5	41.5	43	41.5	57	—
AC30D	55	55	57	55	74	—
AC40D	72.5	72.5	75	72.5	95	—

L1: Dimensions from the end of the IN side to the center of the mounting hole for the first bracket.
 L2: Mounting hole pitch between the first and the second bracket.
 L3: Mounting hole pitch between the second and the third bracket.
 L4: Mounting hole pitch between the third and the fourth bracket.
 Refer to dimensions pages for dimension A from the piping center and the mounting hole.

F.R.L. Unit AC20 to 60 Made to Order Specifications

Contact SMC for detailed dimensions, specifications, and lead times.



With Digital Pressure Switch

AC20 to 60 with a digital pressure switch (Model: ISE30-01-□□-ML) can be ordered. A digital pressure switch is mounted on the connection threads for the pressure gauge of the regulator or the filter regulator.

Specifications

Part no.		-X465
Pressure switch	Model	ISE30-01-□□-ML
	Regulating pressure range	-0.1 to 1 MPa
	Setting/Display resolution	0.001 MPa
	Power supply voltage	12 to 24VDC±10%, Ripple (p-p) 10% or less (with reverse connection protection)
	Current consumption	45mA or less (during current output: 70mA or less)

* Pressure gauge port size: Rc 1/8

Applicable model

Model	AC20□	AC25□	AC30□	AC40□	AC40□-06	AC50□	AC55□	AC60□
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	1

How to Order

AC 30 A — 03 D — X465 A

Body size

20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
55	1
60	1

Switch specifications

Symbol	Output specifications
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

• With digital pressure switch (Series ISE30)

Accessory

Symbol	Description	Applicable models
Nil	—	—
C	With float type auto drain (N.C.)	AC20□ to 60□
D	With float type auto drain (N.O.)	AC30□ to 60□

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1



Notes) • Contact SMC for detailed dimensions and attachment and optional availability.




• Refer to Series ZSE30/ISE30 2-Color Display Type High-Precision Digital Pressure Switch (CAT. ES100-42) for detailed handling information and specifications on the digital pressure switch.

• Digital pressure switch is packaged together with the F.R.L. unit for shipment.

Model combination

Symbol	Combination				
	Air filter	Regulator	Lubricator	Filter regulator	Mist separator
Nil	①	②	③	—	—
A	—	—	②	①	—
B	①	②	—	—	—
C	①	③	—	—	②
D	—	—	—	①	②

Modular Type Air Filter Series AF

Air filter Series AF	Model	Port size	Filtration (μm)	Accessories
 <p data-bbox="116 902 379 936">Pages 22 through 27</p>	AF10	M5 x 0.8	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		
 <p data-bbox="116 1205 379 1238">Pages 28 through 30</p>	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		
 <p data-bbox="116 1512 379 1538">Pages 31 through 33</p>	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 60

How to Order



AF 30 - F 03 BD - 2R

Body size

10	M5
20	1/8
30	3/8
40	1/2
50	3/4
60	1

Thread type

Nil	Metric thread (M5)
	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide: For NPT1/4 (applicable to AF30 to 60), the exhaust port for auto drain comes with $\phi 3/8"$ One-touch fitting (applicable to AF30 to 60).
 Note 2) Drain guide: G1/4 (applicable to AF30 to 60)

Port size

M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Accessory

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AF20 to 60
C	Float type auto drain (N.C.)	AF10 to 60
D	Float type auto drain (N.O.)	AF30 to 60

Optional specifications

Symbol	Description	Applicable models
2	Metal bowl	AF10 to 60
6	Nylon bowl	AF10 to 60
8	Metal bowl with level gauge	AF30 to 60
C	With bowl guard	AF20
J Note 3)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF10 to 60
W	Drain cock with barb fitting ($\phi 6 \times \phi 4$ nylon tube)	AF30 to 60
Z Note 4)	Display units for product name plate and caution plate for bowl : PSI, °F	AF10 to 60

* When more than one specification is required, order in ascending alphanumeric order.
 Note 3) Without a valve function.
 Note 4) For a thread type M5 and NPT.

⊙: Combination available ⊖: Combination not available

Accessory/Optional specification combinations ⊙: Varies depending on the model △: Available only with NPT thread

Accessory/Optional specifications	Combination	Symbol	Accessory			Optional specifications							Applicable filter				
			B	C	D	2	6	8	C	J	R	W	Z	AF10	AF20	AF30 to 60	
Accessory	With bracket	B	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Float type auto drain (N.C.)	C	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Float type auto drain (N.O.)	D	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
Optional specifications	Metal bowl	-2	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Nylon bowl	-6	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Metal bowl with level gauge	-8	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	With bowl guard	-C	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Drain guide 1/4	-J	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Flow direction: Right to left	-R	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Drain cock with barb fitting: $\phi 6 \times \phi 4$ nylon tube	-W	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	
	Display units for product name plate and caution plate for bowl: PSI, °F	-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

Standard specifications

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Proof pressure	1.5MPa						
Maximum operating pressure	1.0MPa						
Ambient and fluid temperature	-5° to 60°C (with no freezing)						
Nominal filtration rating	5 μ m						
Element life	2 years or when the pressure drop hits 0.1MPa.						
Bowl material	Polycarbonate						
Drain capacity cm ³	2.5	8	25	45	45	45	45
Weight kg	0.06	0.18	0.22	0.45	0.49	0.99	1.05
Accessories							
			●	●	●	●	●

Accessory part no.

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

Note 1) Assembly includes a bracket and 2 mounting screws.
 Note 2) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD17, 27; 0.15MPa for AD37, 47.
 Contact SMC regarding the specifications for PSI unit and F°.



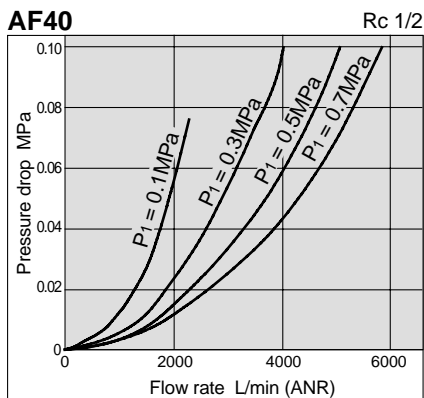
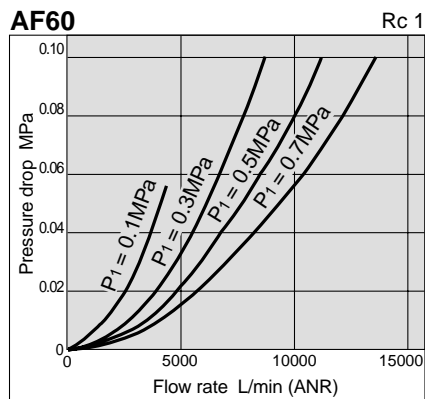
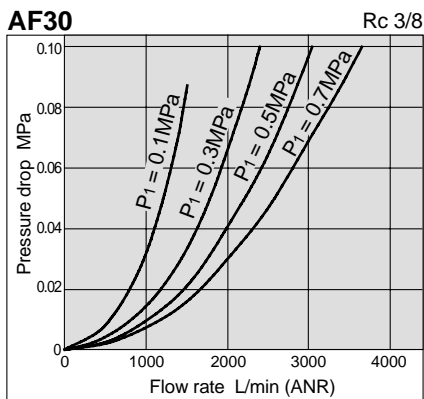
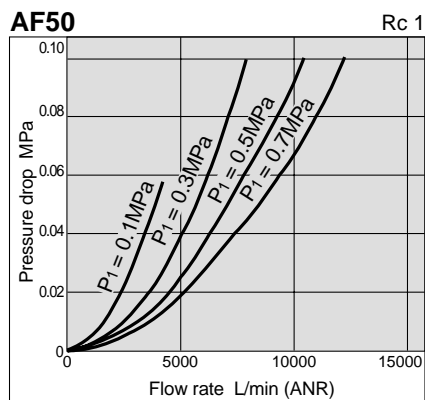
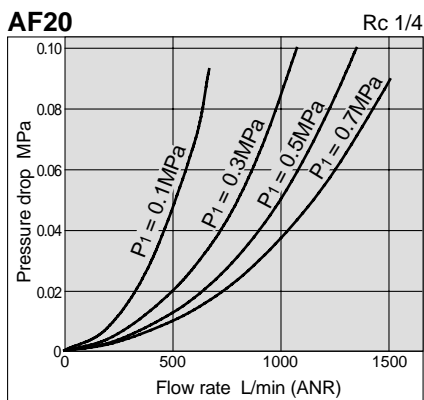
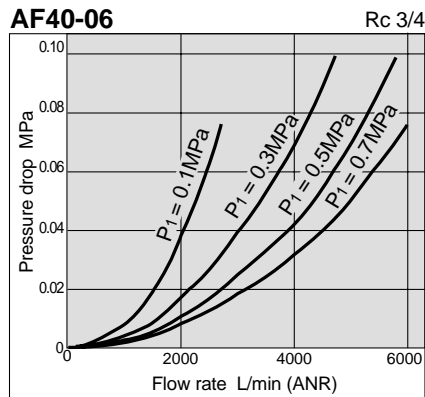
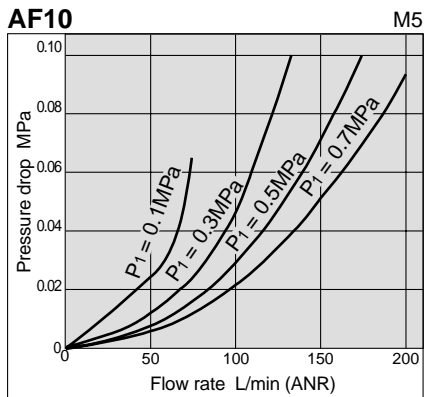
With auto drain

JIS symbol



AF10 to 60

Flow Rate Characteristics (Representative values)



⚠ Specific Product Precautions

Be sure to read before handling.
Refer to pages 73 through 76 and for safety instructions and F.R.L. unit precautions.

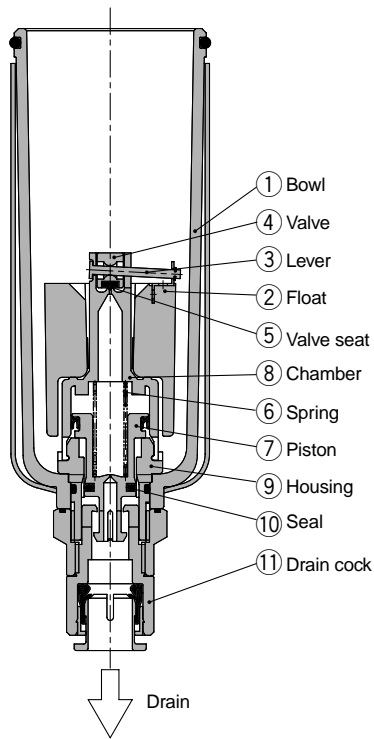
Maintenance

⚠ Warning

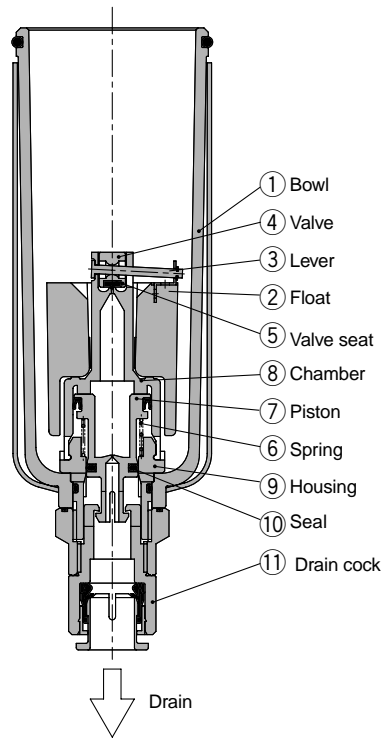
1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, whichever comes first, to prevent damage to the element.

Operation Principle: Float Type Auto Drain

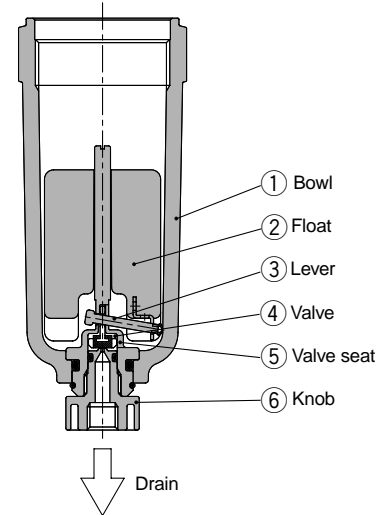
N.O. type: AD38, 48



N.C. type: AD37, 47



Compact auto drain
N.C. type: AD17, 27



• When the pressure inside the bowl is released:

1. When pressure is released from the bowl, ①, piston ⑦ is lowered by spring ⑥.
2. 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.
3. 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:

1. When the pressure exceeds 0.1MPa, the force of piston ⑦ surpasses the force of spring ⑥, and the piston goes up.
2. 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.
3. 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: Automatic Draining

1. Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat, ⑤.
2. 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, lower the piston ⑦.
3. 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.

Manual Draining

1. 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.

• When the pressure inside the bowl is released:

1. Even when pressure is applied to the inside the bowl, ①, is released, spring ⑥ keeps piston ⑦ in its upward position.
2. This keeps the seal created by the gasket, ⑩, in place, thus shutting the outside air from inside the bowl, ①.
3. Therefore, even if there should be some condensate accumulation inside the bowl, ①, it will not drain out.

• When pressure is applied inside the bowl:

1. Even when pressure inside the bowl, ①, is applied, the combined force of spring ⑥ and the pressure inside the bowl, ①, keeps piston ⑦ in its upward position.
2. This maintains the seal created by the gasket, ⑩, in place, thus shutting the outside air from inside the bowl, ①.
3. 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: Automatic Draining

1. 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.
2. The result is that the pressure inside chamber ⑧ surpasses the force of the spring, ⑥, and pushes piston ⑦ downwards.
3. 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.

Manual Draining

1. 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.

• When the pressure inside the bowl is released:

1. 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.
2. 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:

1. Even when pressure is applied inside the bowl, ①, the valve ④ the weight of the float, ②, and the differential pressure that is applied to valve ④ cause valve seat ⑤ to create a seal, and the outside air is shut off from the inside of the bowl, ①.

• When the drain is accumulated in the bowl: Automatic Draining

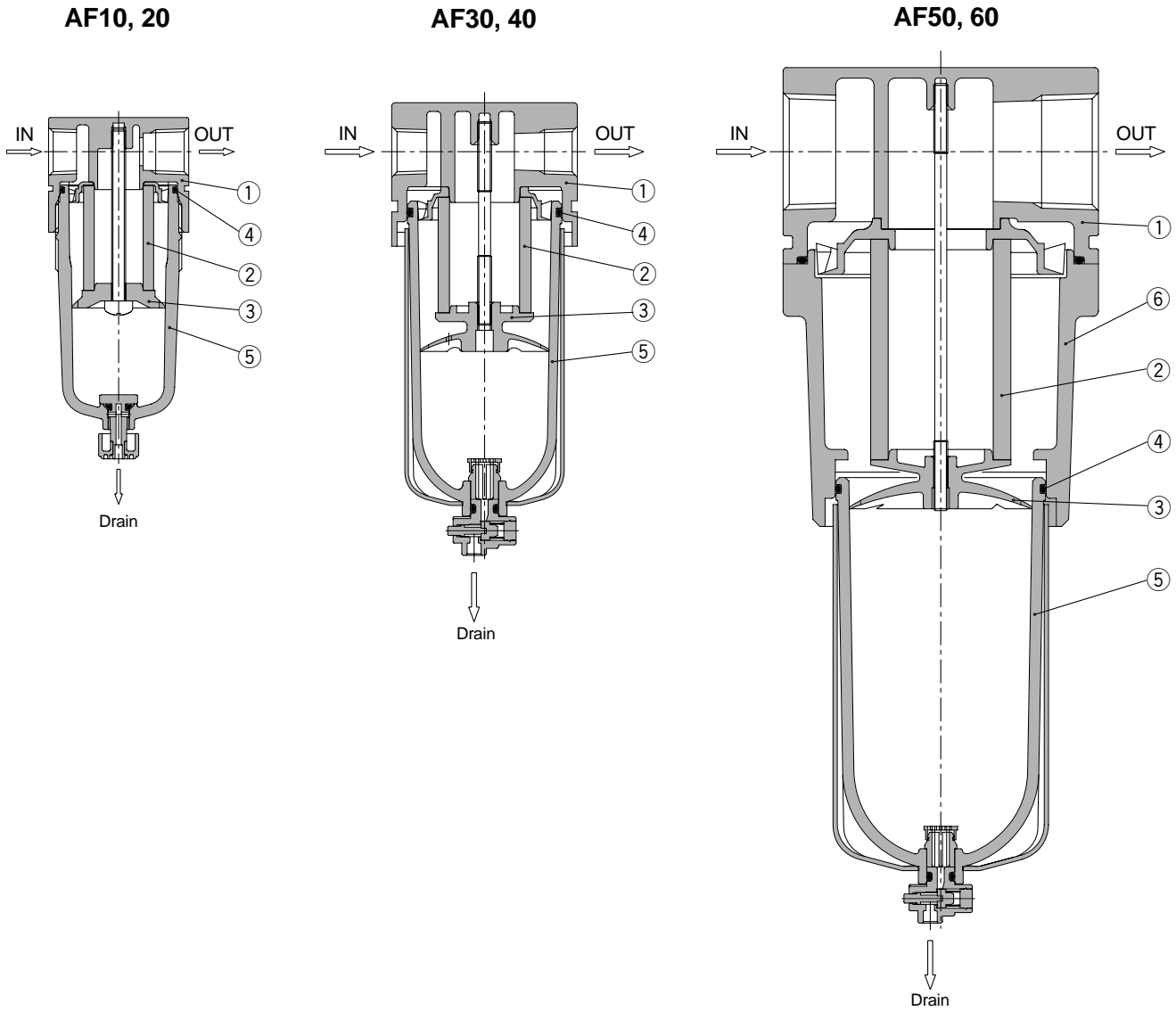
1. Float ② rises due to its own buoyancy and the seal between valve ④ and valve seat ⑤ is interrupted.
2. The condensate inside the bowl, ① drains out through the valve seat, ⑤, and the knob, ⑥.

Manual Draining

1. Turning knob ⑥ manually counterclockwise lowers it and causes the sealing action of valve seat ⑤ to be interrupted, thus allowing the condensate to drain out.

AF10 to 60

Construction



Parts list

No.	Description	Material			Color
		AF10, 20	AF30, 40, 40-06	AF50, 60	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
6	Housing	—	Die-cast aluminum		Platinum silver

Air filter replacement parts

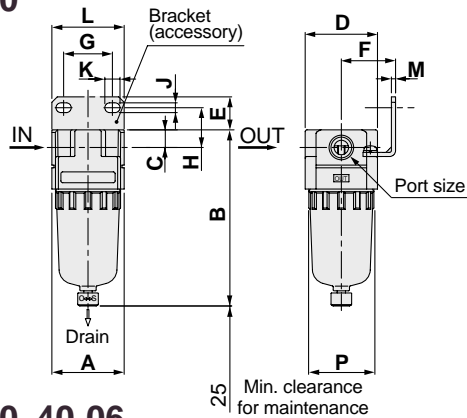
No.	Description	Material	Part no.						
			AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
2	Filter element	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S	AF40P-060S	AF50P-060S	AF60P-060S
3	Baffle	PBT	AF10P-040S ^{Note 1)}	AF20P-040S	AF30P-040S	AF40P-040S	AF40P-040S	AF50P-040S	AF60P-040S
4	Bowl O-ring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



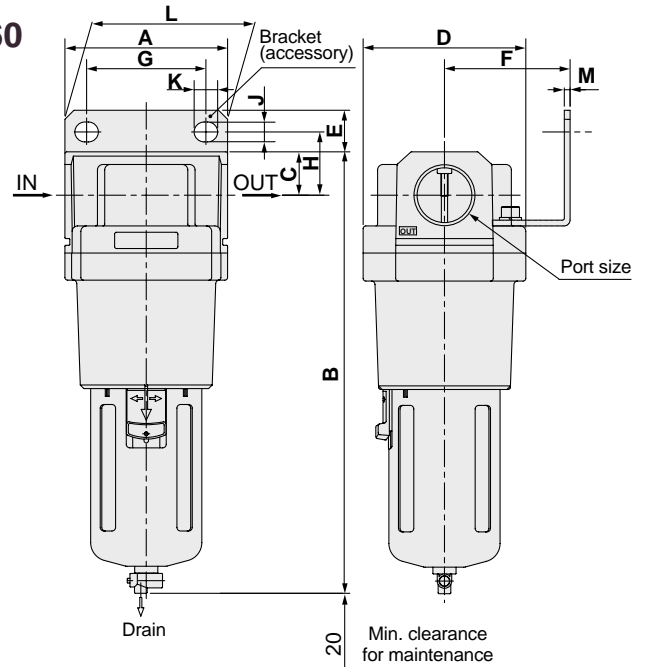
Note 1) The material of the baffle for AF10 (AF10P-040S) only is POM.
 Note 2) Contact SMC regarding the bowl assembly supply for PSI and F° unit specification.
 Note 3) Bowl assembly for AF30 to 60 models comes with a bowl guard (steel band material).

Dimensions

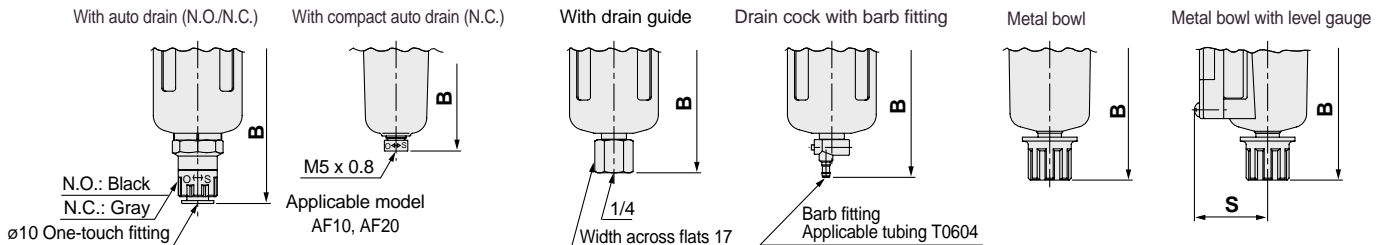
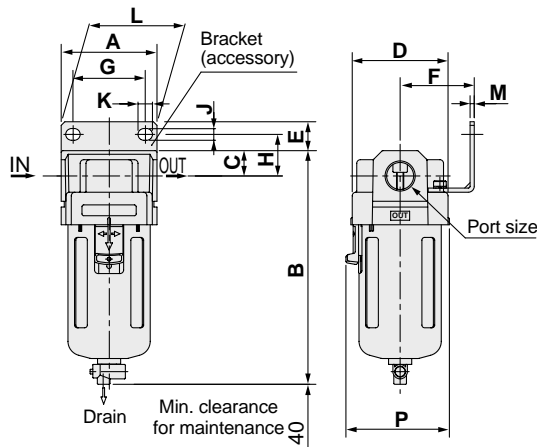
AF10, 20



AF50, 60



AF30, 40, 40-06



Model	Port size	Standard specifications					Accessory specifications									
		A	B	C	D	P	Bracket mounting size									
							E	F	G	H	J	K	L	M	B	
AF10	M5 x 0.8	25	67	7	25	28	—	—	—	—	—	—	—	—	85	
AF20	1/8, 1/4	40	97	10	40	—	18	30	27	22	5.4	8.4	40	2.3	115	
AF30	1/4, 3/8	53	129	14	53	57	16	41	40	23	6.5	8	53	2.3	170	
AF40	1/4, 3/8, 1/2	70	165	18	70	73	17	50	54	26	8.5	10.5	70	2.3	204	
AF40-06	3/4	75	169	20	70	73	14	50	54	25	8.5	10.5	70	2.3	208	
AF50	3/4, 1	90	245	24	90	—	23	70	66	35	11	13	90	3.2	284	
AF60	1	95	258	24	95	—	23	70	66	35	11	13	90	3.2	297	

Model	Optional specifications				
	With drain guide	With barb fitting	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	S
AF10	—	—	66	—	—
AF20	—	—	97	—	—
AF30	136	137	142	162	38
AF40	172	173	178	198	45
AF40-06	176	177	182	202	45
AF50	252	253	258	278	45
AF60	265	266	271	291	45

Air Filter AF20 to 60 Made to Order Specifications

Contact SMC for detailed dimensions, specifications, and lead times.



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.

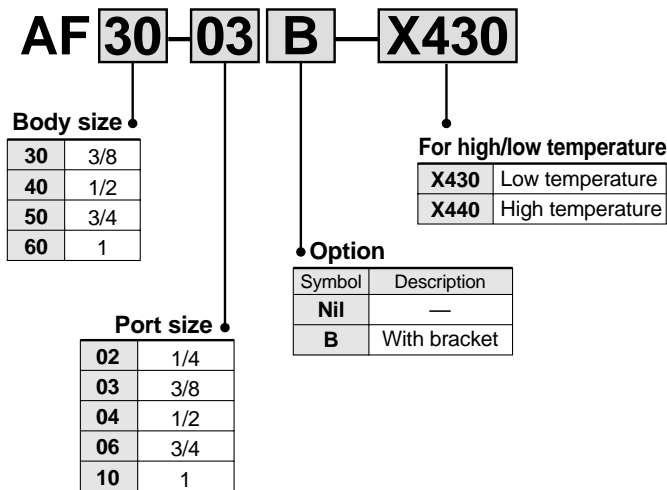
Specifications

Part no.		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature		-30° to 60°C	-5° to 80°C
Fluid temperature		-5° to 60°C (with no freezing)	
Material	Rubber parts	Special NBR	FPM
	Main metal parts	Body, Bowl: Die-cast aluminum Element: Bronze	

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

How to Order



② High Pressure

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

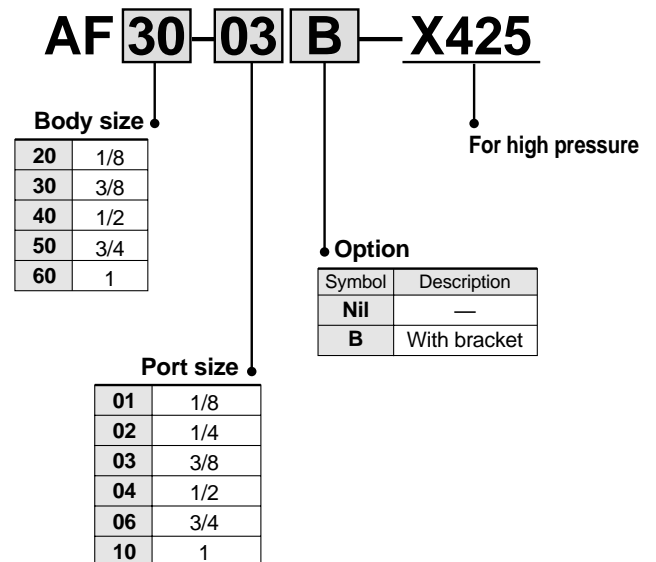
Specifications

Part no.	-X425
Proof pressure	3.0MPa
Maximum operating pressure	2.0MPa
Ambient and fluid temperature	-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

How to Order



Note) Contact SMC regarding the detailed dimensions and optional availability.

Mist Separator

AFM20 to 40

How to Order

AFM 30 F 03 BD 2R

Mist separator: AFM
Body size: 30
Thread type: F
Port size: 03
Accessory: BD
Optional specifications: 2R

Body size	Thread type	Port size
20 1/8	Nil Rc	01 1/8
30 3/8	N Note 1) NPT	02 1/4
40 1/2	F Note 2) G	03 3/8
		04 1/2
		06 3/4

Symbol	Description	Applicable models
2	Metal bowl	AFM20 to 40
6	Nylon bowl	AFM20 to 40
8	Metal bowl with level gauge	AFM30, 40
C	With bowl guard	AFM20
J Note 1)	Drain guide 1/4	AFM30, 40
R	Flow direction: Right to left	AFM20 to 40
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AFM30, 40
Z Note 2)	Display units for product name plate and caution plate for bowl: PSI, °F	AFM20 to 40

Note 1) Drain guide: For NPT1/4 (applicable to AFM30 and 40), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AFM30 and 40).
Note 2) Drain guide: G1/4 (applicable to AFM30 and 40).

* When more than one specification is required, order in ascending alphanumeric order.
Note 1) Without a valve function. Note 2) For NPT thread types.

Accessory/Optional specification combinations

Combination	Symbol	Accessory			Optional specifications								Applicable mist separator			
		B	C	D	2	6	8	C	J	R	W	Z	AFM20	AFM30 to 40		
Accessory	With bracket	B	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Float type auto drain (N.C.)	C	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Float type auto drain (N.O.)	D	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Optional specifications	Metal bowl	-2	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Nylon bowl	-6	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Metal bowl with level gauge	-8	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	With bowl guard	-C	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Drain guide 1/4	-J	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Flow direction: Right to left	-R	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Drain cock with barb fitting: ø6 x ø4 nylon tube	-W	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Display units for product name plate and caution plate for bowl: PSI, °F	-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	△

○: Combination available
○: Varies depending on the model
□: Combination not available
△: Available only with NPT thread

Standard specifications

Model	AFM20	AFM30	AFM40	AFM40-06
Port size	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	1.5MPa			
Maximum operating pressure	1.0MPa			
Minimum operating pressure	0.05MPa			
Ambient and fluid temperature	-5° to 60°C (with no freezing)			
Flow rate L/min (ANR) Note 1)	200	450	1100	1100
Nominal filtration rating	0.3µm (95% filtered particle size)			
Outlet side oil mist concentration	Maximum 1.0mgf/Nm ³ (approx. 0.8ppm) Note 2)			
Element life	2 years or when the pressure drop hits 0.1MPa.			
Bowl material	Polycarbonate			
Drain capacity cm ³	8	25	45	45
Weight kg	0.18	0.22	0.44	0.49
Accessories	Bowl guard	●	●	●

Note 1) When the inlet pressure is 0.7MPa. Flow rate varies depending on the inlet pressure.
Note 2) When the compressor oil mist discharge concentration is 30mgf/m³ (ANR).

Accessory part no.

Applicable model	AFM20	AFM30	AFM40	AFM40-06
Accessory				
Bracket assembly Note 1)	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS
Float type auto drain Note 2)	N.O.	—	AD48	AD48
	N.C.	AD27	AD37	AD47

Note 1) Assembly includes a bracket and 2 mounting screws.
Note 2) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD17, 27; 0.15MPa for AD37, 47. Contact SMC regarding the specifications for PSI unit and F°.



JIS symbol

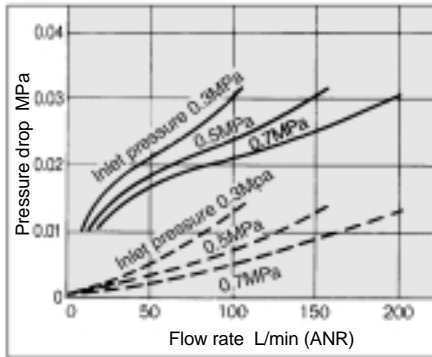


AFM20 to 40

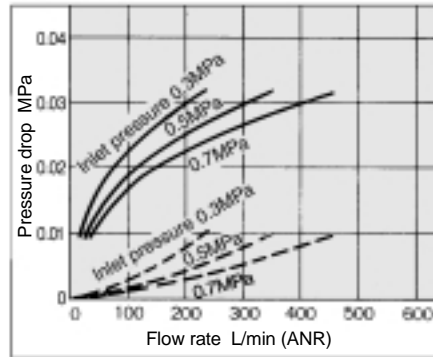
Flow Rate Characteristics (Representative values)

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

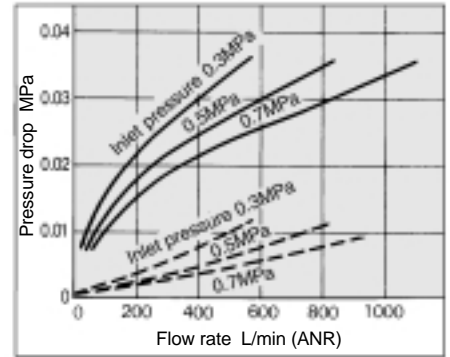
AFM20



AFM30

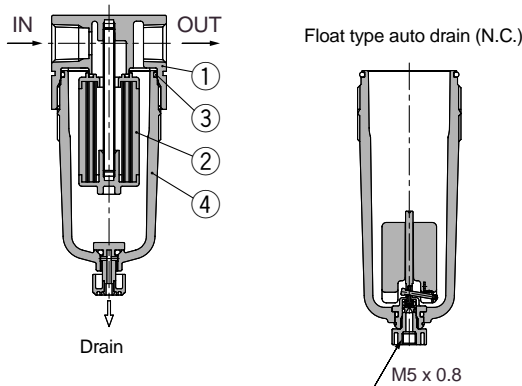


AFM40

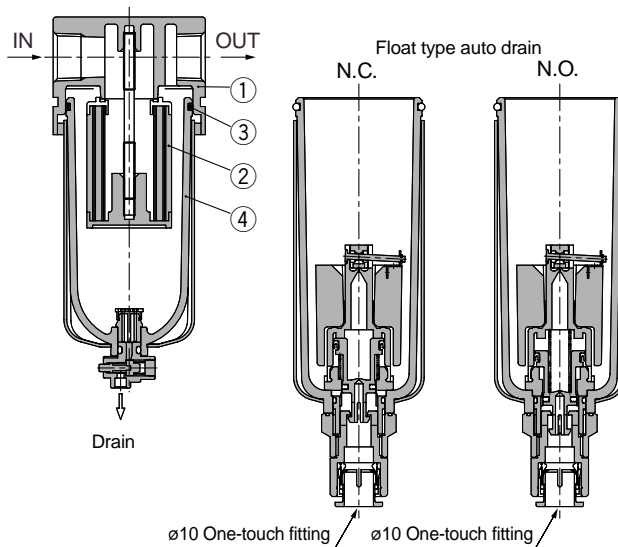


Construction

AFM20



AFM30, 40



Parts list

No.	Description	Material		Color
		AFM20	AFM30, AFM40, AFM40-06	
1	Body	Die-cast zinc	Die-cast aluminum	Platinum silver

Replacement parts

No.	Description	Material	Part no.			
			AFM20	AFM30	AFM40	AFM40-06
2	Element assembly	—	630611	630617	630623	630623
3	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S	C4SFP-260S
4	Bowl assembly (Note)	PC	C2SF	C3SF	C4SF	C4SF

Note) Bowl assemblies for AFM30 to AFM40-06 includes a bowl guard (steel band material).

Specific Product Precautions

Be sure to read before handling.
 Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Maintenance

Warning

1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, 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 0.1MPa, as exceeding this value could cause damage.

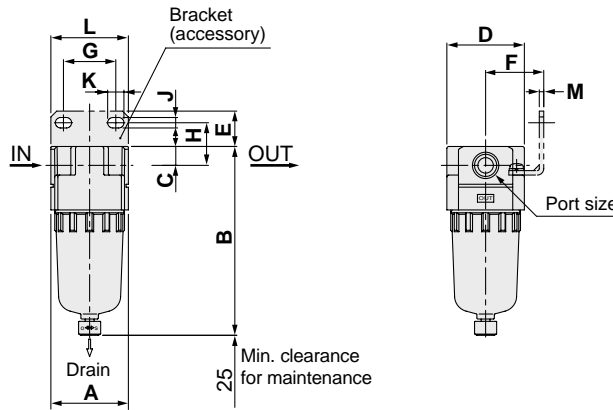
Selection

Caution

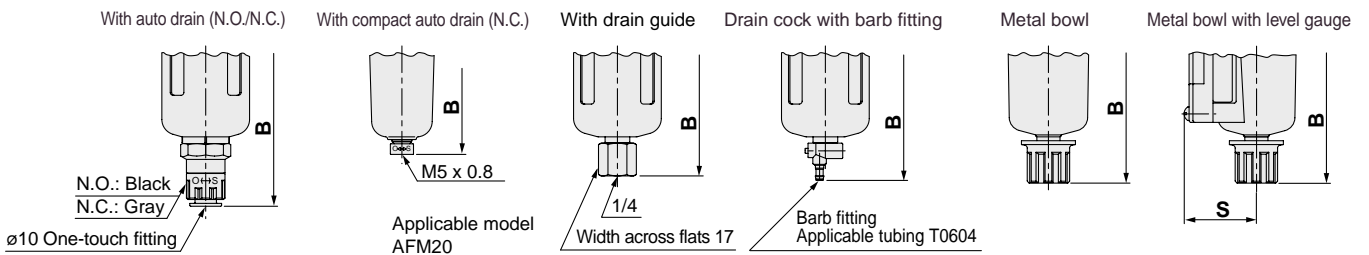
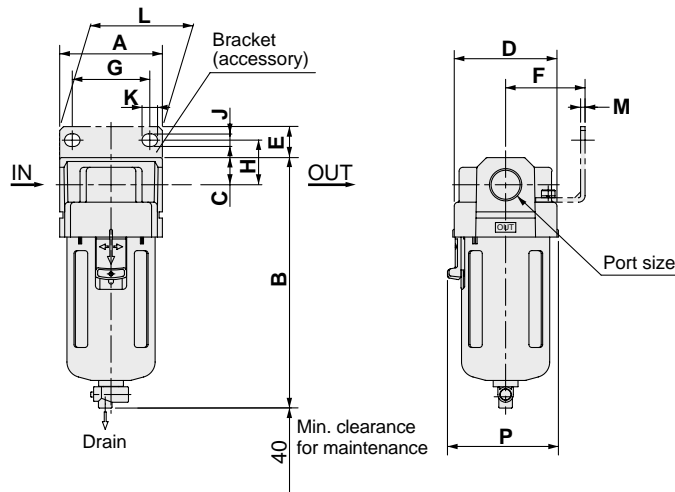
1. Do not allow air flow that exceeds the rated flow. If the air flow is allowed outside the range of the rated flow even momentarily, drainage and lubricant may splash at the outlet side or cause damage to the component.
2. Do not use in a low pressure application (such as a blower). F.R.L. unit has 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. Contact SMC if an application under such conditions cannot be avoided.

Dimensions

AFM20



AFM30, 40, 40-06



Model	Port size	Standard specifications					Accessory specifications								
		A	B	C	D	P	With bracket								
							E	F	G	H	J	K	L	M	B
AFM20	1/8, 1/4	40	97	10	40	—	18	30	27	22	5.4	8.4	40	2.3	115
AFM30	1/4, 3/8	53	129	14	53	57	16	41	40	23	6.5	8	53	2.3	170
AFM40	1/4, 3/8, 1/2	70	165	18	70	73	17	50	54	26	8.5	10.5	70	2.3	204
AFM40-06	3/4	75	169	20	70	73	14	50	54	25	8.5	10.5	70	2.3	208

Model	Optional specifications				
	With drain guide	With barb fitting	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	S
AFM20	—	—	97	—	—
AFM30	136	137	142	162	38
AFM40	172	173	178	198	45
AFM40-06	176	177	182	202	45

Micro Mist Separator

AFD20 to 40

How to Order

AFD 30 — F 03 BD — 2R

Micro mist separator

Body size

20	1/8
30	3/8
40	1/2

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Accessory

Symbol	Description	Applicable models
Nil	—	—
B	With bracket	AFD20 to 40
C	Float type auto drain (N.C.)	AFD20 to 40
D	Float type auto drain (N.O.)	AFD30, 40

Optional specifications

Symbol	Description	Applicable models
2	Metal bowl	AFD20 to 40
6	Nylon bowl	AFD20 to 40
8	Metal bowl with level gauge	AFD30, 40
C	With bowl guard	AFD20
J Note 1)	Drain guide 1/4	AFD30, 40
R	Flow direction: Right to left	AFD20 to 40
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AFD30, 40
Z Note 2)	Display units for product name plate and caution plate for bowl: PSI, °F	AFD20 to 40

Note 1) Drain guide: For NPT1/4 (applicable to AFD30 and 40), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AFD30 and 40).

Note 2) Drain guide: G1/4 (applicable to AFD30 and 40).

* When more than one specification is required, order in ascending alphanumerical order.
 Note 1) Without a valve function. Note 2) For NPT type thread.

⊙: Combination available ⊖: Combination not available
 ○: Varies dependonh on the model △: Available only with NPT thread

Accessory/Optional specification combinations

Combination	Symbol	Accessory			Optional specifications								Applicable micro mist separator		
		B	C	D	2	6	8	C	J	R	W	Z	AFD20	AFD30 to 40	
Accessory															
With bracket	B	⊙	⊙	○	⊙	⊙	○	○	○	⊙	○	△	⊙	⊙	
Float type auto drain (N.C.)	C	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Float type auto drain (N.O.)	D	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Optional specifications															
Metal bowl	-2	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Nylon bowl	-6	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Metal bowl with level gauge	-8	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
With bowl guard	-C	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Drain guide 1/4	-J	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Flow direction: Right to left	-R	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Drain cock with barb fitting: ø6 x ø4 nylon tube	-W	⊙	⊙	○	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Display units for product name plate and caution plate for bowl: PSI, °F	-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	

Standard specifications

Model	AFD20	AFD30	AFD40	AFD40-06
Port size	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4
Fluid	Air			
Proof pressure	1.5MPa			
Maximum operating pressure	1.0MPa			
Minimum operating pressure	0.05MPa			
Ambient and fluid temperature	-5° to 60°C (with no freezing)			
Flow rate L/min (ANR) Note 1)	120	240	600	600
Nominal filtration rating	0.01µm (95% filtered particle size)			
Outlet side oil mist concentration	Max. 0.1mgf/Nm ³ (before saturated with oil: 0.01mgf/Nm ³ or less, approx. 0.008ppm) Note 2)			
Element life	2 years or when the pressure drop hits 0.1MPa.			
Bowl material	Polycarbonate			
Drain capacity cm ³	8	25	45	45
Weight kg	0.18	0.22	0.44	0.49
Accessories				
Bowl guard	—	●	●	●

Note 1) When the inlet pressure is 0.7MPa. The flow rate varies depending on the inlet pressure.
 Note 2) When the compressor oil mist discharge concentration is 30mgf/m³ (ANR).

Accessory part no.

Applicable model	AFD20	AFD30	AFD40	AFD40-06
Accessory				
Bracket assembly Note 1)	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS
Float type auto drain Note 2)	N.O.	—	AD48	AD48
	N.C.	AD27	AD37	AD47

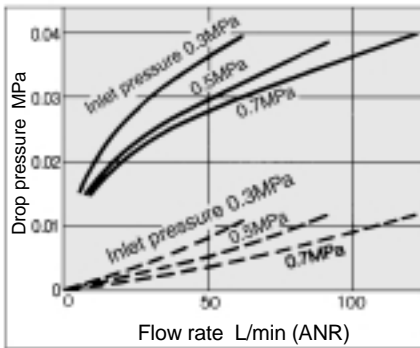
Note 1) Assembly includes a bracket and 2 mounting screws.
 Note 2) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD17, 27; 0.15MPa for AD37, 47. Contact SMC regarding the specifications for PSI unit and F°.



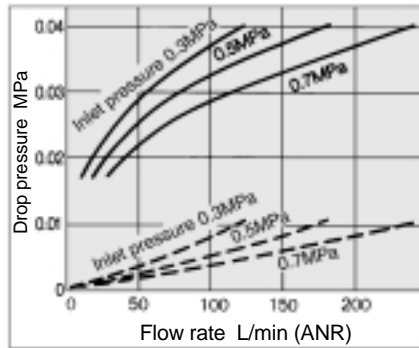
Flow Rate Characteristics (Representative values)

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

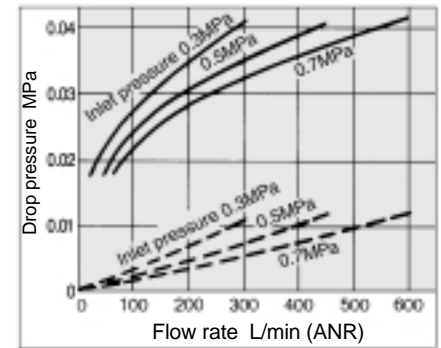
AFD 20



AFD 30

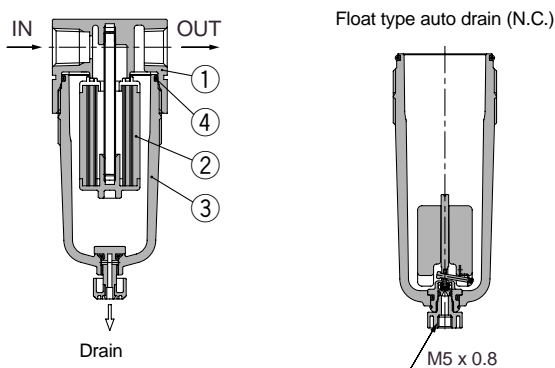


AFD 40

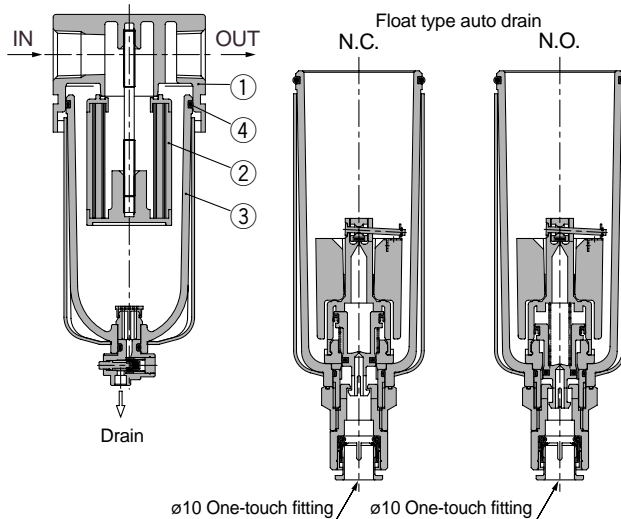


Construction

AFD20



AFD30, 40



Parts list

No.	Description	Material		Color
		AFD20	AFD30, AFD40, AFD40-06	
1	Body	Die-cast zinc	Die-cast aluminum	Platinum silver

Replacement parts

No.	Description	Material	Part no.			
			AFD20	AFD30	AFD40	AFD40-06
2	Element assembly	—	63092	63093	63094	63094
3	Bowl assembly (Note)	PC	C2SF	C3SF	C4SF	C4SF
4	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S	C4SFP-260S

Note) Bowl assemblies for AFD30 to AFD40-06 include a bowl guard (steel band material).

Specific Product Precautions

Be sure to read before handling.
 Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Air Supply

Caution

1. Install a mist separator (Series AFM) as a pre-filter on the inlet side of the micro mist separator to prevent premature clogging.
2. 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 drops becomes 0.1MPa, 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 0.1MPa, as exceeding this value could cause damage.

Selection

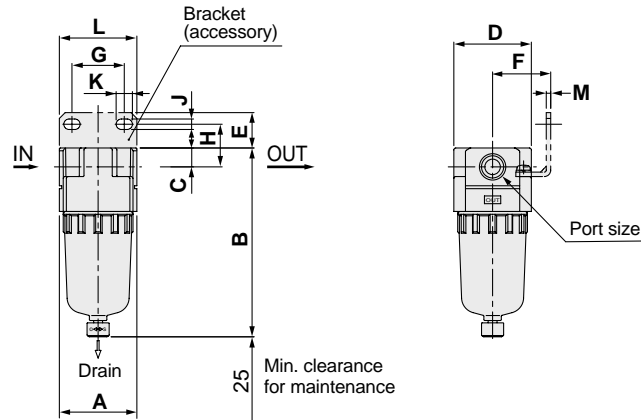
Caution

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. Contact SMC if an application under such conditions cannot be avoided.

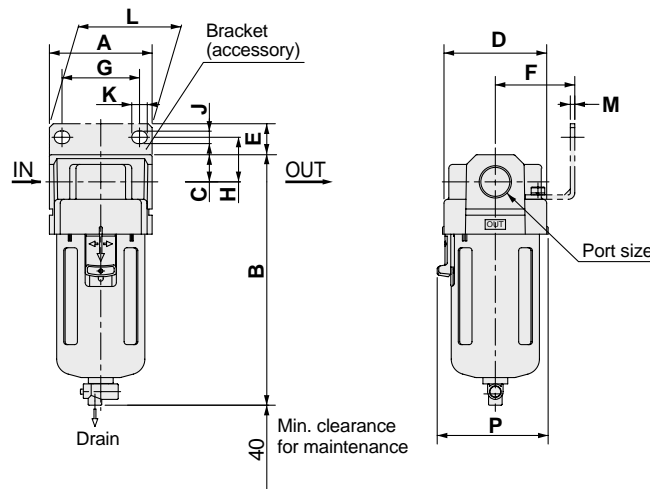
AFD20 to 40

Dimensions

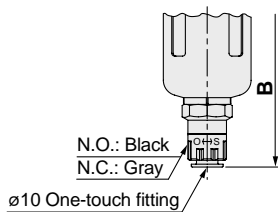
AFD20



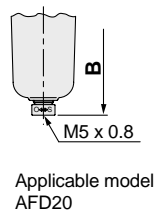
AFD30, 40, 40-06



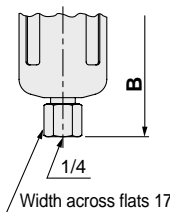
With auto drain (N.O./N.C.)



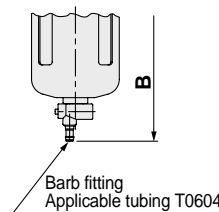
With compact auto drain (N.C.)



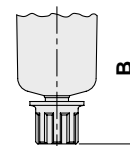
With drain guide



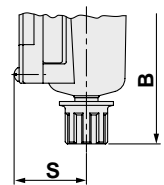
Drain cock with barb fitting



Metal bowl





Metal bowl with level gauge



Model	Port size	Standard specifications					Accessory specifications								
		A	B	C	D	P	With bracket								With auto drain
							E	F	G	H	J	K	L	M	B
AFD20	1/8, 1/4	40	97	10	40	—	18	30	27	22	5.4	8.4	40	2.3	115
AFD30	1/4, 3/8	53	129	14	53	57	16	41	40	23	6.5	8	53	2.3	170
AFD40	1/4, 3/8, 1/2	70	165	18	70	73	17	50	54	26	8.5	10.5	70	2.3	204
AFD40-06	3/4	75	169	20	70	73	14	50	54	25	8.5	10.5	70	2.3	208

Model	Optional specifications				
	With drain guide	With barb fitting	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	S
AFD20	—	—	97	—	—
AFD30	136	137	142	162	38
AFD40	172	173	178	198	45
AFD40-06	176	177	182	202	45

Modular Type Regulator *Series AR*

Regulator Series AR	Model	Port size	Option
 <p data-bbox="140 952 424 987">Pages 36 through 41</p>	AR10	M5 x 0.8	Bracket Square embedded type pressure gauge (except for AR10) Round pressure gauge 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	
	 <p data-bbox="140 1377 424 1413">Pages 42 through 47</p>	AR20K	
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 60

How to Order



AR 30 F 03 BE 1N

Regulator

Body size	
10	M5
20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

Thread type

Nil	Metric thread (M5)	
	Rc	
N	NPT	
F	G	

Port size

M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Optional specifications

Symbol	Description	Applicable models
1 ^{Note 1)}	0.02 to 0.2MPa setting	AR10 to 60
N	Non-relieving	AR10 to 60
R	Flow direction: Right to left	AR10 to 60
Z ^{Note 2)}	Display units for product name plate and pressure gauge: PSI, °F	AR10 to 60

* When more than one specification is required, order in ascending alphanumeric order.
Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.
Note 2) For M5 and NPT thread type.

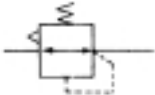
Accessory

Symbol	Description	Applicable models
Nil	—	—
B ^{Note 1)}	With bracket	AR10 to 60
E	With square embedded type pressure gauge (with limit indicator)	AR20 to 60
G ^{Note 2)}	With round pressure gauge (without limit indicator)	AR10
	With round pressure gauge (with limit indicator)	AR20 to 60
P	Panel mount (with set nut)	AR10 to 40

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the regulator.

Note 2) Mounting threads for pressure gauge: AR10: 1/16, AR20 to 30: 1/8, AR40 to 60: 1/4. Pressure gauge is not mounted on the regulator at the time of shipment but rather packaged together with the regulator.

JIS symbol



Page 41

Accessory/Optional specification combinations

○ : Combination available ◻ : Combination not available
○ : Varies depending on the model △ : Available only with NPT thread

Accessory/Optional specifications	Combination	Symbol	Accessory				Optional specifications				Applicable regulator	
			B	E	G	P	1	N	R	Z	AR10	AR20 to 60
Accessory	With bracket (with set nut)	B	◻	○	○	◻	○	○	○	△	○	○
	Square embedded type pressure gauge	E	○	◻	◻	○	○	○	△	◻	○	
	Round pressure gauge	G	○	◻	◻	○	○	○	△	○	○	
	Panel mount (with set nut)	P	◻	○	○	◻	○	○	△	○	○	
Optional specifications	0.02 to 0.2MPa setting	-1	○	○	○	○	◻	○	△	○	○	
	Non-relieving type	-N	○	○	○	○	○	◻	△	○	○	
	Flow direction: Right to left	-R	○	○	○	○	○	◻	△	○	○	
	Display units for product name plate and pressure gauge: PSI, °F	-Z	△	△	△	△	△	△	△	△	△	

Standard specifications

Model	AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60
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
Fluid	Air							
Proof pressure	1.5MPa							
Maximum operating pressure	1.0MPa							
Regulating pressure range	0.05 to 0.7MPa		0.05 to 0.85MPa					
Pressure gauge port size ^{Note 1)}	1/16 ^{Note 2)}	1/8	1/8	1/8	1/4	1/4	1/4	1/4
Relief pressure	Set pressure + 0.05MPa ^{Note 3)} [at relief flow rate of 0.1L/min (ANR)]							
Ambient and fluid temperature	-5° to 60°C (with no freezing)							
Construction	Relieving type							
Weight kg	0.06	0.26	0.21	0.29	0.44	0.47	1.17	1.22

Note 1) Pressure gauge connection threads are not required for regulator with a square embedded type pressure gauge (AR20 to AR60).

Note 2) Use a bushing (part no: 131368) when connecting the R 1/8 pressure gauge to the R 1/16 gauge port.

Note 3) Except for AR10.

Accessory part no.

Applicable model		AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60	
Accessory										
Bracket assembly ^{Note 1)}		AR10P-270AS	AR20P-270AS	AR25P-270AS	AR30P-270AS	AR40P-270AS	AR40P-270AS	AR50P-270AS ^{Note 5)}	AR50P-270AS ^{Note 5)}	
Set nut		AR10P-260S	AR20P-260S	AR25P-260S	AR30P-260S	AR40P-260S	AR40P-260S	— ^{Note 6)}	— ^{Note 6)}	
Pressure gauge ^{Note 2)}	1.0MPa	Round	G27-10-R1	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	
		Square embedded type ^{Note 4)}	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G27-10-R1 ^{Note 3)}	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
		Square embedded type ^{Note 4)}	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS

Note 1) Assembly includes bracket and set nut.

Note 2) □ in part numbers for a round pressure gauge indicates a type of connection thread. Use Nil for R and N for NPT.

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.

Note 4) For 1.0MPa.

Note 5) Assembly includes a bracket and 2 mounting screws.

Note 6) Contact SMC regarding the set nuts for AR50 and AR60.

AR10 to 60

⚠ Specific Product Precautions

Be sure to read before handling. Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Mounting & Adjustment

⚠ Warning

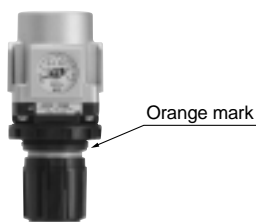
1. Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the knob excessively can cause damage to the internal parts.
2. The accessory gauge for regulators with 0.02 to 0.2MPa setting is for up to 0.2MPa use only. Exceeding 0.2MPa of pressure can damage the gauge. Nevertheless, the gauge for the AR10 regulator with 0.02 to 0.2MPa setting is for up to 1.0MPa use.
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.

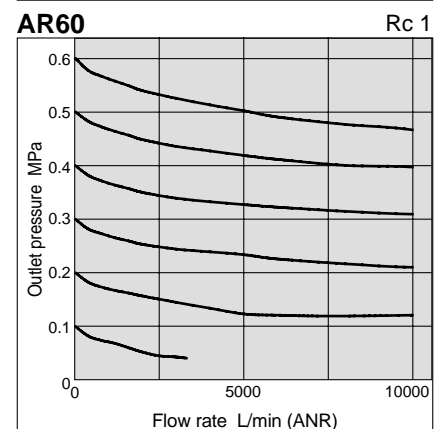
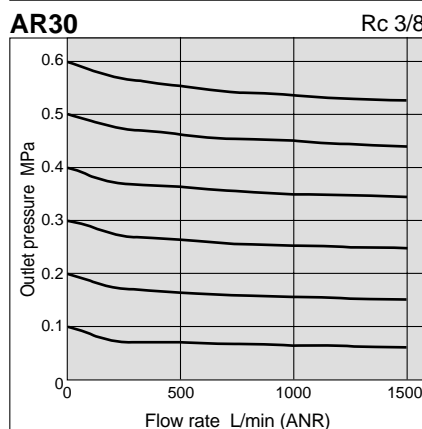
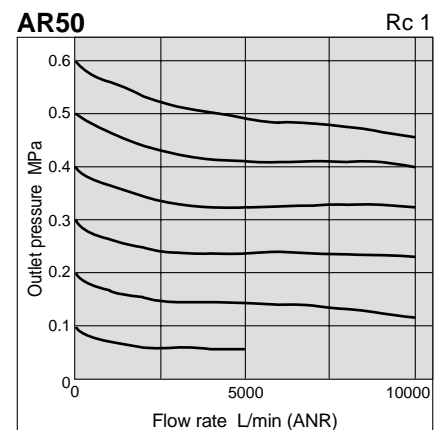
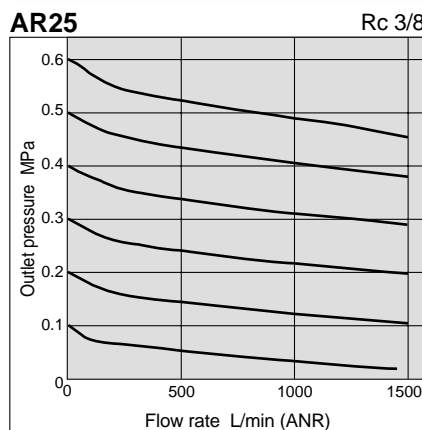
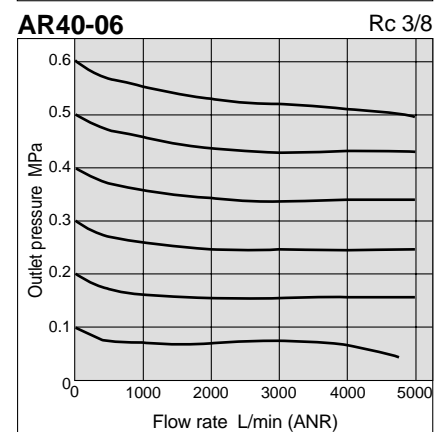
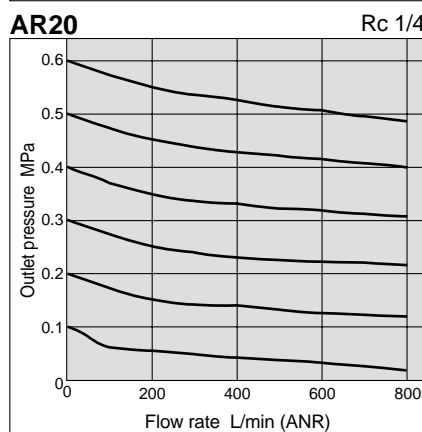
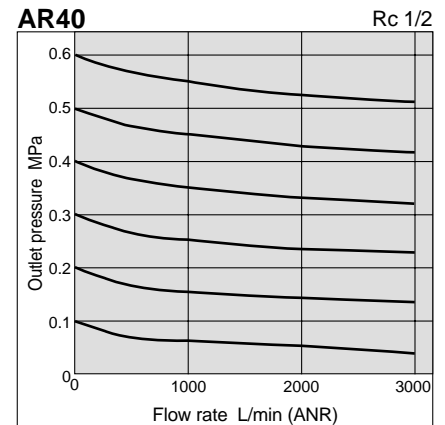
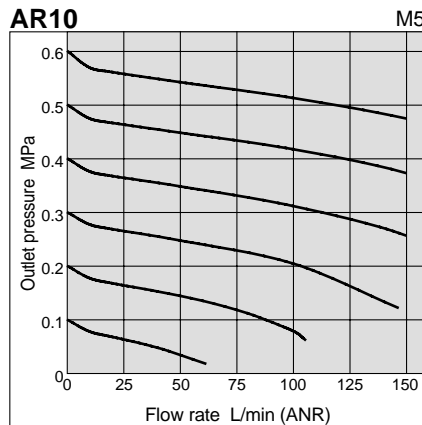
- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark" i.e., the gap will disappear).



2. A knob cover is available to prevent careless operation of the knob. Refer to Features 1 for details.
3. When mounting the valve guide (opposite the knob), keep a minimum 60mm clearance from the ground for easy maintenance.
3. Contact SMC when using the regulator between a solenoid valve and an actuator.

Pressure Characteristics (Representative values)

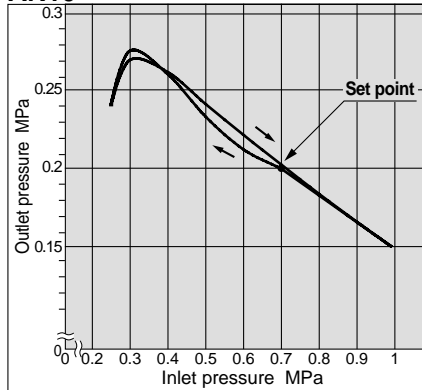
Condition: Inlet pressure 0.7MPa



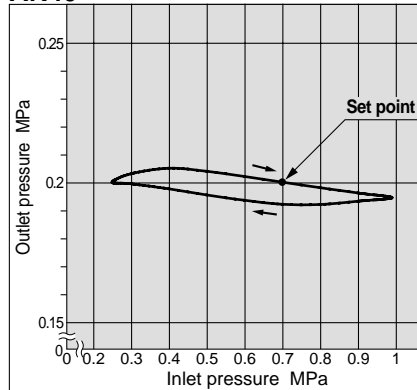
Conditions:
 Inlet pressure: 0.7MPa
 Outlet pressure: 0.2MPa
 Flow rate: 20L/min (ANR)

Pressure Characteristics (Representative values)

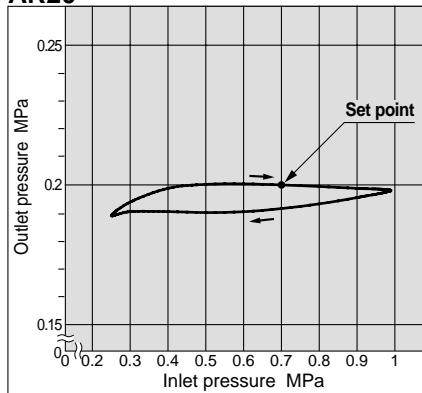
AR10



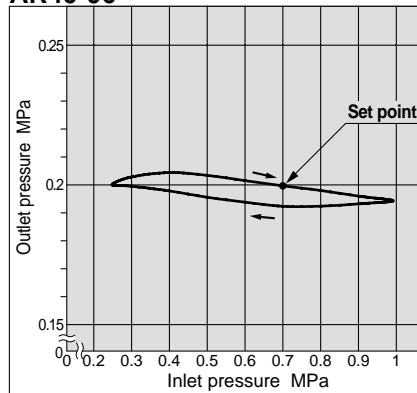
AR40



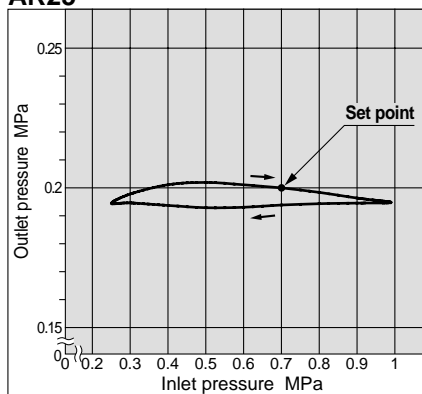
AR20



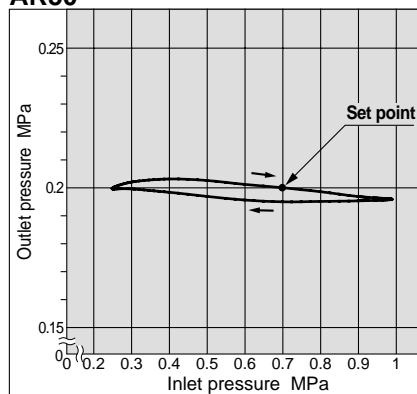
AR40-06



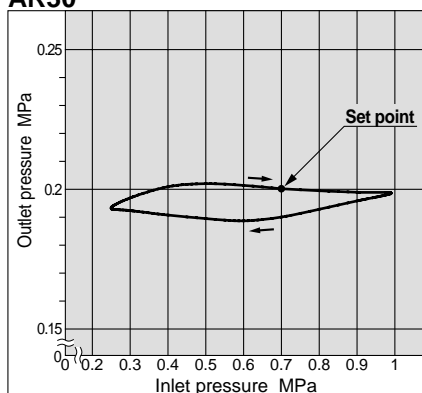
AR25



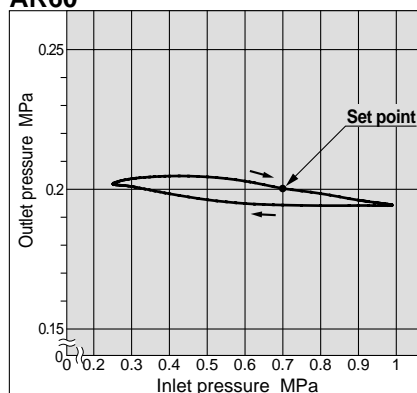
AR50



AR30

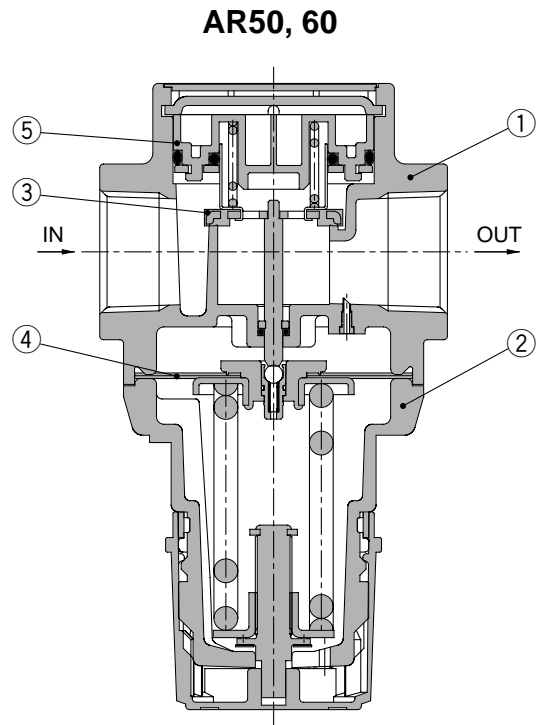
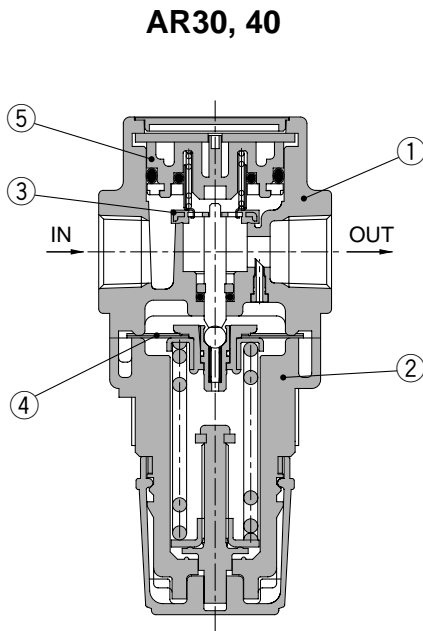
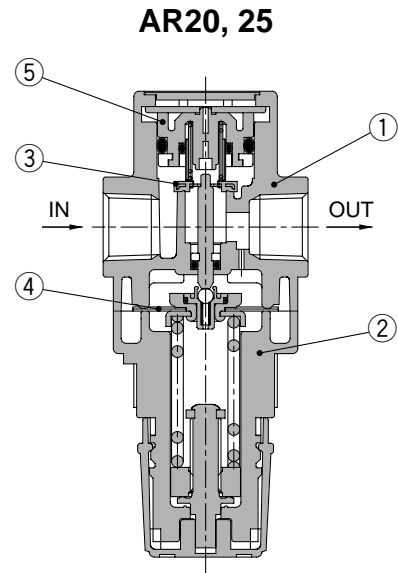
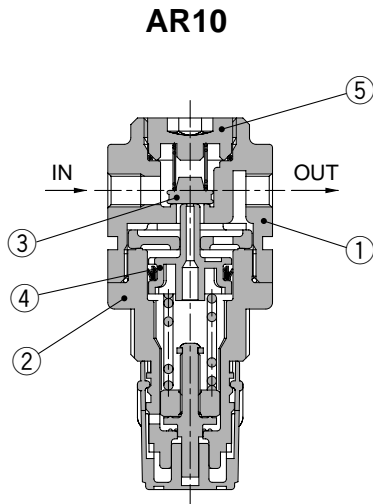


AR60



AR10 to 60

Construction




Parts list

No.	Description	Material			Color
		AR10, 20	AR25 to 40	AR50, 60	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
2	Bonnet	Polyacetal		Die-cast aluminum	Black

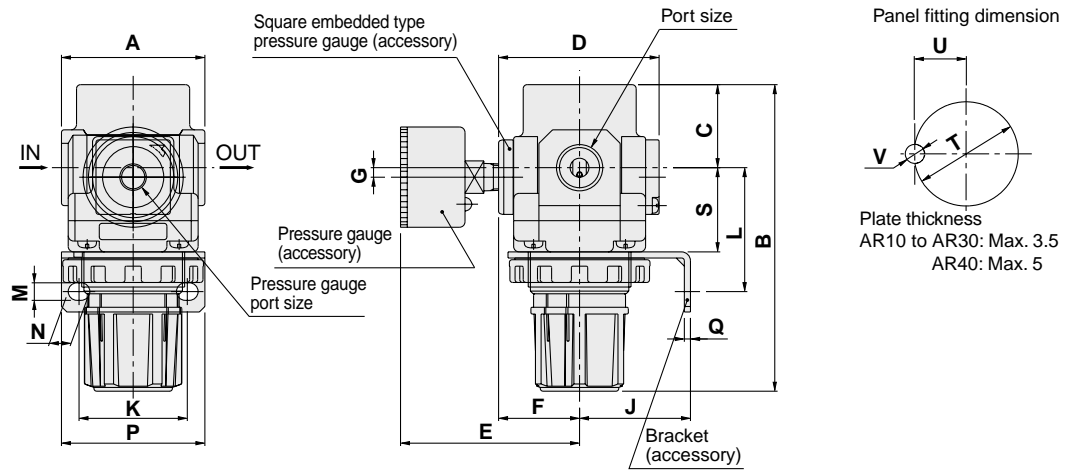
Replacement parts

No.	Description	Material	Part no.							
			AR10	AR20	AR25	AR30	AR40	AR40-06	AR50	AR60
3	Valve assembly	Stainless steel Brass, HNBR	AR10P-090S	AR20P-090AS	AR25P-090AS	AR30P-090AS	AR40P-090AS	AR40P-090AS	AR50P-090AS	AR60P-090AS
4	Diaphragm assembly	Weatherability NBR	AR10P-150AS (Note)	AR20P-150AS	AR25P-150AS	AR30P-150AS	AR40P-150AS	AR40P-150AS	AR50P-150AS	AR50P-150AS
5	Valve guide assembly	POM	131329	AR20P-050AS	AR25P-050AS	AR30P-050AS	AR40P-050AS	AR40P-050AS	AR50P-050AS	AR60P-050AS

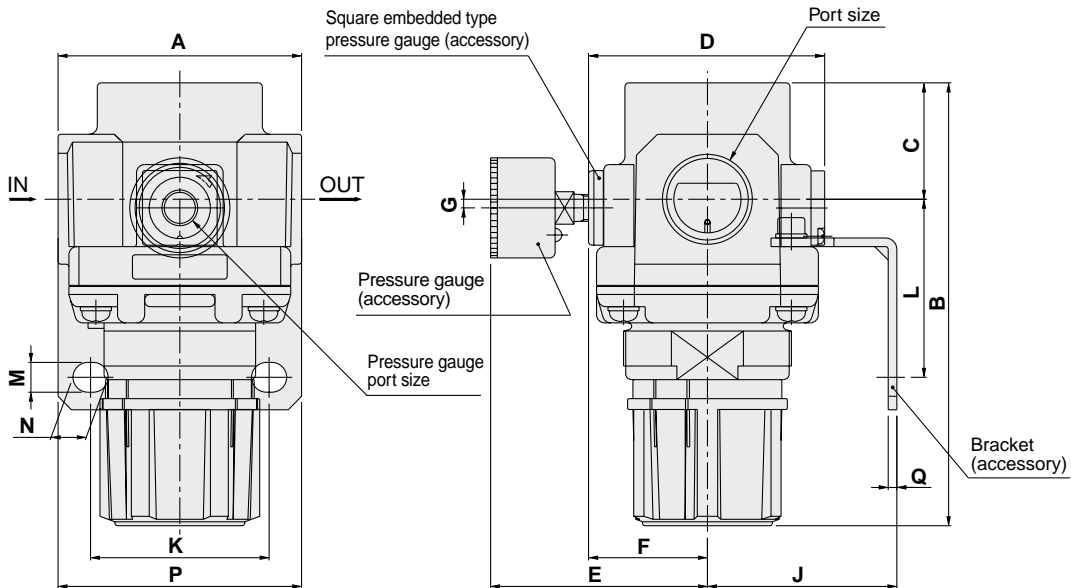
 Note) AR10 is a piston and gasket (KSYP-13) type assembly.

Dimensions

AR10 to 40



AR50, 60



Model	Port size	Standard specifications				Accessory specifications													
						With pressure gauge			Bracket mounting size								Panel mount		
		A	C	B	D	E	F	G	J	K	L	M	N	P	Q	S	T	U	V
AR10	M5 x 0.8	25	11	58	25	26	—	0	25	28	30	4.5	6.5	40	2	18	18.5	—	—
AR20	1/8, 1/4	40	26.5	94	57	65	29.5	2 (Note)	30	34	44	5.4	15.4	55	2.3	25	28.5	14	6
AR25	1/4, 3/8	53	28	101	55	64	28.5	0	30	34	44	5.4	15.4	55	2.3	26	32.5	16	6
AR30	1/4, 3/8	53	31	116	59	66	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7
AR40	1/4, 3/8, 1/2	70	36	128	68	74	35	3.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7
AR40-06	3/4	75	36	129	68	74	35	3	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7
AR50	3/4, 1	90	43	169	87	84	44.5	3.3	70	66	65.8	11	13	90	3.2	—	—	—	—
AR60	1	95	46	176	87	84	44.5	3.3	70	66	65.8	11	13	90	3.2	—	—	—	—

Note) For AR20 only, the position of the pressure gauge is above the piping center.

Regulator AR20 to 60 Made to Order Specifications

Contact SMC for detailed dimensions, specifications, and lead times.



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) regions.

Specifications

Part no.	-X430	-X440
Environment	Low temperature	High temperature
Ambient temperature	-30° to 60°C	-5° to 80°C
Fluid temperature	-5° to 60°C (with no freezing)	
Material	Rubber parts	Special NBR
	Main metal parts	FPM
	Die-cast aluminum	

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

How to Order

AR 30-03 BG-X430

Body size

25	1/4
30	3/8
40	1/2
50	3/4
60	1

Port size

02	1/4
03	3/8
04	1/2
06	3/4
10	1

For high/low temperature

X430	Low temperature
X440	High temperature

Option

Symbol	Description
Nil	—
B	With bracket
G (Note)	With round pressure gauge

Note) G43 type pressure gauge.

* Contact SMC for detailed dimensions.

* T-knob will be used.

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

Part no.	-X425
Proof pressure	3.0MPa
Maximum operating pressure	2.0MPa
Regulating pressure range	0.1 to 1.6MPa
Ambient and fluid temperature	-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

How to Order

AR 30-03 BG-X425

Body size

20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

Option

Symbol	Description
Nil	—
B	With bracket
G (Note)	With round pressure gauge

Note) G46 type pressure gauge.

For high pressure

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

③ With Digital Pressure Switch

A digital pressure switch (Model: ISE30-01-□□-ML) can be ordered for models AR20 to 60. A digital pressure switch is mounted on the connection threads for the pressure gauge.

Specifications

Part no.	-X465
Model	ISE30-01-□□-ML
Regulating pressure range	-0.1 to 1MPa
Setting/Display resolution	0.001MPa
Power supply voltage	12 to 24VDC±10%, Ripple (p-p) 10% or less (with reverse connection protection)
Current consumption	45mA or less (during current output: 70mA or less)

* Pressure gauge port size: Rc1/8

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



How to Order

AR 30-03 B-X465 A

Body size

20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

With digital pressure switch

Option

Symbol	Description
Nil	—
B	With bracket

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Switch specifications

Symbol	Output specifications
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

Notes) • Contact SMC for detailed dimensions and optional availability.

• Refer to Series ZSE30/ISE30 2-Color Display Type High-Precision Digital Pressure Switch (CAT. ES100-42) for detailed information and specifications on the digital pressure switch.

• For shipment, digital pressure switch is packaged together with the F.R.L. unit.

Regulator: Modular Type with Backflow Mechanism

AR20K to 60K

How to Order

Regulator with a built-in mechanism that ensures a quick release of the outlet air pressure (built-in check valve with back flow mechanism).

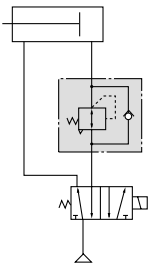


AR20K

AR40K

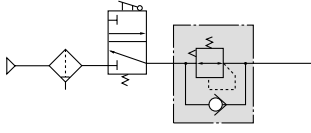
Example 1)
When the pressure of the cylinder rear and the front differs:

Circuit diagram



Example 2)
When air supply is cut off and the inlet air is released to atmosphere, the residual air pressure release on the outlet side can be secured to ensure safety.

Circuit diagram



AR 30 K — F 03 BE — 1N

Regulator

Body size

20	1/8
25	1/4
30	3/8
40	1/2
50	3/4
60	1

With backflow mechanism

Note) AR10 comes with a backflow mechanism as a standard feature.
If the set pressure is below 0.15MPa, backflow may not occur. When a backflow mechanism is required with a set pressure of less than 0.15MPa, contact SMC.

Thread type

Nil	Rc
N	NPT
F	G

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Optional specifications

Symbol	Description	Applicable models
1 ^{Note 1)}	0.02 to 0.2MPa setting	AR20K to 60K
N	Non-relieving	AR20K to 60K
R	Flow direction: Right to left	AR20K to 60K
Z ^{Note 2)}	Display units for product name plate and pressure gauge: PSI, °F	AR20K to 60K



* When more than one specification is required, order in alphanumeric order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) For NPT thread type.

Accessory

Symbol	Description	Applicable models
Nil ^{Note 1)}	—	—
B	With bracket	AR20K to 60K
E	With square embedded type pressure gauge (with limit indicator)	AR20K to 60K
G ^{Note 2)}	With round pressure gauge (with limit indicator)	AR20K to 60K
P	Panel mount (with set nut)	AR20K to 40K



Note 1) Bracket assembly is not mounted on the regulator at the time of shipment, but rather packaged together with the regulator for shipment.

Note 2) Mounting threads for pressure gauge:
AR20K to 30K: 1/8, AR40K to 60K: 1/4.
Pressure gauge is not mounted on the regulator at the time of shipment, but rather packaged together with the regulator for shipment.

Standard specifications

Model	AR20K	AR25K	AR30K	AR40K	AR40K-06	AR50K	AR60K
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
Fluid	Air						
Proof pressure	1.5MPa						
Maximum operating pressure	1.0MPa						
Regulating pressure range ^{Note 1)}	0.05 to 0.85MPa						
Pressure gauge port size ^{Note 2)}	1/8	1/8	1/8	1/4	1/4	1/4	1/4
Relief pressure	Set pressure + 0.05MPa ^{Note 3)} [at relief flow rate of 0.1L/min (ANR)]						
Ambient and fluid temperature	-5° to 60°C (with no freezing)						
Construction	Relieving type						
Weight kg	0.26	0.21	0.30	0.45	0.48	1.17	1.22

* AR10 comes with a backflow mechanism as a standard feature.

Note 1) Set the inlet pressure 0.05MPa higher than the set pressure.

Note 2) Pressure gauge connection threads are not required for regulators with a square embedded type pressure gauge (AR20K to AR60K).

Accessory part no.

Accessory	Applicable model	AR20K	AR25K	AR30K	AR40K	AR40K-06	AR50K	AR60K	
Bracket assembly ^{Note 1)}		AR20P-270AS	AR25P-270AS	AR30P-270AS	AR40P-270AS	AR40P-270AS	AR50P-270AS ^{Note 3)}	AR50P-270AS ^{Note 3)}	
Set nut		AR20P-260S	AR25P-260S	AR30P-260S	AR40P-260S	AR40P-260S	— ^{Note 5)}	— ^{Note 5)}	
Pressure gauge ^{Note 2)}	1.0MPa	Round	G36-10-□01	G36-10-□01	G36-10-□01	G46-10-□02	G46-10-□02	G46-10-□02	
		Square embedded type ^{Note 4)}	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G36-2-□01	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02	G46-2-□02	G46-2-□02
		Square embedded type ^{Note 4)}	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS

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. Nil for R and N for NPT.
Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

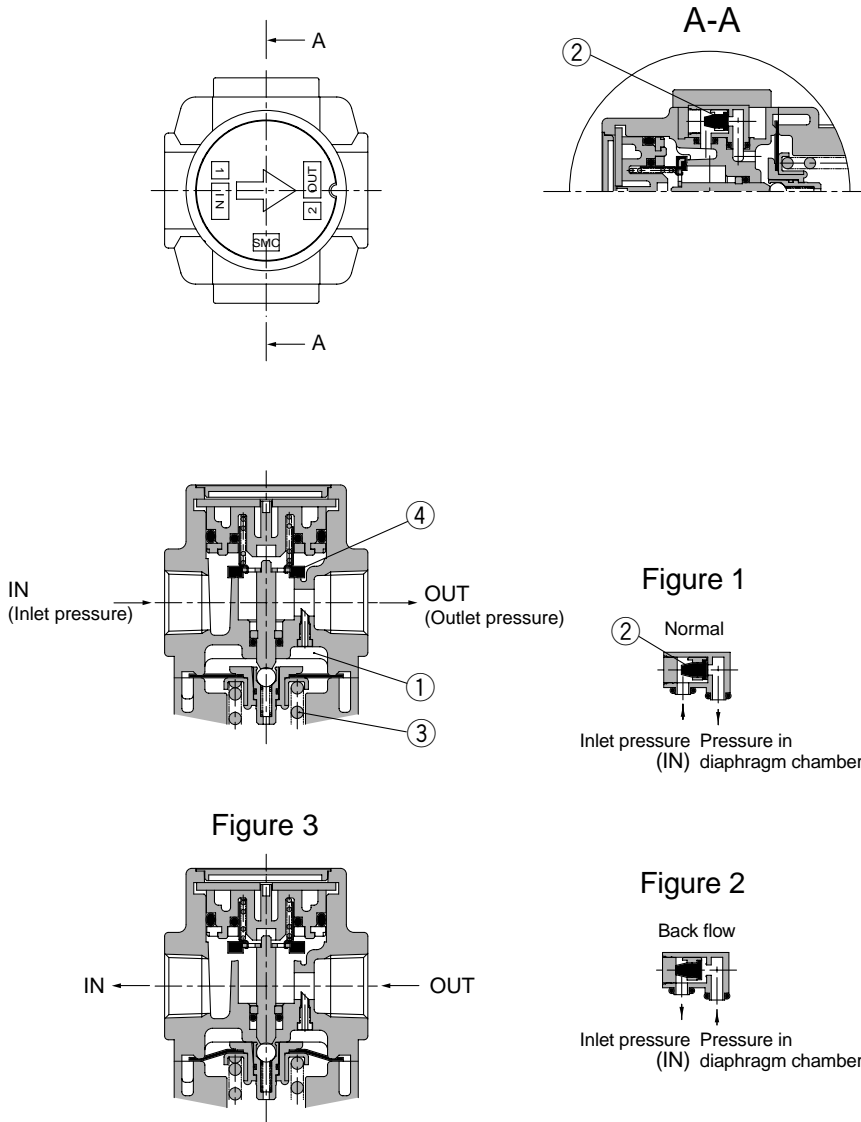
Note 3) Assembly includes bracket and 2 mounting screws.

Note 4) Includes one O-ring and 2 mounting screws.

Note 5) Contact SMC regarding the set nuts for AR50K and AR60K.

AR20K to 60K

Operating Principle



When the inlet pressure (P_1) is higher than the set pressure, the check valve ② closes and operates as a normal regulator (Figure 1).

When the inlet pressure (P_1) is shut off and released, the 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 the diaphragm chamber, ①, and the force generated by the pressure regulator spring, ③, lifts the diaphragm. Valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 3).

⚠ Specific Product Precautions

- Be sure to read before handling.
- Refer to pages 73 through 77 for safety instructions and F.R.L. unit precautions.

Mounting & Adjustment

⚠ Warning

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

⚠ Caution

1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure.

Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.



- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange" i.e., the gap will disappear).

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

3. When mounting the valve guide (opposite the knob), keep a minimum 60mm clearance from the ground for easy maintenance.

Maintenance

⚠ Warning

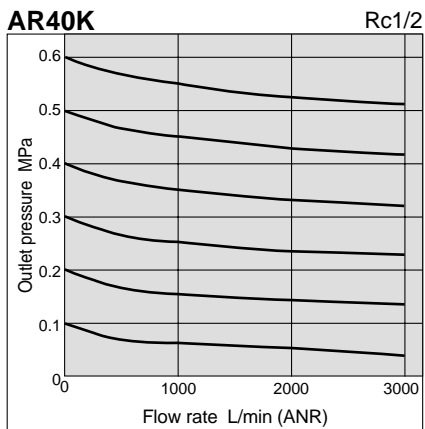
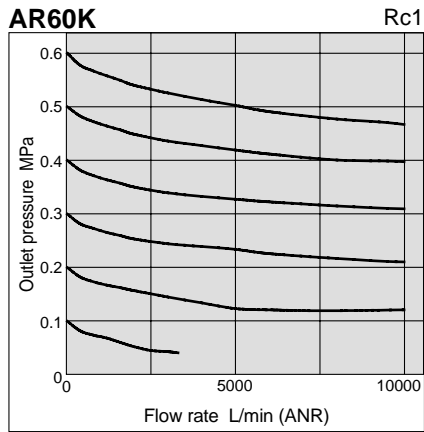
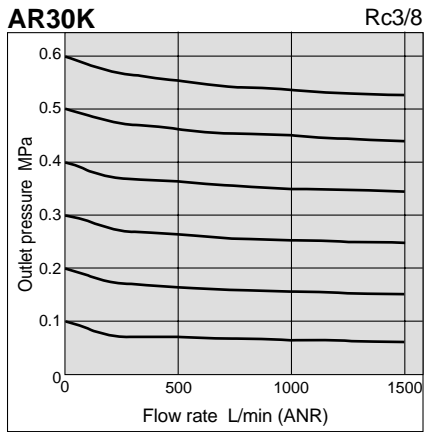
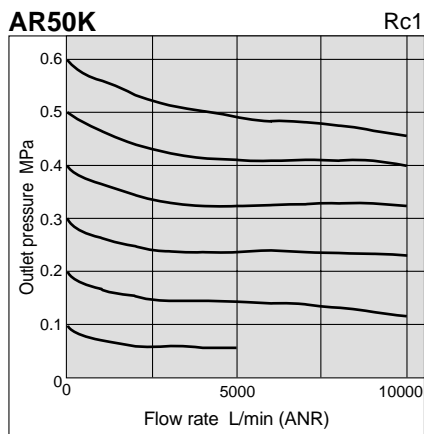
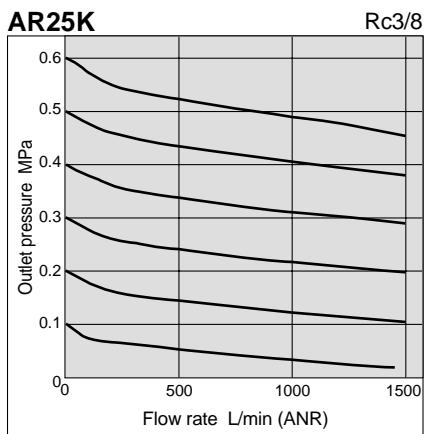
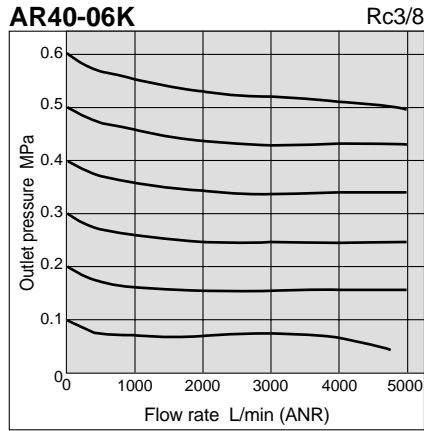
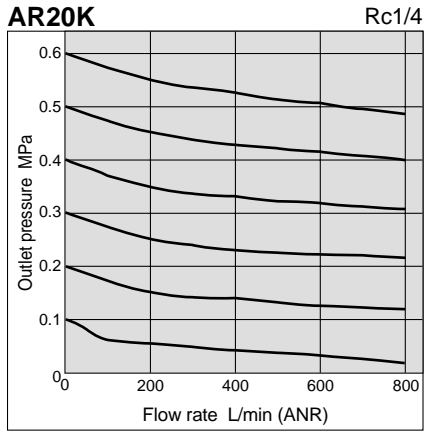
1. When using the regulator between a solenoid valve and an actuator, check the pressure gauge periodically.

Sudden pressure fluctuations may shorten the durability of the pressure gauge. A digital pressure gauge is recommended for such situation or as deemed necessary.

Regulator with Backflow Mechanism *AR20K to 60K*

Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7MPa

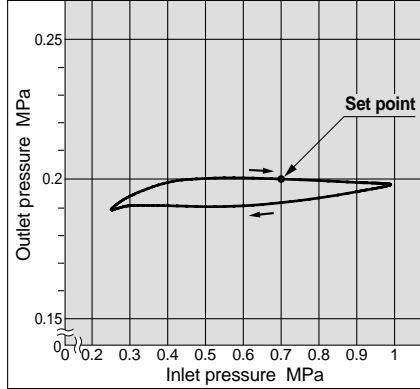


AR20K to 60K

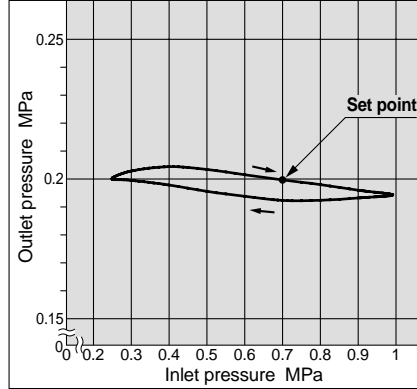
Conditions:
Inlet pressure: 0.7MPa
Outlet pressure: 0.2MPa
Flow rate: 20L/min (ANR)

Pressure Characteristics (Representative values)

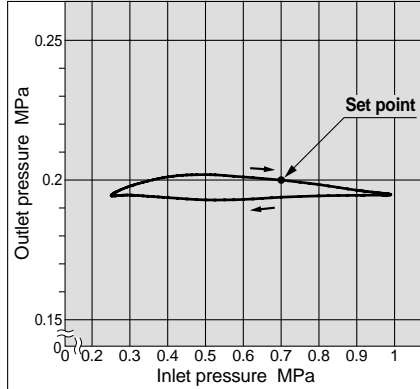
AR20K



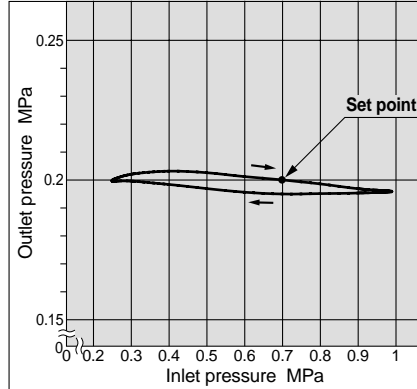
AR40K-06



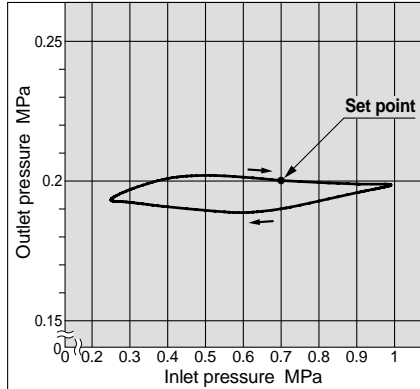
AR25K



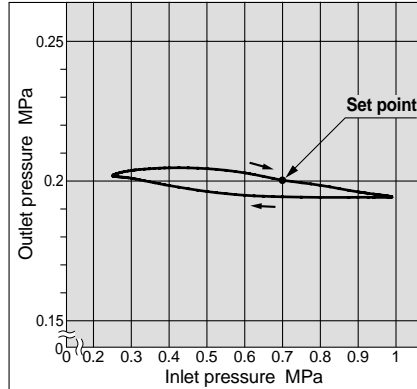
AR50K



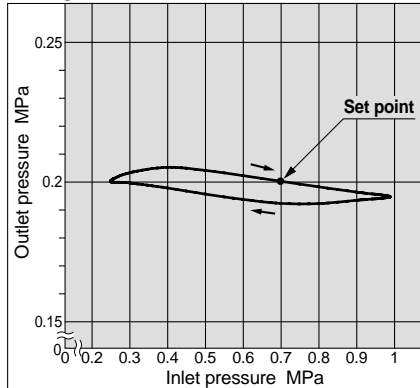
AR30K



AR60K

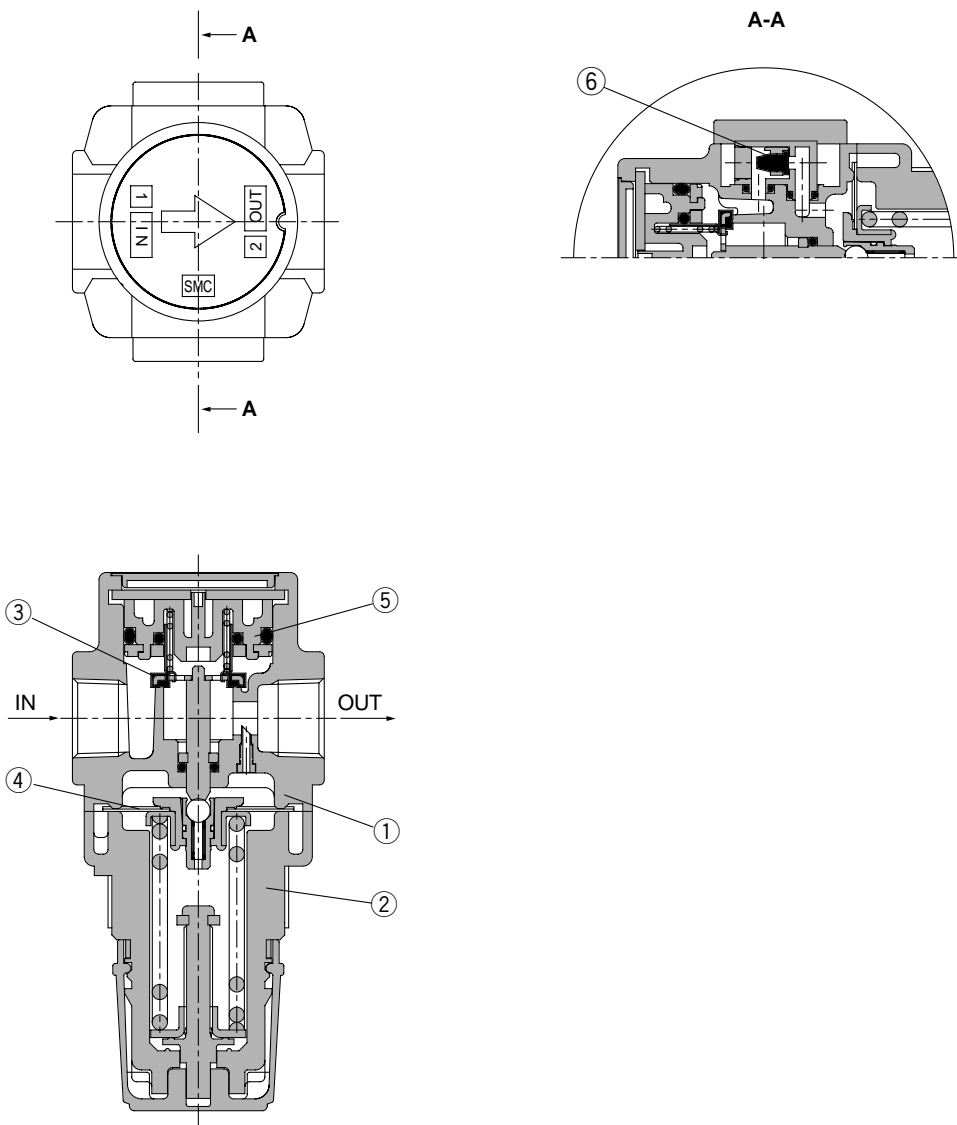


AR40K



Construction

AR20K to 60K




Parts list

No.	Description	Material			Color
		AR20K	AR25K to 40K	AR50K, 60K	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
2	Bonnet	Polyacetal		Die-cast aluminum	Black

Replacement parts

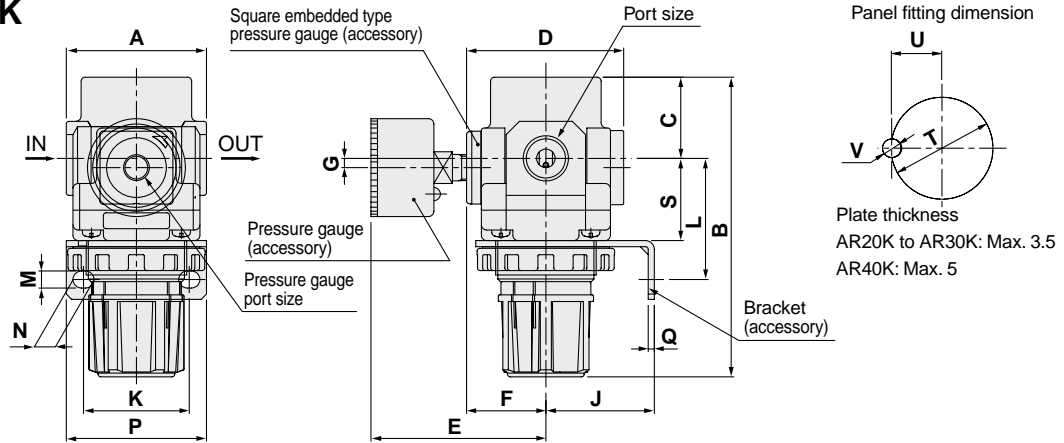
No.	Description	Material	Part no.						
			AR20K	AR25K	AR30K	AR40K	AR40K-06	AR50K	AR60K
3	Valve assembly	Stainless steel Brass, HNBR	AR20P-090AS	AR25P-090AS	AR30P-090AS	AR40P-090AS	AR40P-090AS	AR50P-090AS	AR60P-090AS
4	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR25P-150AS	AR30P-150AS	AR40P-150AS	AR40P-150AS	AR50P-150AS	AR60P-150AS
5	Valve guide assembly	POM	AR20P-050AS	AR25P-050AS	AR30P-050AS	AR40P-050AS	AR40P-050AS	AR50P-050AS	AR60P-050AS
6	Check valve construction ^{Note)}	—	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS

 Note) Check valve construction includes a check valve cover and 2 screws.

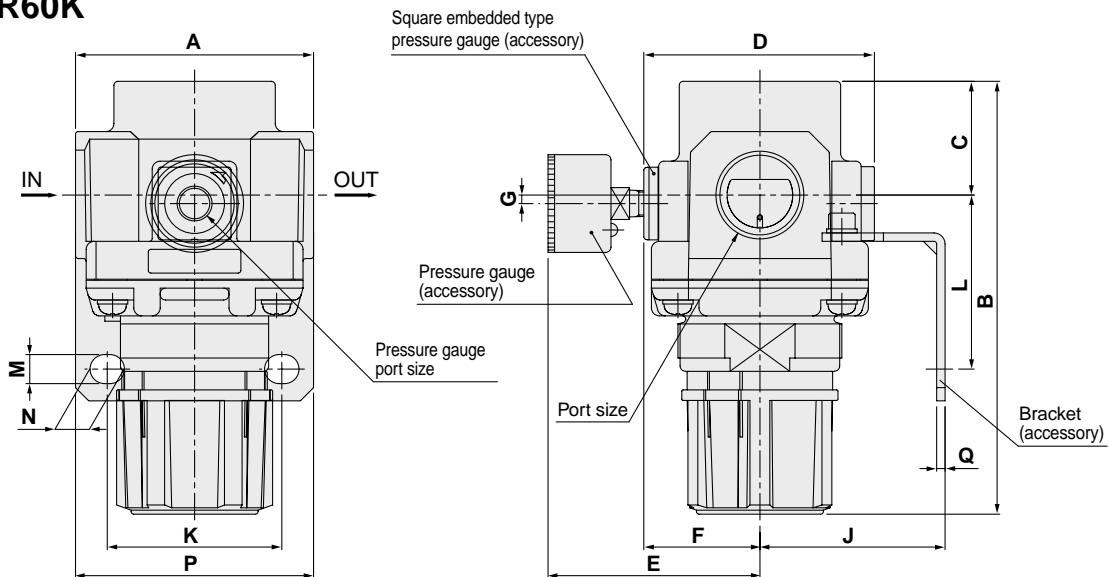
AR20K to 60K

Dimensions

AR20K to AR40K



AR50K, AR60K



Model	Port size	Standard specifications				Accessory specifications													
						With pressure gauge			Bracket mounting size							Panel mount			
		A	B	C	D	E	F	G	J	K	L	M	N	P	Q	S	T	U	V
AR20K	1/8, 1/4	40	94	26.5	57	65	29.5	2 ^{Note)}	30	34	44	5.4	15.4	55	2.3	25	28.5	14	6
AR25K	1/4, 3/8	53	101	28	55	64	28.5	0	30	34	44	5.4	15.4	55	2.3	26	32.5	16	6
AR30K	1/4, 3/8	53	116	31	59	66	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7
AR40K	1/4, 3/8, 1/2	70	128	36	68	74	35	3.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7
AR40K-06	3/4	75	129	36	68	74	35	3	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7
AR50K	3/4, 1	90	169	43	87	84	44.5	3.3	70	66	65.8	11	13	90	3.2	—	—	—	—
AR60K	1	95	176	46	87	84	44.5	3.3	70	66	65.8	11	13	90	3.2	—	—	—	—

Note) For AR20K only, the position of the pressure gauge is above the piping center.

Modular Type Lubricator *Series AL*

Lubricator
Series AL



Pages 49 through 53

Model	Port size	Option
AL10	M5 x 0.8	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	
AL60	1	

Lubricator

AL10 to 60

How to Order

AL 30 - F 03 B - 2R

Lubricator

Body size

10	M5
20	1/8
30	3/8
40	1/2
50	3/4
60	1

Thread type

Nil	Metric thread (M5)
	Rc
N	NPT
F	G

Port size

M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4
10	1

Optional specifications

Symbol	Description	Applicable models
1	1000cm ³ tank	AL30 to 60
10	1000cm ³ tank with level switch (lowest limit ON)	AL30 to 60
11	1000cm ³ tank with level switch (lowest limit OFF)	AL30 to 60
2	Metal bowl	AL10 to 60
3	With drain cock	AL10 to 60
6	Nylon bowl (including sight dome)	AL10 to 60
8	Metal bowl with level gauge	AL30 to 60
C	With bowl guard	AL20
R	Flow direction: Right to left	AL10 to 60
3W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AL30 to 60
Z ^{Note)}	Product name plate, Pressure gauge display units: PSI, °F	AL10 to 60

Accessory

Symbol	Description	Applicable model
Nil	—	—
B	With bracket	AL20 to AL 60

* When more than one specification is required, order in alphanumeric order.
 Note) For M5 and NPT thread type.

AL20



AL40

JIS symbol



Accessory/Optional specification combinations

⊙: Combination available
 ○: Varies depending on the model
 ◻: Combination not available
 △: Available only with NPT thread

Accessory/Optional specifications		Combination	Symbol	Accessory	Optional specifications											Applicable lubricator		
				B	1	10	11	2	3	6	8	C	R	3W	Z	AL10	AL20	AL30 to 60
Accessory	With bracket		B	⊙	○	○	○	○	○	○	○	○	○	○	△	◻	◻	◻
Accessory specifications	1000cm ³ tank		-1	⊙	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	△	◻	◻	◻
	1000cm ³ tank with level switch (lowest limit ON)		-10	⊙	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	△	◻	◻	◻
	1000cm ³ tank with level switch (lowest limit OFF)		-11	⊙	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	△	◻	◻	◻
	Metal bowl		-2	⊙	◻	◻	◻	◻	◻	◻	◻	◻	◻	◻	△	◻	◻	◻
	With drain cock		-3	⊙	◻	◻	◻	⊙	◻	◻	◻	◻	◻	◻	△	◻	◻	◻
	Nylon bowl (including sight dome)		-6	⊙	◻	◻	◻	◻	⊙	◻	◻	◻	◻	◻	△	◻	◻	◻
	Metal bowl with level gauge		-8	⊙	◻	◻	◻	◻	◻	⊙	◻	◻	◻	◻	△	◻	◻	◻
	With bowl guard		-C	⊙	◻	◻	◻	◻	◻	◻	⊙	◻	◻	◻	△	◻	◻	◻
	Flow direction: Right to left		-R	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	△	◻	◻	◻
	Drain cock with barb fitting (ø6 x ø4 nylon tube)		-3W	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	△	◻	◻	◻
Display units for product name plate and pressure gauge: PSI, °F			-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

Note) -1, -10, -11 are for a metal bowl with level gauge that comes with drain cock.

Standard specifications

Model	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Proof pressure	1.5MPa						
Maximum operating pressure	1.0MPa						
Minimum dripping flow rate (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 (cm ³)	7	25	55	135	135	135	135
Recommended lubricant	Class 1 turbine oil (ISO VG32)						
Ambient and fluid temperature	-5° to 60°C (with no freezing)						
Bowl material	Polycarbonate						
Weight (kg)	0.07	0.20	0.24	0.47	0.52	1.06	1.13
Accessories	Bowl guard						
	—	—	●	●	●	●	●

Notes) • The flow rate is 5 drips/min under the following conditions: Inlet pressure: 0.5MPa; Class 1 turbine oil (ISO VG32); Temperature: 20°C; Fluid adjustment valve: Fully open.
 • Use air consumption flow rate for minimum dripping flow rate.

Accessory part no.

Option	Applicable model	AL10	AL20	AL30	AL40	AL40-06	AL50	AL60
Bracket assembly ^{Note)}		—	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-051AS	AF50P-050AS	AF50P-050AS

* Bracket assembly for 1000cm³: AF50P-050AS (applicable to AL30 to AL60).

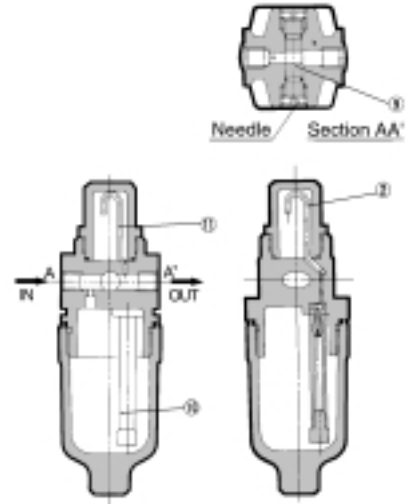
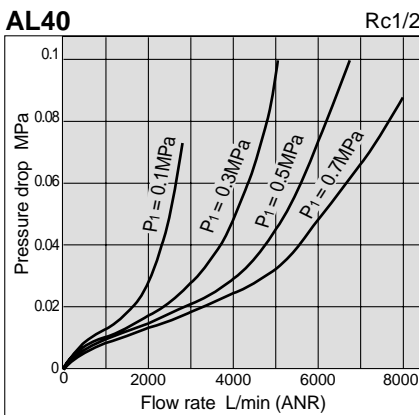
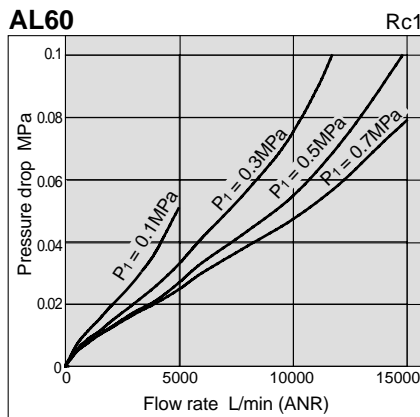
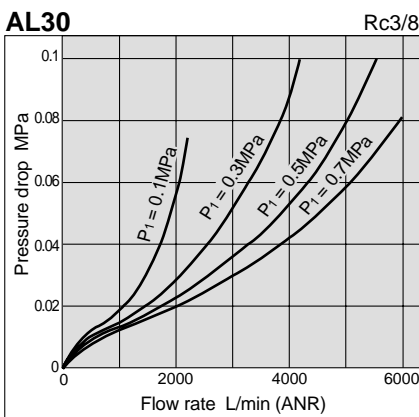
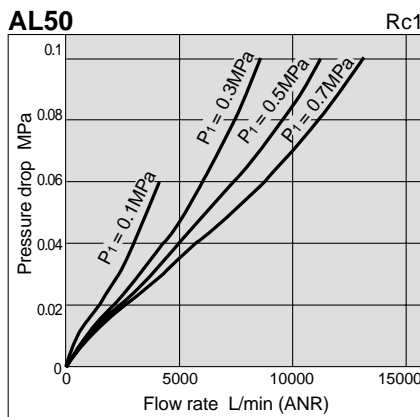
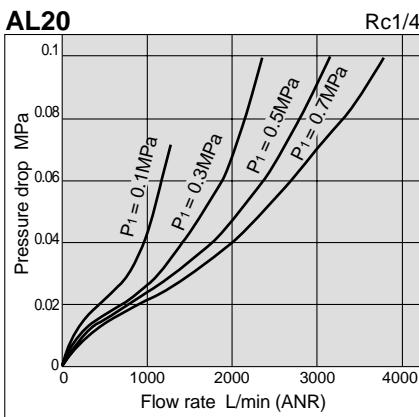
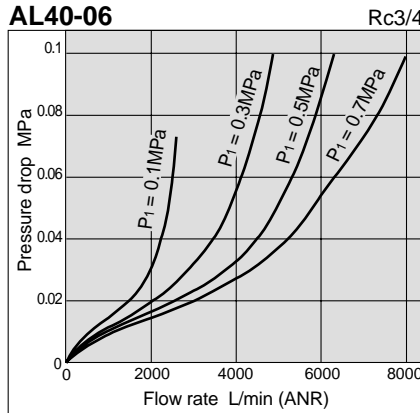
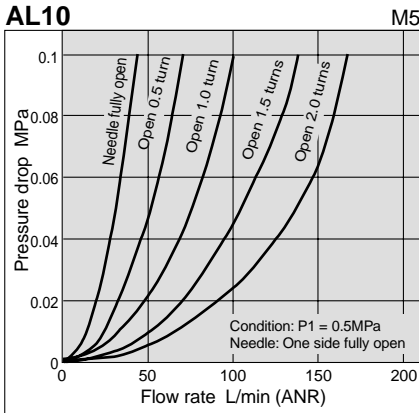
Note) Assembly includes bracket and 2 mounting screws.

AL10 to 60

Flow Characteristics (Representative values)

Condition: Inlet pressure 0.7MPa

Operating 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 lubricate 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.

Note) The operating principle for AL20 to 60 types is different from that of AL10 type.

⚠ Specific Product Precautions

Be sure to read before handling.
Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Selection

⚠ Warning

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

⚠ Caution

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

Maintenance

⚠ Warning

1. For AL10 type, replenish the lubricant AFTER releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.

⚠ Caution

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

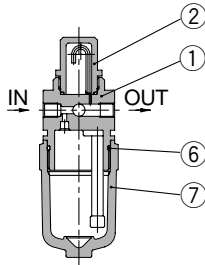
AL10 to 60

Construction

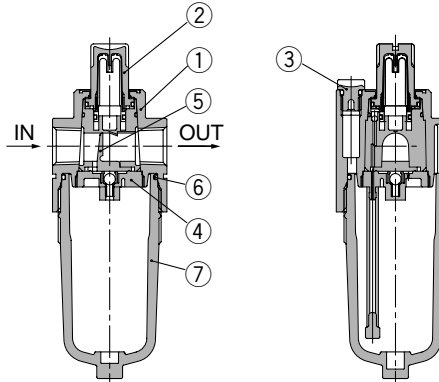
JIS symbol



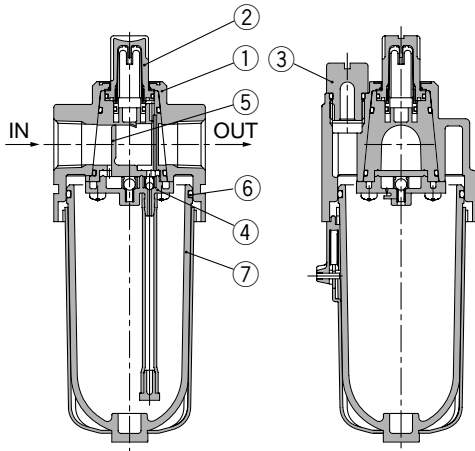
AL10



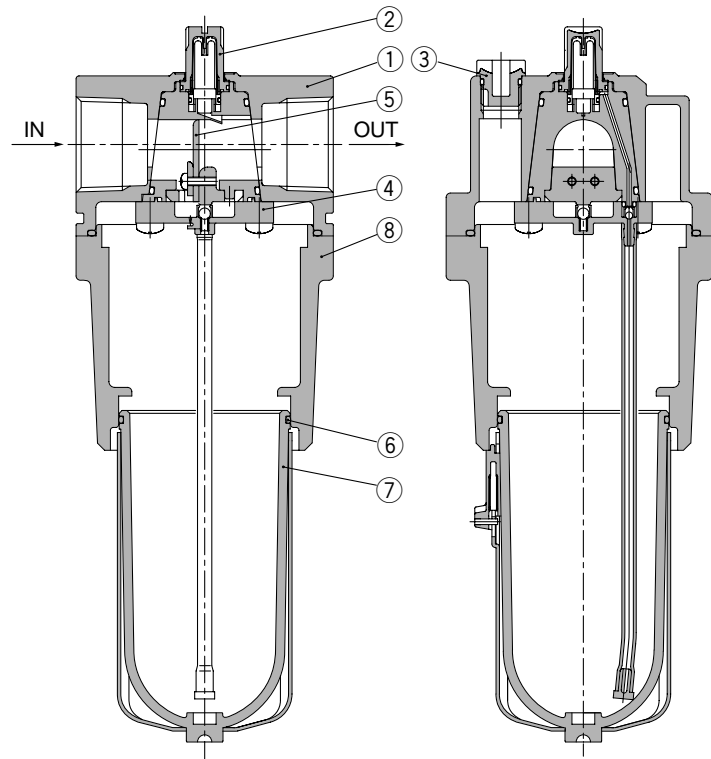
AL20



AL30, 40



AL50, 60




Parts list

No.	Description	Material			Color
		AL10, 20	AL30, 40, 40-06	AL50, 60	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
8	Housing	—		Die-cast aluminum	Platinum silver

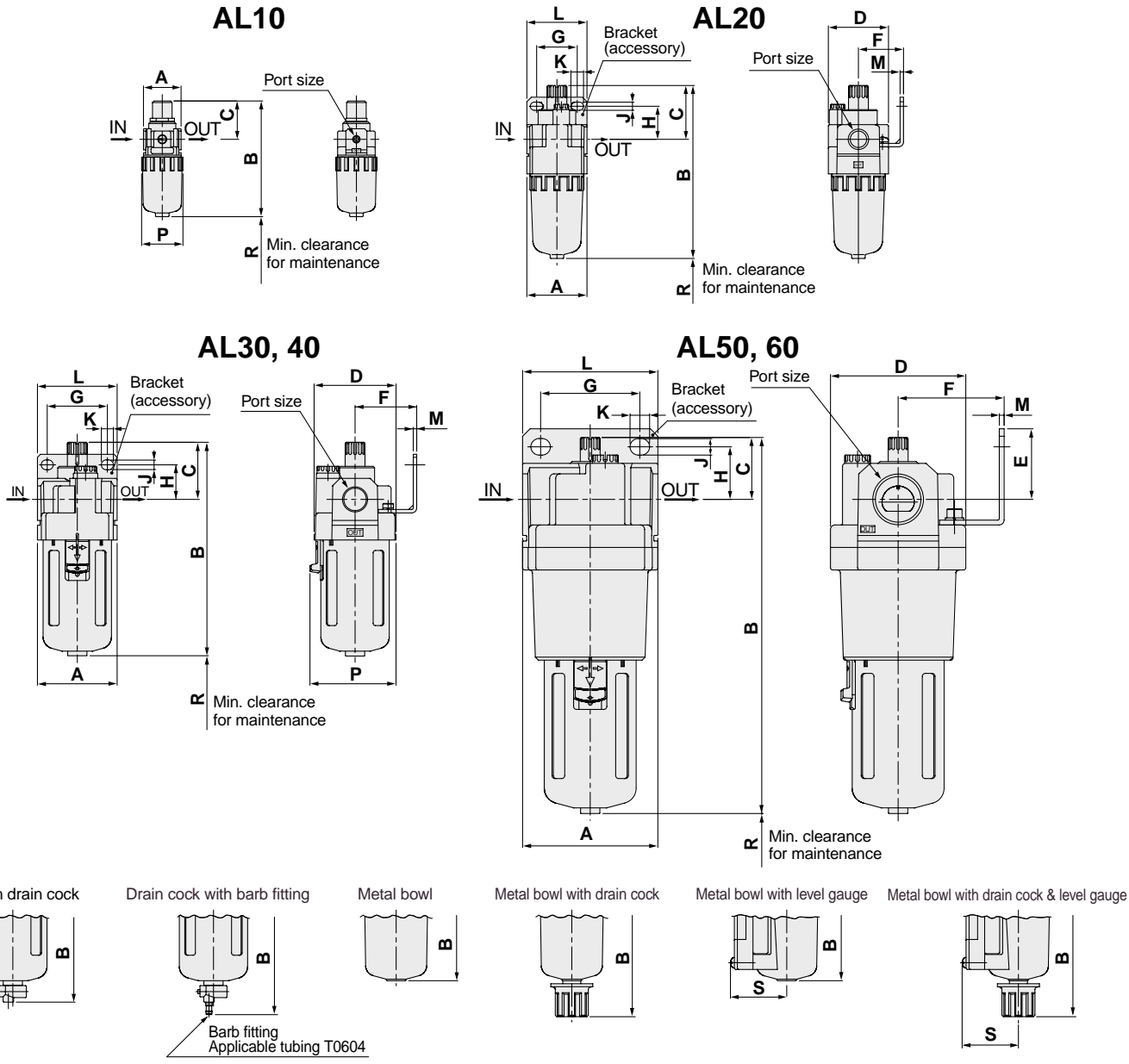
Replacement parts

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

 Note 1) Add "-1" at the end of the part number when ordering a damper retainer assembly for 1000cm³.
Example) AL30P-030AS-1

Note 2) Bowl assembly for AL30 to AL60 comes with a bowl guard (steel band material).

Dimensions



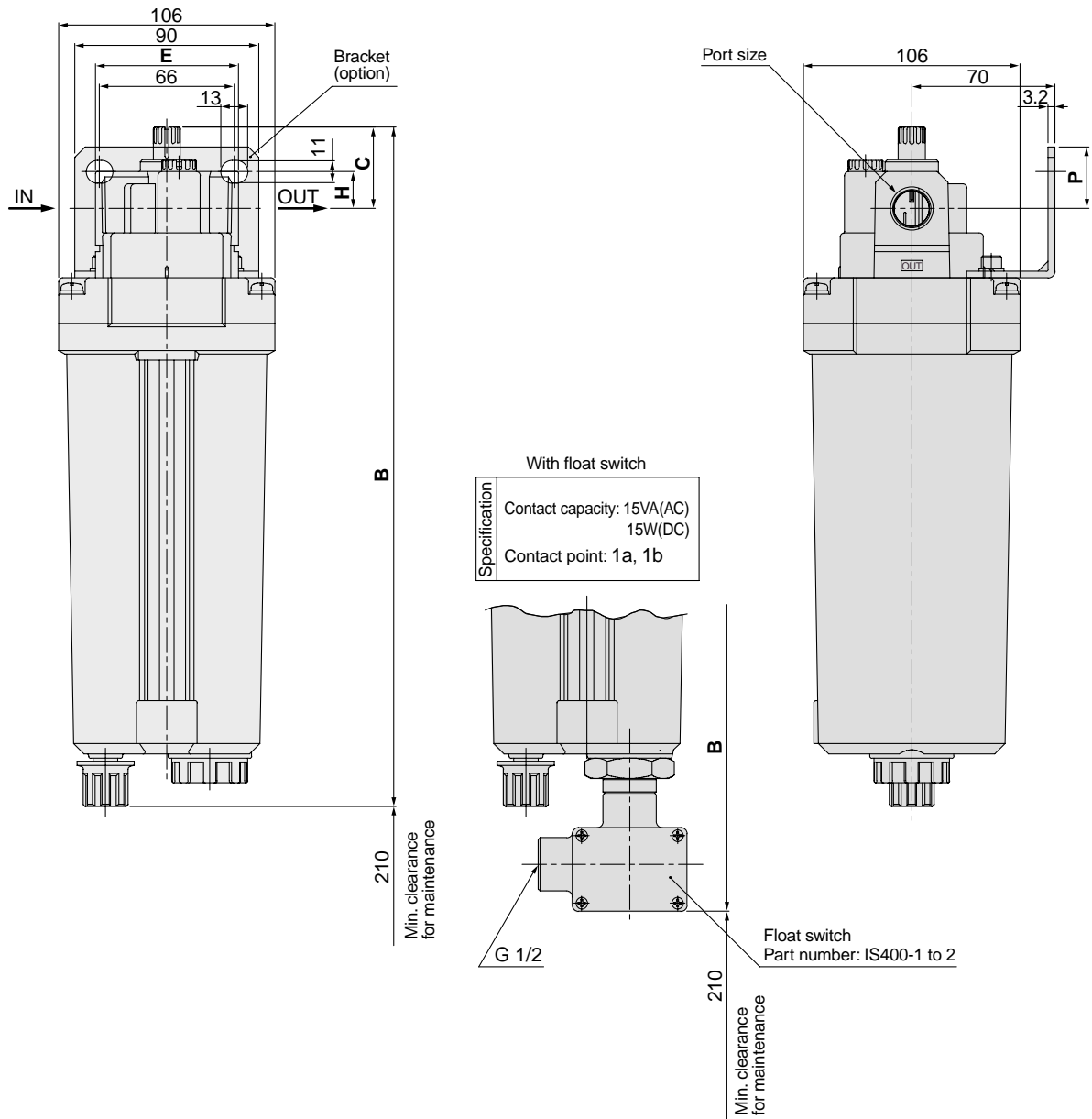
Model	Port size	Standard specifications						Accessory specifications							
								Bracket mounting size							
		A	B	C	D	P	R	E	F	G	H	J	K	L	M
AL10	M5 x 0.8	25	77	26	25	28	50	—	—	—	—	—	—	—	—
AL20	1/8, 1/4	40	115	36	40	—	80	—	30	27	22	5.4	8.4	40	2.3
AL30	1/4, 3/8	53	142	38	53	57	95	—	41	40	23	6.5	8	53	2.3
AL40	1/4, 3/8, 1/2	70	176	40	70	73	120	—	50	54	26	8.5	10.5	70	2.3
AL40-06	3/4	75	176	38	70	73	120	—	50	54	25	8.5	10.5	70	2.3
AL50	3/4, 1	90	250	41	90	—	120	47	70	66	35	11	13	90	3.2
AL60	1	95	268	45	95	—	120	47	70	66	35	11	13	90	3.2

Model	Optional specifications						
	With drain cock	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	S	B S
AL10	85	—	82	85	—	—	—
AL20	123	—	121	124	—	—	—
AL30	153	161	142	166	162	38	186 38
AL40	187	195	176	200	196	45	220 45
AL40-06	187	195	176	200	196	45	220 45
AL50	261	269	250	274	270	—	294 —
AL60	279	287	268	292	288	—	312 —

AL10 to 60





Dimensions

Optional specifications: 1000cm³ tank



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

Modular Type Filter Regulator Series AW

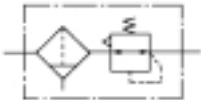
Filter regulator Series AW	Model	Port size	Filtration	Option
 <p>Pages 55 through 60</p>	AW10	M5 x 0.8	5μm	Bracket Square embedded type pressure gauge (except for AR10) Round pressure gauge Panel mount
	AW20	1/8, 1/4		
	AW30	1/4, 3/8		
	AW40	1/4, 3/8, 1/2		
	AW40-06	3/4		
 <p>Pages 61 through 64</p>	AW20K	1/8, 1/4		
	AW30K	1/4, 3/8		
	AW40K	1/4, 3/8, 1/2		
	AW40K-06	3/4		
 <p>Pages 65 through 68</p>	AWM20	1/8, 1/4		
	AWM30	1/4, 3/8		
	AWM40	1/4, 3/8, 1/2		
 <p>Pages 69 through 72</p>	AWD20	1/8, 1/4	0.01μm (95% filtered particle size)	
	AWD30	1/4, 3/8		
	AWD40	1/4, 3/8, 1/2		

Filter Regulator AW10 to 40

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

Direct operated, relieving type

JIS symbol



Page 60



AW20



AW40

How to Order

AW 30 F 03 BE 1N

Filter regulator

Body size

10	M5
20	1/8
30	3/8
40	1/2

Thread type

Nil	Metric thread (M5)
	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide: For NPT1/4 (applicable to AW30 and 40), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AW30 and 40).

Note 2) Drain guide: G1/4 (applicable to AW30 and 40)

Port size

M5	M5 x 0.8
01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Optional specifications

Symbol	Description	Applicable models
1 ^{Note 1)}	0.02 to 0.2MPa setting	AW10 to 40
2	Metal bowl	AW10 to 40
6	Nylon bowl	AW10 to 40
8	Metal bowl with level gauge	AW30, 40
C	With bowl guard	AW20
J ^{Note 2)}	Drain guide 1/4	AW30, 40
N	Non-relieving	AW10 to 40
R	Flow direction: Right to left	AW10 to 40
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AW30, 40
Z ^{Note 3)}	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	AW10 to 40

* When more than one specification is required, order in alphanumeric order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) Without a valve function.

Note 3) For M5 and NPT thread type.

Accessory

Symbol	Description	Applicable models
Nil	—	—
B ^{Note 1)}	With bracket	AW10 to 40
C	Float type auto drain (N.C.)	AW10 to 40
D	Float type auto drain (N.O.)	AW30, 40
E	With square embedded type pressure gauge (with limit indicator)	AW20 to 40
G ^{Note 2)}	With round pressure gauge (without limit indicator)	AW10
	With round pressure gauge (with limit indicator)	AW20 to 40
P	Panel mount (with set nut)	AW10 to 40

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the filter regulator for shipment.

Note 2) Mounting threads for pressure gauge: AW10: 1/16, AW20 to 30: 1/8, AW40: 1/4. Pressure gauge is not mounted on the regulator at the time of shipment, but rather packaged together with the regulator for shipment.

Accessory/Optional specification combinations

⊙: Combination available

⊠: Combination not available

○: Varies depending on the model

△: Available only with NPT thread

Accessory/Optional specifications	Combination	Symbol	Accessory						Optional specifications								Applicable filter regulator				
			B	C	D	E	G	P	1	2	6	8	C	J	N	R	W	Z	AW10	AW20	AW30 to 40
Accessory	With bracket (with set nut)	B	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Float type auto drain (N.C.)	C	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Float type auto drain (N.O.)	D	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Square embedded type pressure gauge	E	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Round pressure gauge	G	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Panel mount (with set nut)	P	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
Optional specifications	0.02 to 0.2MPa setting	-1	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Metal bowl	-2	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Nylon bowl	-6	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Metal bowl with level gauge	-8	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	With bowl guard	-C	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Drain guide 1/4	-J	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Non-relieving type	-N	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Flow direction: Right to left	-R	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Drain cock with barb fitting: ø6 x ø4 nylon tube	-W	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙	⊙
	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	-Z	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△

Standard specifications

Model		AW10	AW20	AW30	AW40	AW40-06
Port size		M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Fluid		Air				
Proof pressure		1.5MPa				
Maximum operating pressure		1.0MPa				
Regulating pressure range		0.05 to 0.7MPa	0.05 to 0.85MPa			
Pressure gauge port size ^{Note 1)}		1/16 ^{Note 2)}	1/8	1/8	1/4	1/4
Relief pressure		Set pressure + 0.05MPa ^{Note 3)} [at relief flow rate of 0.1L/min (ANR)]				
Ambient and fluid temperature		-5° to 60°C (with no freezing)				
Nominal filtration rating		5µm				
Drain capacity cm ³		2.5	8	25	45	45
Bowl material		Polycarbonate				
Construction		Relieving type				
Weight kg		0.09	0.32	0.40	0.72	0.75
Accessories	Bowl guard	—	—	●	●	●

Note 1) Pressure gauge connection threads are not required for the regulators with a square embedded type pressure gauge (AW20 to AW40).

Note 2) Use a bushing (part no: 131368) when connecting the R1/8 pressure gauge to the R1/16 gauge port.

Note 3) Not applicable to AW10.

Accessory part no.

Applicable model		AW10	AW20	AW30	AW40	AW40-06	
Accessory							
Bracket assembly ^{Note 1)}		AR10P-270AS	AR20P-270AS	AR30P-270AS	AR40P-270AS	AR40P-270AS	
Set nut		AR10P-260S	AR20P-260S	AR30P-260S	AR40P-260S	AR40P-260S	
Pressure gauge ^{Note 2)}	1.0MPa	Round	G27-10-R1	G36-10-□01	G36-10-□01	G46-10-□02	
		Square embedded type ^{Note 4)}	—	GC3-10AS	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G27-10-R1 ^{Note 3)}	G36-2-□01	G36-2-□01	G46-2-□02	G46-2-□02
		Square embedded type ^{Note 4)}	—	GC3-2AS	GC3-2AS	GC3-2AS	GC3-2AS
Float type auto drain ^{Note 5)}	N.O.	—	—	AD38	AD48	AD48	
	N.C.	AD17	AD27	AD37	AD47	AD47	

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. Nil for R and N for NPT.

Contact SMC regarding the connection thread NPT and supply of the pressure gauge for PSI unit specifications.

Note 3) For 1.0MPa.

Note 4) Includes one O-ring and 2 mounting screws.

Note 5) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD17, 27; 0.15MPa for AD37, 47. Contact SMC regarding the specifications for PSI unit and F^o.

⚠ Specific Product Precautions

Be sure to read before handling. Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Selection

⚠ Warning

- Residual pressure release (outlet pressure release) is not completed by releasing inlet pressure. To release residual pressure, use a filter regulator with a backflow mechanism.

Maintenance

⚠ Warning

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

Mounting & Adjustment

⚠ Warning

- Set the regulator while checking the displayed values of the inlet and outlet pressure gauges. Turning the knob excessively can cause damage to the internal parts.
- The accessory gauge for regulators with 0.02 to 0.2MPa setting is for 0.2MPa use only. Exceeding 0.2MPa of pressure can damage the gauge.
- Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

- 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" will disappear).

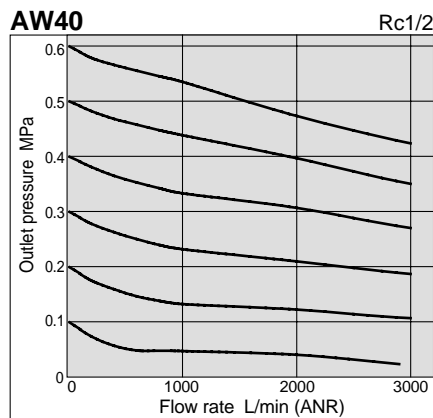
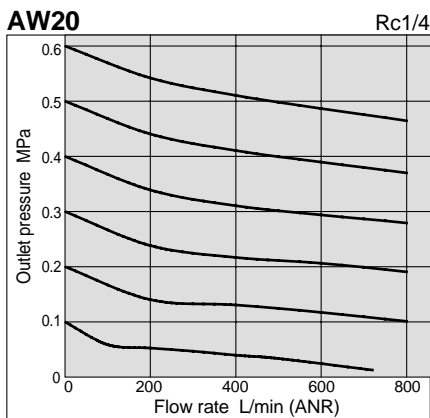
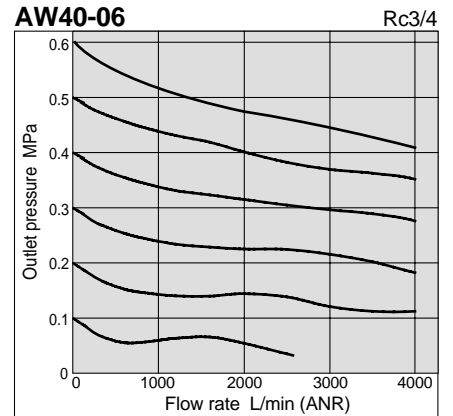
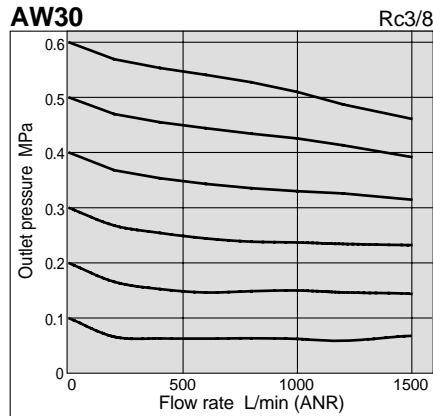
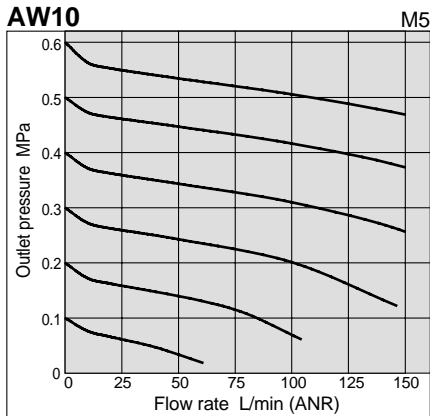


- A knob cover is available to prevent careless operation of the knob. Refer to Features 1 for details.

AW10 to 40

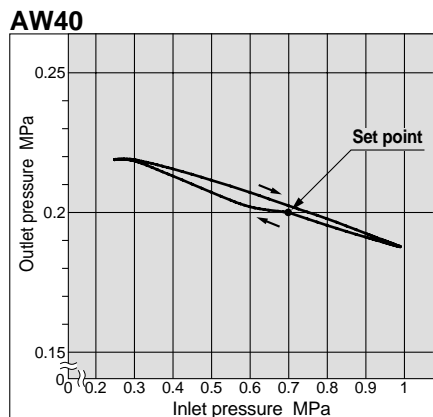
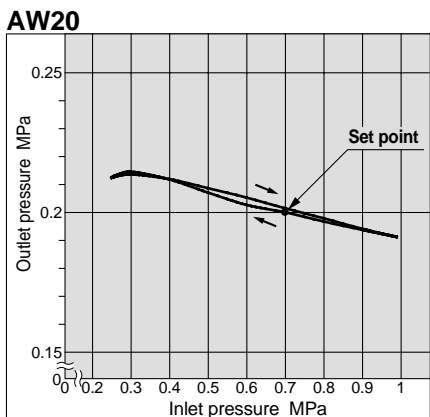
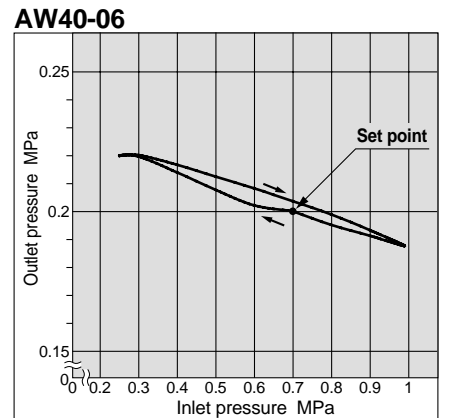
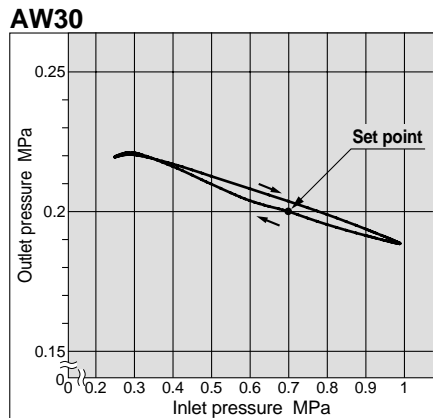
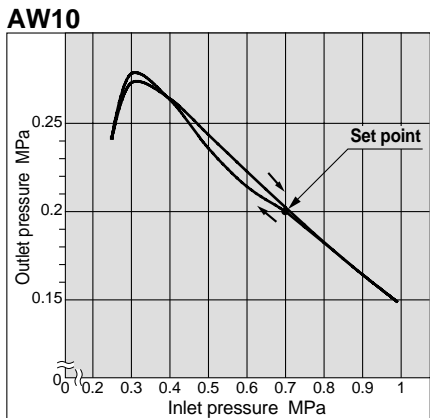
Flow Rate Characteristics (Representative values)

Condition: Inlet pressure: 0.7MPa

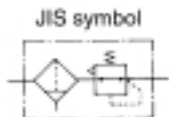


Pressure Characteristics (Representative value)

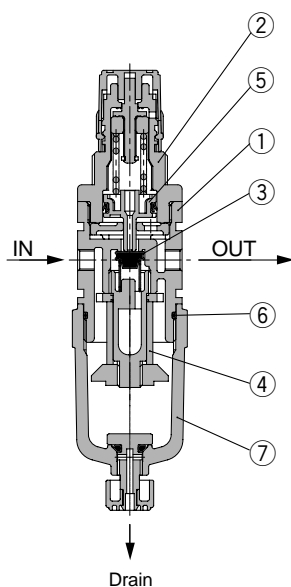
Conditions: Inlet pressure: 0.7MPa Outlet pressure: 0.2MPa Flow rate: 20L/min (ANR)



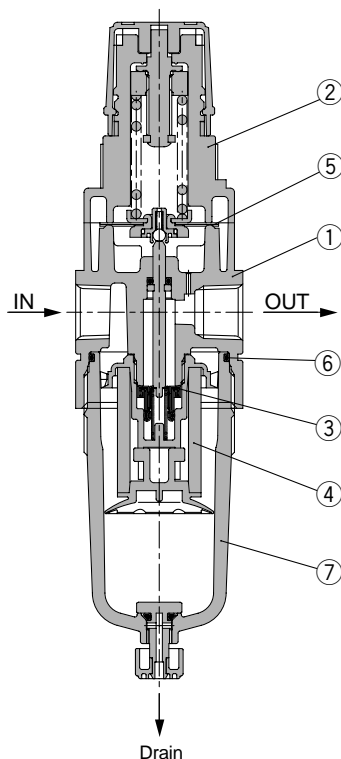
Construction



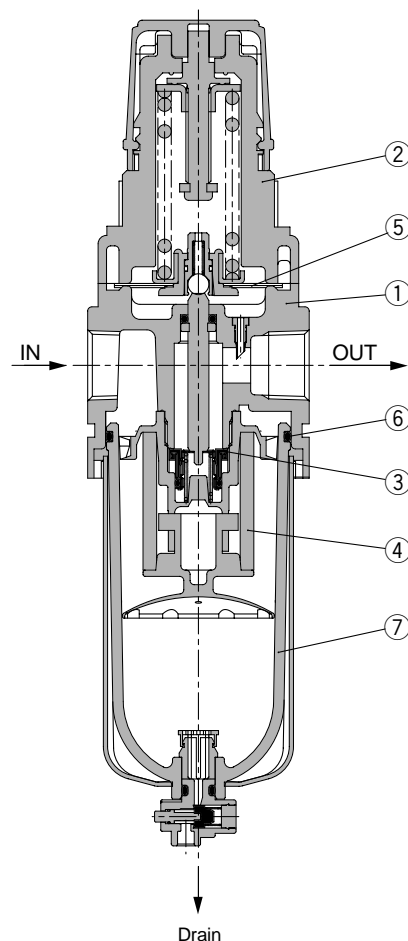
AW10



AW20



AW30, 40




Parts list

No.	Description	Material			Color
		AW10, 20	AW30	AW40, 40-06	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
2	Bonnet	Polyacetal			Black

Replacement parts

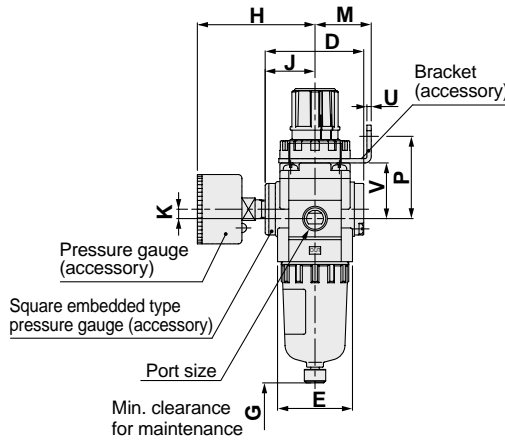
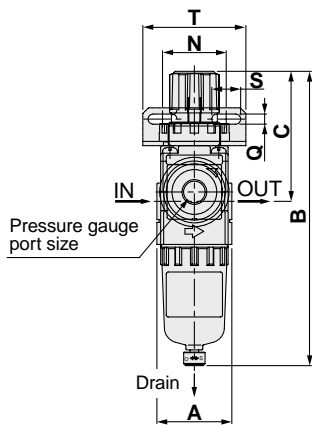
No.	Description	Material	Part no.				
			AW10	AW20	AW30	AW40	AW40-06
3	Valve assembly	Stainless steel Brass, HNBR	AR10P-090S	AW20P-090AS	AW30P-090AS	AW40P-090AS	AW40P-090AS
4	Filter element	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S	AF40P-060S
5	Diaphragm assembly	Weatherability NBR	AR10P-150AS <small>Note 1)</small>	AR20P-150AS	AR30P-150AS	AR40P-150AS	AR40P-150AS
6	Bowl O-ring	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S	C4SFP-260S
7	Bowl assembly <small>Note 2)</small>	PC	C1SF	C2SF	C3SF	C4SF	C4SF

 Note 1) AW10 is a piston type filter regulator. It is an assembly of a piston and a gasket (KSYP-13).
 Note 2) The AW30 and 40 bowl assembly comes with a bowl guard (steel band material).

AW10 to 40

Dimensions

AW10, 20



Panel fitting dimension

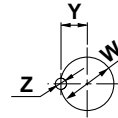
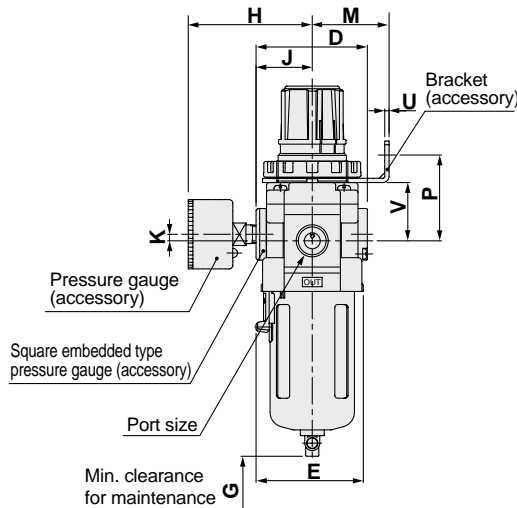
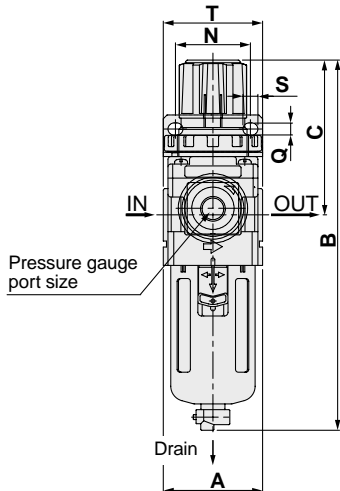


Plate thickness
AW10, AW20: Max. 3.5

AW30, 40



Panel fitting dimension

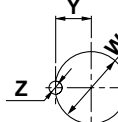


Plate thickness
AW30: Max. 3.5
AW40: 5

With auto drain (N.O./N.C.)

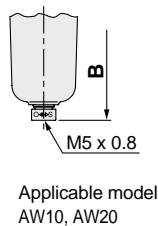
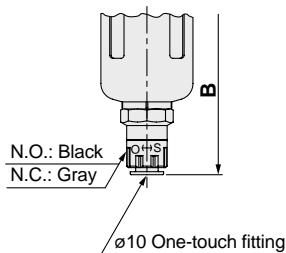
With compact auto drain (N.C.)

With drain guide

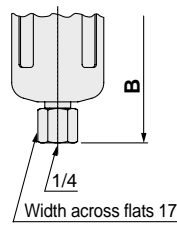
Drain cock with barb fitting

Metal bowl

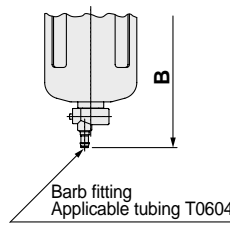
Metal bowl with level gauge



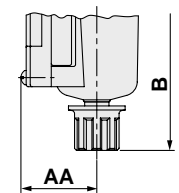
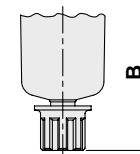
Applicable model
AW10, AW20



Width across flats 17



Applicable tubing T0604



Model	Port size	Standard specifications						Accessory specifications														
								With pressure gauge			Bracket mounting size						Panel mount				With auto drain	
		A	B	C	D	E	G	H	J	K	M	N	P	Q	S	T	U	V	W	Y	Z	B
AW10	M5 x 0.8	25	108	48	25	28	50	26	—	0	25	28	30	4.5	6.5	40	2	18	18.5	—	—	125
AW20	1/8, 1/4	40	160	73	52	40	80	63	27	5	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	177
AW30	1/4, 3/8	53	201	86	59	57	80	66	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242
AW40	1/4, 3/8, 1/2	70	239	92	75	73	105	76	38.5	1.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278
AW40-06	3/4	75	242	93	75	73	105	76	38.5	1.2	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7	278

Model	Optional specifications				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	AA
AW10	—	—	107	—	—
AW20	—	—	160	—	—
AW30	209	208	214	234	38
AW40	247	246	251	272	45
AW40-06	250	249	255	272	45

Filter Regulator AW20 to 40 Made to Order Specifications



Contact SMC for detailed dimensions, specifications, and lead times.

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) regions.

Specifications

Part no.		-X430	-X440
Environment		Low temperature	High temperature
Ambient temperature		-30° to 60°C	-5° to 80°C
Fluid temperature		-5° to 60°C (with no freezing)	
Material	Rubber parts	Special NBR	FPM
	Main metal parts	Body, Bowl, Bonnet: Die-cast aluminum, Element: Bronze	

Applicable model

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

How to Order

AW 30-03 BG-X430

Body size

30	3/8
40	1/2

Port size

02	1/4
03	3/8
04	1/2
06	3/4

For high/low temperature

X430	Low temperature
X440	High temperature

Option

Symbol	Description
Nil	—
B	With bracket
G (Note)	With round pressure gauge

Note) G43 type pressure gauge.

* Contact SMC for detailed dimensions.

* T-knob will be used.

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

Part no.	-X425
Proof pressure	3.0MPa
Maximum operating pressure	2.0MPa
Regulating pressure range	0.1 to 1.6MPa
Ambient and fluid temperature	-5° to 60°C (with no freezing)



Applicable model

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

How to Order

AW 30-03 BG-X425

Body size

20	1/8
30	3/8
40	1/2

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Option

Symbol	Description
Nil	—
B	With bracket
G (Note)	With round pressure gauge

Note) G46 type pressure gauge.

For high pressure

③ With Digital Pressure Switch

A digital pressure switch (Model: ISE30-01-□□-ML) can be ordered for models AW20 to 40. A digital pressure switch is mounted on the connection threads for the pressure gauge.

Specifications

Part no.		-X465
Pressure switch	Model	ISE30-01-□□-ML
	Regulating pressure range	-0.1 to 1MPa
	Setting/Display resolution	0.001MPa
	Power supply voltage	12 to 24VDC±10%, Ripple (p-p) 10% or less (with reverse connection protection)
	Current consumption	45mA or less (during current output: 70mA or less)

Applicable model

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



How to Order

AW 30-03 B-X465 A

Body size

20	1/8
30	3/8
40	1/2

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Option

Symbol	Description
Nil	—
B	With bracket

Switch specifications

Symbol	Output specifications
A	NPN output
B	PNP output
C	1 to 5V output
D	4 to 20mA output

Notes) • Contact SMC for detailed dimensions and optional availability.

• Refer to Series ZSE30/ISE30 2-Color Display Type High-Precision Digital Pressure Switch (CAT. ES100-42) for detailed information and specifications on the digital pressure switch.

• A digital pressure switch is packaged together with the air preparation equipment for shipment.

Filter Regulator with Backflow Mechanism

AW20K to 40K

How to Order



AW40K



AW20K

AW 30 K - F 03 BE - 1N

Filter regulator

Body size

20	1/8
30	3/8
40	1/2

With backflow mechanism

Note) AW10 comes with a backflow mechanism as a standard feature. If the set pressure is below 0.15MPa, backflow may not occur. When a backflow mechanism is required with a set pressure of less than 0.15MPa, contact SMC.

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide: For NPT 1/4 (applicable to AW30K and 40K), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AW30K and 40K).

Note 2) Drain guide: G 1/4 (applicable to AW30K and 40K)

Port size

01	1/8
02	1/4
03	3/8
04	1/2
06	3/4

Optional specifications

Symbol	Description	Applicable models
1 Note 1)	0.02 to 0.2MPa setting	AW20K to 40K
2	Metal bowl	AW20K to 40K
6	Nylon bowl	AW20K to 40K
8	Metal bowl with level gauge	AW30K, 40K
C	With bowl guard	AW20K
J Note 2)	Drain guide 1/4	AW30K, 40K
N	Non-relieving	AW20K to 40K
R	Flow direction: Right to left	AW20K to 40K
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AW30K, 40K
Z Note 3)	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	AW20K to 40K

* When more than one specification is required, order in alphanumeric order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) Without a valve function.

Note 3) For NPT thread type.

Accessory

Symbol	Description	Applicable models
Nil	—	—
B Note 1)	With bracket	AW20K to 40K
C	Float type auto drain (N.C.)	AW20K to 40K
D	Float type auto drain (N.O.)	AW30K, 40K
E	With square embedded type pressure gauge (with limit indicator)	AW20K to 40K
G Note 2)	With round pressure gauge (with limit indicator)	AW20K to 40K
P	Panel mount (with set nut)	AW20K to 40K

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the filter regulator for shipment.

Note 2) Mounting threads for pressure gauge: AW20K to 30K: 1/8; AW40K: 1/4. Pressure gauge is not mounted on the filter regulator at the time of shipment, but rather packaged together with the filter regulator for shipment.

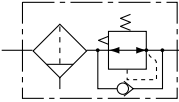
Standard specifications

Model	AW20K	AW30K	AW40K	AW40K-06
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Fluid	Air			
Proof pressure	1.5MPa			
Maximum operating pressure	1.0MPa			
Regulating pressure range Note 1)	0.05 to 0.85MPa			
Pressure gauge port size Note 2)	1/8	1/8	1/4	1/4
Relief pressure	Set pressure + 0.05MPa [at relief flow rate of 0.1L/min (ANR)]			
Ambient and fluid temperature	-5° to 60°C (with no freezing)			
Nominal filtration rating	5µm			
Drain capacity cm ³	8	25	45	45
Bowl material	Polycarbonate			
Construction	Relieving type			
Weight kg	0.32	0.40	0.72	0.75
Accessories	Bowl guard	●	●	●

Note 1) Set the inlet pressure 0.05MPa higher than the set pressure.

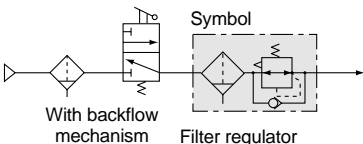
Note 2) Pressure gauge connection threads are not required for the regulators with a square embedded type pressure gauge (AW20K to AW40K).

Symbol



Circuit diagram

When the air supply is stopped and releasing the upstream pressure to the atmosphere, the residual pressure release of the downstream side can be ensured for a safety purpose.



Accessory part no.

Applicable model		AW20K	AW30K	AW40K	AW40K-06
Accessory					
Bracket assembly Note 1)		AW20P-270AS	AR30P-270AS	AR40P-270AS	AR40P-270AS
Set nut		AR20P-260S	AR30P-260S	AR40P-260S	AR40P-260S
Pressure gauge	1.0MPa	Round	G36-10-□01	G36-10-□01	G46-10-□02
		Square embedded type Note 3)	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G36-2-□01	G36-2-□01	G46-2-□02
		Square embedded type Note 3)	GC3-2AS	GC3-2AS	GC3-2AS
Float type auto drain Note 4)	N.O.	—	AD38	AD48	AD48
	N.C.	AD27	AD37	AD47	AD47

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. Use Nil for R and N for NPT. Contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

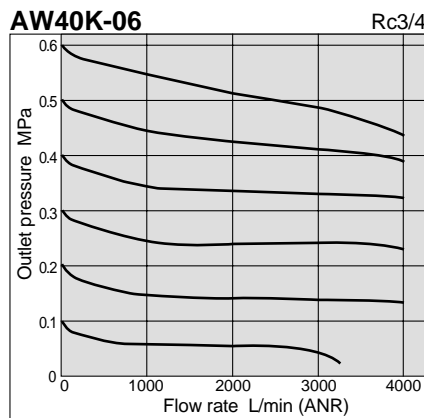
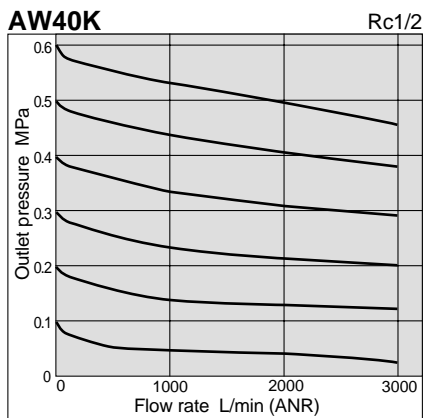
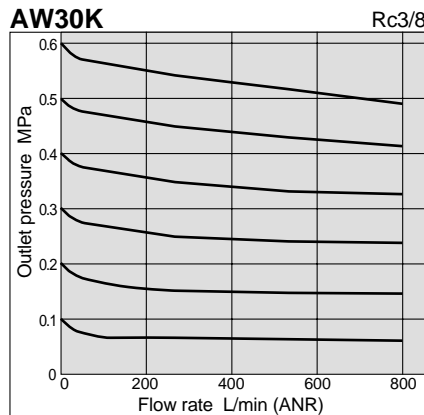
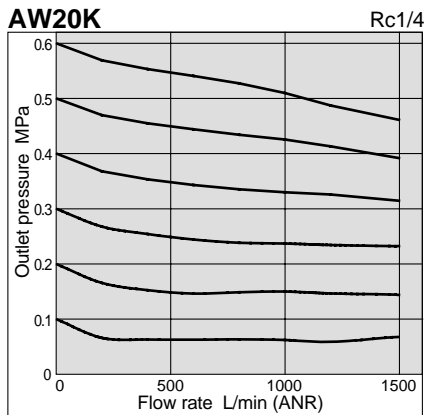
Note 3) Includes one O-ring and 2 mounting screws.

Note 4) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD27; 0.15MPa for AD37, 47. Contact SMC regarding the specifications for PSI unit and F°.

Filter Regulator with Backflow Mechanism **AW20K to 40K**

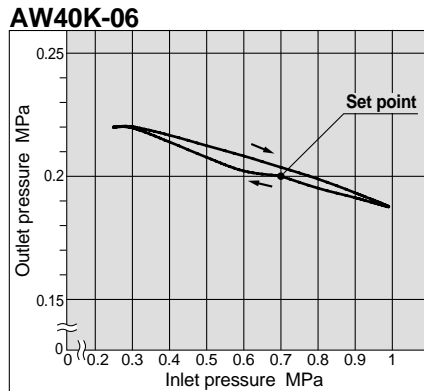
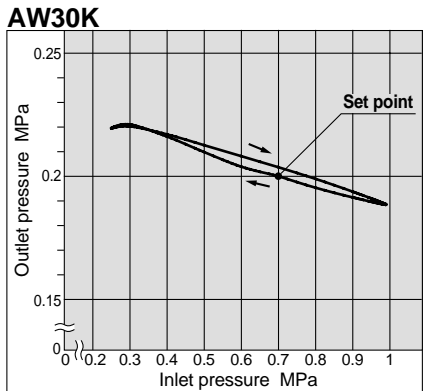
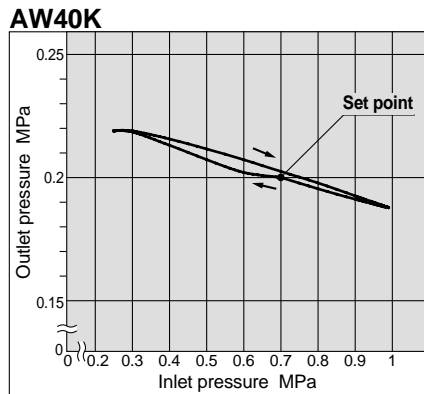
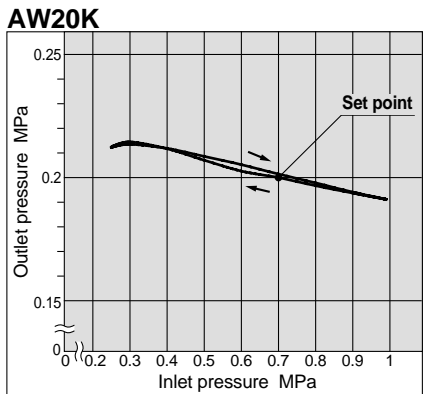
Flow Rate Characteristics (Representative values)

Condition:
Inlet pressure: 0.7MPa



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

Pressure Characteristics (Representative values)



⚠ Specific Product Precautions

Be sure to read before handling.
Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Mounting & Adjustment

⚠ Warning

1. Set the regulator while checking the displayed values of the inlet and outlet pressure gauges. Turning the knob excessively can cause damage to the internal parts.
2. The accessory gauge for regulators with 0.02 to 0.2MPa setting is for up to 0.2MPa use. Exceeding 0.2MPa 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 Features 1 for details.

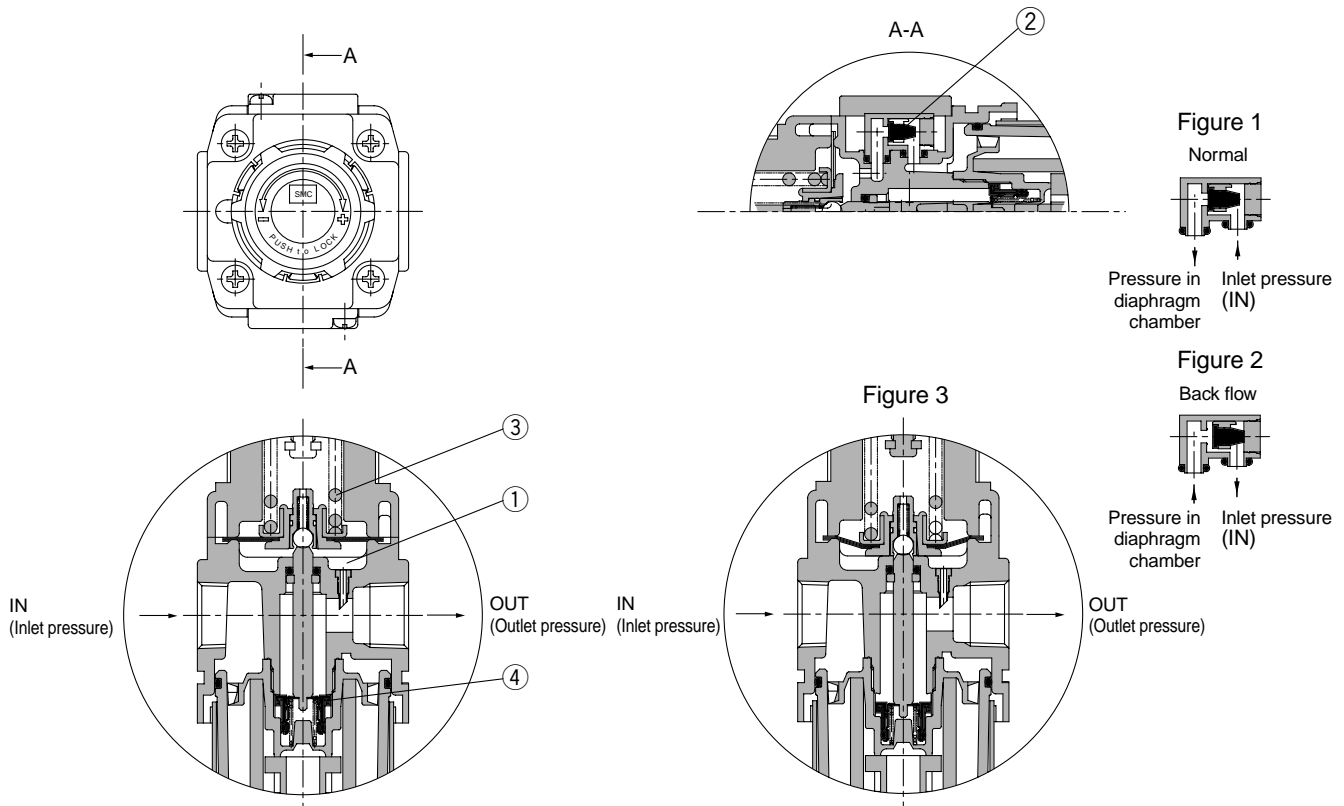
Maintenance

⚠ Warning

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

AW20K to 40K

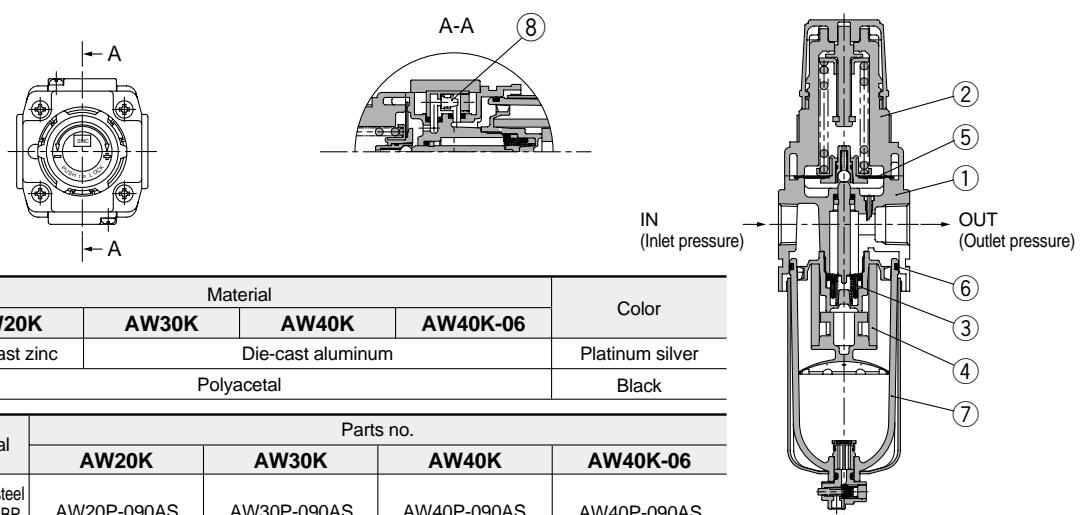
Operating Principle



When the inlet pressure (P_1) is higher than the set pressure, the check valve, ②, closes and operates as a normal regulator (Figure 1).
 When the inlet pressure (P_1) is shut off and released, the 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 the 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 3).

Construction

AW20K to 40K



Parts list

No.	Description	Material	Material				Color
			AW20K	AW30K	AW40K	AW40K-06	
1	Body	Die-cast zinc	Die-cast aluminum			Platinum silver	
2	Bonnet	Polyacetal				Black	
No.	Description	Material	Parts no.				
			AW20K	AW30K	AW40K	AW40K-06	
3	Valve construction	Stainless steel Brass, HNBR	AW20P-090AS	AW30P-090AS	AW40P-090AS	AW40P-090AS	
4	Filter element	Non-woven fabric	AF20P-060S	AF30P-060S	AF40P-060S	AF40P-060S	
5	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS	AR40P-150AS	
6	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S	C4SFP-260S	
7	Bowl assembly ^{Note 1)}	PC	C2SF	C3SF	C4SF	C4SF	
8	Check valve assembly ^{Note 2)}	POM, PBT	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	AR20KP-020AS	

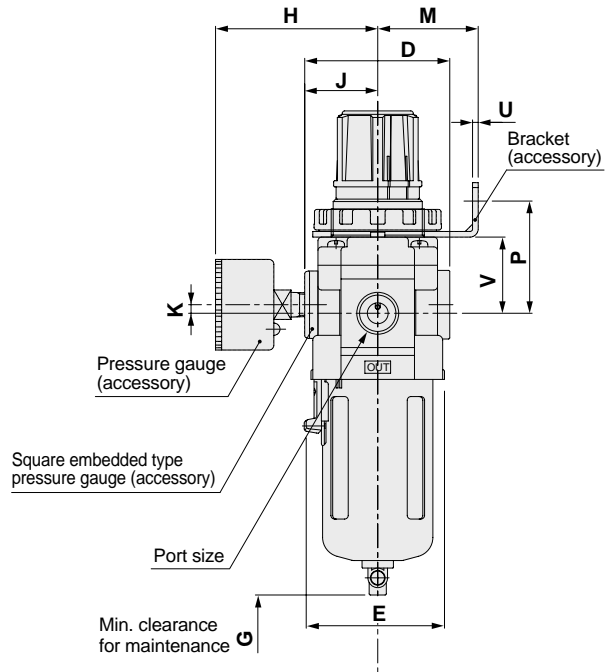
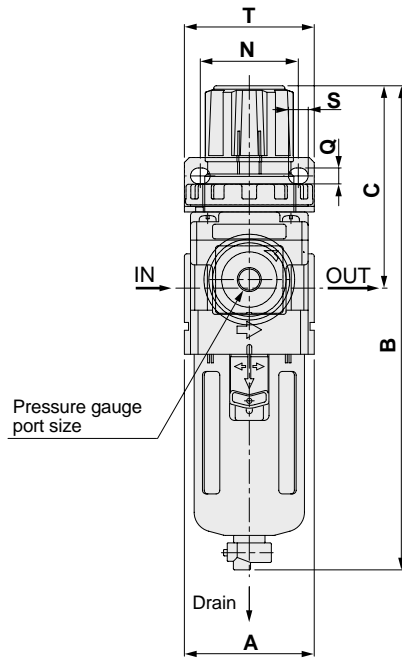
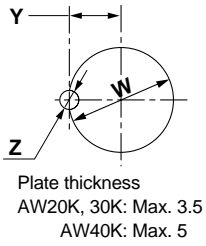
Note 1) Bowl assembly for AW30K to AW60K includes bowl guard (steel band material).
 Note 2) Check valve assembly includes the check valve itself, check valve cover, and 2 screws.

Filter Regulator with Backflow Mechanism **AW20K to 40K**

Dimensions

AW20K to 40K

Panel fitting dimension



With auto drain (N.O./N.C.)

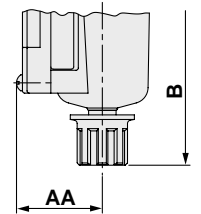
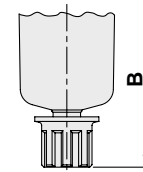
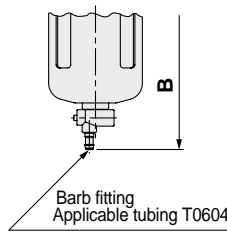
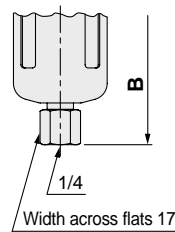
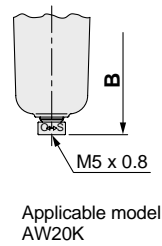
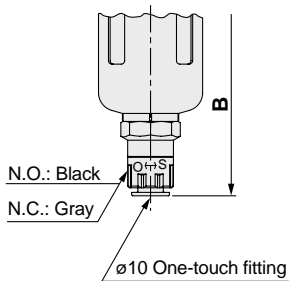
With compact auto drain (N.C.)

With drain guide

Drain cock with barb fitting

Metal bowl

Metal bowl with level gauge



Model	Port size	Standard specifications						Accessory specifications														
		Standard specifications						With pressure gauge				Bracket mounting size						Panel mount				With auto drain
								A	B	C	D	E	G	H	J	K	M	N	P	Q	S	
AW20K	1/8, 1/4	40	160	73	52	40	80	63	27	5	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	177
AW30K	1/4, 3/8	53	201	86	59	57	80	70	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242
AW40K	1/4, 3/8, 1/2	70	239	92	75	73	105	76	38.5	1.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278
AW40K-06	3/4	75	242	93	75	73	105	76	38.5	1.2	50	54	56	8.5	10.5	70	2.3	37	42.5	21	7	278

Model	Port size	Optional specifications			
		With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
		B	B	B	B AA
AW20K	1/8, 1/4	—	—	160	—
AW30K	1/4, 3/8	209	208	214	234 38
AW40K	1/4, 3/8, 1/2	247	246	251	272 45
AW40K-06	3/4	250	249	255	272 45

Mist Separator Regulator

AWM20 to 40

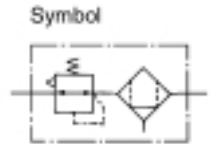
Series AWM is a component made up of a regulator and a mist separator that are integrated to provide optimum results in applications such as clean air blow operations.



AWM30



AWM40



Filtration: 0.3μm

How to Order

AWM 30 — F 03 BE — 1N

Mist separator regulator

Body size

20	1/8
30	3/8
40	1/2

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G



Note 1) Drain guide: For NPT1/4 (applicable to AWM30 and 40), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AWM30 and 40).

Note 2) Drain guide: G1/4 (applicable to AWM30 and 40)

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Optional specifications

Symbol	Description	Applicable models
1 Note 1)	0.05 to 0.2MPa setting	AWM20 to 40
2	Metal bowl	AWM20 to 40
6	Nylon bowl	AWM20 to 40
8	Metal bowl with level gauge	AWM30, 40
C	With bowl guard	AWM20
J Note 2)	Drain guide 1/4	AWM30, 40
N	Non-relieving	AWM20 to 40
R	Flow direction: Right to left	AWM20 to 40
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AWM30, 40
Z Note 3)	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	AWM20 to 40

* When more than one specification is required, order in alphanumeric order.

Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.

Note 2) Without a valve function.

Note 3) For NPT thread type.

Accessory

Symbol	Description	Applicable models
Nil	—	—
B Note 1)	With bracket	AWM20 to 40
C	Float type auto drain (N.C.)	AWM20 to 40
D	Float type auto drain (N.O.)	AWM30, 40
E	With square embedded type pressure gauge (with limit indicator)	AWM20 to 40
G Note 2)	With round pressure gauge (with limit indicator)	AWM20 to 40
P	Panel mount (with set nut)	AWM20 to 40



Note 1) A bracket assembly is not mounted at the time of shipment, but rather packaged together with the mist separator regulator for shipment.

Note 2) Mounting threads for pressure gauge: AWM20 to 30: 1/8, AWM40: 1/4. Pressure gauge is not mounted on the filter regulator at the time of shipment, but rather packaged together with the mist separator regulator for shipment.

Accessory/Optional specification combinations

⊙: Combination available

■: Combination not available

○: Varies depending on the model

△: Available only with NPT thread

Combination	Symbol	Accessory											Optional specifications							Applicable mist separator regulator	
		B	C	D	E	G	P	1	2	6	8	C	J	N	R	W	Z	AWM20	AWM30 to 40		
Accessory	With bracket (with set nut)	■	⊙	○	⊙	⊙	■	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙			
	Float type auto drain (N.C.)	⊙	■	○	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙				
	Float type auto drain (N.O.)	⊙	○	○	⊙	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙				
	Square embedded type pressure gauge	⊙	⊙	⊙	○	○	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙				
	Round pressure gauge	⊙	⊙	○	○	○	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙				
	Panel mount (with set nut)	■	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙				
Optional specifications	0.05 to 0.2MPa setting	⊙	⊙	○	⊙	⊙	⊙	■	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙			
	Metal bowl	⊙	⊙	○	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	△	⊙	⊙				
	Nylon bowl	⊙	⊙	○	⊙	⊙	⊙	○	○	○	○	○	⊙	⊙	△	⊙	⊙				
	Metal bowl with level gauge	⊙	⊙	⊙	⊙	⊙	⊙	○	○	○	○	⊙	⊙	○	△	⊙	⊙				
	With bowl guard	⊙	⊙	○	⊙	⊙	⊙	○	○	○	○	⊙	⊙	○	△	⊙	⊙				
	Drain guide 1/4	⊙	○	○	⊙	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙				
	Non-relieving type	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	⊙	⊙	△	⊙	⊙				
	Flow direction: Right to left	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	○	⊙	⊙	△	⊙	⊙				
	Drain cock with barb fitting: ø6 x ø4 nylon tube	⊙	○	○	⊙	⊙	⊙	⊙	⊙	○	○	○	⊙	⊙	△	⊙	⊙				
	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△			

Standard specifications

Model		AWM20	AWM30	AWM40
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air		
Proof pressure		1.5MPa		
Maximum operating pressure		1.0MPa		
Regulating pressure range		0.05 to 0.85MPa		
Pressure gauge port size ^{Note 1)}		1/8	1/8	1/4
Ambient and fluid temperature		-5° to 60°C (with no freezing)		
Nominal filtration rating		0.3µm (95% filtered particle size)		
Downstream side oil mist concentration		Max. 1.0mgf/Nm ³ (approx. 0.8ppm) ^{Note 2)}		
Element service life		2 years or when the pressure drop becomes 0.1MPa		
Flow rate L/min (ANR) ^{Note 3)}		150	330	820
Bowl material		Polycarbonate		
Drain capacity cm ³		8	25	45
Construction		Relieving type		
Weight kg		0.44	0.59	1.25
Accessories	Bowl guard	—	●	●



Note 1) Pressure gauge connection threads are not required for the regulator with a square embedded type pressure gauge (AWM20 to 40).

Note 2) When the compressor oil mist discharge concentration is 30mgf/Nm³ (ANR).

Bowl O-ring and other O-rings are slightly lubricated.

Note 3) When the outlet pressure is 0.5MPa. (The flow rate varies depending on the set pressure.)

Keep the air flow within the rated flow to prevent and outflow of a lubricant to the downstream side.

Accessory part no.

Accessory		Applicable model	AWM20	AWM30	AWM40
Bracket assembly ^{Note 1)}			AW20P-270AS	AR30P-270AS	AR40P-270AS
Set nut			AR20P-260S	AR30P-260S	AR40P-260S
Pressure gauge ^{Note 2)}	1.0MPa	Round	G36-10-□01	G36-10-□01	G46-10-□02
		Square embedded type ^{Note 3)}	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G36-2-□01	G36-2-□01	G46-2-□02
		Square embedded type ^{Note 3)}	GC3-2AS	GC3-2AS	GC3-2AS
Float type auto drain ^{Note 4)}	N.O.	—	AD38	AD48	
	N.C.	AD27	AD37	AD47	



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. Use Nil for R and N for NPT. Contact SMC regarding the NPT connection thread and pressure gauge supply for PSI unit specifications.

Note 3) Includes one O-ring and 2 mounting threads.

Note 4) Minimum operating pressure: N.O. type: 0.1MPa, N.C. type: 0.1MPa for AD27; 0.15MPa for AD37, 47. Set the pressure to allow a pressure drop when the fluid flows. Contact SMC regarding the specifications for PSI unit and F°.

⚠ Specific Product Precautions

Be sure to read before handling. Refer to pages 73 through 76 for safety instructions and F.R.L. unit precautions.

Selection

⚠ Warning

- Residual pressure release (outlet pressure release) is not complete by releasing inlet pressure. Contact SMC regarding residual pressure release.

Air Supply

⚠ Caution

- Install an air filter (Series AF) as a pre-filter on the upstream side of the mist separator regulator to prevent premature clogging.

Maintenance

⚠ Warning

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

Mounting & Adjustment

⚠ Warning

- Set the regulator while checking the displayed values of the inlet and outlet pressure gauges. Turning the knob excessively can cause damage to the internal parts.
- The accessory gauge for mist separator regulators with 0.05 to 0.2MPa setting is for up to 0.2MPa only. Exceeding 0.2MPa of pressure can damage the gauge.
- Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

- 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).

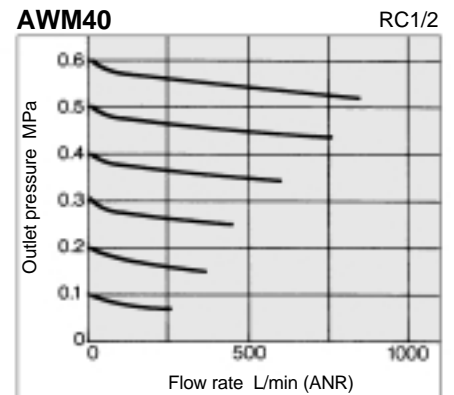
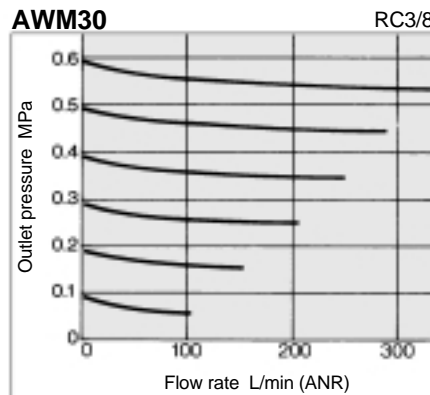
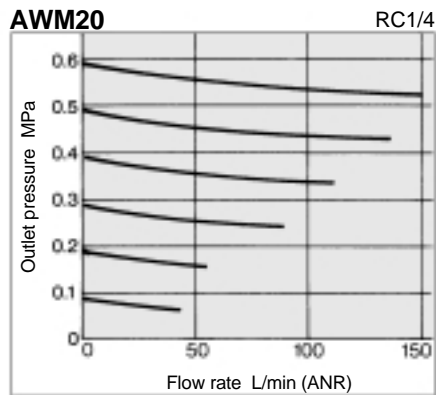


- A knob cover is available to prevent careless operation of the knob. Refer to Features 1 for details.

AWM20 to 40

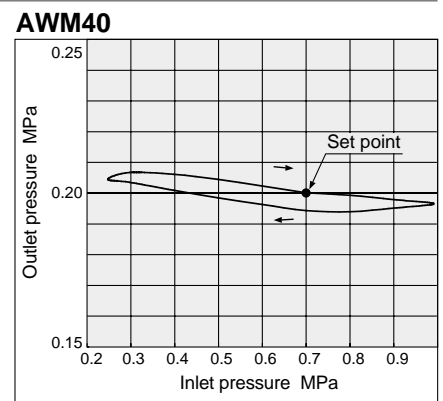
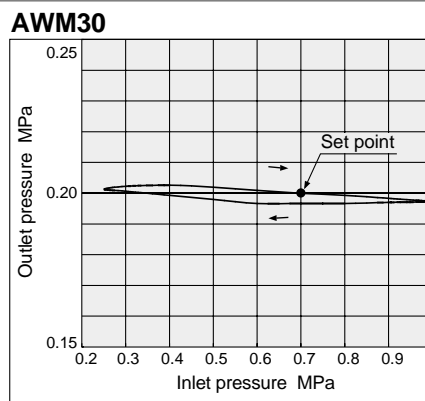
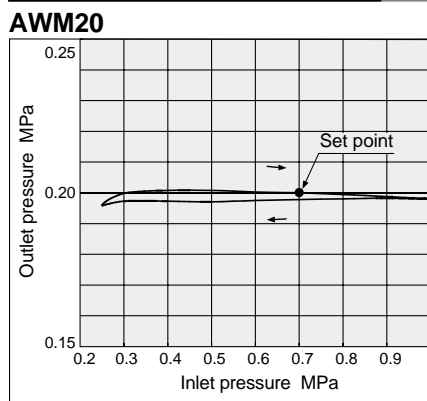
Flow Rate Characteristics (Representative values)

Condition: Primary pressure 0.7MPa



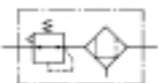
Pressure Characteristics

Conditions: Upstream pressure: 0.7MPa; Downstream pressure: 0.2MPa; Flow rate: 20L/min (ANR)

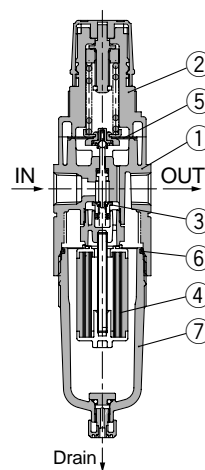


Construction

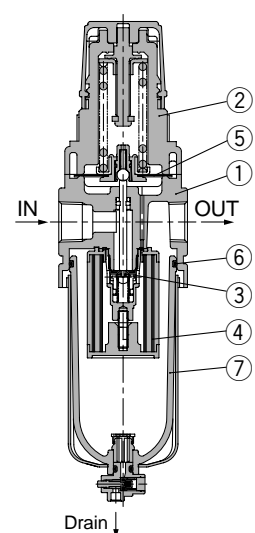
JIS symbol



AWM20



AWM30, 40




Parts list

No.	Description	Material			Color
		AWM20	AWM30	AWM40	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
2	Bonnet	Polyacetal			Black

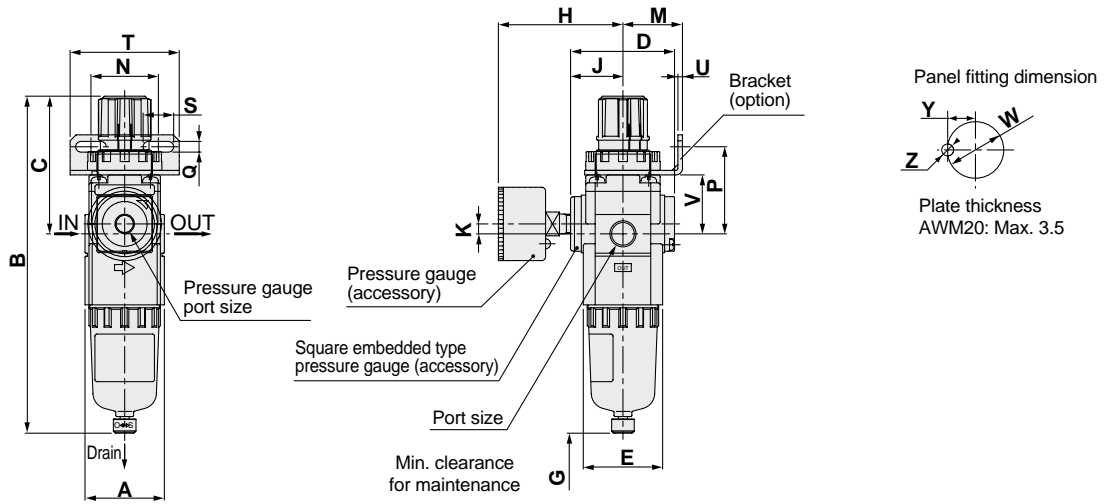
Replacement parts

No.	Description	Material	Part no.		
			AWM20	AWM30	AWM40
3	Valve assembly	Stainless steel Brass, HNBR	AWM20P-090AS	AWM30P-090AS	AWM40P-090AS
4	Element assembly	—	AFM20P-060AS	AFM30P-060AS	AF40P-060AS
5	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
6	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S
7	Bowl assembly ^{Note)}	PC	C2SF	C3SF	C4SF

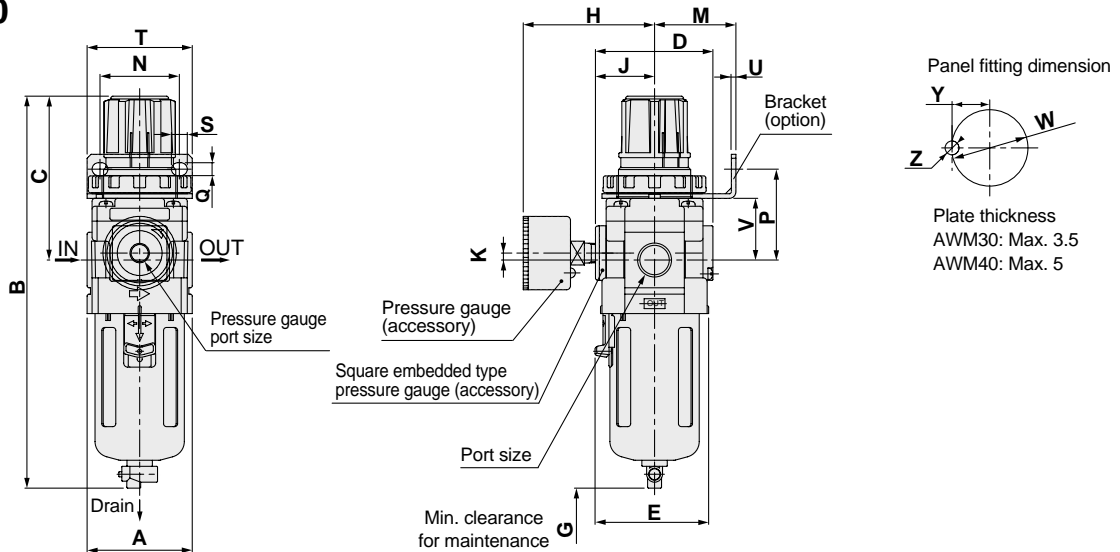
 Note) Bowl assembly for AWM30 and 40 comes with a bowl guard (steel band material).

Dimensions

AWM20



AWM30, 40



With auto drain (N.O./N.C.)

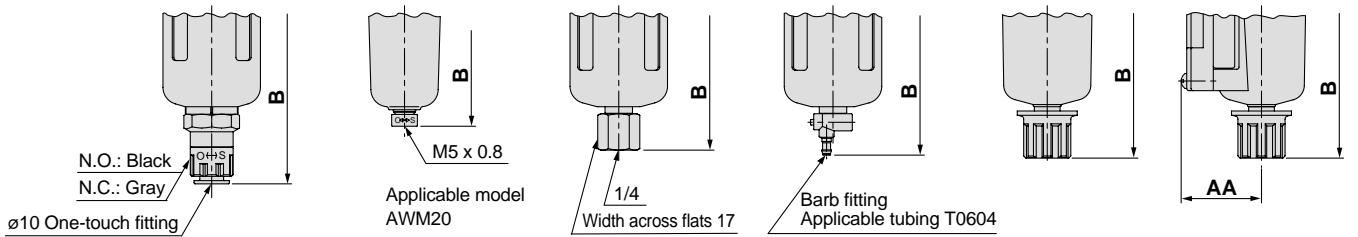
With compact auto drain (N.C.)

With drain guide

Drain cock with barb fitting

Metal bowl

Metal bowl with level gauge



Model	Port size	Standard specifications						Accessory specifications														
								With pressure gauge				Bracket mounting size						Panel mount				With auto drain
		A	B	C	D	E	G	H	J	K	M	N	P	Q	S	T	U	V	W	Y	Z	B
AWM20	1/8, 1/4	40	173	73	52	40	80	63	27	5	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	190
AWM30	1/4, 3/8	53	201	86	59	57	80	66	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242
AWM40	1/4, 3/8, 1/2	70	239	92	75	73	105	76	38.5	1.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278

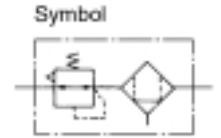
Model	Optional specifications				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	AA
AWM20	—	—	173	—	—
AWM30	209	208	214	234	38
AWM40	247	246	252	272	45

Micro Mist Separator Regulator

AWD20 to 40

Series AWD is a component made up of a regulator and a micro mist separator that are integrated to provide optimum results in applications such as ultraclean air blow operations.

Filtration: 0.01µm



How to Order

AWD 30 — F 03 BE — 1N

Micro mist separator regulator

Body size

20	1/8
30	3/8
40	1/2

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide: For NPT1/4 (applicable to AWD30 and 40), the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AWD30 and 40).

Note 2) Drain guide: G1/4 (applicable to AWD30 and 40)

Port size

01	1/8
02	1/4
03	3/8
04	1/2

Optional specifications

Symbol	Description	Applicable models
1 Note 1)	0.05 to 0.2MPa setting	AWD20 to 40
2	Metal bowl	AWD20 to 40
6	Nylon bowl	AWD20 to 40
8	Metal bowl with level gauge	AWD30, 40
C	With bowl guard	AWD20
J Note 2)	Drain guide 1/4	AWD30, 40
N	Non-relieving	AWD20 to 40
R	Flow direction: Right to left	AWD20 to 40
W	Drain cock with barb fitting (ø6 x ø4 nylon tube)	AWD30, 40
Z Note 3)	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	AWD20 to 40

* When more than one specification is required, order in alphanumeric order.
 Note 1) The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2MPa or more.
 Note 2) Without a valve function.
 Note 3) For NPT thread type.

Accessory

Symbol	Description	Applicable models
Nil	—	—
B Note 1)	With bracket	AWD20 to 40
C	Float type auto drain (N.C.)	AWD20 to 40
D	Float type auto drain (N.O.)	AWD30, 40
E	With square embedded type pressure gauge (with limit indicator)	AWD20 to 40
G Note 2)	With round pressure gauge (with limit indicator)	AWD20 to 40
P	Panel mount (with set nut)	AWD20 to 40

Note 1) Bracket assembly is not mounted at the time of shipment, but rather packaged together with the micro mist separator regulator for shipment.

Note 2) Mounting threads for pressure gauge: AWD20 to 30: 1/8; AWD40: 1/4. Pressure gauge is not mounted on the filter regulator at the time of shipment, but rather packaged together with the micro mist separator regulator for shipment.

Accessory/Optional specification combinations

⊙: Combination available ⊠: Combination not available
 ○: Varies depending on the model △: Available only with NPT thread

Combination	Symbol	Accessory							Optional specifications							Applicable micro mist separator regulator		
		B	C	D	E	G	P	1	2	6	8	C	J	N	R	W	Z	AWD20
Accessory	With bracket (with set nut)	⊠	⊙	○	⊙	⊙	⊠	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙
	Float type auto drain (N.C.)	⊙	⊠	⊠	⊙	⊙	⊙	⊙	⊙	○	⊠	⊙	⊙	⊙	△	⊙	⊙	
	Float type auto drain (N.O.)	⊙	⊠	⊠	⊙	⊙	⊙	⊙	⊙	○	⊠	⊙	⊙	⊙	△	⊙	⊙	
	Square embedded type pressure gauge	⊙	⊙	⊙	⊠	⊠	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
	Round pressure gauge	⊙	⊙	○	⊠	⊠	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
	Panel mount (with set nut)	⊠	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
Optional specifications	0.05 to 0.2MPa setting	⊙	⊙	○	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	○	△	⊙	
	Metal bowl	⊙	⊙	○	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	Nylon bowl	⊙	⊙	○	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	Metal bowl with level gauge	⊙	⊙	○	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	With bowl guard	⊙	⊙	⊠	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	Drain guide 1/4	⊙	⊠	⊠	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	Non-relieving type	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
	Flow direction: Right to left	⊙	⊙	○	⊙	⊙	⊙	⊙	⊙	○	○	⊙	⊙	○	△	⊙	⊙	
	Drain cock with barb fitting: ø6 x ø4 nylon tube	⊙	⊠	⊠	⊙	⊙	⊙	⊠	⊙	⊙	○	○	⊙	⊙	△	⊙	⊙	
	Display units for product name plate, caution plate for bowl, and pressure gauge: PSI, °F	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	

Standard specifications

Model	AWD20	AWD30	AWD40
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid	Air		
Proof pressure	1.5MPa		
Maximum operating pressure	1.0MPa		
Regulating pressure range	0.05 to 0.85MPa		
Pressure gauge port size ^{Note 1)}	1/8	1/8	1/4
Ambient and fluid temperature	-5° to 60°C (with no freezing)		
Nominal filtration rating	0.01µm (95% filtered particle size)		
Downstream side oil mist concentration	Max. 0.1mgf/Nm ³ ^{Note 2)} (before saturated with hydraulic fluid, 0.01mgf/Nm ³ , approx. 0.008ppm)		
Element service life	2 years or when the pressure drop becomes 0.1MPa		
Flow rate L/min (ANR) ^{Note 3)}	90	180	450
Bowl material	Polycarbonate		
Drain capacity cm ³	8	23	45
Construction	Relieving type		
Weight kg	0.44	0.59	1.25
Accessories	Bowl guard	●	●



Note 1) Pressure gauge connection threads are not required for the regulator with a square embedded type pressure gauge (AWD20 to 40).

Note 2) When the compressor oil mist discharge concentration is 30mgf/m³ (ANR). Bowl O-ring and other O-rings are slightly lubricated.

Note 3) When the outlet pressure is 0.5MPa. (The flow rate varies depending on the set pressure.)
Keep the air flow within the rated flow to prevent an outflow of lubricant to the downstream side.

Accessory part no.

Applicable model		AWD20	AWD30	AWD40	
Accessory					
Bracket assembly ^{Note 1)}		AW20P-270AS	AR30P-270AS	AR40P-270AS	
Set nut		AR20P-260S	AR30P-260S	AR40P-260S	
Pressure gauge ^{Note 2)}	1.0MPa	Round	G36-10-□01	G36-10-□01	G46-10-□02
		Square embedded type ^{Note 3)}	GC3-10AS	GC3-10AS	GC3-10AS
	0.2MPa	Round	G36-2-□01	G36-2-□01	G46-2-□02
		Square embedded type ^{Note 3)}	GC3-2AS	GC3-2AS	GC3-2AS
Float type auto drain ^{Note 4)}	N.O.	—	AD38	AD48	
	N.C.	AD27	AD37	AD47	



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. Use Nil for R and N for NPT. Contact SMC regarding the NPT connection thread and pressure gauge supply for PSI unit specifications.

Note 3) Includes one O-ring and 2 mounting screws.

Note 4) Minimum operating pressure: N.O. type: 0.1MPa; N.C. type: 0.1MPa for AD27; 0.15MPa for AD37, 47. Set the pressure to allow a pressure drop when the fluid flows. Contact SMC regarding the specifications for PSI unit and F[°].

⚠ Specific Product Precautions

Be sure to read before handling. Refer to pages 73 through 76 for safety instructions, F.R.L. unit precautions.

Selection

⚠ Warning

- Residual pressure release (outlet pressure release) is not complete by releasing inlet pressure. Contact SMC regarding the residual pressure release.

Air Supply

⚠ Caution

- Install an air filter (Series AFM) as a pre-filter on the upstream side of the micro mist separator to prevent premature clogging.

Maintenance

⚠ Warning

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

Mounting & Adjustment

⚠ Warning

- Set the regulator while checking the displayed values of the inlet and outlet pressure gauges. Turning the knob excessively can cause damage to the internal parts.
- The accessory gauge for regulators with 0.05 to 0.2MPa setting is for up to 0.2MPa only. Exceeding 0.2MPa of pressure can damage the gauge.
- Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

⚠ Caution

- 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" will disappear).



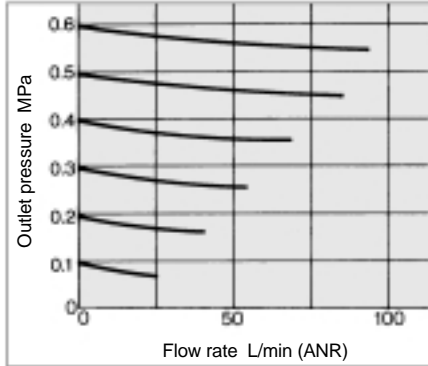
- A knob cover is available to prevent careless operation of the knob. Refer to Features 1 for details.

AWD20 to 40

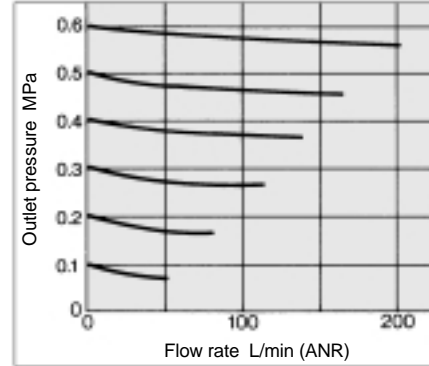
Flow Rate Characteristics (Representative value)

Condition: Inlet pressure 0.7MPa

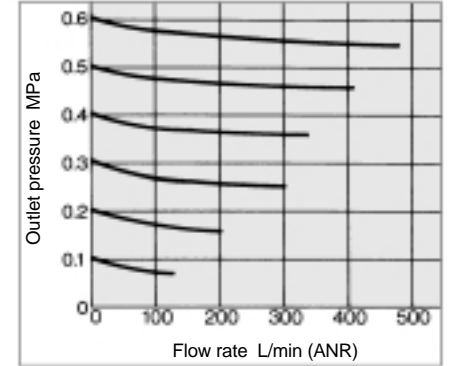
AWD20 RC1/4



AWD30 RC3/8



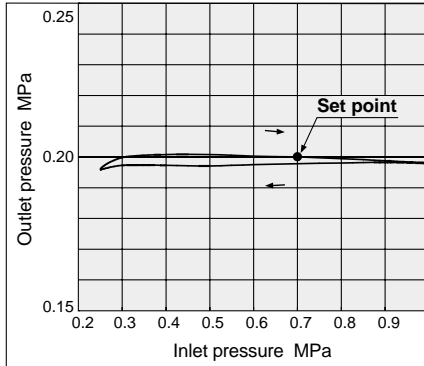
AWD40 RC1/2



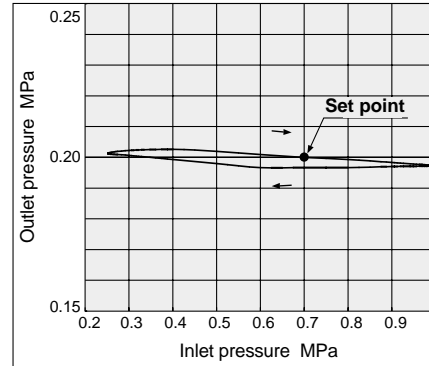
Pressure Characteristics (Representative value)

Conditions: Upstream pressure: 0.7MPa; Downstream pressure: 0.2MPa; Flow rate: 20L/min (ANR)

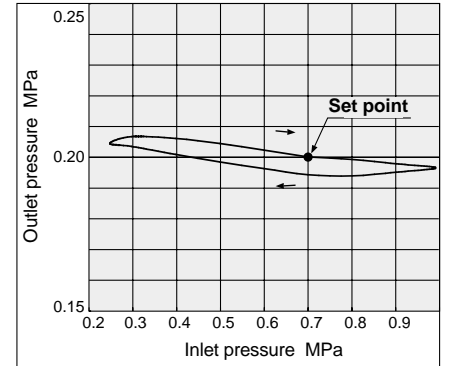
AWD20



AWD30

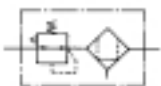


AWD40

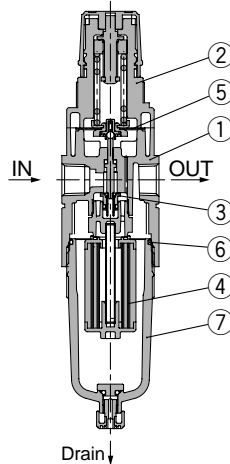


Construction

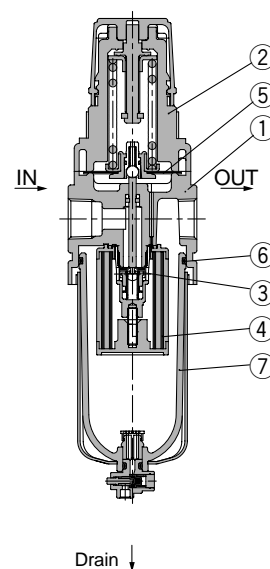
JIS symbol



AWD20



AWD30, 40



Parts list

No.	Description	Material			Color
		AWD20	AWD30	AWD40	
1	Body	Die-cast zinc	Die-cast aluminum		Platinum silver
2	Bonnet	Polyacetal			Black

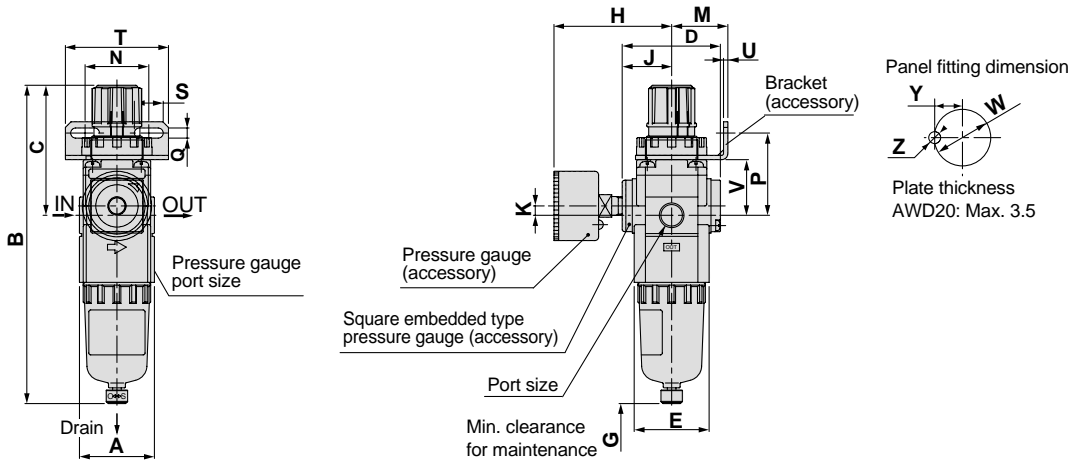
Replacement parts

No.	Description	Material	Parts no.		
			AWD20	AWD30	AWD40
3	Valve assembly	Stainless steel, Brass, HNBR	AWM20P-090AS	AWM30P-090AS	AWM40P-090AS
4	Element assembly	—	AFD20P-060AS	AFD30P-060AS	AFD40P-060AS
5	Diaphragm assembly	Weatherability NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS
6	Bowl O-ring	NBR	C2SFP-260S	C3SFP-260S	C4SFP-260S
7	Bowl assembly (Note)	PC	C2SF	C3SF	C4SF

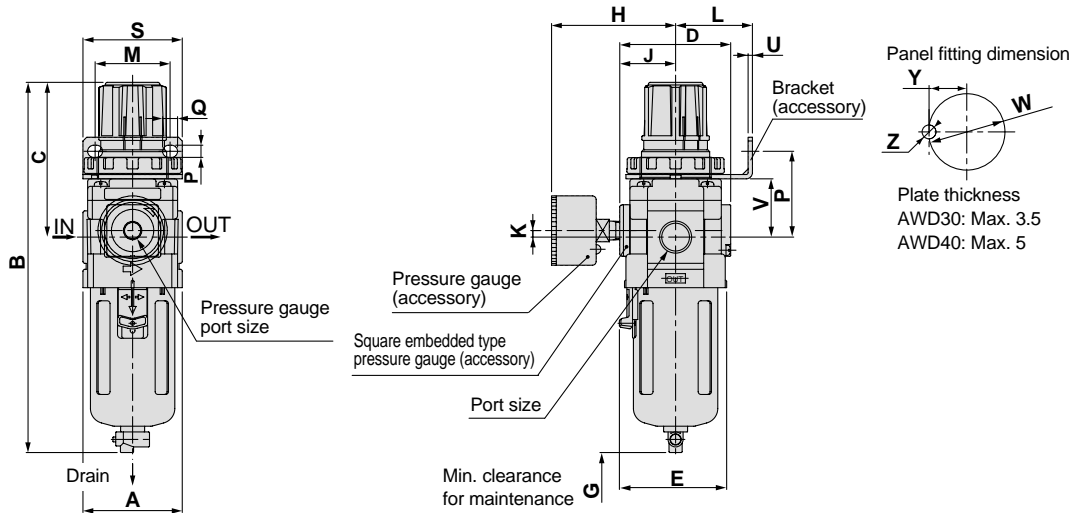
Note) Bowl assembly for AWD30 and 40 comes with a bowl guard (steel band material).

Dimensions

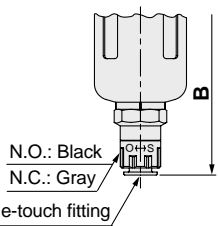
AWD20



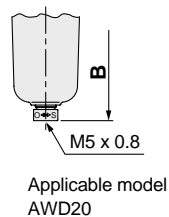
AWD30, 40



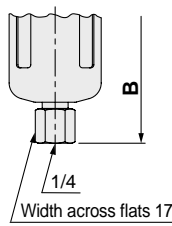
With auto drain (N.O./N.C.)



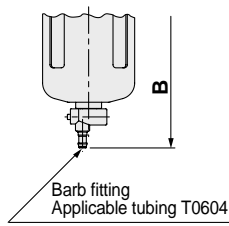
With compact auto drain (N.C.)



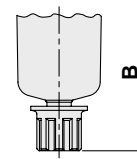
With drain guide



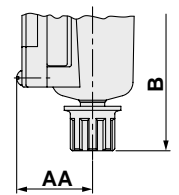
Drain cock with barb fitting



Metal bowl



Metal bowl with level gauge



Model	Port size	Standard specifications						Accessory specifications														
		A	B	C	D	E	G	With pressure gauge			Bracket mounting size						Panel mount				With auto drain	
								H	J	K	M	N	P	Q	S	T	U	V	W	Y		Z
AWD20	1/8, 1/4	40	173	73	52	40	80	63	27	5	30	34	44	5.4	15.4	55	2.3	30	28.5	14	6	190
AWD30	1/4, 3/8	53	201	86	59	57	80	66	30.5	3.5	41	40	46	6.5	8	53	2.3	31	38.5	19	7	242
AWD40	1/4, 3/8, 1/2	70	239	92	75	73	105	76	38.5	1.5	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7	278

Model	Optional specifications				
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge	
	B	B	B	B	AA
AWD20	—	—	173	—	—
AWD30	209	208	214	234	38
AWD40	247	246	252	272	45



Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by a label of "**Caution**", "**Warning**", or "**Danger**". To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠ 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 possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power – Recommendations for the application of equipment to transmission and control systems

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

⚠ Warning

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

Since the products specified here are used in various operating conditions, their compatibility with the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or maintenance of pneumatic systems should be performed by trained and experienced operators.

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

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.

2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.

3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc. (Bleed air into the system gradually to create back pressure.)

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.

2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, press applications, or safety equipment.

3. An application which has the possibility of having negative effects on people, property, or animals, and therefore requires special safety analysis.



F.R.L. Unit Precautions 1

Be sure to read before handling.

Design

⚠ Warning

1. The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with synthetic oil, organic solvents, chemicals, cutting oil, alkali, and thread lock solutions such as Loctite® products.
2. Consult with SMC if the intended application calls for absolutely zero leakage due to special atmospheric requirements, or if the use of a fluid other than air is required.
3. **Regulator and filter regulator**
Be sure to install a safety device to prevent damage or malfunction of the downstream components when the output pressure exceeds the set pressure value.

⚠ Caution

1. Select a model that is suitable for the desired purity by referring to the SMC's air preparation equipment catalog.
2. Components cannot be used for applications that are outside the range of specifications. Consult with SMC when you anticipate using the component outside the range of its specifications (such as temperature and pressure).
3. **Mist separator and micro mist separator**
Design the system so that the mist separator and micro mist separator are installed where there is less pulsation. A pressure difference between internal and external pressure inside the element should be kept within 0.1MPa, as exceeding this value can cause damage.
4. **Regulator and filter regulator**
Air consumption is 0.1L/min (ANR) or less under standard specifications. Consult with SMC, if this value is not allowable.
5. **F.R.L.**
 1. When using a 2-unit combination such as AC□0A, AC□0B, and AC□0D, secure the top and bottom of the bracket. For 3-unit, securing the bottom side of the bracket is recommended.
 2. The bracket position varies depending on the attachment (T-interface or pressure switch) mounting.
 3. The standard mounting position for bracket is OUT side of each component (AF, AR, AL, AW, AFM, and AKM). Refer to the table on page 19 for pitches and dimensions of the bracket when mounting the attachment.
 4. Brackets cannot be mounted on both sides of a T-interface or pressure switch.
 5. Contact SMC if your wish to change the bracket mounting position.

Selection

⚠ Warning

1. The mineral grease used on internal sliding parts and seals may run down to downstream components. Consult with SMC if this is not desirable.

2. Regulator and filter regulator

1. Residual pressure release (outlet pressure release) is not complete by releasing the inlet pressure. To release residual pressure, select a model with a back flow mechanism. Using a model without a backflow mechanism makes for inconsistent residual pressure release (i.e., residual pressure may or may not be released) depending upon the operating conditions.
2. Contact SMC if air will not be consumed in the system for a long period of time, or if the downstream side will be used with a sealed circuit and a balanced circuit, as this may cause the set pressure of the downstream side to fluctuate.
3. Set the regulating pressure range for the outlet pressure of the regulator in a range that is 85% or less of the inlet pressure. If set to above 85%, the outlet pressure will be easily affected by fluctuations in the flow rate and inlet pressure, and become unstable.
4. A safety margin is calculated into the maximum regulating pressure range appearing in the catalog's specification table. However, the outlet pressure may exceed the set pressure due to a delay in the valve's closing.
5. Contact SMC when a circuit requires the use of a regulator having relief sensitivity with high precision and setting accuracy.

3. Lubricator

1. Contact SMC when the lubricator is used in high frequency operations, such as in a press.
2. Lubrication cannot be properly performed if the operating flow rate is too low. Select proper size lubricator by referring the minimum dripping flow rate provided in this catalog.
3. Avoid the use of a lubricator that causes backflow as this may cause damage to internal parts.
4. Use a check valve (Series AKM) to prevent the lubricant from back flowing when redirecting the piping on the upstream side.

4. Float-type auto drain

Use auto drain under the following conditions to avoid malfunction.

<N.O. type>

- Operating compressor: 0.75KW (100L/min (ANR)) or more
Multiply the following values by the number of auto drains to find the capacity of the compressors you will need when using 2 or more auto drains.

When using 2 auto drains, 1.5kW (200L/min (ANR)) of the compressor capacity is required.

- Operating pressure: 0.1MPa or more

<N.C. type>

- Operating pressure for AD17, 27: 0.1MPa or more.
- Operating pressure for AD37, 47: 0.15MPa or more.



F.R.L. Unit Precautions 2

Be sure to read before handling.

Mounting

⚠ Caution

1. To avoid reversed connections of the air inlet/outlet, make connections after confirming the "IN/OUT" mark or arrows that indicate the direction of air flow. Reversed connections can cause malfunction.
2. Components with a bowl, e.g., air filter, filter regulator, lubricator, must be installed vertically with the bowl downward in order to be able to verify faulty drain discharge and dripping.
3. Ensure sufficient top, bottom, and front clearance for maintenance and operation of each component. Refer to the dimensions section for the minimum clearance for each component.

4. Regulator and filter regulators

Be sure to unlock the knob before adjusting the pressure and to lock it after the pressure is set.

Adjustment

⚠ Warning

1. Regulator and filter regulator

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

⚠ Caution

1. Regulator and filter regulator

1. Be sure to check the inlet pressure before setting the outlet pressure.
2. The accessory pressure gauge for regulators with 0.02 to 0.2MPa setting is for up to 0.2MPa only. Exceeding 0.2MPa of pressure can damage the pressure gauge.
3. To set the pressure using the knob, turn the knob in the direction that increases pressure and lock the knob after the pressure is set. If this is done in the direction that decreases pressure, the pressure may drop from the original set pressure. Turning the knob clockwise increases the outlet pressure, and turning it counterclockwise reduces the pressure.

Piping

⚠ Warning

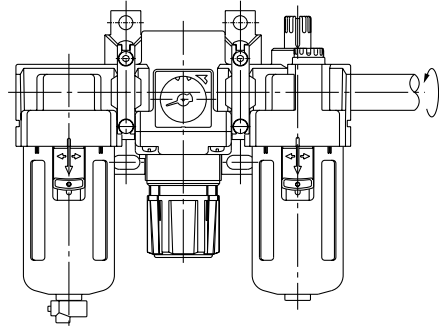
1. To screw piping materials into components, tighten with a recommended tightening torque while holding the female-thread side. If the minimum tightening torque is not observed, this can cause a looseness and seal failure. On the other hand, excess tightening torque can cause damage to the threads. Furthermore, tightening without holding the female-thread side can cause damage due to the excess force that is applied directly to the bracket.

Recommended tightening torque

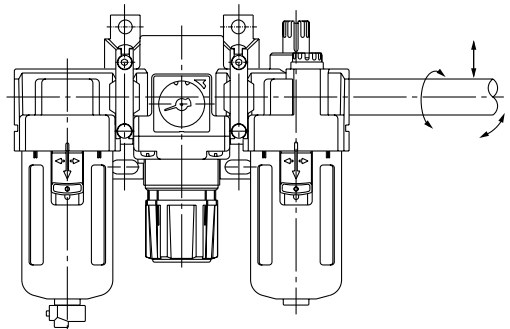
Unit: N·m

Connection thread	M5	1/8	1/4	3/8	1/2	3/4	1
Torque	*	7 to 9	12 to 14	22 to 24	28 to 30	28 to 30	36 to 38

* After tightening by hand, tighten further approximately 1/6 turn using a tightening tool.



2. Avoid excessive torsional moment other than the one caused by the equipment's own weight or bending moment as this can cause damage. Support external piping separately.



3. Piping materials without flexibility such as steel tube piping are prone to be affected by excess moment load and vibration from the piping side. Use flexible tubing in between to avoid such an effect.



F.R.L. Unit Precautions 3

Be sure to read before handling.

Piping

⚠ Caution

1. Lubricator

Try to avoid riser piping and branch lines as much as possible on the downstream side, otherwise proper lubrication will be compromised.

2. Float type auto drain

Drain piping should be performed under the following conditions to avoid malfunction.

<N.O. type>

- Use piping whose I.D. is $\phi 6.5$ or larger, and whose length is 5m or less. Avoid riser piping.

<N.C. type>

- Use piping whose I.D. is $\phi 4$ or larger ($\phi 2.5$ or larger for compact type), and whose length is 5m or less. Avoid riser piping.

Air supply

⚠ Caution

1. When there is excessive condensate, install a device that eliminates water such as a dryer or water separator (Drain Catch) on the upstream side of the air filter.

Maintenance

⚠ Warning

1. When disassembly or installation is required during the maintenance, repair, or replacement of a device, be sure to follow the instructions provided in the instructional manual or safety instructions in this catalog.
2. Perform periodical inspections to detect any cracks, scratches, or other deterioration of the transparent resin bowl of the air filter, filter regulator, and lubricator or the sight dome of the lubricator.
Replace with a new bowl, sight dome, or metal bowl when any kind of deterioration is found, otherwise this can cause damage.
3. Perform periodical inspections to detect dirt on the transparent resin bowl of the air filter, filter regulator, and lubricator or the sight dome of the lubricator. When you find dirt on any of the above devices, clean with a mild household cleanser. Do not use other cleaning agents, otherwise this can cause damage.
4. Air filter
 1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, whichever comes first, to prevent damage to the element.
 2. Release accumulated condensate periodically before it reaches the maximum capacity. Condensate that flows out to the downstream side can cause malfunctions.

Maintenance

⚠ Warning

5. Mist separator, micro mist separator

1. Replace the element every 2 years or when the pressure drop becomes 0.1MPa, whichever comes first, to prevent damage to the element.
2. Release accumulated condensate periodically before it reaches the maximum capacity. Condensate that flows out to the downstream side can cause malfunctions.

6. Lubricator

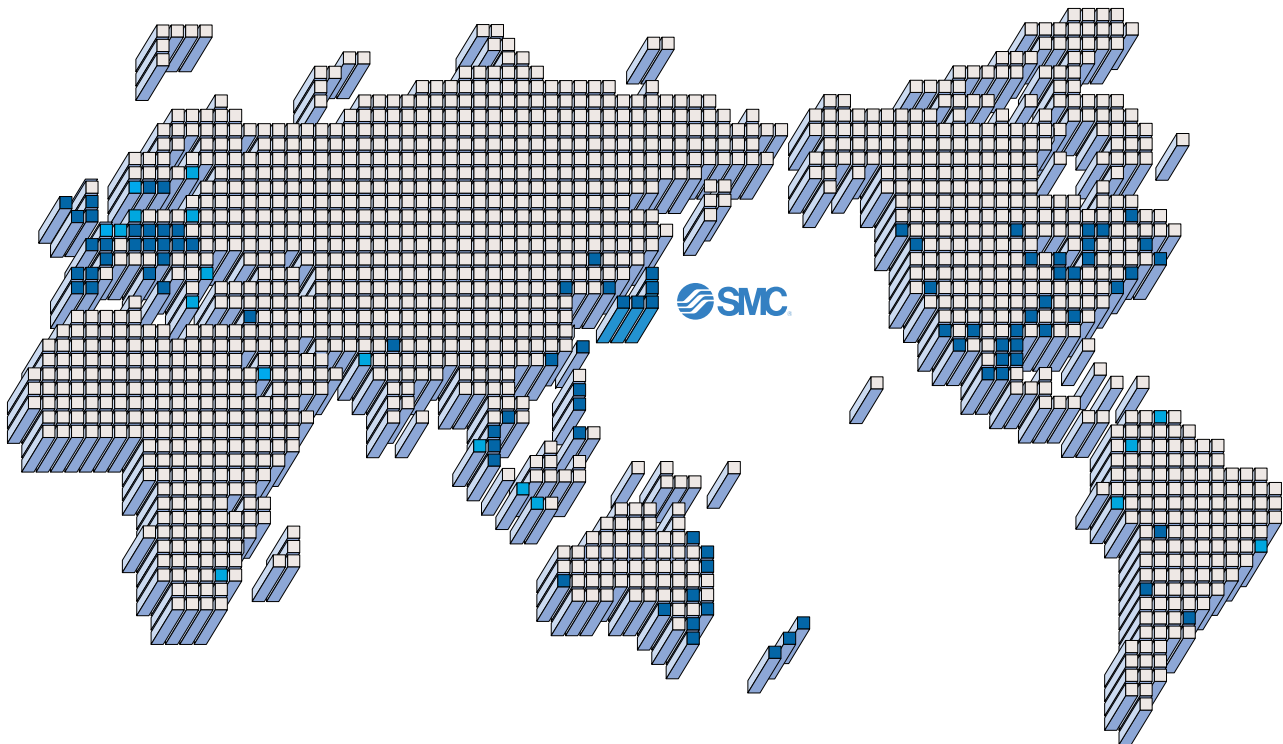
1. Use class 1 turbine oil (without additives) ISO VG32. Using other lubricant can cause damage to devices and result in malfunctions.
2. For AL10 type, replenish the lubricant AFTER releasing the upstream pressure as lubricant cannot be properly applied in a pressurized condition.

⚠ Caution

1. Perform periodical inspections of the filter element and replace it as necessary. Check the element whenever the outlet pressure drops below normal or air does not flow smoothly during operation.
2. Regulator and filter regulator
Check the sliding part or seat of the inside valve when a setting malfunction or relief leakage occur and temporary or emergency repairs need to be made.
3. Lubricator
Check the dripping amount once a day. Drip failure can cause damage to the components being lubricated.
4. Float type auto drain
 1. Turn the knob in counterclockwise to release the drain manually. Avoid applying excessive torque to the knob, such as by using a tool, as this can damage an auto drain.
After releasing the condensate, turn the knob in clockwise until it stops.
 2. Air leakage or other performance malfunctions can occur if premature clogging of the element or pressure drop causes the pressure inside the bowl to get outside the specified pressure range parameters. Check the pressure whenever such an irregularity occurs.



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1st printing 0000000, 2002 D-SMC.L.A. P-00 (00)

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Printed in Japan.