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Filter Regulator AW20-B to AW60-B Series Filter Regulator with Backflow Function **AW20K-B** to **AW60K-B** Series



AW20-B, AW20K-B AW40-B, AW40K-B

		_								1			
	Symbol				Description			Body size					
									20	30	40	60	
		~	Exhaust	Nil	Relieving	g type)		•				
		g	mechanism	Ν	Non-reliev	əving	type						
	ard			+									
	1 g	h	Flow direction	Nil	Flow dire	ection	n: Left to right						
6	sta			R	Flow dire	ection	n: Right to left						
-	Semi-standard		+										
	Sei			Nil	Name plate,	e, caut	ion plate for bowl, and pressure gauge in SI units: MPa						
		i	Pressure unit	Z *17	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F				O*19	○*19	O*19	○*19	
				ZA *18	Digital pre	ressu	re switch: With unit selection function		∆*20	∆*20	∆*20	∆*20	
th	the set pressure. cock may occur during start of operations. N.C. type is						less than 100 L/min[ANR]), air leakage from the drain cock may occur during start of operations. N.C. type is recommended.	i	available.				
		,	s NPT1/8 (applicable plicable to the AW30		())		When the pressure gauge is attached, a 1.0 MPa		 *15 Without a valve function *16 The combination of metal bowl: 2 and 8 is not available 				
Т	he au	uto dra	ain port comes with	3/8" One-			pressure gauge will be fitted for standard (0.85 MPa)		*17 For pipe thread type: NPT. This product is for overseas				
 (applicable to the AW30(K)-B to AW60(K)-B). *3 Drain guide is G1/8 (applicable to the AW20(K)-B) and G1/4 (applicable to the AW30(K)-B. *4 Options B, G, H, M are not assembled and supplied *4 Options B, G, H, M are not assembled and supplied *5 Urain guide is G1/8 (applicable to the AW30(K)-B). *6 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. *6 Urain guide is G1/8 (applicable to the AW30(K)-B to AW60(K)-B). *9 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. *1 Options B, G, H, M are not assembled and supplied 								an.) Cannot be uge (with colo					
*5 A A	loose at the time of shipment.*10Pressure can be set higher than the specification pressure in some cases, but use pressure within the AW20(K)-B to AW40(K)-B). Including 2 mounting screws*10Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.pressure switch will be equipped with the unit self function, setting to psi initially.*10Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.pressure switch will be equipped with the unit self function, setting to psi initially.								is for overseas				
	6 When pressure is not applied condensate which does resistance of the bowl							1	use only according to the new Measurement Act. (The SI unit is provided for use in Japan.)				

- *6 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
- *7 If the compressor is small (0.75 kW, discharge flow is
- resistance of the bowl.
- *12 A bowl guard is provided as standard equipment (polycarbonate).
- *13 A bowl guard is provided as standard equipment (nylon).
- SI unit is provided for use in Japan.)
- *19 O: For pipe thread type: NPT only
- *20 △: Select with options: E1, E2, E3, E4.

Standard Specifications

Model	AW20-B	AW30-B	AW40-B	AW40-06-B	AW60-B			
Port size	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1			
Pressure gauge port size *1		1/8						
Fluid			Air					
Ambient and fluid temperature *2		—5 tr	o 60°C (with no free	zing)				
Proof pressure		1.5 MPa						
Maximum operating pressure	1.0 MPa							
Set pressure range	0.05 to 0.85 MPa							
Nominal filtration rating	5 μm							
Drain capacity [cm ³]	8 25 45							
Bowl material	Polycarbonate							
Bowl guard	Semi-standard (Steel) Standard (Polycarbonate)							
Construction	Relieving type							
Weight [kg]	0.20	0.36	0.66	0.72	2.05			

*1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch. *2~-5 to 50°C for the products with the digital pressure switch

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AW20-B to AW60-B Series AW20K-B to AW60K-B Series

Options/Part No.

	Optional spe	aifiaationa	Model					
	Optional spe	cincations	AW20(K)-B	AW30(K)-B	AW40(K)-B	AW40(K)-06-B	AW60(K)-B	
Bracket	t assembly *1		AW23P-270AS	AR33P-270AS	AR43P-270AS		AW62P-270AS	
Set nut			AR23P-260S	AR33P-260S	AR43P-260S		*2	
	Round type *3	Standard	G36-10-□01		G46-10-□01			
		0.02 to 0.2 MPa setting	G36-4-🗆01		G46-4-□01			
Pressure	Round type *3	Standard	G36-10-□01-L		G46-10-□01-L			
gauge	(with color zone)	0.02 to 0.2 MPa setting	G36-4-	.⊡01-L	G46-4-□01-L			
	Square embedded type *4	Standard	GC3-10AS [GC3P-010AS (Pressure gauge cover only)]					
		0.02 to 0.2 MPa setting	GC3-4AS [GC3P-010AS (Pressure gauge cover only)]					
		NPN output, Wiring bottom entry	ry ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)]					
Digital	pressure	NPN output, Wiring top entry	ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)]					
switch	*5	PNP output, Wiring bottom entry	ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)]					
		PNP output, Wiring top entry	ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)]					

*1 Assembly of a bracket and set nuts. Including 2 mounting screws for the AW60(K)-B

*2 Please consult with SMC regarding the set nuts for the AW60(K)-B.

*3 \square in part numbers for a round type pressure gauge indicates a pipe thread type.

No indication is necessary for R; however, indicate N for NPT.

Please contact SMC regarding the pressure gauge supply for psi unit specifications.

*4 Including one O-ring and 2 mounting screws. []: Pressure gauge cover only

*5 In addition to the pressure switch body, lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached.

[]: Switch body only. (Regarding how to order the digital pressure switch, refer to the Web Catalog.)

A pressure switch can be mounted on the AW60(K)-B, with a special mounting adapter (Pressure switch adapter assembly: AW63P-310AS) and mounting screws (M3 x 0.5 x 14) which are delivered with the mounting adapter.

Bowl Assembly/Part No.

David	Drain			Model					
Bowl material	discharge mechanism	Drain port	Other	AW20-B	AW30-B	AW40-B	AW40-06-B	AW60-B	
		With drain cock	—	C2SF-A	—		<u></u>		
		With train cock	With bowl guard	C2SF-C-A	C3SF-A	C4SF-A			
	Manual	Drain cock with barb fitting	With bowl guard	—	C3SF-W-A		C4SF-W-A		
Polycorhonato		With drain guide	—	C2SF□-J-A	—				
Polycarbonate		(without valve function)	With bowl guard	C2SF□-CJ-A	C3SF□-J-A		C4SF□-J-A		
	A	Normally closed (N.C.)	—	AD27-A	—		—		
	Automatic *1 (Auto drain)		With bowl guard	AD27-C-A	AD37□-A	AD47□-A			
		Normally open (N.O.)	With bowl guard	—	AD38□-A		AD48□-A		
	Manual	With drain cock	—	C2SF-6-A	—	—			
		With drain cock	With bowl guard	C2SF-6C-A	C3SF-6-A	C4SF-6-A			
		Drain cock with barb fitting	With bowl guard	—	C3SF-6W-A		C4SF-6W-A		
Nylon		With drain guide (without valve function)	—	C2SF□-6J-A	—		—		
NyIOT			With bowl guard	C2SF□-6CJ-A	C3SF□-6J-A		C4SF□-6J-A		
	Automatic *1 (Auto drain)	, , ,	—	AD27-6-A	—		—		
			With bowl guard	AD27-6C-A	AD37□-6-A	AD47□-6-A			
		Normally open (N.O.)	With bowl guard	_	AD38□-6-A		AD48□-6-A		
		With drain cock	_	C2SF-2-A	C3SF-2-A		C4SF-2-A		
	Manual		With level gauge	—	C3LF-8-A	C4LF-8-A			
	Ivianuai	With drain guide	_	C2SF□-2J-A	C3SF□-2J-A	C4SF□-2J-A			
Metal			With level gauge	_	C3LF□-8J-A	C4LF□-8J-A			
IVIEIAI	Automatic *1 (Auto drain)	Normally closed (N.C.)	—	AD27-2-A	AD37□-2-A	□-2-A AD47□-2-A			
		Normally closed (N.C.)	With level gauge	_	AD37□-8-A	A AD47□-8-A			
		Normally open (N.O.)	—	_	AD38□-2-A		AD48□-2-A		
		Normally open (N.O.)	With level gauge	—	AD38□-8-A		AD48□-8-A		

*1 Minimum operating pressure: N.O. type-0.1 MPa (AD38-A, AD48-A); N.C. type-0.1 MPa (AD27-A) and 0.15 MPa (AD37-A, AD47-A).

Bowl assembly comes with a bowl seal.

□ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).

No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8") Please consult with SMC separately for psi and °F unit display specifications.

Filter Regulator AW20-B to AW60-B Series

▲ Specific Product Precautions

I Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units I precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual", http://www.smcworld.com

Design/Selection

\land Warning

- 1. Residual pressure disposal (outlet pressure removal) is not possible for the AW20-B to AW60-B even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the filter regulator with backflow function (AW20K-B to AW60K-B).
- 2. The standard bowl for the air filter, filter regulator, and lubricator, as well as the sight dome for the lubricator are made of polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.

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

			Material				
Туре	Chemical name	Application examples	Polycarbonate	Nylon			
Acid	Hydrochloric acid Sulfuric acid, Phosphoric acid Chromic acid	Acid washing liquid for metals	Δ	×			
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Carbonate of soda	Degreasing of metals Industrial salts Water-soluble cutting oil	×	0			
Inorganic salts	Sodium sulfide Potassium nitrate Sulfate of soda	_	×	Δ			
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	×	Δ			
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	×	\bigtriangleup			
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×	×			
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	Δ	×			
Oil	Gasoline Kerosene	—	×	0			
Ester	Phthalic acid dimethyl Phthalic acid diethyl Acetic acid	Synthetic oil Anti-rust additives	×	0			
Ether	Methyl ether Ethyl ether	Brake oil additives	×	0			
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×	×			
Others	Thread-lock fluid Seawater Leak tester	_	×	Δ			
O: Essentially safe △: Some effects may occur. ×: Effects will occur.							

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

Maintenance

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

Mounting/Adjustment

\land Warning

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

Caution

- 1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
 - · Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
 - · Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).
- 2. A knob cover is available to prevent careless operation of the knob. Refer to page 112 for details.
- 3. When the bowl is installed on the AW30-B to AW60-B, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

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AF+AR

AF+AFM+AR

Attachment AW+AFM

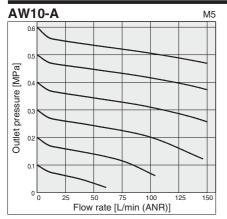
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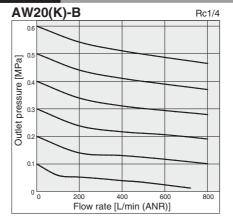
AFM / AFD

AB

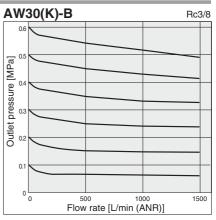
AW10-A Series AW20-B to AW60-B Series AW20K-B to AW60K-B Series

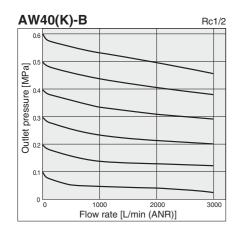
Flow Rate Characteristics (Representative values)

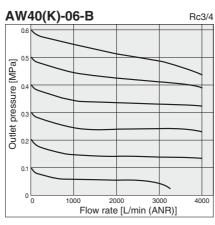


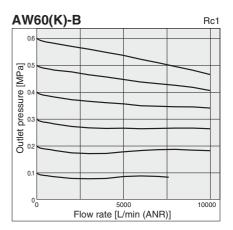


Condition: Inlet pressure of 0.7 MPa

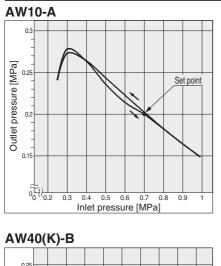


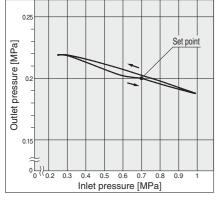


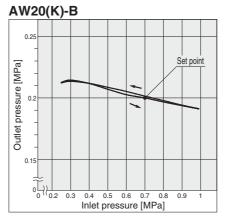


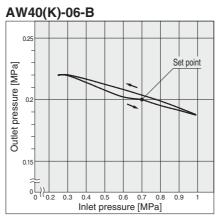


Pressure Characteristics (Representative values)

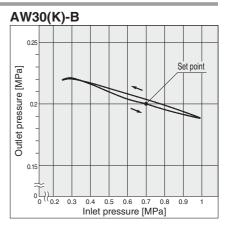




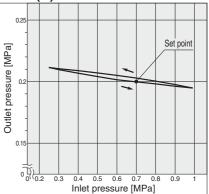














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AW20-B to AW60-B Series AW20K-B to AW60K-B Series

Construction AW20(K)-B AW30(K)-B/AW40(K)-B AW60(K)-B \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc (2) \bigcirc \bigcirc \bigcirc (6) \bigcirc \bigcirc (2) 2 \bigcirc (1)6 6 (1) (1) OUT IN OUT IN OUT IN 7 7 (4) (4) (5) (5) (4) (8) (8) 3) (5) Drain AW20K-B to AW60K-B $\overline{\mathcal{O}}$ Drain (Filter Regulator with Backflow Function) A-A (9) (8) Drain **Component Parts** No. Description Model Color Material 1 Body Aluminum die-cast AW20-B to AW60-B White

Replacement Parts

Bonnet

Housing

No.	Description	Material	Part no.						
INO.	Description		AW20(K)-B	AW30(K)-B	AW40(K)-B	AW40(K)-06-B	AW60(K)-B		
4	Valve assembly	Brass, HNBR	AW20P-340AS	AW30P-340AS	AW40P-340AS		AW60P-090AS		
5	Filter element	Non-woven fabric	AF20P-060S	AF30P-060S	AF40P-060S		AW60P-060S		
6	Diaphragm assembly	Weatherable NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS		AR50P-150AS		
7	Bowl seal	NBR	C2SFP-260S	C32FP-260S	C42FP-260S				
8	Bowl assembly *1	Polycarbonate	C2SF-A	C3SF-A*2	C4SF-A*2				
9	Check valve assembly *3	—			AR23KP-020AS				

White

White

White

*1 Bowl assembly includes the bowl O-ring.

Please consult with SMC separately for psi and °F unit display specifications.

AW20-B to AW40-B

AW60-B

AW60-B

*2 Bowl assembly for the AW30(K)-B to AW60(K)-B models comes with a bowl guard (Material: Polycarbonate).
*3 Check valve assembly is applicable for a filter regulator with backflow function (AW20(K)-B to AW60(K)-B) only.

Assembly of a check valve cover, check valve body assembly and 2 mounting screws

Polyacetal

Aluminum die-cast

Aluminum die-cast

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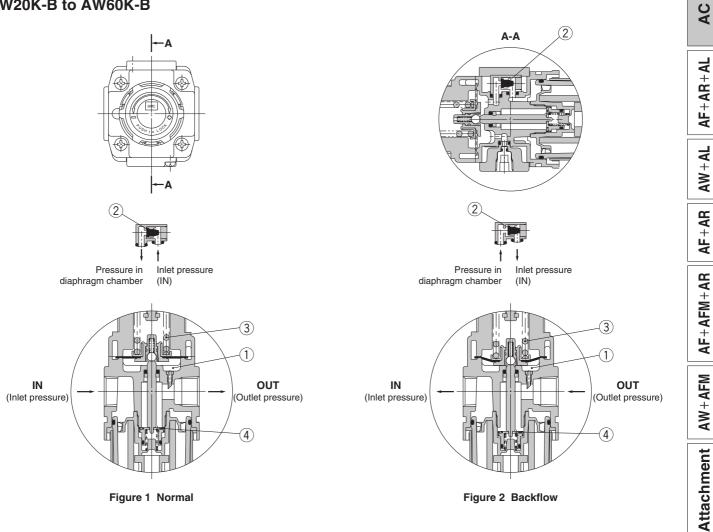
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Working Principle (Filter Regulator with Backflow Function)

AW20K-B to AW60K-B



When the inlet pressure is higher than the regulating pressure, the check valve 2 closes and operates as a normal regulator (Figure 1). When the inlet pressure 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 spring (3) lifts the diaphragm. The valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 2).

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AFM / AFD

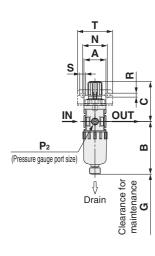
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AW10-A Series AW20-B to AW60-B Series AW20K-B to AW60K-B Series

Dimensions

AW10-A



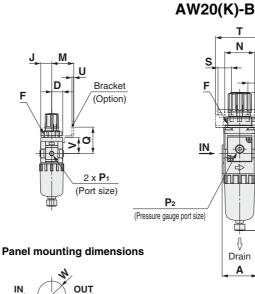
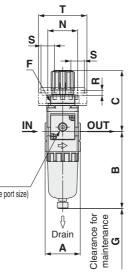
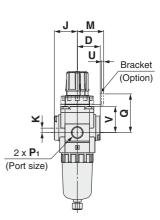


Plate thickness

AW10-A: Max. 3.5





Panel mounting dimensions

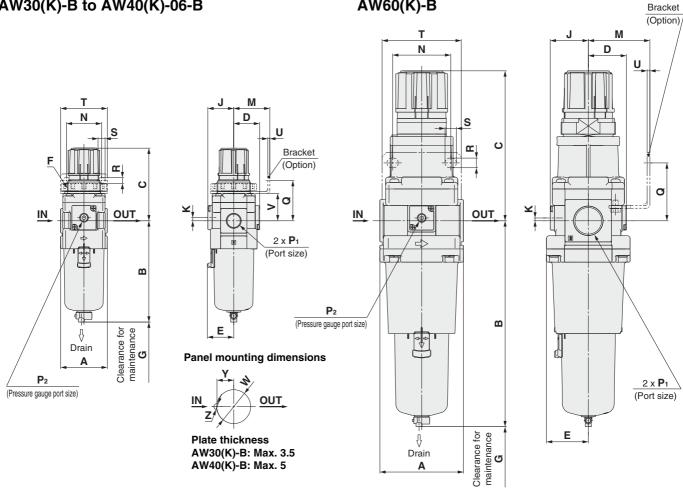


Plate thickness AW20(K)-B: Max. 3.5

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AW30(K)-B to AW40(K)-06-B

AW60(K)-B

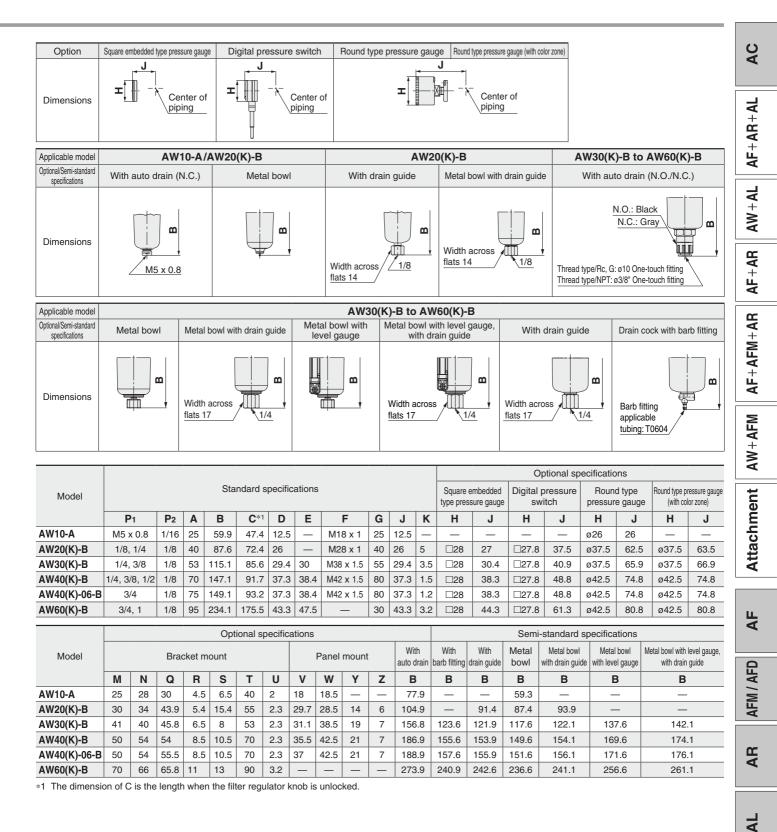




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Filter Regulator **AW10-A** Series Filter Regulator **AW20-B** to **AW60-B** Series Filter Regulator with Backflow Function **AW20K-B** to **AW60K-B** Series



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