



# Operation Manual

PRODUCT NAME

***FILTER REGULATOR***

MODEL/ Series

**AW20-(F,N)01 ~ (F,N)02(B,C,E,G,H,M)(-1,2,6,C,J,N,R,Z)-B**

**AW30-(F,N)02 ~ (F,N)03(B,C,D,E,G,H,M)(-1,2,6,8,J,N,R,W,Z)-B**

**AW40-(F,N)02 ~ (F,N)04(B,C,D,E,G,H,M)(-1,2,6,8,J,N,R,W,Z)-B**

**AW40-(F,N)06(B,C,D,E,G,H,M)(-1,2,6,8,J,N,R,W,Z)-B**

**AW60-(F,N)06 ~ (F,N)10(B,C,D,E,G,M)(-1,2,6,8,J,N,R,W,Z)-B**

**SMC Corporation**

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# FILTER REGULATOR

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of "Caution," "Warning" or "Danger." They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC), Japan Industrial Standards (JIS)\*1) and other safety regulations\*2).

\*1) ISO 4414: Pneumatic fluid power -- General rules relating to systems  
ISO 4413: Hydraulic fluid power -- General rules relating to systems  
IEC 60204-1: Safety of machinery -- Electrical equipment of machines (Part 1: General requirements)  
ISO 10218: Manipulating industrial robots -- Safety  
JIS B 8370: General rules for pneumatic equipment.  
JIS B 8361: General rules for hydraulic equipment.  
JIS B 9960-1: Safety of machinery -- Electrical equipment for machines. (Part 1: General requirements)  
JIS B 8433: Manipulating industrial robots - Safety. etc.

\*2) Labor Safety and Sanitation Law, etc.



### Caution

Operator error could result in injury or equipment damage.



### Warning

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



### Danger

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



### Warning

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

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results.

The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product.

This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly.

The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

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

The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.

When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.

Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1) Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.

2) Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.

3) An application which could have negative effects on people, property, or animals requiring special safety analysis.

4) Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.



# FILTER REGULATOR

## Safety Instructions

### **Caution**

**The product is provided for use in manufacturing industries.**

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

### **Limited warranty and Disclaimer/Compliance Requirements**

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.  
Read and accept them before using the product.

#### **Limited warranty and Disclaimer**

**The warranty period of the product is 1 year in service or 1.5 years after the product is delivered. Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.**

**For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided. This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.**

**Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.**

#### **Compliance Requirements**

- 1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction(WMD) or any other weapon is strictly prohibited.**
- 2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.**

### **Caution**

**SMC products are not intended for use as instruments for legal metrology.**

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

## Precautions for design

### **WARNING**

① External parts including the handle (Material: polyacetal) and bowl (Material: polycarbonate) are made of resin. Organic solvents including synthetic fluid, thinner, chemicals including acetone, alcohol, ethylene chloride, sulphuric acid, nitrate, hydrochloric acid, cutting oil, kerosene, gasoline, lock material of screw are harmful. Do not use the filter regulator where containing those.

Effects organic solvents and chemicals, and where these elements are likely to adhere to the equipment.

Chemical data for substances causing degradation (Reference)

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

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

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

- ② Avoid the application where charge and discharge of pressure to bowl is switched frequently. This may damage the bowl. A metal bowl is recommended in these cases.
- ③ Consult SMC if no leakage is allowed due to the environment, or operating fluid is not air.

- ④ Protect from ultra violet ray and radiation heat by shield.
- ⑤ A safety device needs to be installed if output pressure is exceeding the set pressure, otherwise this can cause the breakage of outlet device and equipment or malfunction.

**⚠ CAUTION**

- ① The use outside specifications is prohibited.
- ② Air consumption from release port is 0.1L/min(ANR) or less.
- ③ AD27-A with auto drain may leak during exhaust of pressure. (This leakage is allowed in their constructions and not failure.) Be sure to connect piping for drain.

**Selection**

**⚠ WARNING**

- ① Fluorine grease and mineral grease used on internal surfaces and packing may leak to the outlet. Please contact SMC if this is a problem.
- ② Residual pressure (outlet pressure) is not released even if releasing inlet pressure. Select the filter regulator with counter flow function. Without the function, residual pressure may not be eliminated.
- ③ Long absence of operation or operation with outlet circuit sealed or balance circuit may cause pressure fluctuation in outlet set pressure. Please consult SMC if this is a problem.
- ④ Set pressure of outlet pressure shall be 85% or less of inlet pressure. Pressure over 85% makes operation susceptible to flow and inlet pressure which lead to cause unstable operation.
- ⑤ Maximum set pressure range in the spec. has margin. Pressure set may be higher than the maximum value.
- ⑥ If filter regulator is used with circuit which requires high exhaust sensitivity or set precision, please consult SMC.
- ⑦ N.O. type auto drain should be used under the following requirements to avoid operating failure.  
 Output of compressor: 0.75kW or more.  
 Discharged flow rate: 100L/min (ANR) or more.  
 If multiple auto drains are used, confirm used compressor has capacity over the result of multiplying the above capacity and the number of used auto drains.  
 { For example, in case of two auto drain, the compressor need the capacity over 1.5kW [200L/min (ANR)]. }  
 Operating pressure: 0.1MPa or more at min..  
 If the compressor to be used is small (0.75 kW, discharge flow rate is less than 100 L / min [ANR]), air leakage may occur from the drain cock at startup, so N.C. type is recommended.
- ⑧ N.C. type auto drain should be used under the following requirements to avoid operating failure.  
 Operating pressure: 0.1MPa or more at min. for AD27-A, 0.15MPa or more at min. for AD37-A and AD47-A.

**Installation**

**⚠ CAUTION**

- ① Connect the filter regulator ensuring the direction of "1" (IN) and "2" (OUT) for air direction or an arrow. Wrong connection may cause malfunction.
- ② Install vertically so that outlet of drain would turned downward. Use with the outlet of drain turned horizontal or upward causes malfunction.
- ③ Install with enough space around filter regulator to perform regular maintenance and operation. The required space is shown on 「10. Dimensions」 (P29).
- ④ Do not drop nor apply impact during transportation or installation. This can cause damage to the product.
- ⑤ Do not install in areas of high humid or high temperature. Or pressure gauge may malfunction.

## Adjustment

### **WARNING**

- ① Adjust the pressure adjusting handle ensuring correct inlet pressure and outlet pressure. Excessive rotation may cause damage to internal parts.
- ② Operate the pressure adjusting handle manually. Tools may break the handle.

### **CAUTION**

- ① Check inlet pressure before setting up.
- ② Be sure to unlock the handle before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can damage the handle and the outlet pressure may fluctuate.
  - Pull the pressure regulator handle to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
  - Push the pressure regulator handle to lock. When the handle is not easily locked, turn it left and right a little and then push it. (When the handle is locked, the "orange mark", i.e., the gap will disappear.)
- ③ For the filter regulator with the pressure gauge, do not apply pressure exceeding the maximum scale of the pressure gauge in order to protect the gauge.
- ④ Adjust pressure incrementally. Pressure may become lower than set pressure if adjusted by decreasing the value. Rotate the handle clockwise to raise the set pressure. Counterclockwise to reduce the pressure. Moreover, please lock the handle after setting pressure.
- ⑤ Outlet pressure may rise if eliminate the inlet pressure after pressure setting and supply pressure again. The pressure becomes close to the set pressure after air is consumed in outlet.
- ⑥ Outlet pressure may change if filter regulator is used for long periods. Please confirm set pressure regularly.
- ⑦ For the N.C. type auto drain, when there is no pressure, condensate which does not operate the auto drain mechanism will remain in the bowl. It is recommended to release the residual condensate manually at the end of the working day.

## Piping

### **WARNING**

- ① Blow out or clean piping before piping to eliminate swarf, cutting oil, solid foreign material. Contamination of piping may cause damage or malfunction.
- ② When installing piping, avoid chips and sealing materials from piping screws entering the inside of equipment. Or malfunction may occur. When use sealing tapes, leave 1.5~2 threads of the end of thread exposed.
- ③ Hold the female screw side and screw in piping with recommended tightening torque. Insufficient tightening torque lead to cause loose piping or sealing failure. Excessive torque may lead to cause screw breakage. Tightening without holding female screw side applies excessive force to the piping bracket which lead to cause breakage.

Recommended torque    unit: N·m

Screw	M5	1/8	1/4	3/8	1/2	3/4	1
Torque	*1	7~9	12~14	22~24	28~30	28~30	36~38

\*1: After tightening the fitting, please tighten 1/6 turns again with the tightening tool.

- ④ Before using an SMC fitting and S coupler, please refer to "Tightening the threaded portion of the connection thread" of the Fittings & Tubing Precautions.
- ⑤ Do not apply any torsional moment, or bending moment except the weight of the filter regulator itself. External piping needs to be supported separately. Hard piping like steel tube is susceptible to excessive moment load or vibration. Insert the flexible tube to cancel the influence.
- ⑥ Drain guide is not equipped with valve function. Be sure to connect piping for drain. No piping for drain allows the drain and compressed air to exhaust freely. Also, the piping should be performed with drain guide held by spanner to prevent breakage of bowl.
- ⑦ The piping for drain from auto drain should be connected under the following requirements to avoid operating failure.
  - AD27-A: I.D.  $\phi 2.5$  ( $\phi 3/32$ " ) at min., Length 5m (200" ) at max.
  - AD37, 47(N)-A: I.D.  $\phi 4$  ( $\phi 3/16$ " ) at min., Length 5m (200" ) at max.
  - AD38, 48(N)-A: I.D.  $\phi 6.5$  ( $\phi 1/4$ " ) at min., Length 5m (200" ) at max.

## Air Source

### WARNING

- ① Use clean air. Compressed air containing chemicals, organic solvent, synthetic oil or corrosive gas may lead to cause breakage of parts or malfunction.
- ② Air containing too much moisture may cause malfunction. Install the air drier or the aftercooler before the filter regulator.

## Maintenance

### WARNING

- ① Maintenance and checks should be done by following the procedure in the operation manual. Incorrect handling of the product may cause breakage or malfunction of the equipment or device.
- ② Perform periodical check to find cracks, flaws or other deterioration on resin bowl. If any of them is seen, as malfunction is caused, replace with new bowl or metal bowl.
- ③ Check for dirt in resin bowl periodically. If any dirt is seen, replace with new bowl. And if removing off the dirt by washing instead of using a replacement, never use washing material other than neutral detergent. Otherwise, the bowl is damaged.
- ④ Replace the element before 2 years passed since purchase or pressure drop from initial outlet pressure reaches 0.1MPa. Or the element is broken.
- ⑤ Open and close drain cock manually. Open and close too much may damage the drain cock.
- ⑥ Drain the bowl by opening drain cock before the drain level in the bowl reaches baffle.

### CAUTION

- ① If the first operation is performed and defective setting and the exhaust leakage is found, it is likely there is foreign object in an internal valve seat part. Failure to remove these parts may cause damage to internal parts.
- ② Rotate the handle counterclockwise (O←direction) to exhaust the condensate of the C2SF(-C)-A.  
Press the push button to exhaust the condensate of the C3SF(-W)-A and C4SF(-W)-A.
- ③ Check the element periodically and replace it with a new one if necessary. If it is found that outlet pressure drops or the flow is restricted, check the condition of the element.
- ④ The manual exhaust for emergency case can be performed by counterclockwise rotation of the handle in AD27-A. (O←direction)  
For AD37-A, AD38-A, AD47-A and AD48-A, rotate the drain cock counterclockwise in that case.(O←direction)

## 2. APPLICATION

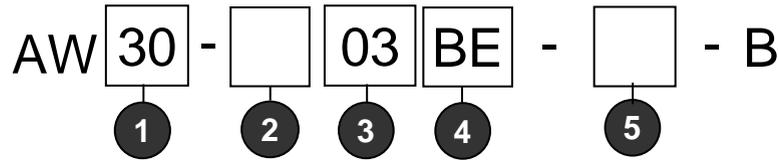
This instrument aims at eliminating excess saturated water in the air line and solid foreign material, also controlling pressure of air lines.

## 3. 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	1, 3/4
Gauge port size <sup>Note1)</sup>	1/8				
Fluid	Air				
Ambient and fluid temperature	-5 to 60°C (Should be no freezing)				
Proof pressure	1.5 MPa				
Max. operating pressure	1.0 MPa				
Set pressure range	0.05 to 0.85 MPa				
Filtration	5 µm				
Drain capacity (cm <sup>3</sup> )	8	25	45		
Bowl material	Polycarbonate				
Bowl guard	Semi-standard (Steel plate)	Standard (Polycarbonate)			
Construction	Relieving type				
Mass (kg)	0.20	0.36	0.66	0.72	2.05

Note 1) Square embedded pressure gauge, without pressure gauge mounting threads.

# 4. HOW TO ORDER



		Symbol		Description		<b>1</b>					
						Body size					
						20	30	40	60		
<b>2</b>	Thread type	Nil	Rc	●	●	●	●				
		N	NPT	●	●	●	●				
		F	G	●	●	●	●				
+											
<b>3</b>	Port size	01	1/8	●	-	-	-				
		02	1/4	●	●	●	-				
		03	3/8	-	●	●	-				
		04	1/2	-	-	●	-				
		06	3/4	-	-	●	●				
		10	1	-	-	-	●				
+											
<b>4</b>	Option	a	Mounting	Nil	Without mounting option	●	●	●	●		
				B	With bracket	●	●	●	●		
				H	With set nut (for panel mounting)	●	●	●	-		
		+									
		b	Float type auto drain	Nil	Without auto drain	●	●	●	●		
				C	With float type auto drain (N.C.)	●	●	●	●		
				D	With float type auto drain (N.O.)	-	●	●	●		
		+									
		c	Pressure gauge	Nil	Without pressure gauge	●	●	●	●		
				E	Square embedded pressure gauge (with limit indicator)	●	●	●	●		
				G	Round type pressure gauge (with limit indicator)	●	●	●	●		
				M	Round type pressure gauge (with colour zone)	●	●	●	●		
+											
d	Set pressure	Nil	0.05 to 0.85 MPa setting	●	●	●	●				
		1	0.02 to 0.2 MPa setting	●	●	●	●				
+											
e	Bowl	Nil	Polycarbonate bowl	●	●	●	●				
		2	Metal bowl	●	●	●	●				
		6	Nylon bowl	●	●	●	●				
		8	Metal bowl with sight glass	-	●	●	●				
		C	With bowl guard (Steel)	●	-	-	-				
		6C	With bowl guard (Steel) · Nylon bowl	●	-	-	-				
+											
f	Drain port	Nil	With drain cock	●	●	●	●				
		J	Drain guide 1/8	●	-	-	-				
			Drain guide 1/4	-	●	●	●				
W	Drain cock With barb fitting (For φ6xφ4 nylon tube)	-	●	●	●						
+											
g	Exhaust mechanism	Nil	Relieving type	●	●	●	●				
		N	Non-relieving type	●	●	●	●				
+											
h	Flow direction	Nil	Flow direction: Left to right	●	●	●	●				
		R	Flow direction: Right to left	●	●	●	●				
+											
i	Pressure unit	Nil	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa, °C	●	●	●	●				
		Z	Name plate in imperial units: psi Caution plate for bowl: psi. °F Pressure gauge in imperial units: MPa, psi	●	●	●	●				

※ Please refer to the catalog when you select the model.

## 5. TROUBLESHOOTING

Refer to 「6. CONSTRUCTION / PARTS LIST」 (P10), 「9. DISASSEMBLY DRAWING」 (P24 to P28).

TROUBLE		POSSIBLE CAUSE	REMEDY
DEMAR CATION	PHENOMENON		
Pressure	Pressure is not regulated.	1. Opposite flow direction or opposite installation of filter regulator.	1. Install piping or filter regulator correctly as shown in manual.
		2. Adjust spring is damaged.	2. Replace the adjust spring.
		3. Valve spring is damaged.	3. Replace the valve spring.
		4. Foreign matter is caught in valve seat part or valve O-ring.	4. Remove the valve guide and clean the valve, valve seat, and valve O-ring. After washing, apply grease to the valve O-ring part and the sliding part.
		5. Valve rubber seat is damaged.	5. Replace the valve assembly.
	Set pressure does not return to zero when pressure handle is loosened.	1. Foreign matter is caught in valve seat part or valve O-ring.	1. Remove the valve guide and clean the valve, valve seat, and valve O-ring. After washing, apply grease to the valve O-ring part and the sliding part.
		2. Valve rubber seat is damaged.	2. Replace the valve assembly.
		3. Valve spring is damaged.	3. Replace the valve spring.
4. Valve adheres to the valve guide.		4. Wash the sliding surface of valve "O" ring and grease up. (Note 1)	
Flow rate	Large air resistance reduces flow rate.	1. Clog of the element.	1. Replace the element.
Air leaks	Air leaks from the bonnet exhaust port.	1. Diaphragm is damaged.	1. Replace the diaphragm assembly.
		2. Foreign material is caught in the relieving valve seat.	2. Clean the relieving valve seat, or replace the diaphragm assembly.
		3. Foreign matter is caught in valve seat part or valve O-ring.	3. Remove the valve guide and clean the valve, valve seat, and valve O-ring. After washing, apply grease to the valve O-ring part and the sliding part.
		4. Valve rubber seat is damaged.	4. Replace the valve assembly.
		5. Back pressure exceeding the set pressure is applied to the outlet.	5. Revise the air circuit so that back pressure does not exceed the set pressure.
	Air leaks between the bonnet and the body.	1. Loosened bonnet.	1. Fasten the bonnet.
		2. Diaphragm is damaged.	2. Replace the diaphragm assembly.
	Air leaks between the bowl and the body.	1. Breakage of bowl seal.	1. Replace the bowl seal. Grease up before assembling. (Note 2)
	Air leaks from the bowl.	1. Breakage of bowl.	1. Replace the bowl assembly.
	Air leaks from the drain cock.	1. The foreign matter caught in the valve of the drain cock.	1. Open the drain cock for a few seconds for blowing.
2. Breakage of the seating part of the drain cock.		2. Replace the bowl assembly.	
Operational	No drainage when the drain cock is opened.	1. Blockage of outlet of the drain cock due to solid foreign matter etc.	1. Replace the bowl assembly.
	Too much drain comes from the piping of outlet side.	1. Drain level reaches the baffle plate.	1. Open the drain cock for draining and replace the element.

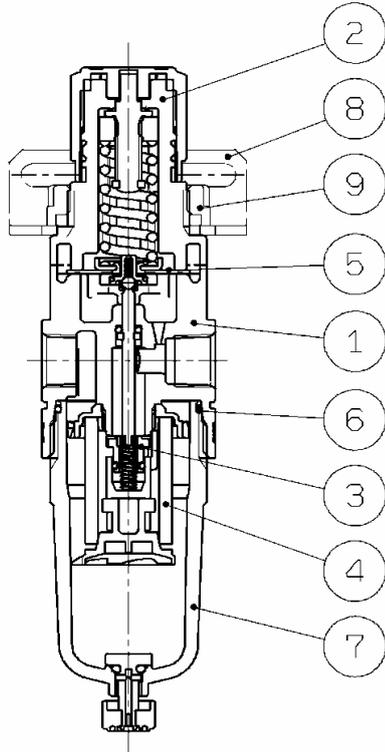
Note 1) The grease used recommends JXTG Energy corporation diamond multipurpose No.2.

Note 2) The grease used recommends fluorine grease.

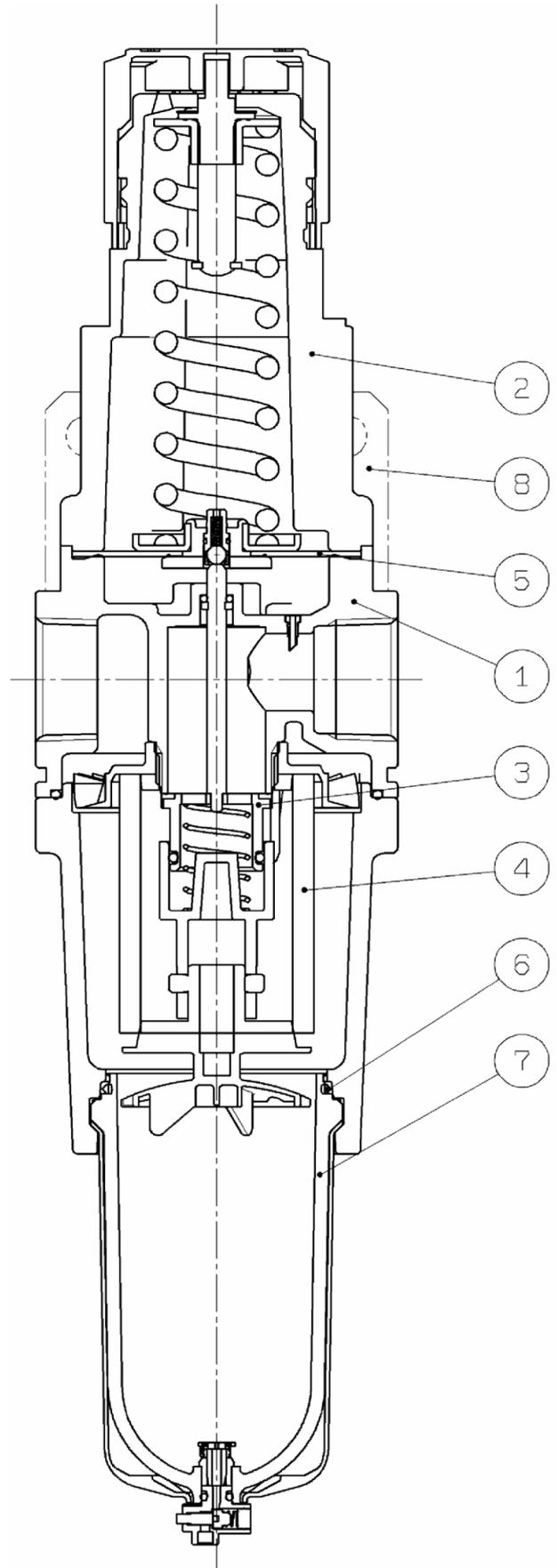
# 6. CONSTRUCTION / PARTS LIST

## 1) Construction

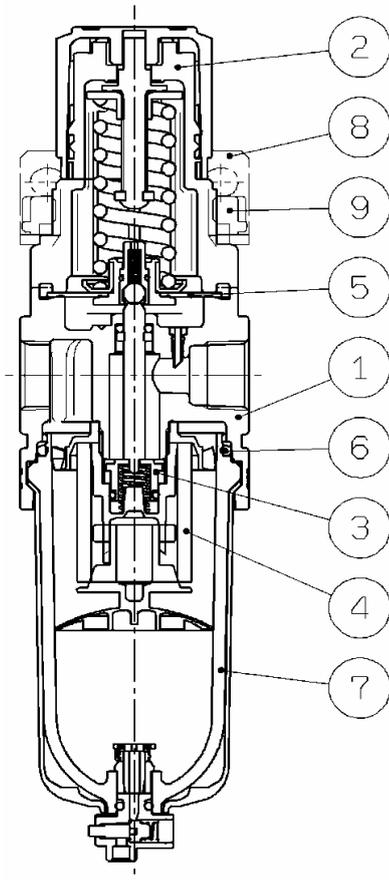
AW20-B



AW60-B



AW30-B / AW40-B



2) PARTS LIST

**Component Parts**

No.	Description	Applicable model	Material	Note
①	Body	AW20 to 60-B	Aluminium die cast	Urban white
②	Bonnet	AW20 to 40-B	Polyacetal	Urban white
		AW60-B	Aluminium die cast	

**Option / Replacement Parts**

No.	Description	Thread		Option Specification	Material	Part No.			
		Type	Symbol			AW20-B	AW30-B	AW40(-06)-B	AW60-B
③	Valve assembly	—	—	—	Brass+HNBR	AW20P-340AS	AW30P-340AS	AW40P-340AS	AW60P-090AS
④	Element	—	—	—	Polyolefin	AF20P-060S	AF30P-060S	AF40P-060S	AW60P-060S
⑤	Diaphragm assembly	—	—	—	Weatherproof NBR	AR20P-150AS	AR30P-150AS	AR40P-150AS	AR50P-150AS
		—	N	Non-relieving type	Weatherproof NBR	AR20P-150AS-N	AR30P-150AS-N	AR40P-150AS-N	AR50P-150AS-N
⑥	Bowl seal	—	—	—	NBR	C2SFP-260S	C32FP-260S	C42FP-260S	
⑦	Bowl assembly	Refer to "7. SPECIFICATIONS OF BOWL ASSEMBLY" (P12 to P19).							
	Auto drain (N.C.)								
	Auto drain (N.O.)								
⑧	<sup>Note1)</sup> Bracket assembly	—	—	—	Steel plate / Polyacetal	AW23P-270AS	AR33P-270AS	AR43P-270AS	<sup>Note2)</sup> AW62P-270AS
⑨	Set nut	—	—	—	Polyacetal	AR23P-260S	AR33P-260S	AR43P-260S	—
⑩	<sup>Note3)</sup> Square embedded pressure gauge	Rc	—	—	—	GC3-10AS			
			1	0.2MPa setting	—	GC3-4AS			
		NPT	—	—	—	GC3-10AS			
			1	0.2MPa setting	—	GC3-4AS			
			Z	Imperial unit: MPa, psi	—	GC3-P10AS-X30			
		1Z	0.2MPa setting	—	GC3-P4AS-X30				
			Imperial unit: MPa, psi	—	GC3-P4AS-X30				
G	—	—	GC3-10AS						
	1	0.2MPa setting	—	GC3-4AS					
⑪	Pressure gauge cover	—	—	—	GC3P-010AS				
⑫	Round type pressure gauge	Rc	—	—	—	G36-10-01		G46-10-01	
			1	0.2MPa setting	—	G36-4-01		G46-4-01	
		NPT	—	—	—	G36-10-N01		G46-10-N01	
			1	0.2MPa setting	—	G36-4-N01		G46-4-N01	
			Z	Imperial unit: MPa, psi	—	G36-P10-N01-X30		G46-P10-N01-X30	
		1Z	0.2MPa setting	—	G36-P4-N01-X30		G46-P4-N01-X30		
			Imperial unit: MPa, psi	—	G36-P4-N01-X30		G46-P4-N01-X30		
	G	—	—	G36-10-01		G46-10-01			
		1	0.2MPa setting	—	G36-4-01		G46-4-01		
	Round type pressure gauge (with colour zone)	Rc	—	—	—	G36-10-01-L		G46-10-01-L	
			1	0.2MPa setting	—	G36-4-01-L		G46-4-01-L	
		NPT	—	—	—	G36-10-N01-L		G46-10-N01-L	
			1	0.2MPa setting	—	G36-4-N01-L		G46-4-N01-L	
			Z	Imperial unit: MPa, psi	—	G36-10-01-L		G46-10-01-L	
1Z		0.2MPa setting	—	G36-4-01-L		G46-4-01-L			
		Imperial unit: MPa, psi	—	G36-4-01-L		G46-4-01-L			
⑬	Pressure gauge adaptor assembly	Rc	—	—	ARP20P-310AS-01				
		G	—	—	ARP20P-310AS-N01				
		NPT	—	—	ARP20P-310AS-F01				
⑭	Plug assembly	Rc	—	—	ARP20P-320AS-01				
		G	—	—	ARP20P-320AS-N01				
		NPT	—	—	ARP20P-320AS-F01				
⑮	Plug	Rc	—	—	AR20P-370AS-01				
		G	—	—	AR20P-370AS-N01				
		NPT	—	—	AR20P-370AS-01				
⑯	Blanking plate assembly	—	—	—	AR20P-250AS				

Note1) Bracket and Set nut assembly.

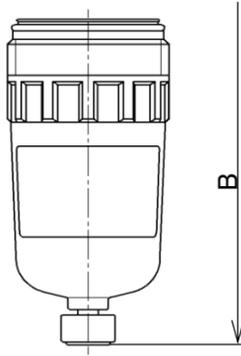
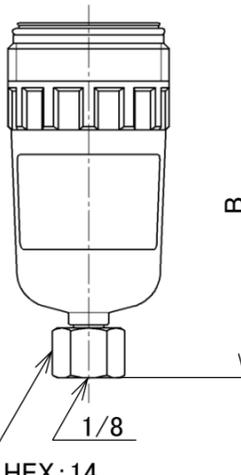
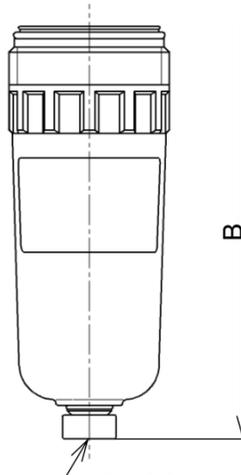
Note2) Bracket with mounting screws.(2pcs)

Note3) With O-ring (1 piece) and Mounting screws (2 pcs).

Note4) The number in the table is corresponding to the number in structural drawing (P10) and "7. SPECIFICATIONS OF BOWL ASSEMBLY" (P12 to P19), "9. DISASSEMBLY DRAWING" (P24 to P28).

# 7. SPECIFICATIONS OF BOWL ASSEMBLY

## 1) Bowl assembly / Auto drain for AW20-B

Option	—		—	
Semi-standard	—	6	C	6C
External appearance drawing and part no.	Semi-standard 「—」 (Standard)		Semi-standard 「C」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	C2SF-A	Rc	C2SF-C-A
	G	C2SF-A	G	C2SF-C-A
	NPT	C2SF(-Z)-A	NPT	C2SF-C(Z)-A
Semi-standard 「6」			Semi-standard 「6C」	
Port thread	⑦Part no.		Port thread	⑦Part no.
Rc	C2SF-6-A		Rc	C2SF-6C-A
G	C2SF-6-A		G	C2SF-6C-A
	NPT	C2SF-6(Z)-A	NPT	C2SF-6C(Z)-A
Option	—		—	
Semi-standard	J	6J	CJ	6CJ
External appearance drawing and part no.	Semi-standard 「J」		Semi-standard 「CJ」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	C2SF-J-A	Rc	C2SF-CJ-A
	G	C2SFF-J-A	G	C2SFF-CJ-A
	NPT	C2SFN-J(Z)-A	NPT	C2SFN-CJ(Z)-A
Semi-standard 「6J」			Semi-standard 「6CJ」	
Port thread	⑦Part no.		Port thread	⑦Part no.
Rc	C2SF-6J-A		Rc	C2SF-6CJ-A
G	C2SFF-6J-A		G	C2SFF-6CJ-A
	NPT	C2SFN-6J(Z)-A	NPT	C2SFN-6CJ(Z)-A
		1/8 HEX: 14		1/8 HEX: 14
Option	—		—	
Semi-standard	2	2J	2J	2J
External appearance drawing and part no.	Semi-standard 「2」		Semi-standard 「2J」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	C2SF-2-A	Rc	C2SF-2J-A
	G	C2SF-2-A	G	C2SFF-2J-A
	NPT	C2SF-2(Z)-A	NPT	C2SFN-2J(Z)-A
				1/8 HEX: 14
Option	Note2) C		Note2) C	
Semi-standard	—	6	C	6C
External appearance drawing and part no.	Semi-standard 「—」		Semi-standard 「C」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	AD27-A	Rc	AD27-C-A
	G	AD27-A	G	AD27-C-A
	NPT	AD27(-Z)-A	NPT	AD27-C(Z)-A
Semi-standard 「6」			Semi-standard 「6C」	
Port thread	⑦Part no.		Port thread	⑦Part no.
Rc	AD27-6-A		Rc	AD27-6C-A
G	AD27-6-A		G	AD27-6C-A
	NPT	AD27-6(Z)-A	NPT	AD27-6C(Z)-A
		M5 x 0.8		M5 x 0.8

<b>Option</b>	Note2) <b>C</b>		
<b>Semi-standard</b>	<b>2</b>		
<b>External appearance drawing and part no.</b>	Semi-standard 「2」		
	Port thread	⑦Part no.	
	Rc	AD27-2-A	
	G	AD27-2(Z)-A	
	NPT	AD27-2(Z)-A	

Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "10. DIMENSIONS" (P29).

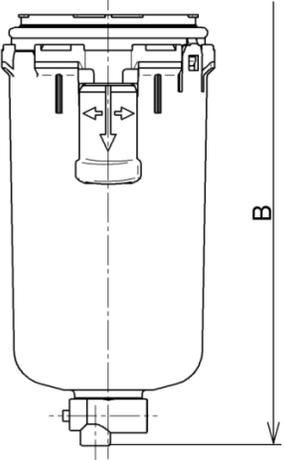
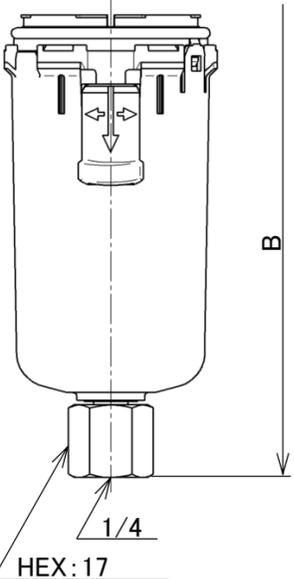
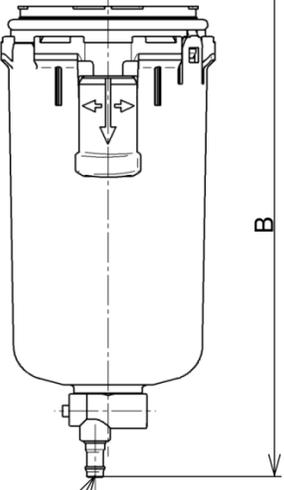
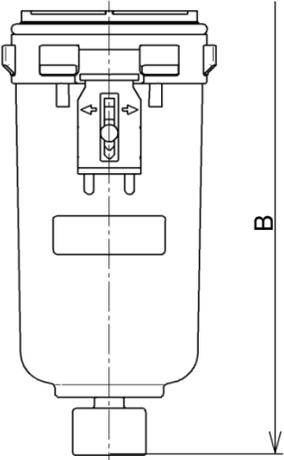
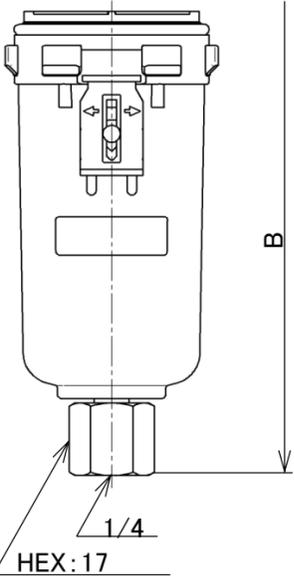
Note 2) Min. operating pressure is 0.1MPa.

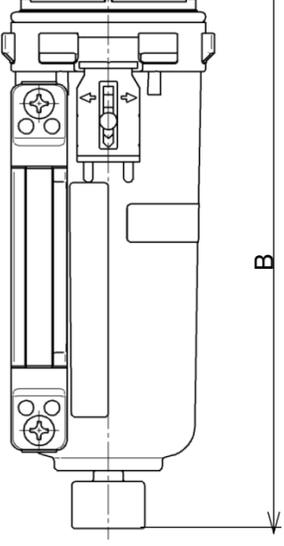
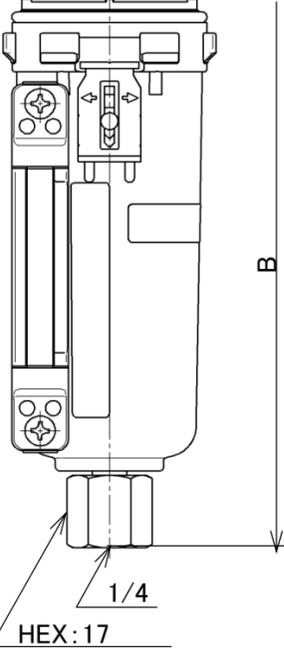
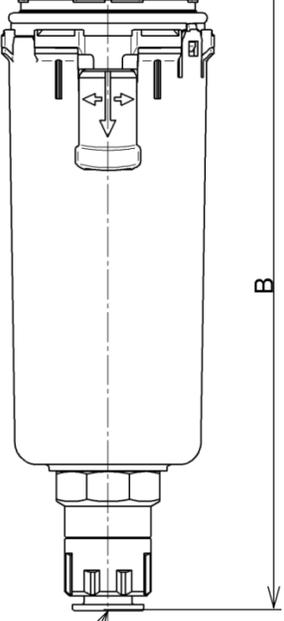
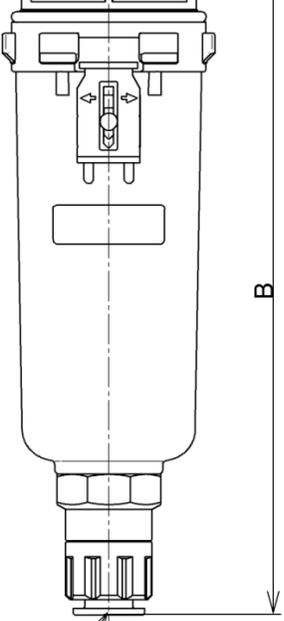
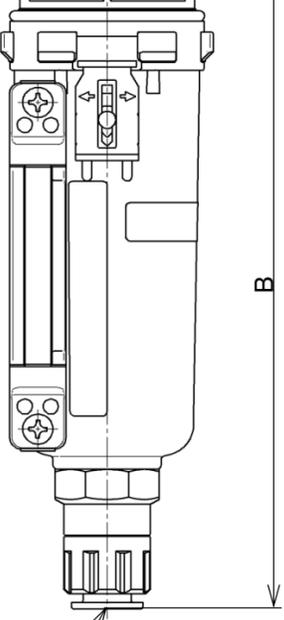
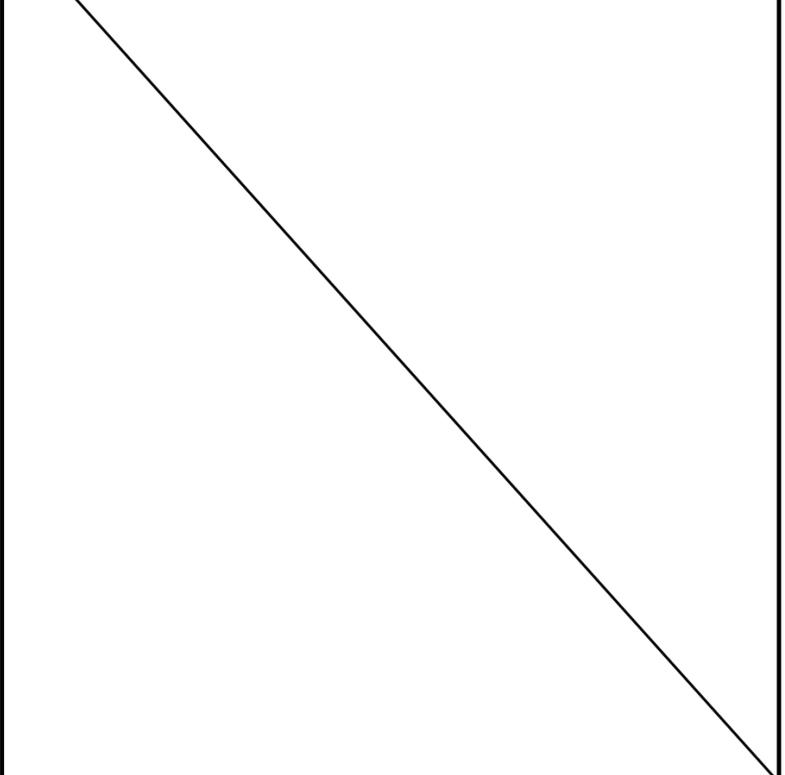
Note 3) The part with no. ⑦ includes ⑥ Bowl seal. Refer to "9. DISASSEMBLY DRAWING" (P24 to P28).

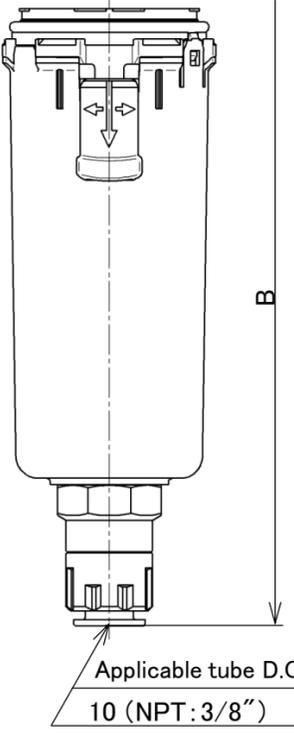
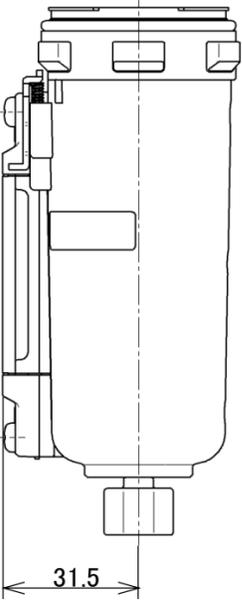
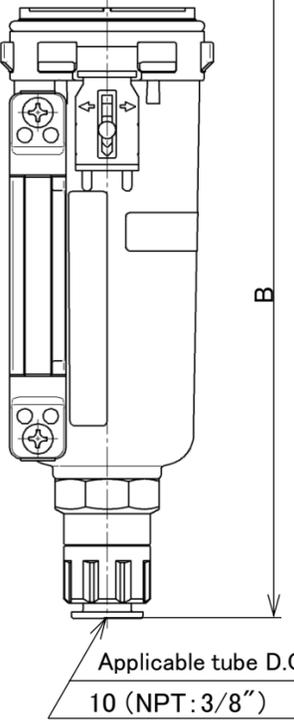
Note 4) "Z" of the part with no. ⑦ is semi-standard for indicated unit of pressure and temperature, which is psi and °F.

Note 5) The symbol for option and semi-standard are described as "4. HOW TO ORDER" (P8).

2) Bowl assembly / Auto drain for AW30-B

Option	—		—	
Semi-standard	—	6	J	6J
External appearance drawing and part no.	Semi-standard 「—」 (Standard)		Semi-standard 「J」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	C3SF-A	Rc	C3SF-J-A
	G		G	C3SFF-J-A
	NPT	C3SF-(Z)-A	NPT	C3SFN-J(Z)-A
	Semi-standard 「6」		Semi-standard 「6J」	
	Port thread	⑦Part no.	Port thread	⑦Part no.
	Rc	C3SF-6-A	Rc	C3SF-6J-A
	G		G	C3SFF-6J-A
	NPT	C3SF-6(Z)-A	NPT	C3SFN-6J(Z)-A
				
	B		B	
			1/4 HEX: 17	
Option	—		—	
Semi-standard	W	6W		
External appearance drawing and part no.	Semi-standard 「W」			
	Port thread	⑦Part no.		
	Rc	C3SF-W-A		
	G			
	NPT	C3SF-W(Z)-A		
	Semi-standard 「6W」			
	Port thread	⑦Part no.		
	Rc	C3SF-6W-A		
	G			
	NPT	C3SF-6W(Z)-A		
				
	B			
	Barb fitting Applicable tube T0604			
Option	—		—	
Semi-standard	2	2J		
External appearance drawing and part no.	Semi-standard 「2」			
	Port thread	⑦Part no.		
	Rc	C3SF-2-A		
	G			
	NPT	C3SF-2(Z)-A		
				
	B		B	
			1/4 HEX: 17	

<b>Option</b> <b>Semi-standard</b>	<p align="center">—</p> <p align="center"><b>8</b></p>	<p align="center">—</p> <p align="center"><b>8J</b></p>																					
<b>External appearance drawing and part no.</b>	<p>Semi-standard 「8」</p> <table border="1" data-bbox="464 329 837 519"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">C3LF-8-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>C3LF-8(Z)-A</td> </tr> </table>  <p align="right">B</p>	Port thread	⑦Part no.	Rc	C3LF-8-A	G	NPT	C3LF-8(Z)-A	<p>Semi-standard 「8J」</p> <table border="1" data-bbox="1241 329 1614 519"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td>C3LF-8J-A</td> </tr> <tr> <td>G</td> <td>C3LFF-8J-A</td> </tr> <tr> <td>NPT</td> <td>C3LFN-8J(Z)-A</td> </tr> </table>  <p align="right">B</p> <p align="right">1/4 HEX: 17</p>	Port thread	⑦Part no.	Rc	C3LF-8J-A	G	C3LFF-8J-A	NPT	C3LFN-8J(Z)-A						
Port thread	⑦Part no.																						
Rc	C3LF-8-A																						
G																							
NPT	C3LF-8(Z)-A																						
Port thread	⑦Part no.																						
Rc	C3LF-8J-A																						
G	C3LFF-8J-A																						
NPT	C3LFN-8J(Z)-A																						
<b>Option</b>	<p align="center">Note 2) <b>C</b></p>	<p align="center">Note 2) <b>C</b></p>																					
<b>External appearance drawing and part no.</b>	<p align="center">—</p> <p align="center"><b>6</b></p> <p>Semi-standard 「—」</p> <table border="1" data-bbox="464 1234 837 1424"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD37-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD37N(-Z)-A</td> </tr> </table> <p>Semi-standard 「6」</p> <table border="1" data-bbox="464 1501 837 1691"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD37-6-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD37N-6(Z)-A</td> </tr> </table>  <p align="right">B</p> <p align="right">Applicable tube D.O. 10 (NPT: 3/8")</p>	Port thread	⑦Part no.	Rc	AD37-A	G	NPT	AD37N(-Z)-A	Port thread	⑦Part no.	Rc	AD37-6-A	G	NPT	AD37N-6(Z)-A	<p align="center"><b>2</b></p> <p>Semi-standard 「2」</p> <table border="1" data-bbox="1241 1234 1614 1424"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD37-2-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD37N-2(Z)-A</td> </tr> </table>  <p align="right">B</p> <p align="right">Applicable tube D.O. 10 (NPT: 3/8")</p>	Port thread	⑦Part no.	Rc	AD37-2-A	G	NPT	AD37N-2(Z)-A
Port thread	⑦Part no.																						
Rc	AD37-A																						
G																							
NPT	AD37N(-Z)-A																						
Port thread	⑦Part no.																						
Rc	AD37-6-A																						
G																							
NPT	AD37N-6(Z)-A																						
Port thread	⑦Part no.																						
Rc	AD37-2-A																						
G																							
NPT	AD37N-2(Z)-A																						
<b>Option</b>	<p align="center">Note 2) <b>C</b></p>	<p align="center">Note 2) <b>C</b></p>																					
<b>External appearance drawing and part no.</b>	<p align="center"><b>8</b></p> <p>Semi-standard 「8」</p> <table border="1" data-bbox="464 2101 837 2291"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD37-8-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD37N-8(Z)-A</td> </tr> </table>  <p align="right">B</p> <p align="right">Applicable tube D.O. 10 (NPT: 3/8")</p>	Port thread	⑦Part no.	Rc	AD37-8-A	G	NPT	AD37N-8(Z)-A															
Port thread	⑦Part no.																						
Rc	AD37-8-A																						
G																							
NPT	AD37N-8(Z)-A																						

Option	Note 2) D		Note 2) D														
Semi-standard	—	6	2														
External appearance drawing and part no.	Semi-standard 「—」		Semi-standard 「2」														
	<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD38-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD38N(-Z)-A</td> </tr> </table>	Port thread	⑦Part no.	Rc	AD38-A	G	NPT	AD38N(-Z)-A		<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD38-2-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD38N-2(Z)-A</td> </tr> </table>	Port thread	⑦Part no.	Rc	AD38-2-A	G	NPT	AD38N-2(Z)-A
Port thread	⑦Part no.																
Rc	AD38-A																
G																	
NPT	AD38N(-Z)-A																
Port thread	⑦Part no.																
Rc	AD38-2-A																
G																	
NPT	AD38N-2(Z)-A																
Semi-standard 「6」		Semi-standard 「2」															
	<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD38-6-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD38N-6(Z)-A</td> </tr> </table>	Port thread	⑦Part no.	Rc	AD38-6-A	G	NPT	AD38N-6(Z)-A									
Port thread	⑦Part no.																
Rc	AD38-6-A																
G																	
NPT	AD38N-6(Z)-A																
Option	Note 2) D																
Semi-standard	8		Metal bowl with sight glass Slide elevation														
External appearance drawing and part no.	Semi-standard 「8」																
	<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">AD38-8-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>AD38N-8(Z)-A</td> </tr> </table>	Port thread			⑦Part no.	Rc	AD38-8-A	G	NPT	AD38N-8(Z)-A							
Port thread	⑦Part no.																
Rc	AD38-8-A																
G																	
NPT	AD38N-8(Z)-A																

Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "10. DIMENSIONS" (P29).

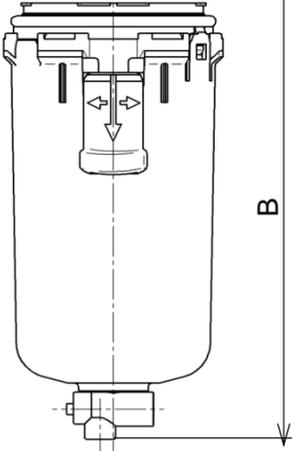
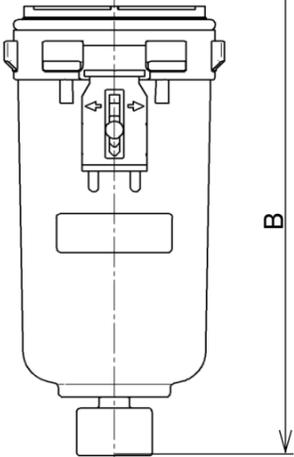
Note 2) Min. operating pressure is 0.15MPa for N.C. type and 0.1MPa for N.O. type.

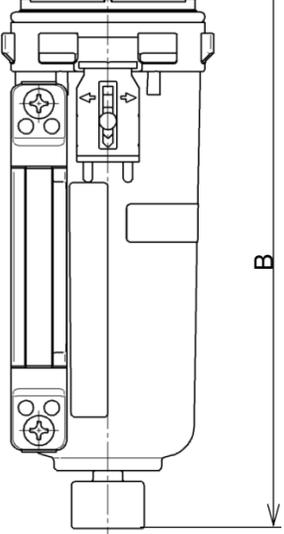
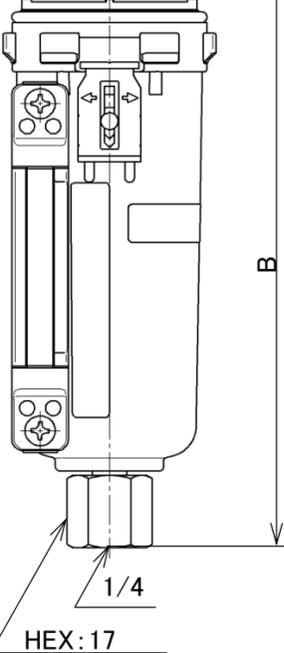
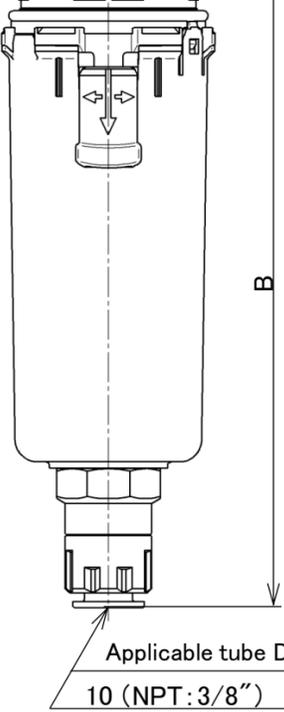
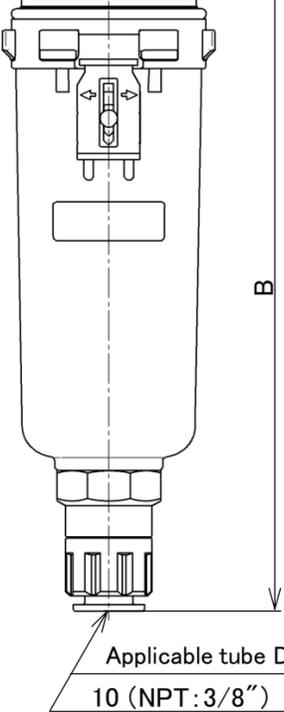
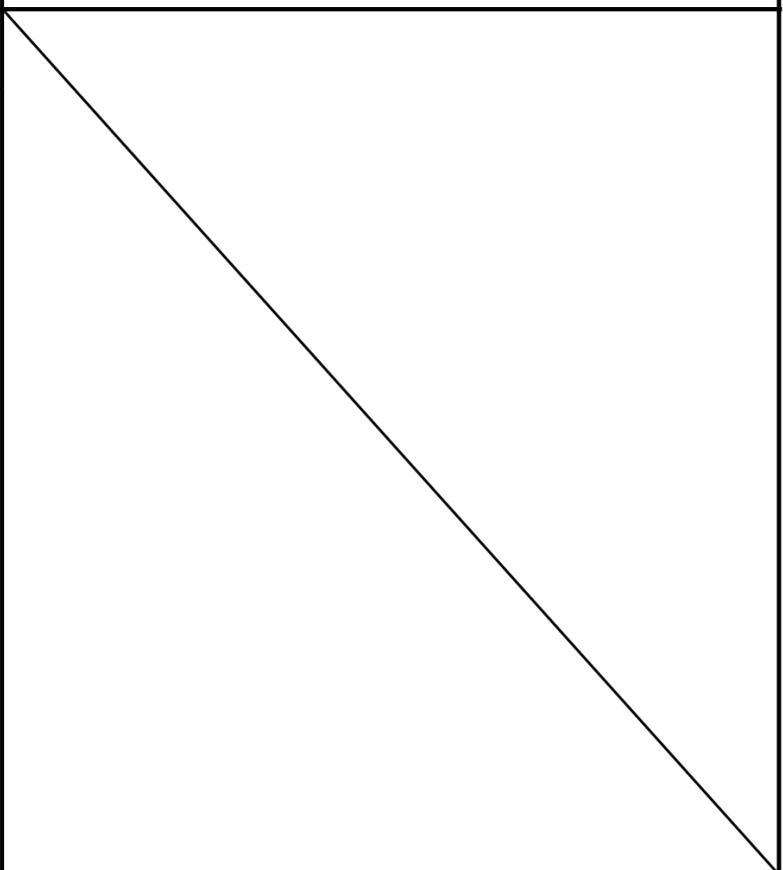
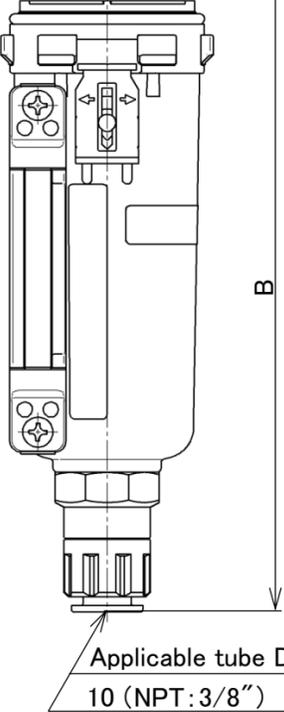
Note 3) The part with no. ⑦ includes ⑥ Bowl seal. Refer to "9. DISASSEMBLY DRAWING" (P24 to P28).

Note 4) "Z" of the part with no. ⑦ is semi-standard for indicated unit of pressure and temperature, which is psi and °F.

Note 5) The symbol for option and semi-standard are described as "4. HOW TO ORDER" (P8).

3) Bowl assembly / Auto drain for AW40-B and AW60-B

Option	—		—															
Semi-standard	—		J															
External appearance drawing and part no.	Semi-standard 「—」 (Standard)		Semi-standard 「J」															
	<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td rowspan="2">C4SF-A</td> </tr> <tr> <td>G</td> </tr> <tr> <td>NPT</td> <td>C4SF(-Z)-A</td> </tr> </table>	Port thread	⑦Part no.	Rc	C4SF-A	G	NPT	C4SF(-Z)-A	<table border="1"> <tr> <td>Port thread</td> <td>⑦Part no.</td> </tr> <tr> <td>Rc</td> <td>C4SF-J-A</td> </tr> <tr> <td>G</td> <td>C4SFF-J-A</td> </tr> <tr> <td>NPT</td> <td>C4SFN-J(Z)-A</td> </tr> </table>	Port thread	⑦Part no.	Rc	C4SF-J-A	G	C4SFF-J-A	NPT	C4SFN-J(Z)-A	
Port thread	⑦Part no.																	
Rc	C4SF-A																	
G																		
NPT	C4SF(-Z)-A																	
Port thread	⑦Part no.																	
Rc	C4SF-J-A																	
G	C4SFF-J-A																	
NPT	C4SFN-J(Z)-A																	
Option	—		—															
Semi-standard	W		—															
External appearance drawing and part no.	Semi-standard 「W」		—															
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Semi-standard	2		2J															
External appearance drawing and part no.	Semi-standard 「2」		Semi-standard 「2」															
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<b>Option</b> <b>Semi-standard</b>	<p align="center">—</p> <p align="center"><b>8</b></p>	<p align="center">—</p> <p align="center"><b>8J</b></p>																					
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Option	Note 2) D		Note 2) D																
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Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "10. DIMENSIONS" (P29).

Note 2) Min. operating pressure is 0.15MPa for N.C. type and 0.1MPa for N.O. type.

Note 3) The part with no. ⑦ includes ⑥ Bowl seal. Refer to "9. DISASSEMBLY DRAWING" (P24 to 28).

Note 4) "Z" of the part with no. ⑦ is semi-standard for indicated unit of pressure and temperature, which is psi and °F.

Note 5) The symbol for option and semi-standard are described as "4. HOW TO ORDER" (P8).

## 8. REPLACEMENT PROCEDURE

### WARNING

Before replacement, ensure that the regulator is not pressurized.

Rotate the pressure adjusting handle to zero.

Replace referring to 「9. DISASSEMBLY DRAWING」 (P24 to P28).

After replacement, ensure that specified function is satisfied and external leakage is not found before starting operation.

#### 1) Bowl assembly/element

Applicable model	Process	Procedure	Tools	Check item
AW20-B	Disassembly	1) Remove the bowl assembly Hold the bowl assembly by hand and rotate counterclockwise to remove the bowl assembly. If the bowl assembly is tightened too much to be removed, use hook spanner until it can be loosened by hand.	SMC's special spanner P/N: 1129129 (Recommended)	—
		2) Remove the baffle element Rotate the baffle by hand and counterclockwise to remove the baffle and element.	—	—
	Assembly	3) Mount the element. Mount the element to the valve guide.	—	—
		4) Mount the baffle. Insert the baffle so that concave on the valve guide could meet T convex on the baffle. And rotate it clockwise manually until feeling snap fit (approx. 110°) to fix to the element.	—	—
		5) Mount the bowl assembly. Hold the bowl assembly by hand and rotate clockwise. Do not use tool for mounting because the bowl may be damaged. See check item for referential tightening torque.	—	Referential tightening torque: 2.1 N·m
AW30-B AW40-B AW60-B	Disassembly	1) Remove the bowl assembly Push the bowl assembly lock button. Lifting the bowl assembly, rotate the assembly 30° (right or left) to pull out the assembly.	—	—
		2) Remove the baffle element Rotate the baffle by hand and counterclockwise to remove the baffle and element.	—	—
	Assembly	3) Mount the element. Mount the element to the valve guide.	—	—
		4) Mount the baffle. Insert the baffle so that concave on the valve guide could meet T convex on the baffle. And rotate it clockwise manually until feeling snap fit (approx. 110°) to fix to the element.	—	Direction of baffle. (For element convex side.)
		5) Mount the bowl assembly. Match the mating mark of the body and the bowl assembly to insert the assembly to the body. Rotate the assembly 30° (right or left) until the lock button is tossed up to mount the bowl assembly. Ensure the lock button is up.	—	Lock button is up.

#### 2) Diaphragm assembly

Applicable model	Process	Procedure	Tool	Check item
AW20-B AW30-B AW40-B AW60-B	Disassembly	1) Remove the bonnet Rotate the set screw counterclockwise with cross pointed driver to remove the bonnet from the body.	Cross pointed driver	—
		2) Remove parts in order of the pressure adjusting screw assembly, pressure adjusting spring, and the diaphragm assembly. Please be noted that the diaphragm assembly adheres to the bonnet if disassemble parts with the handle facing downwards.	—	—

## 2) Diaphragm assembly

Applicable model	Process	Procedure	Tool	Check item
AW20-B AW30-B AW40-B AW60-B	Assembly	3) Mount parts to the body in order of the diaphragm assembly, pressure adjusting spring, and pressure adjusting screw.	—	Direction of pressure adjusting screw assembly and diaphragm assembly
		4) Mount the bonnet to the body Mount the bonnet to the body, and settle it roughly with 4 mounting screws with a cross pointed driver. Then, Tighten screws diagonally with the tightening torque in the check item to settle.	Cross pointed driver	<u>Tightening torque</u> AW20-B   2.35±0.3N·m AW30-B   2.35±0.3N·m AW40-B   3.5±0.3N·m AW60-B   3.5±0.3N·m

## 3) Valve assembly

Applicable model	Process	Procedure	Tools	Check item
AW20-B AW30-B AW40-B	Disassembly	1) Remove valve guide after removing bowl assembly and element. Hold the valve guide with a spanner to rotate it counterclockwise and remove the valve guide.	Spanner Nominal: AW20-B   11 AW30-B   17 AW40-B   21	—
		2) Remove the valve spring.	—	—
		3) Remove the valve assembly.	—	—
	Assembly	4) Mount the valve assembly. Mate the stem convex and the valve center hole.	—	Positioning the stem and the valve(centering)
		5) Mount the valve spring. Insert the valve spring to the valve hole.	—	—
		6) Mount the valve guide. Hold the valve guide with a spanner to rotate it clockwise and mount the valve guide. See check item for the tightening torque.	Spanner Nominal: AW20-B   11 AW30-B   17 AW40-B   21	<u>Tightening torque:</u> AW20-B   0.8±0.1N·m AW30-B   2.35±0.3N·m AW40-B   3.5±0.3N·m
AW60-B	Disassembly	1) Remove the bowl assembly, housing, and element. Remove a housing from a body by turning 4 mounting screws to the left with a hexagon wrench key.	Hexagon wrench key Nominal : 5	—
		2) Remove the valve guide. Hold the valve guide with a spanner to rotate it counterclockwise and remove the valve guide.	Spanner Nominal : 30	—
		3) Remove the valve spring.	—	—
		4) Remove the valve assembly.	—	—
	Assembly	5) Mount the valve assembly. Mate the stem convex and the valve center hole.	—	Positioning the stem and the valve(centering)
		6) Mount the valve spring. Insert the valve spring to the valve hole.	—	—
		7) Mount the valve guide. Hold the valve guide with a spanner to rotate it clockwise and mount the valve guide. See check item for the tightening torque.	Spanner Nominal : 30	Tightening torque : 6.5±0.3N·m
		8) Mount the housing. Mount an "O"ring on the body, assemble the housing, and tighten the 4 mounting screws temporary. Tighten the screws additionally and evenly with the tightening torque shown on the right using the hexagon wrench key.	Hexagon wrench key Nominal : 5	Tightening torque : 4.5±1.0N·m

#### 4) Bracket assembly, panel mount

Applicable model	Process	Procedure	Tools	Check items
AW20-B AW30-B AW40-B	Assembly	1) Mount the parts to the bracket (panel) Mate the bracket(panel) concave and the bonnet convex to mount the bracket.	—	-
		2) Settle the bracket (panel) with set nut. Rotate the set nut clockwise with a hook spanner to settle the parts to the bracket (panel). See check item for tightening torque. Set nut knurling surface shall face the bracket. When mounting with bracket, set nut tightened manually is adequate fir general used.	Hook spanner Nominal AW20-B 34/38 AW30-B 52/55 AW40-B 52/55	Tightening torque AW20-B 2.0±0.2N·m AW30-B 3.5±0.3N·m AW40-B 4.0±0.4N·m
AW60-B	Assembly	1) Mount the product to the bracket. 2 mounting screws are tightened by spanner for holding.	Spanner Nominal: 10	Tightening torque :2.6N·m

#### 5) Square embedded pressure gauge

Applicable model	Process	Procedure	Tools	Check items
AW20-B AW30-B AW40-B AW60-B	Disassembly	1) Remove the pressure gauge cover Rotate the pressure gauge cover 15° counterclockwise to pull out the pressure gauge cover.	—	—
		2) Remove the pressure gauge Rotate 2 set screws counterclockwise with cross pointed driver to remove the pressure gauge and two set screws.	Cross pointed driver	—
	Assembly	3) Ensure O-ring is mounted to the pressure gauge Mount O-ring to the pressure gauge if the ring fall off.	—	Presence of O-ring
		4) Mount the pressure gauge Rotate 2 set screws clockwise with cross pointed driver to set screws temporary. Then settle them with tightening torque in check item.	Cross pointed driver	Tightening torque : 0.6±0.05N·m
		5) Mount the pressure gauge cover Insert the pressure gauge mating two detent of the pressure gauge and holes for them so that the arrow of the pressure gauge cover comes upper right. Rotate the pressure gauge cover 15° opposite to the arrow to mount the pressure gauge.	—	—

#### 6) Round type pressure gauge

Applicable model	Process	Procedure	Tools	Check item
AW20-B AW30-B AW40-B AW60-B	Disassembly	1) Remove the pressure gauge Hold the pressure gauge with a spanner on the spanner flat. Then, rotate the gauge counterclockwise to remove the gauge.	Spanner Nominal: 14	—
	Assembly	2) Rap the pressure gauge thread with the seal tape leaving 1.5 to 2 threads from the end.	—	Wrap seal tape leaving 1.5 to 2 threads
		3) Mount the pressure gauge Hold the pressure gauge on the spanner flat with a spanner, and rotate it clockwise to mount the circular pressure gauge. See Check item for tightening torque of pressure gauge.	Spanner Nominal: 14	Tightening torque : 7 to 9N·m

### 7) Pressure gauge adapter, Plug assembly

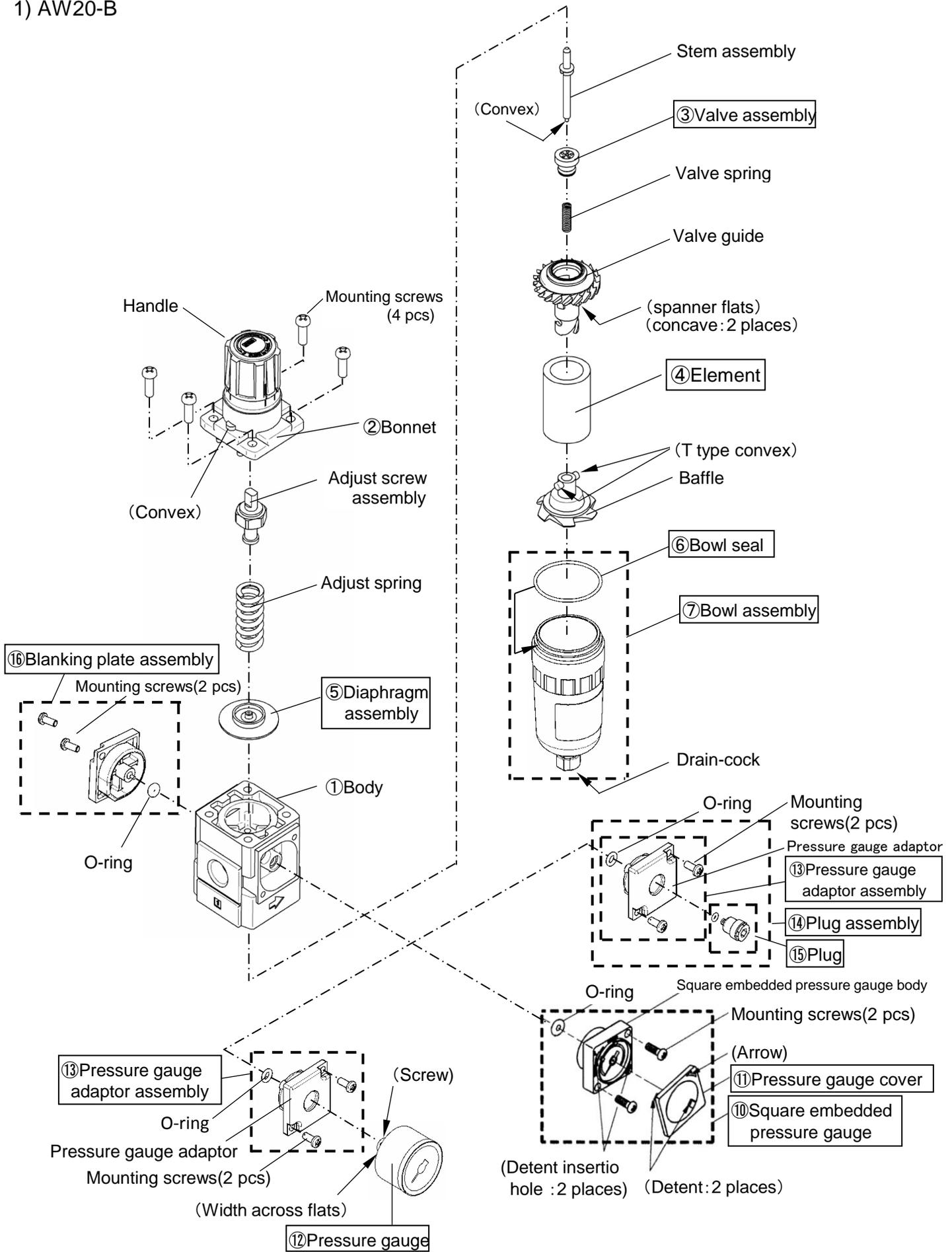
Applicable model	Process	Procedure	Tools	Check item
AW20-B AW30-B AW40-B AW60-B	Disassembly	1) Remove the plug Insert the hexagon spanner to hexagon hole of hexagon plug. Rotate the plug counterclockwise to remove the plug.	Spanner Nominal : 4	—
		2) Remove the pressure gauge adapter Rotate 2 set screws counterclockwise with cross pointed driver to remove the pressure gauge and 2 set screws.	Cross pointed driver	—
	Assembly	3) Confirm pressure gauge adapter has O-ring. If not, mount O-ring.	—	—
		4) Mount pressure gauge adapter. Rotate 2 screws clockwise by Phillips driver to fix pressure gauge adapter. See Check item for tightening torque of 2 screws.	Cross pointed driver (Torque driver)	Tightening torque : 0.6±0.05N·m
		5) Mount plug assembly. Insert hexagon spanner into hexagon hole on the plug and rotate clockwise to fix the plug. See Check item for tightening torque of 2 screws.	Spanner Nominal : 4	Tightening torque : 0.6±0.05N·m

### 8) Blanking plate assembly

Applicable model	Process	Procedure	Tools	Check item
AW20-B AW30-B AW40-B AW60-B	Disassembly	1) Rotate two set screws counterclockwise with cross pointed driver to remove the blanking plate and 2 set screws.	Cross pointed driver	—
	Assembly	2) Remove the pressure gauge adapter Confirm blanking plate has O-ring. If not, mount O-ring.	—	—
		3) Mount the blanking plate. Rotate 2 screws clockwise by Phillips driver to fix blanking plate. See Check item for tightening torque of 2 screws.	Cross pointed driver (Torque driver)	Tightening torque : 0.6±0.05 N·m

# 9. DISASSEMBLY DRAWING

1) AW20-B

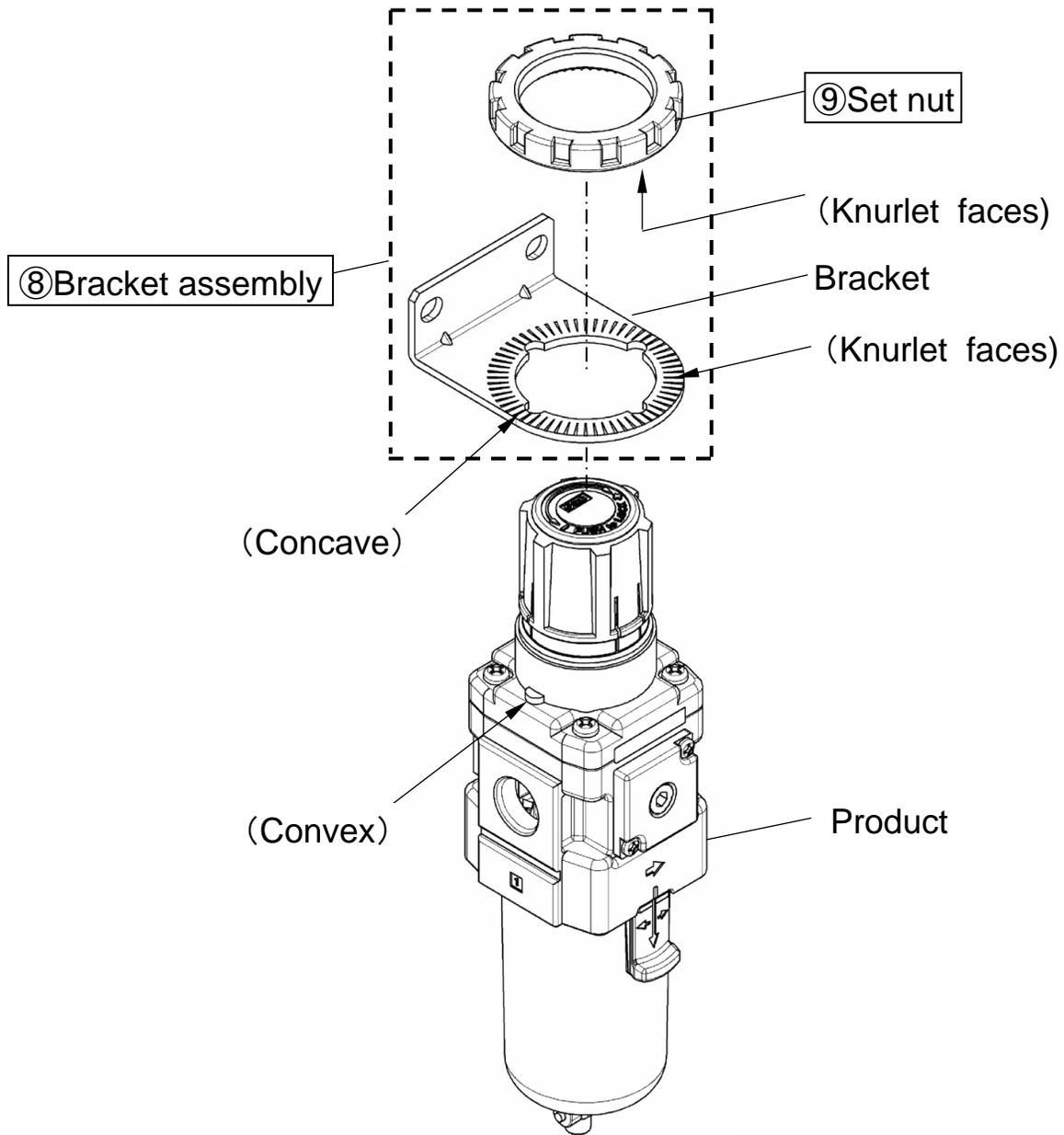


Note) If you want to install ⑩ Square embedded pressure gauge or ⑬ Pressure gauge adaptor assembly or ⑭ Plug assembly instead of ①⑥ Blanking plate assembly, please contact SMC.

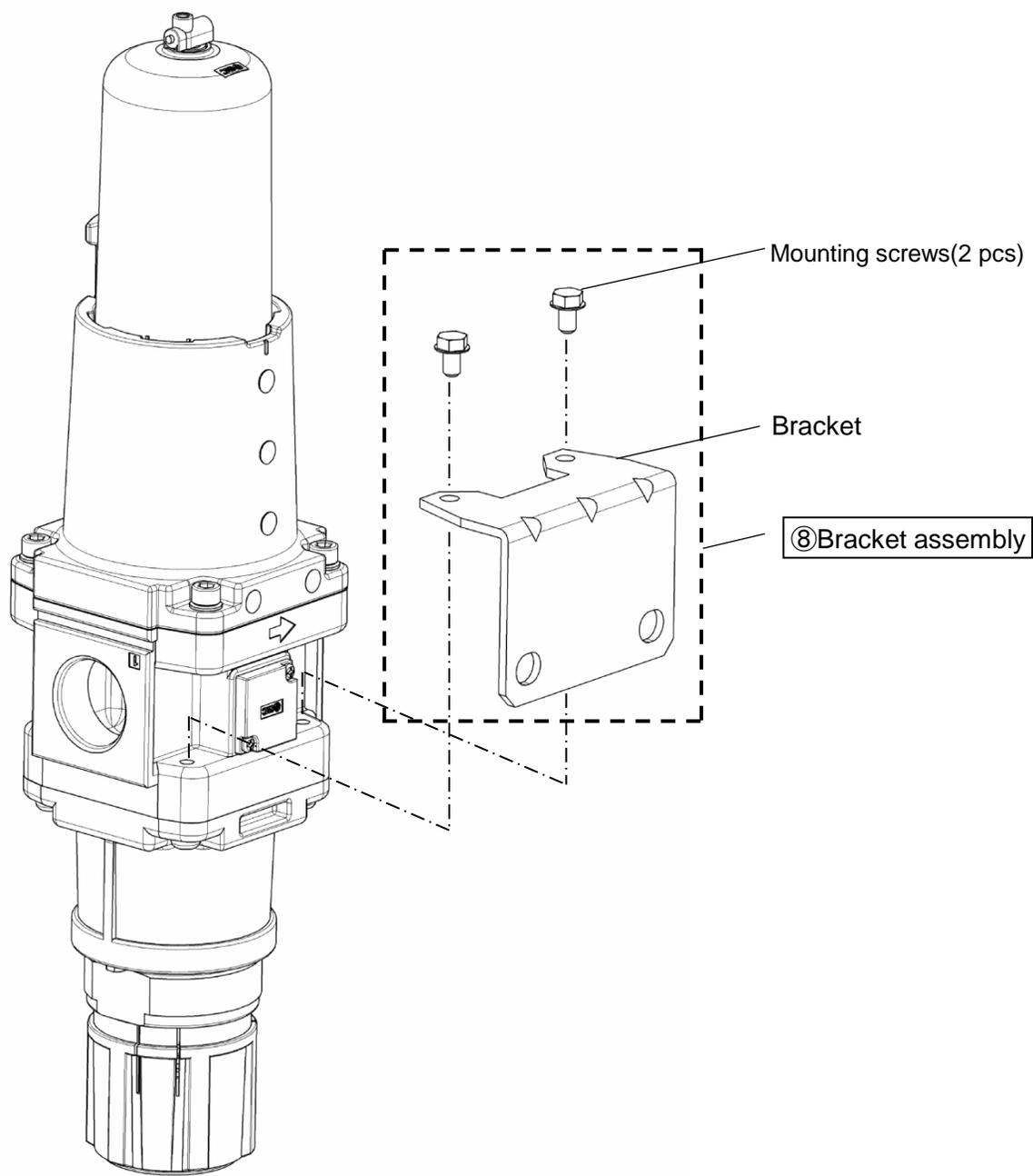




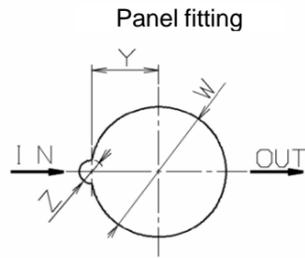
4) AW20-B/AW30-B/AW40-B Bracket assembly • Panel mounting Disassembly drawing.



5) AW60-B Bracket assembly Disassembly drawing.

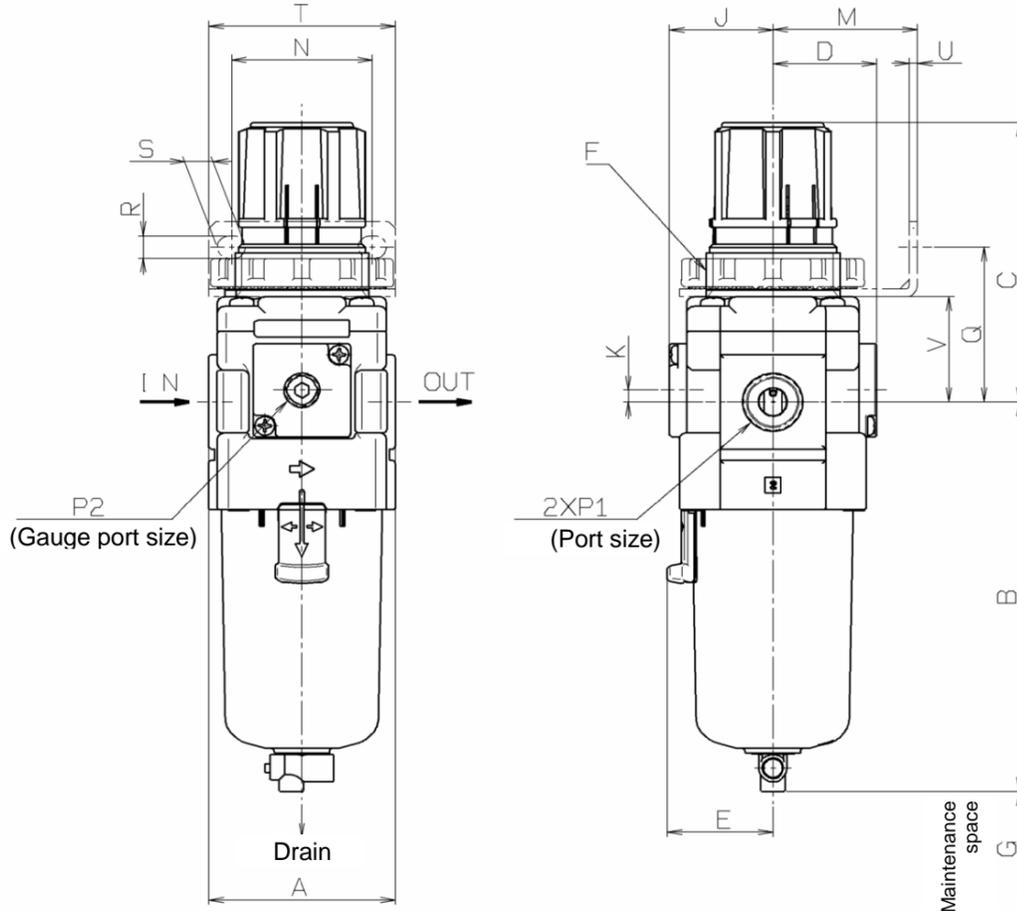


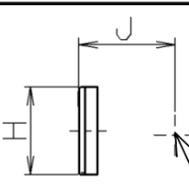
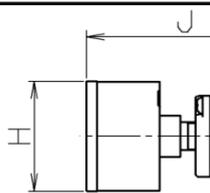
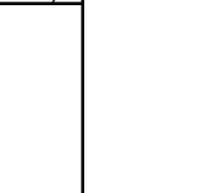
# 10.DIMENSIONS



Thickness of plate

Model	Thickness of plate (mm)
AW20-B	MAX.3.5
AW30-B	
AW40-B	MAX.5
AW40-06-B	



Option	Square embedded pressure gauge	Round type pressure gauge	Round type pressure gauge (with colour zone)
External appearance drawing			

## Dimensions

Model	Port size	pressure gauge port size	Standard specifications								Optional					
			A	B <sup>(Note 1)</sup>	C <sup>(Note 2)</sup>	D	F	G	J	K	Square embedded	Round type pressure	Round type pressure gauge (with colour zone)			
AW20-B	1/8·1/4	1/8	40	87.6	72.4	26	M28X1	40	26	5	□28	27	φ37.5	62.5	φ37.5	63.5
AW30-B	1/4·3/8	1/8	53	115.1	85.6	29.4	M38X1.5	55	29.4	3.5	□28	30	φ37.5	66.9	φ37.5	67.9
AW40-B	1/4·3/8·1/2	1/8	70	147.1	91.7	37.3	M42X1.5	80	37.3	1.5	□28	38.4	φ42.5	75.7	φ42.5	75.7
AW40-06-B	3/4	1/8	75	149.1	93.2	37.3	M42X1.5	80	37.3	1.2	□28	38.4	φ42.5	75.7	φ42.5	75.7
AW60-B	1	1/8	95	234.1	175.5	47.5	—	30	47.5	3.2	□28	44.3	φ42.5	80.8	φ42.5	80.8

Model	Optional										
	Bracket mount dimensions							Panel mount dimensions			
	M	N	Q	R	S	T	U	V	W	Y	Z
AW20-B	30	34	43.9	5.4	15.4	55	2.3	24.7	28.5	14	6
AW30-B	41	40	45.8	6.5	8	53	2.3	31.1	38.5	19	7
AW40-B	50	54	54	8.5	10.5	70	2.3	35.5	42.5	21	7
AW40-06-B	50	54	55.5	8.5	10.5	70	2.3	37	42.5	21	7
AW60-B	70	66	65.8	11	13	90	3.2	—	—	—	—

## Dimension: B of auto-drain and optional bowl assembly

Optional / Standard	C														D								
	2	6	8	C	6C	J	2J	6J	8J	CJ	6CJ	W	6W	—	2	6	8	C	6C	—	2	6	8
AW20-B	87.4	87.6	—	87.6	87.6	91.4	93.9	91.4	—	91.4	91.4	—	—	104.9	104.6	104.9	—	104.9	104.9	—	—	—	—
AW30-B	117.6	115	137.6	—	—	121.9	122.1	121.9	142.1	—	—	123.6	123.6	156.8	156.8	156.8	156.8	—	—	156.8	156.8	156.8	156.8
AW40-B	149.6	147	169.6	—	—	153.9	154.1	153.9	174.1	—	—	155.6	155.6	187	189	186.9	188.8	—	—	186.9	189	186.9	189
AW40-06-B	151.6	149	171.6	—	—	155.9	156.1	155.9	176.1	—	—	157.6	157.6	189	191	188.9	190.8	—	—	188.9	191	188.9	191
AW60-B	236.6	234	256.6	—	—	242.6	241.1	242.6	261.1	—	—	240.9	240.9	274	276	273.9	275.8	—	—	273.9	276	273.9	276

Note 1) The specifications of auto-drain and optional bowl assembly are described in 「7. SPECIFICATIONS OF BOWL ASSEMBLY」 (P12 to P19).

Note 2) B dimension is a size in the state to unlock the handle.

#### Revision history

- A** P.7 3. SPECIFICATIONS Model No. is corrected. '17.7
- B** Bonnet material for AW60 : Correction.  
Option for -Z : Pressure gauge part number change.  
Recommended tightening torque: M5 added.  
Round type pressure gauge : Applicable tool size correction. '18.3
- C** Added note ④ of "piping".  
Corrected tightening torque.(Diaphragm assembly, square embedded pressure gauge, pressure gauge adapter and blanking plate.)  
Disassembly drawing: Change note on parts reclassification. '19.6

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Note: Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

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