Doc. No. AW*-OMQ0007-A

SMC

Operation Manual

PRODUCT NAME

FILTER REGULATOR

MODEL/ Series

AW10-M5(B,C,G,H)(-1,2,6,N,R,Z)-A

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

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

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

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

SMC Corporation

Contents

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

When the product is exported, strictly follow the laws required by the Ministry of Economy, Trade and Industry (Foreign Exchange and Foreign Trade Control Law).

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.
Products that SMC manufactures or sells are not measurement instruments that are qualified by pattern approval tests relating to the measurement laws of each country.
Therefore, SMC products cannot be used for business or certification ordained by the measurement laws of each country.

Precautions for design

⚠ WARNING

① External parts including the handle (Material: polyacetal) and bowl (Material: polyacarbonate) are made of resin. Organic solvents including synthetic fluid, chemicals including acetone, alcohol, ethylene chloride, sulphuric acid, nitrate, hydrochrolic 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	Nyron
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 AD17-A and 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 Synthetic oil and mineral grease used on internal surfaces and packing may leak to the outlet. Please contact SMC if this is a problem.
② It is possible to exhaust the residual pressure to the inlet when releasing the inlet pressure, but the exhaust can fail at a set pressure of 0.15MPa or less.
When the backflow function is necessary at 0.15MPa or less, a filter regulator with backflow function is recommended.
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..
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 AD17-A and 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 「11. Dimensions」 (P36).
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

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 verity 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 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
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 When pressure difference between the inlet side and the outlet side is large, chattering may occur. In that case, please reduce and use pressure difference between the inlet side and the outlet side. Please consult SMC it chattering continues.

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
Torque	*1	7～9	12～14	22～24	28～30	28～30

*1: First, tighten it by hand , then give it an additional 1/6 turn with a wrench.

④ 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.
⑤ 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.
⑥ The piping for drain from auto drain should be connected under the following requirements to avoid operating failure.
AD17-A, AD27-A: I.D. ϕ2.5 (ϕ3/32") at min., Length 5m (200") at max.
AD37, 47(N)-A: I.D. ϕ4 (ϕ3/16") at min., Length 5m (200") at max.
AD38, 48(N)-A:: I.D. ϕ6.5 (ϕ1/4") 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 C1SF-A, 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 AD17-A and 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	AW10-A	AW20-A	AW30-A	AW40-A	AW40-06-A
Port size	M5X0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4
Gauge port size	Note 1) 1/16	1/8			
Fluid	Air				
Ambient and fluid temperature	-5 ~ 60℃ (Should be no freezing)				
Proof pressure	1.5 MPa				
Max. operating pressure	1.0 MPa				
Set pressure range	0.05 ~ 0.7 MPa				
Filtration	5 μm				
Drain capacity (cm^3)	2.5	8	25	45	
Bowl material	Polycarbonate				
Bowl guard	–	Semi-standard (Steel plate)	Standard (Polycarbonate)		
Construction	Relieving type				
Mass (kg)	0.09	0.21	0.41	0.75	0.81

Note 1) Use bush (part no. 131368) when connecting pressure gauge portsize R1/8 to R1/16.

4. HOW TO ORDER

AW [30] - [F] [03] [BG] - [ ] - A

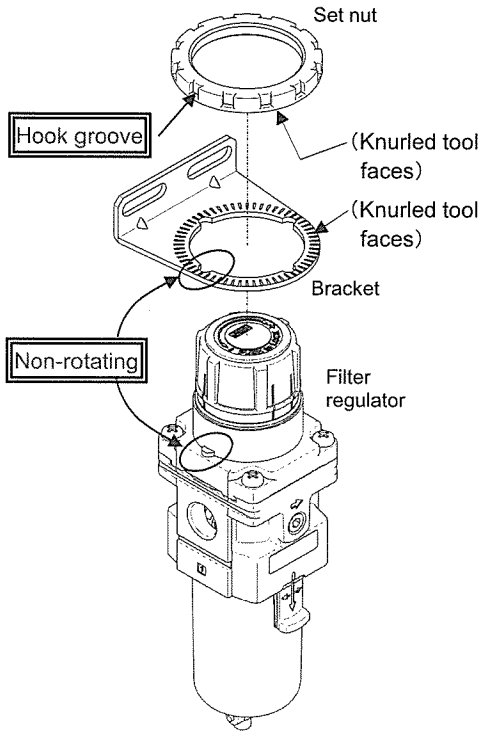
(1) (2) (3) (4) (5)

			Symbol	Description	(1) Body size 10	20	30	40
(2)	Thread type		Nil	Meter thread (M5)	●	—	—	—
				Rc	—	●	●	●
			N	NPT	—	●	●	●
			F	G	—	●	●	●
(3)	Port size		M5	M5	●	—	—	—
			01	1/8	—	●	—	—
			02	1/4	—	●	●	●
			03	3/8	—	—	●	●
			04	1/2	—	—	—	●
			06	3/4	—	—	—	●
(4)	Option	a	Nil	Without mounting option	●	●	●	●
		Mounting	B	With bracket	●	●	●	●
			H	With set nut (for panel mounting)	●	●	●	●
		b	Nil	Without auto drain	●	●	●	●
		Float type auto drain	C	With float type auto drain (N.C.)	●	●	●	●
			D	With float type auto drain (N.O.)	—	—	●	●
		c	Nil	Without pressure gauge	●	●	●	●
		Pressure gauge	G	Round type pressure gauge (without limit indicator)	●	—	—	—
				Round type pressure gauge (with limit indicator)	—	●	●	●
			M	Round type pressure gauge (with colour zone)	●	●	●	●
(5)	Semi-standard	d	Nil	0.05 to 0.7 MPa setting	●	●	●	●
		Set pressure	1	0.02 to 0.2 MPa setting	●	●	●	●
		e	Nil	Polycarbonate bowl	●	●	●	●
		Bowl	2	Metal bowl	●	●	●	●
			6	Nyron bowl	●	●	●	●
			8	Metal bowl with sight glass	—	—	●	●
			C	With bowl guard (Steel)	—	●	—	—
			6C	With bowl guard (Steel)・Nyron bowl	—	●	—	—
		f	Nil	With drain cock	●	●	●	●
		Drain port	J	Drain guide 1/8	—	●	—	—
				Drain guide 1/4	—	—	●	●
			W	Drain cock With barb fitting (For ϕ6xϕ4 nylon tube)	—	—	●	●
		g	Nil	Relieving type	●	●	●	●
		Exhaust mechanism	N	Non-relieving type	●	●	●	●
		h	Nil	Flow direction: Left to right	●	●	●	●
		Flow direction	R	Flow direction: Right to left	●	●	●	●
		i	Nil	Name plate, caution plate for bowl, and pressure gauge in imperial units: MPa, °C	●	●	●	●
		Pressure unit	Z	Name plate, caution plate for bowl, and pressure gauge in imperial units: psi, °F	●	●	●	●

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

5. ASSEMBLY OF OPTIONAL PARTS

1) Bracket



1) Installation of bracket
Mount the bracket in the direction as shown in the figure.
Assemble so that the bracket and non-rotating parts can align properly.

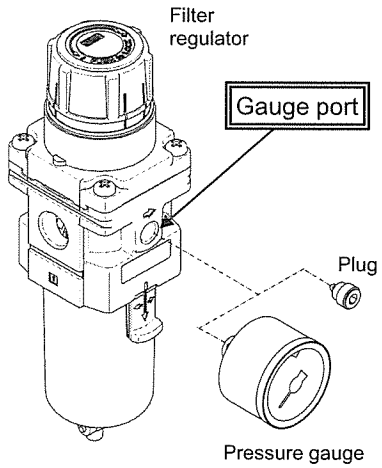
2) Secure with the set nut
Ensure knurling tool side of the bracket of the knurling tool side of the set nut are facing each other.

3) Tightening
Knurled surface on bracket and set nut is used to lock the assembly.
It is recommended that the set nut is tightened securely by hand usually.

* When retightening
Please use hook spanner (AW10-A : spanner) on hook groove of the set nut, and tighten.
Please follow the table below for hand tightening and retightening.

Filter regulator	Tool size	Amount of retightening	Tightening torque
AW10-A	24	—	0.8±0.1 N·m
AW20-A	34/38	2 to 5 notch	2.0±0.2 N·m
AW30-A	52/55		3.5±0.2 N·m
AW40-A	52/55		4.5±0.2 N·m

2) Round type pressure gauge



1) Installation of pressure gauge
Use sealing material on pressure gauge thread and gauge port of the filter regulator.
Please refer to "Piping" on page 4 when using sealing tape.
Please refer to the following for the size of the spanner when the pressure gauge is installed. (AW10-A : compact spanner).

Filter regulator	Tool size
AW10-A	21
AW20-A	12
AW30-A	
AW40-A	

Note 1) Positioning of pressure gauge
Please adjust the pressure gauge orientation by tightening the thread.
Don't unscrew gauge, air leakage may occur.

Note 2) The plug is not used if the pressure gauge is in front of the filter regulator.
Please detach the plug when you install the pressure gauge on the back of the filter regulator.
Please install the plug on the front side.
When shipping, the sealing tape is attached to the pressure gauge.

Note 3) Tightening torque
Please use the value in the torque table described in "Piping" on page 4 when tightening pressure gauge.
The pressure gauge connection port, AW10-A is 1/16 (3~4N·m), and AW20-A to AW40-A series is 1/8 (7 to 9 N·m).

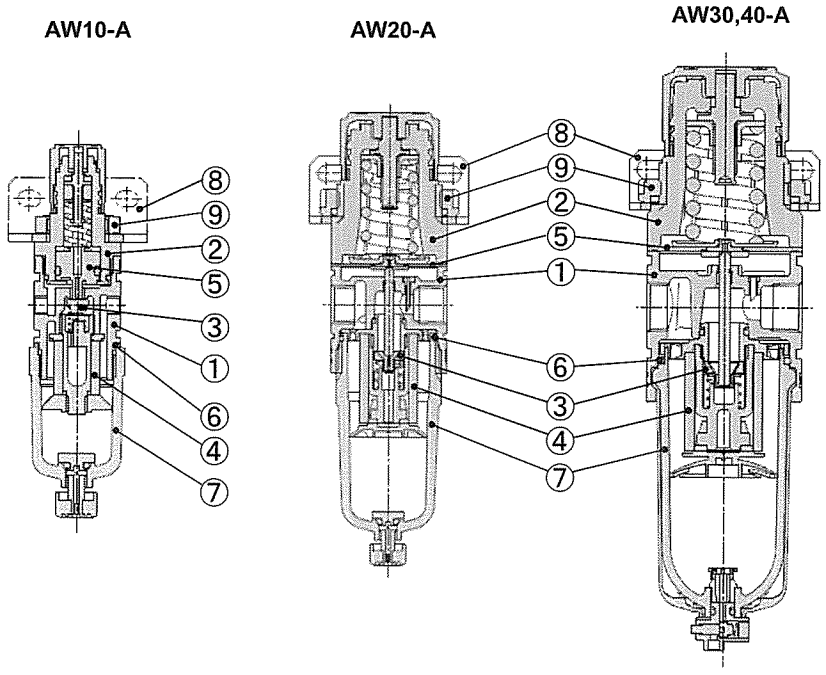
6. TROUBLESHOOTING

Refer to 「7. CONSTRUCTION / PARTS LIST」 (P11), 「10. DISASSEMBLY DRAWING」 (P32 to P35).

TROUBLE		POSSIBLE CAUSE	REMEDY
DEMARCATION	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 materials caught in valve seat.	4. Remove the valve guide to clean valve and valve seat.
		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 materials caught in valve seat.	1. Remove the valve guide to clean valve and valve seat.
		2. Valve rubber seat is damaged.	2. Replace the valve assembly.
		3. Valve spring is damaged.	3. Replace the valve spring.
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. (AW10-A is excluded)
		3. Foreign materials caught in valve seat.	3. Remove the valve guide to clean valve and valve seat.
		4. Valve rubber seat is damaged.	4. Replace the valve spring.
		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.
		6. Piston packing is damaged.	6. Replace the piston packing, or clean. Then, grease up the piston packing and the sliding surface. (AW10-A)
	Air leaks between the bonnet and the body.	1. Loosened bonnet.	1. Fasten the bonnet.
		2. Diaphragm is damaged.	2. Replace the diaphragm assembly. (AW10-A is excluded)
	Air leaks between the bowl and the body.	1. Breakage of bowl packing.	1. Replace the bowl packing. 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 JX Nippon oil & Energy corporation diamond multipurpose No.2.
Note 2) The grease used recommends fuorine grease.

7. CONSTRUCTION / PARTS LIST



Component Parts

No.	Description	Applicable model	Material	Note
①	Body	AW10-A	Zinc die cast	Urban white 1
		AW20～40-A	Aluminium die cast	Urban white 1
②	Bonnet	AW20～40-A	Polyacetal	Urban white 1

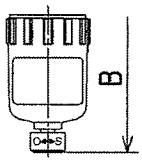
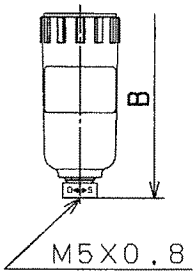
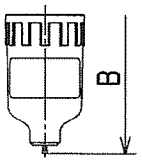
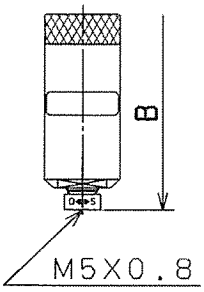
Option / Replacement Parts

No.	Description	Thread Type	Option Symbol	Option Specification	Material	Part No. AW10-A	AW20-A	AW30-A	AW40-A	AW40-06-A
③	Valve assembly	—	—	—	HNBR	AR10P-090S	AW22P-060AS	AW32P-060AS	AW42P-060AS	
④	Element	—	—	—	Polyolefin	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S	
⑤	Note1) Piston assembly	—	—	—	POM・NBR	AR10P-150AS	—	—	—	—
		—	N	Non-relieving type	POM・NBR	AR10P-150AS-N	—	—	—	—
	Diaphragm assembly	—	—	—	Weatherproof NBR	—	AR22P-150AS	AR32P-150AS	AR42P-150AS	
		—	N	Non-relieving type	Weatherproof NBR	—	AR22P-150AS-N	AR32P-150AS-N	AR42P-150AS-N	
⑥	Bowl packing	—	—	—	NBR	C1SFP-260S	C2SFP-260S	C32FP-260S	C42FP-260S	
⑦	Bowl assembly Auto drain (N.C.) Auto drain (N.O.)	Refer to "8. SPECIFICATIONS OF BOWL ASSEMBLY" (P12 to P19).								
⑧	Note2) Bracket assembly	—	—	—	Steel plate / Polyacetal	AR12P-270AS	AR22P-270AS	AR32P-270AS	AR42P-270AS	
⑨	Set nut	—	—	—	Polyacetal	AR12P-260S	AR22P-260S	AR32P-260S	AR42P-260S	
⑩	Round type pressure gauge	M5	—	—	—	G27-10-R1	—	—	—	—
			1	0.2MPa setting	—	Note3) G27-10-R1	—	—	—	—
			Z	Imperial unit: psi	—	Note3) G27-P10-R1	—	—	—	—
			1Z	0.2MPa setting Imperial unit: psi	—	Note3) G27-P10-R1	—	—	—	—
		Rc G	—	—	—	—	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: psi	—	—	G36-P10-N01		G46-P10-N01	
			1Z	0.2MPa setting Imperial unit: psi	—	—	G36-P4-N01		G46-P4-N01	
	Round type pressure gauge (with colour zone)	Rc G	—	—	—	—	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	
⑪	Plug assembly	Rc G	—	—	—	—	AR22P-320AS-01			
		NPT	—	—	—	—	AR22P-320AS-N01			

Note1) Piston and Packing (Part number: KSYP-13) assembly.
Note2) With set nut.
Note3) 1.0MPa pressure gauge.
Note4) The number in the table is corresponding to the number in structural drawing (avobe-mentioned figure) and "8. SPECIFICATIONS OF BOWL ASSEMBLY" (P12 to P19), "10. DISASSEMBLY DRAWING" (P32 to P35).

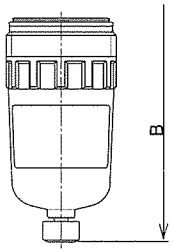
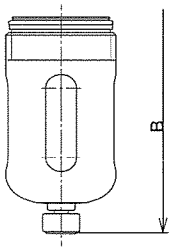
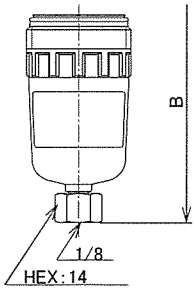
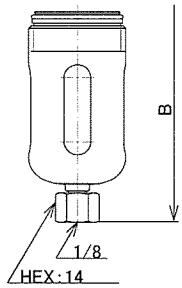
8. SPECIFICATIONS OF BOWL ASSEMBLY

1) Bowl assembly / Auto drain for AW10-A

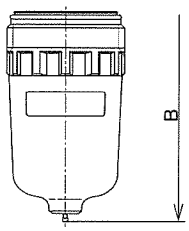
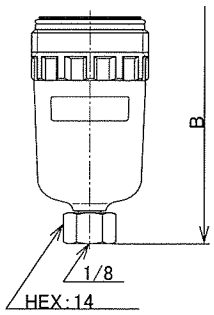
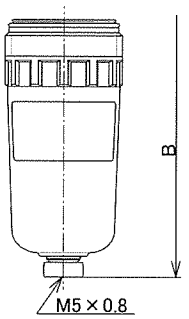
Option	—		Note 2) C	
Semi-standard	—	6	—	6
External appearance drawing and part no.	Semi-standard 「—」 (Standard) ⑦Part no.: C1SF(-Z)-A Semi-standard 「6」 ⑦Part no.: C1SF-6(Z)-A 		Semi-standard 「—」 (Standard) ⑦Part no.: AD17(-Z)-A Semi-standard 「6」 ⑦Part no.: AD17-6(Z)-A 	
Option	—		Note 2) C	
Semi-standard	2		2	
External appearance drawing and part no.	Semi-standard 「2」 ⑦Part no.: C1SF-2(Z)-A 		Semi-standard 「2」 ⑦Part no.: AD17-2(Z)-A 	

Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "11. DIMENTIONS"(P36).
Note 2) Min. operating pressure is 0.1MPa.
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 AW20-A

Option	—		—	
Semi-standard	—	6	C	6C
External appearance drawing and part no.	Semi-standard 「—」 (Standard) Port thread / ⑦Part no.: Rc, G: C2SF-A; NPT: C2SF(-Z)-A Semi-standard 「6」 Port thread / ⑦Part no.: Rc, G: C2SF-6-A; NPT: C2SF-6(Z)-A 		Semi-standard 「C」 Port thread / ⑦Part no.: Rc, G: C2SF-C-A; NPT: C2SF-C(Z)-A Semi-standard 「6C」 Port thread / ⑦Part no.: Rc, G: C2SF-6C-A; NPT: C2SF-6C(Z)-A 	
Option	—		—	
Semi-standard	J	6J	CJ	6CJ
External appearance drawing and part no.	Semi-standard 「J」 Port thread / ⑦Part no.: Rc: C2SF-J-A; G: C2SFF-J-A; NPT: C2SFN-J(Z)-A Semi-standard 「6J」 Port thread / ⑦Part no.: Rc: C2SF-6J-A; G: C2SFF-6J-A; NPT: C2SFN-6J(Z)-A 		Semi-standard 「CJ」 Port thread / ⑦Part no.: Rc: C2SF-CJ-A; G: C2SFF-CJ-A; NPT: C2SFN-CJ(Z)-A Semi-standard 「6CJ」 Port thread / ⑦Part no.: Rc: C2SF-6CJ-A; G: C2SFF-6CJ-A; NPT: C2SFN-6CJ(Z)-A 	

Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "11. DIMENTIONS"(P36).
Note 2) Min. operating pressure is 0.1MPa.
Note 3) The part with no. ⑦ includes ⑥ Bowl packing. Refer to "10. DISASSEMBLY DRAWING" (P33).
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).

<table>
<tr><td>Option
Semi-standard</td><td>—
2</td><td>—
2J</td></tr>
<tr><td>External appearance drawing and part no.</td><td>Semi-standard「2」
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-2-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SF-2(Z)-A</td></tr></table>  </td><td>Semi-standard「2J」
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td>C2SF-2J-A</td></tr><tr><td>G</td><td>C2SFF-2J-A</td></tr><tr><td>NPT</td><td>C2SFN-2J(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option
Semi-standard</td><td>Note 2) C
— 6</td><td>注2) C
C 6C</td></tr>
<tr><td>External appearance drawing and part no.</td><td>Semi-standard「—」
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27(-Z)-A</td></tr></table>Semi-standard「6」
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-6-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27-6(Z)-A</td></tr></table>  </td><td>Semi-standard「C」
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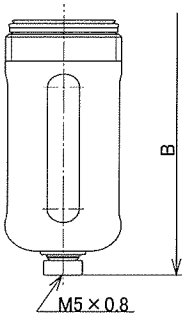
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-6C-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27-6C(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option
Semi-standard</td><td>Note 2) C
2</td><td></td></tr>
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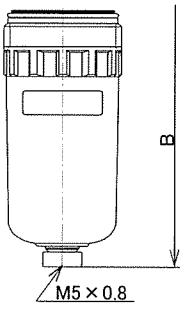
<table><tr><td>Port thread</td><td>⑦Part no.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-2-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27-2(Z)-A</td></tr></table>  </td><td></td></tr>
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Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "11. DIMENTIONS"(P36).
Note 2) Min. operating pressure is 0.1MPa.
Note 3) The part with no. ⑦ includes ⑥ Bowl packing. Refer to "10. DISASSEMBLY DRAWING" (P33).
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-A

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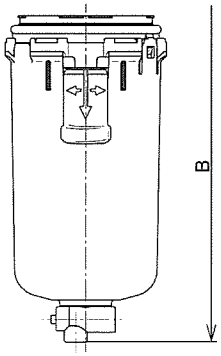
<tr><td>Option</td><td colspan="2">—</td><td colspan="2">—</td></tr>
<tr><td>Semi-standard</td><td>—</td><td>6</td><td>J</td><td>6J</td></tr>
<tr><td>External appearance drawing and part no.</td><td colspan="2">Semi-standard 「—」 (Standard)
<table><tr><th>Port thread</th><th>⑦Part no.</th></tr><tr><td>Rc</td><td rowspan="2">C3SF-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF(-Z)-A</td></tr></table>
Semi-standard 「6」
<table><tr><th>Port thread</th><th>⑦Part no.</th></tr><tr><td>Rc</td><td rowspan="2">C3SF-6-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-6(Z)-A</td></tr></table>
 
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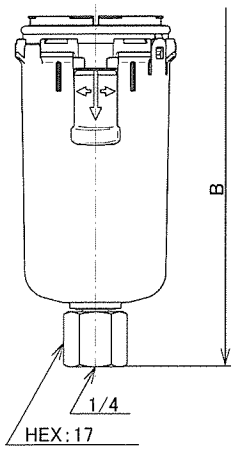
<table><tr><th>Port thread</th><th>⑦Part no.</th></tr><tr><td>Rc</td><td>C3SF-J-A</td></tr><tr><td>G</td><td>C3SFF-J-A</td></tr><tr><td>NPT</td><td>C3SFN-J(Z)-A</td></tr></table>
Semi-standard 「6J」
<table><tr><th>Port thread</th><th>⑦Part no.</th></tr><tr><td>Rc</td><td>C3SF-6J-A</td></tr><tr><td>G</td><td>C3SFF-6J-A</td></tr><tr><td>NPT</td><td>C3SFN-6J(Z)-A</td></tr></table>
 
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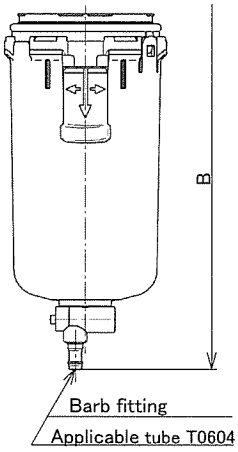
Semi-standard 「6W」
<table><tr><th>Port thread</th><th>⑦Part no.</th></tr><tr><td>Rc</td><td rowspan="2">C3SF-6W-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-6W(Z)-A</td></tr></table>
 
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 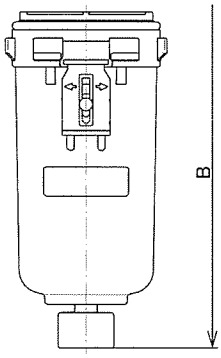
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 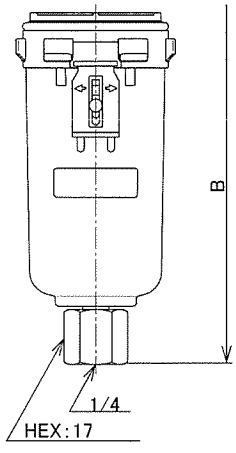
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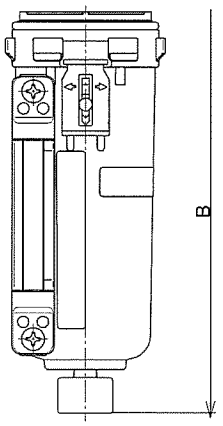
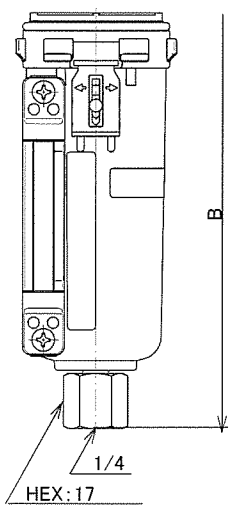
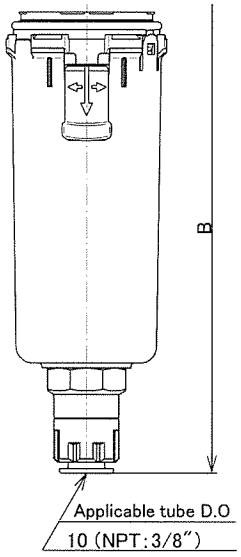
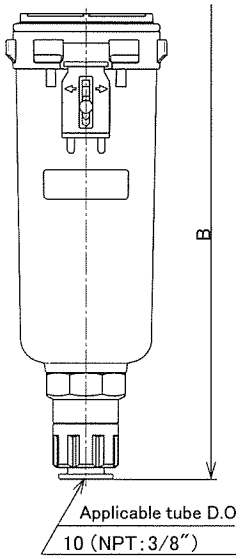
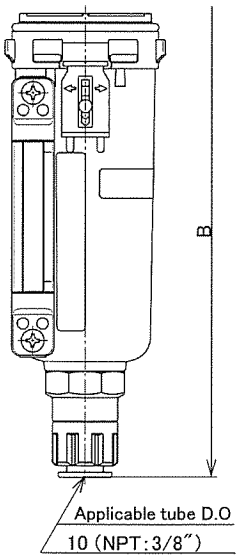
Option	—	—
Semi-standard	8	8J
External appearance drawing and part no.	Semi-standard「8」 Port thread / ⑦Part no. Rc, G: C3LF-8-A NPT: C3LF-8(Z)-A 	Semi-standard「8J」 Port thread / ⑦Part no. Rc: C3LF-8J-A G: C3LFF-8J-A NPT: C3LFN-8J(Z)-A 

Option	Note 2) C	Note 2) C
Semi-standard	— / 6	2
External appearance drawing and part no.	Semi-standard「—」 Port thread / ⑦Part no. Rc, G: AD37-A NPT: AD37N(-Z)-A Semi-standard「6」 Port thread / ⑦Part no. Rc, G: AD37-6-A NPT: AD37N-6(Z)-A 	Semi-standard「2」 Port thread / ⑦Part no. Rc, G: AD37-2-A NPT: AD37N-2(Z)-A 

Option	Note 2) C	
Semi-standard	8	
External appearance drawing and part no.	Semi-standard「8」 Port thread / ⑦Part no. Rc, G: AD37-8-A NPT: AD37N-8(Z)-A 	

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<tr><td>External appearance drawing and part no.</td><td>
Semi-standard「—」
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></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>
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Semi-standard「6」
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></tr>
<tr><td>Rc</td><td rowspan="2">AD38-6-A</td></tr>
<tr><td>G</td></tr>
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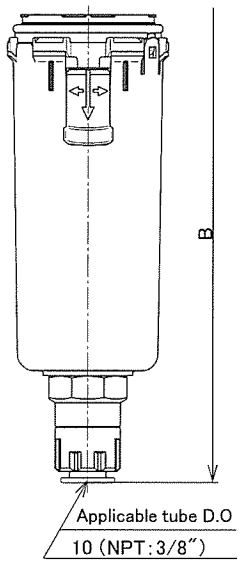

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Semi-standard「2」
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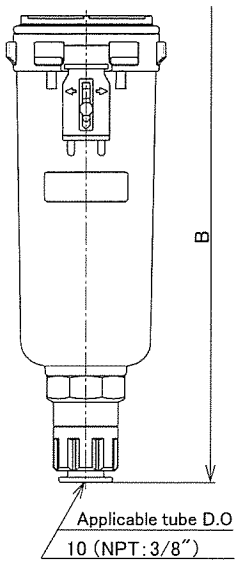

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 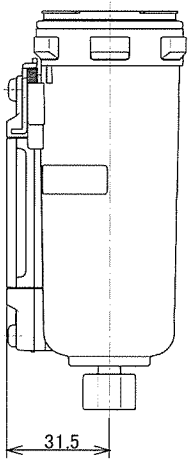
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<tr><td>Semi-standard</td><td>8</td></tr>
<tr><td>External appearance drawing and part no.</td><td>
Semi-standard「8」
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<tr><td>Rc</td><td rowspan="2">AD38-8-A</td></tr>
<tr><td>G</td></tr>
<tr><td>NPT</td><td>AD38N-8(Z)-A</td></tr>
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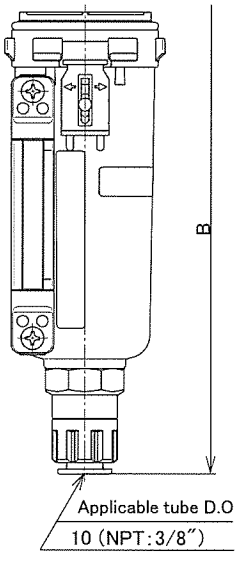

</td></tr>
</table>

Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "11. DIMENTIONS"(P36).
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 packing. Refer to "10. DISASSEMBLY DRAWING" (P34).
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-A

<table>
<tr><td>Option</td><td>—</td><td>—</td></tr>
<tr><td>Semi-standard</td><td>—</td><td>J</td></tr>
<tr><td>External appearance drawing and part no.</td><td>Semi-standard「—」(Standard)
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></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>
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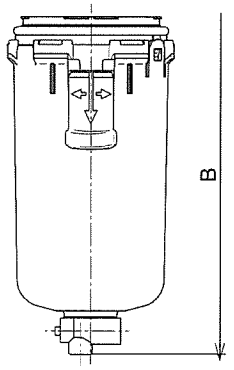
</td><td>Semi-standard「J」
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></tr>
<tr><td>Rc</td><td>C4SF-J-A</td></tr>
<tr><td>G</td><td>C4SFF-J-A</td></tr>
<tr><td>NPT</td><td>C4SFN-J(Z)-A</td></tr>
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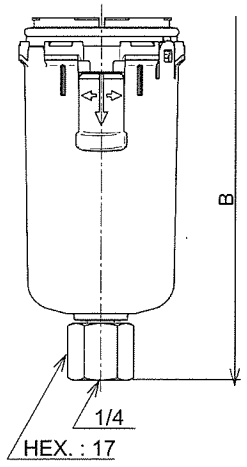
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<tr><td>Semi-standard</td><td>W</td></tr>
<tr><td>External appearance drawing and part no.</td><td>Semi-standard「W」
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<tr><td>G</td></tr>
<tr><td>NPT</td><td>C4SF-W(Z)-A</td></tr>
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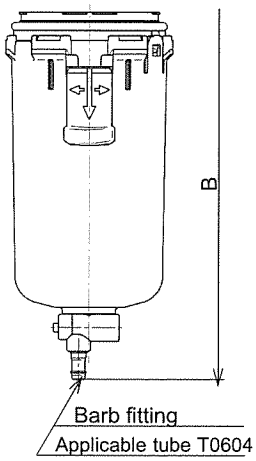
</td></tr>
<tr><td>Option</td><td>2</td><td>2J</td></tr>
<tr><td>Semi-standard</td><td>—</td><td>—</td></tr>
<tr><td>External appearance drawing and part no.</td><td>Semi-standard「2」
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></tr>
<tr><td>Rc</td><td rowspan="2">C4SF-2-A</td></tr>
<tr><td>G</td></tr>
<tr><td>NPT</td><td>C4SF-2(Z)-A</td></tr>
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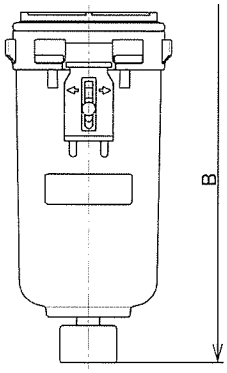
</td><td>Semi-standard「2J」
<table>
<tr><th>Port thread</th><th>⑦Part no.</th></tr>
<tr><td>Rc</td><td>C4SF-2J-A</td></tr>
<tr><td>G</td><td>C4SFF-2J-A</td></tr>
<tr><td>NPT</td><td>C4SFN-2J(Z)-A</td></tr>
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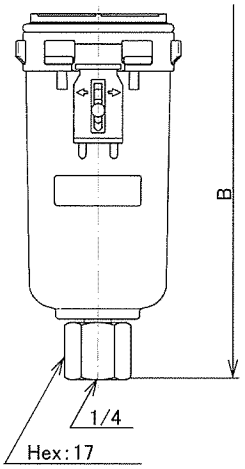
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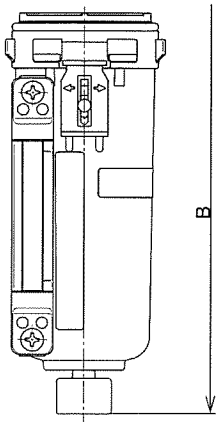
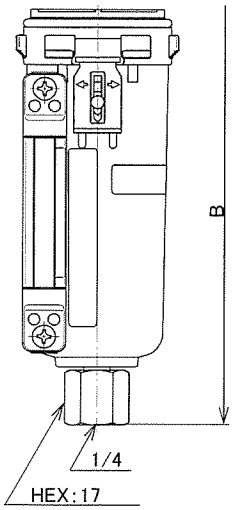
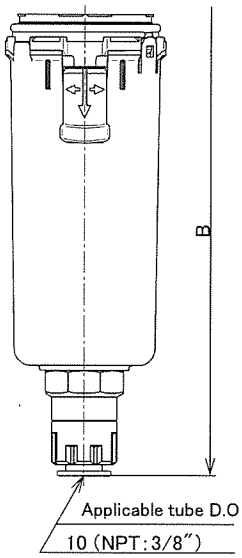
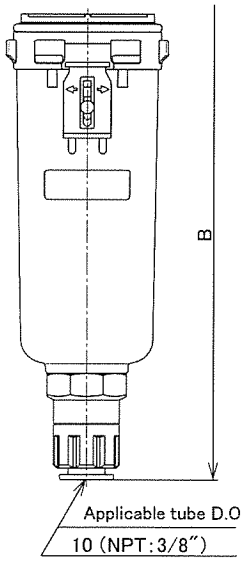
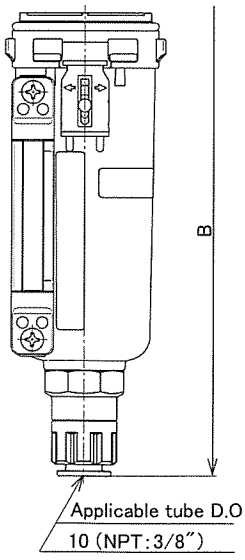
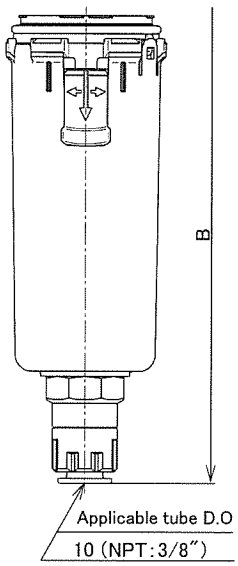
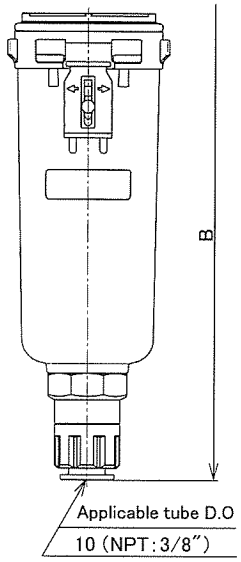
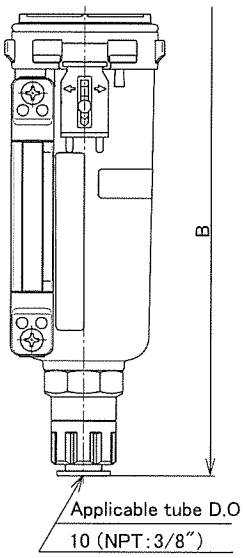
Option	—	—
Semi-standard	8	8J
External appearance drawing and part no.	Semi-standard 「8」 Port thread / ⑦Part no. Rc / G: C4LF-8-A NPT: C4LF-8(Z)-A 	Semi-standard 「8J」 Port thread / ⑦Part no. Rc: C4LF-8J-A G: C4LFF-8J-A NPT: C4LFN-8J(Z)-A 

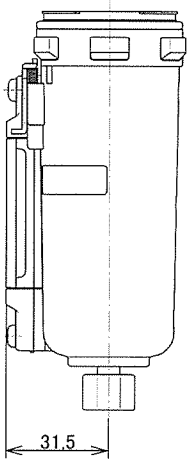
Option	Note 2) C	Note 2) C
Semi-standard	— 6	2
External appearance drawing and part no.	Semi-standard 「—」 Port thread / ⑦Part no. Rc / G: AD47-A NPT: AD47N(-Z)-A Semi-standard 「6」 Port thread / ⑦Part no. Rc / G: AD47-6-A NPT: AD47N-6(Z)-A 	Semi-standard 「2」 Port thread / ⑦Part no. Rc / G: AD47-2-A NPT: AD47N-2(Z)-A 

Option	Note 2) C	
Semi-standard	8	
External appearance drawing and part no.	Semi-standard 「8」 Port thread / ⑦Part no. Rc / G: AD47-8-A NPT: AD47N-8(Z)-A 	

Option	Note 2) D		Note 2) D
Semi-standard	—	6	2
External appearance drawing and part no.	Semi-standard 「—」 Port thread / ⑦Part no. Rc, G / AD48-A NPT / AD48N(-Z)-A Semi-standard 「6」 Port thread / ⑦Part no. Rc, G / AD48-6-A NPT / AD48N-6(Z)-A		Semi-standard 「2」 Port thread / ⑦Part no. Rc, G / AD48-2-A NPT / AD48N-2(Z)-A



Option	Note 2) D	Metal bowl with level gauge Slide elevation
Semi-standard	8	
External appearance drawing and part no.	Semi-standard 「8」 Port thread / ⑦Part no. Rc, G / AD48-8-A NPT / AD48N-8(Z)-A	



Note 1) B in the table shows the distance from inlet piping centreline to drain port. Refer to "11. DIMENTIONS"(P36).
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 packing. Refer to "10. DISASSEMBLY DRAWING" (P34).
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).

9. REPLACEMENT PROCEDURE

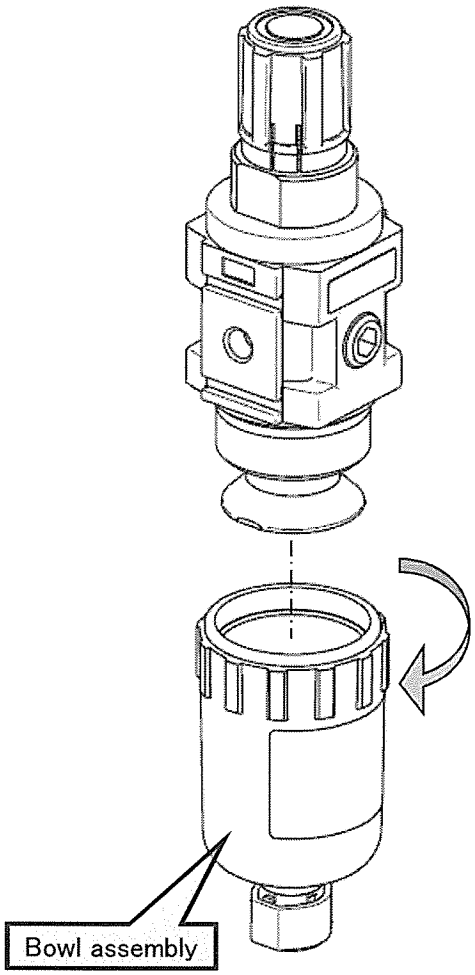
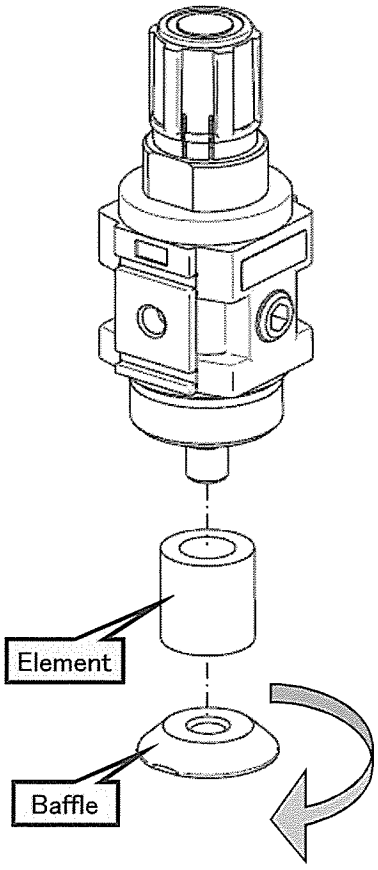
⚠ WARNING

- Before replacement, ensure that the filter regulator is not pressurized.
- Rotate the pressure adjusting handle to zero.
- Replace refering to "10. DISASSEMBLY DRAWING" (P32 to P35).
- After replacement, ensure that specified function is satisfied and external leakage is not found before starting operation.

1) Bowl assembly / element

【AW10－A】

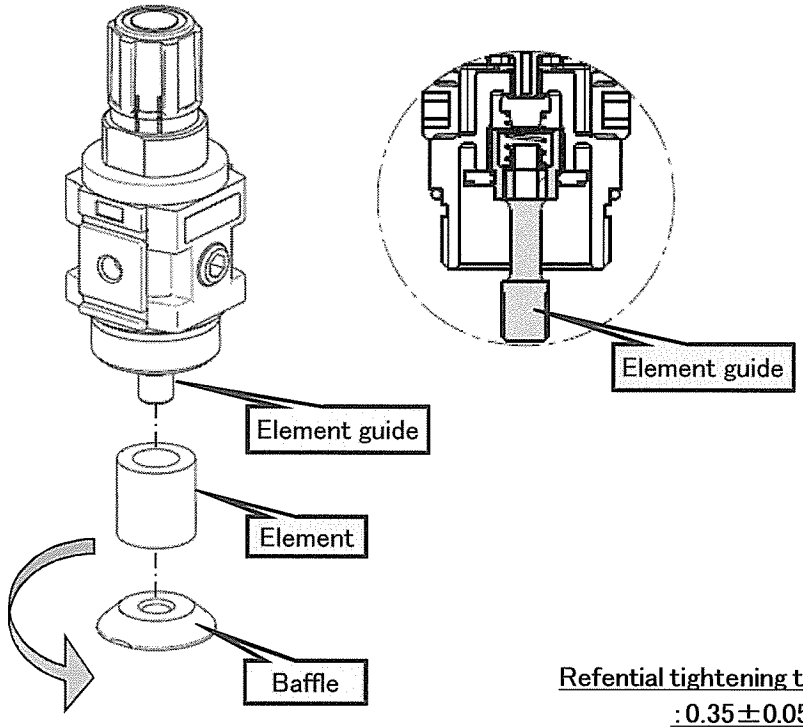
<Disassembly>

Step 1	Step 2
The bowl assembly is released counterclockwise, detaches it from the product. If the bowl assembly is tightened too much to be removed, use hook spanner until it can be loosened by hand. (Hook spanner nominal: :25/28)	Rotate the baffle by hand and counterclockwise to remove the baffle and element.
	

【AW10－A】

<Assembly>

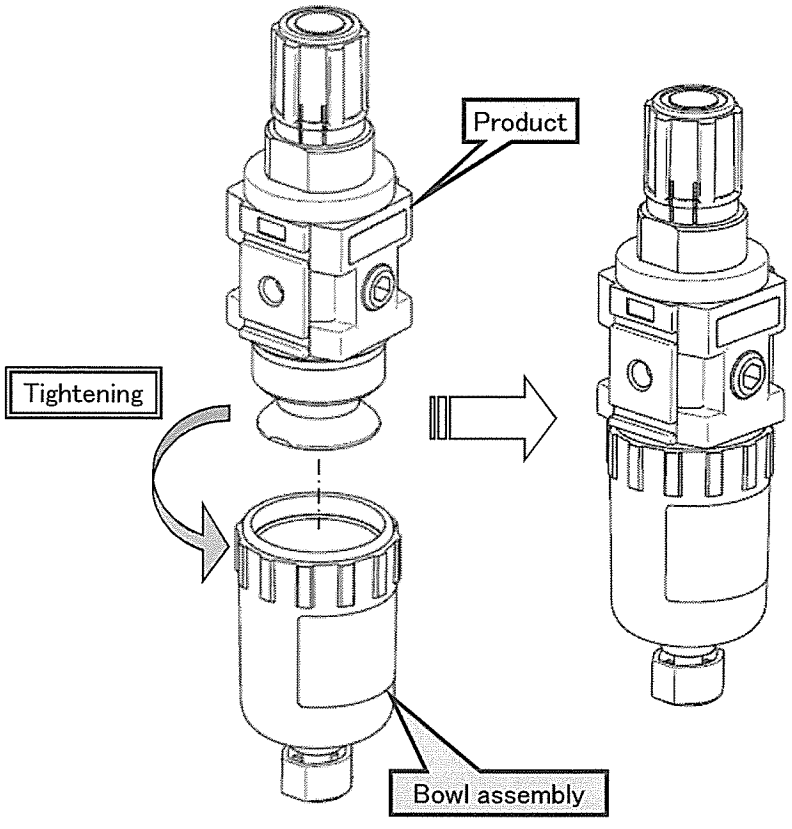
Step 1	Step 2
Mount the element to the element guide.(Direction is not specified.)	Hold the baffle by hand to rotate it clockwise and mount the element. Baffle has mount direction. See disassembly drawing. Tighten by hand is the followed tightening to torque level shown.



Refential tightening torque
: 0.35±0.05 N・m

Step 3

Hold the bowl assembly by hand and rotate clockwise.
Tighten by hand is the followed tightening to torque level shown.

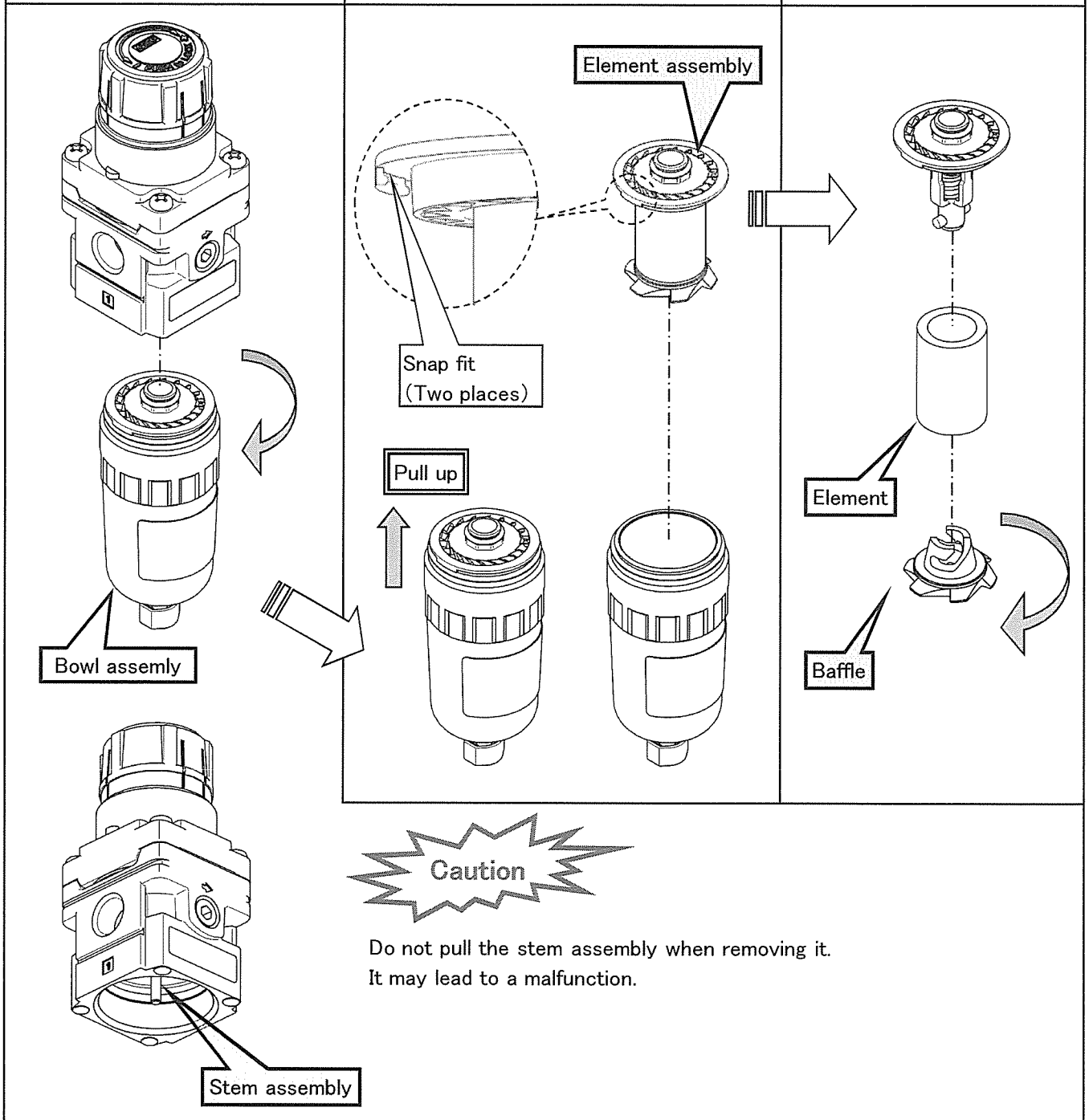


Refential tightening torque : 1.5 N・m

【AW20−A】

<Disassembly>

Step 1	Step 2	Step 3
The bowl assembly is released counterclockwise, detaches it from the product. If the bowl assembly is tightened too much to be removed, use spanner until it can be loosened by hand. [SMC's special spanner P/N: 1129129 (Recommended)]	The snap fit of the deflector is released by hand, and the element assembly is detached.	The baffle is rotated to the direction of the arrow and the element is detached.



Caution

Do not pull the stem assembly when removing it.
It may lead to a malfunction.

【AW20－A】

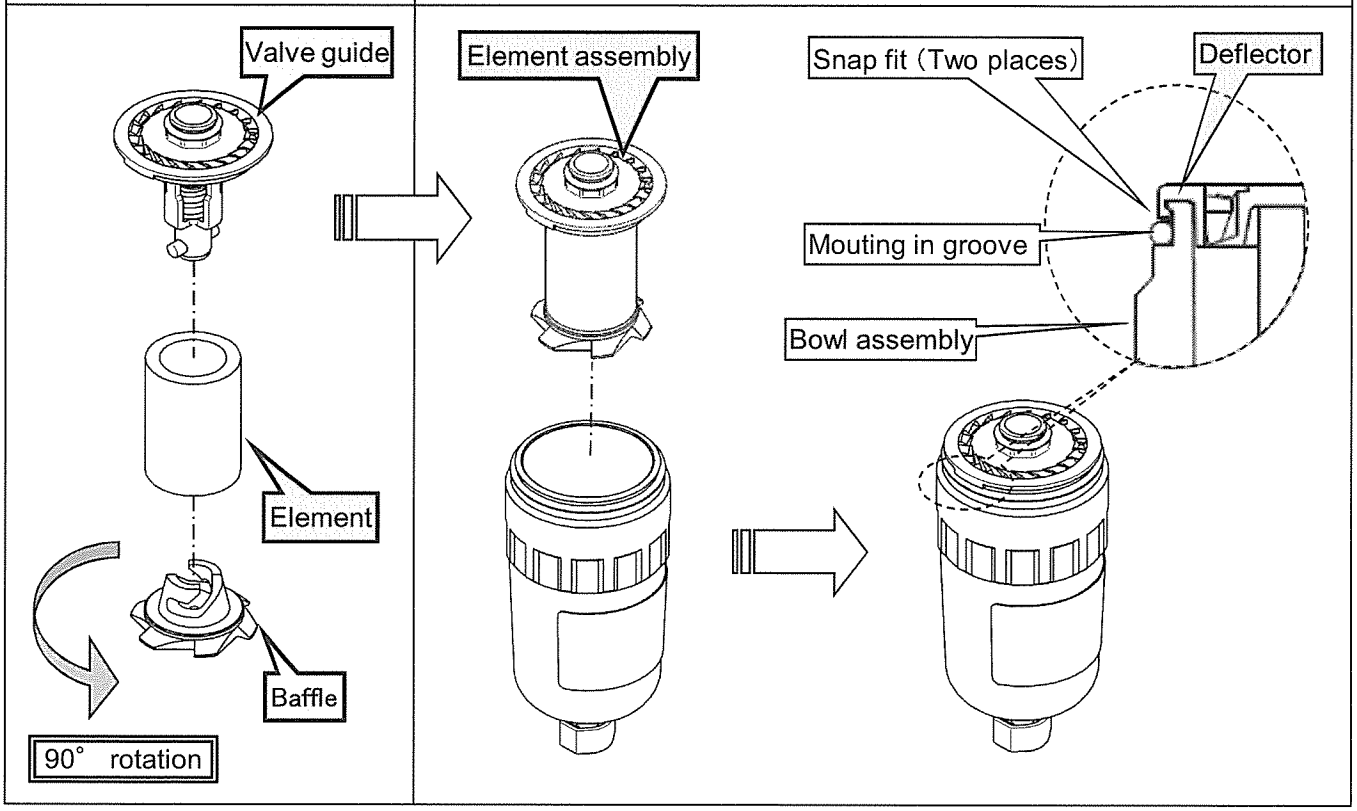
<Assembly>

Step 1

The element is attached to the valve guide, and fixed into position in the direction shown.

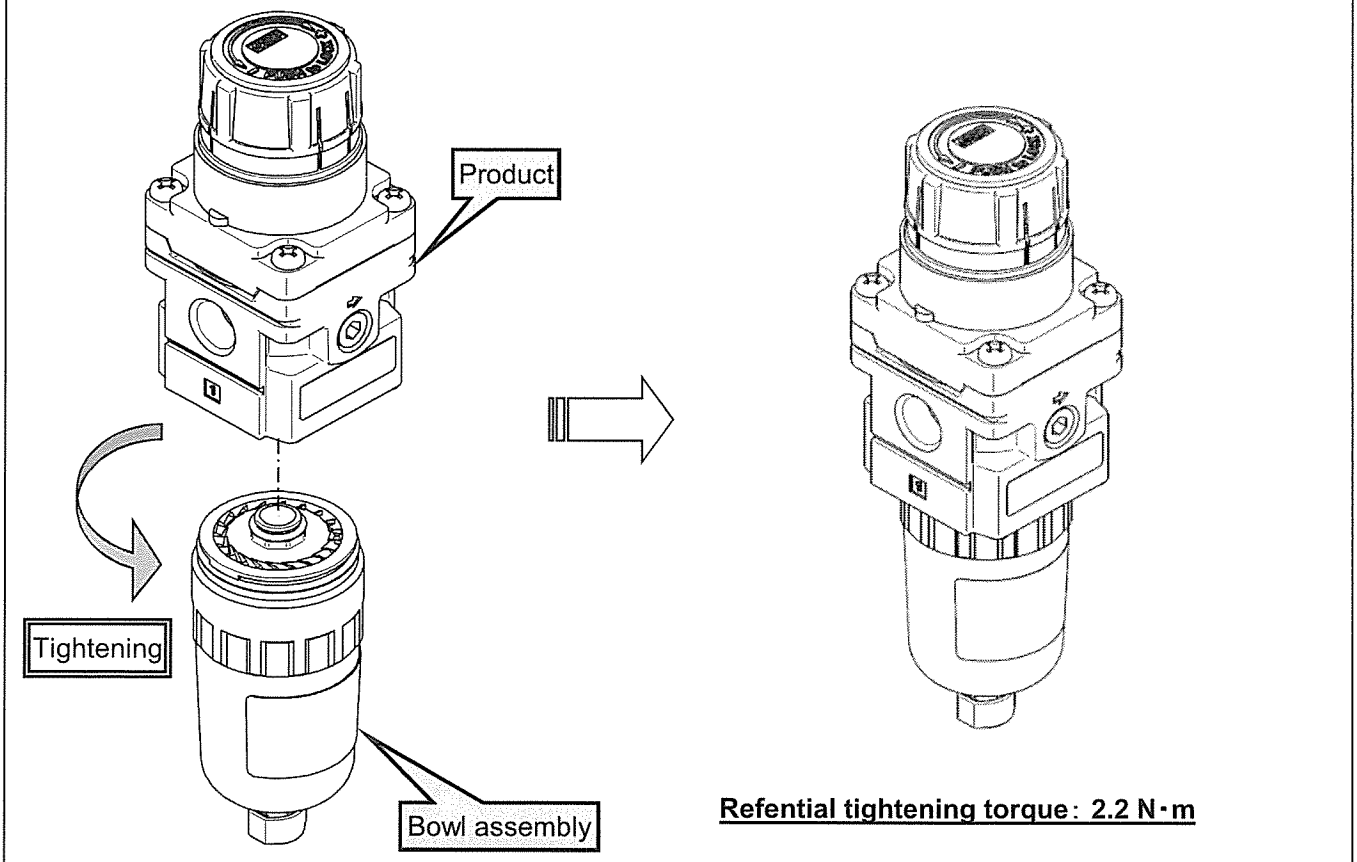
Step 2

When the element assembly is attached to the bowl assembly, the snap fit of the deflector is attached to the bowl assembly. (Until a 'pop' is heard)



Step 3

The bowl assembly is rotated clockwise and and secured to the product.
Tighten by hand is the followed tightening to torque level shown.

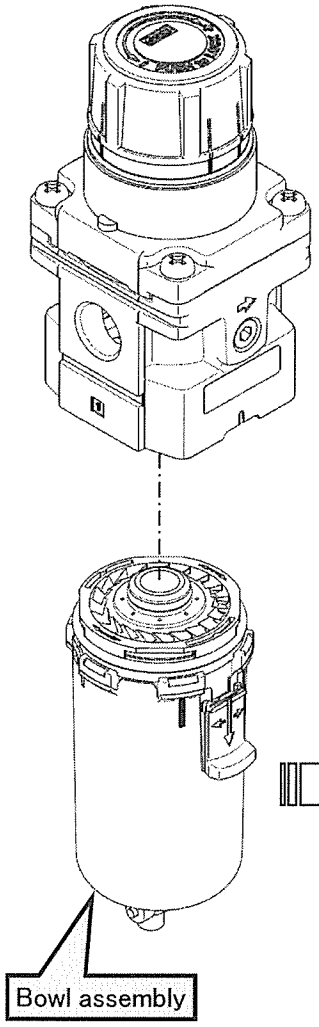


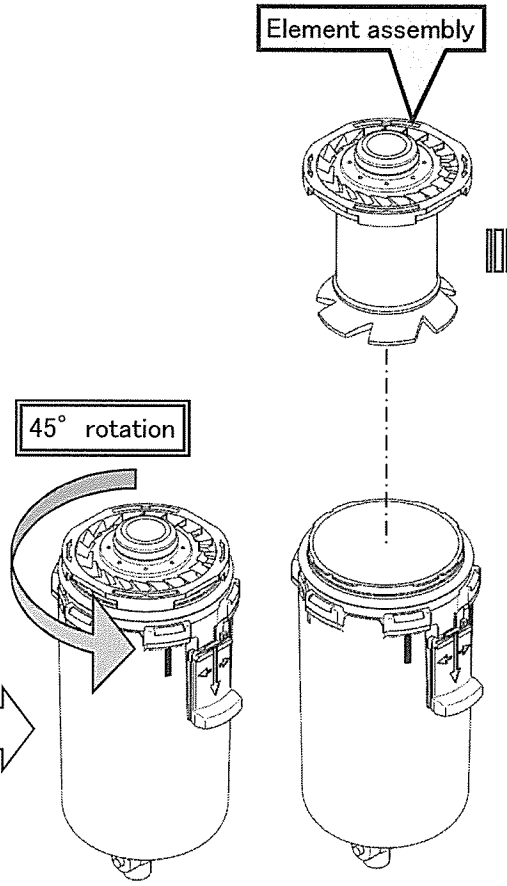
Refential tightening torque: 2.2 N·m

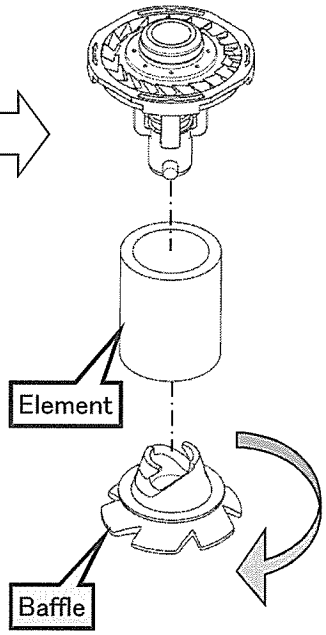
【AW30, 40−A】

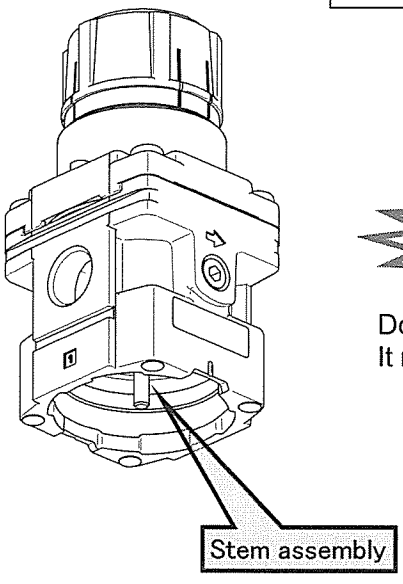
<Disassembly>

Step 1	Step 2	Step 3
The bowl assembly is detached from the product.	Rotates to either right or left 45° and the element assembly is detached.	The baffle is rotated to the direction of the arrow and the element is detached.









Caution

Do not pull the stem assembly when removing it.
It may lead to a malfunction.

【AW30, 40－A】

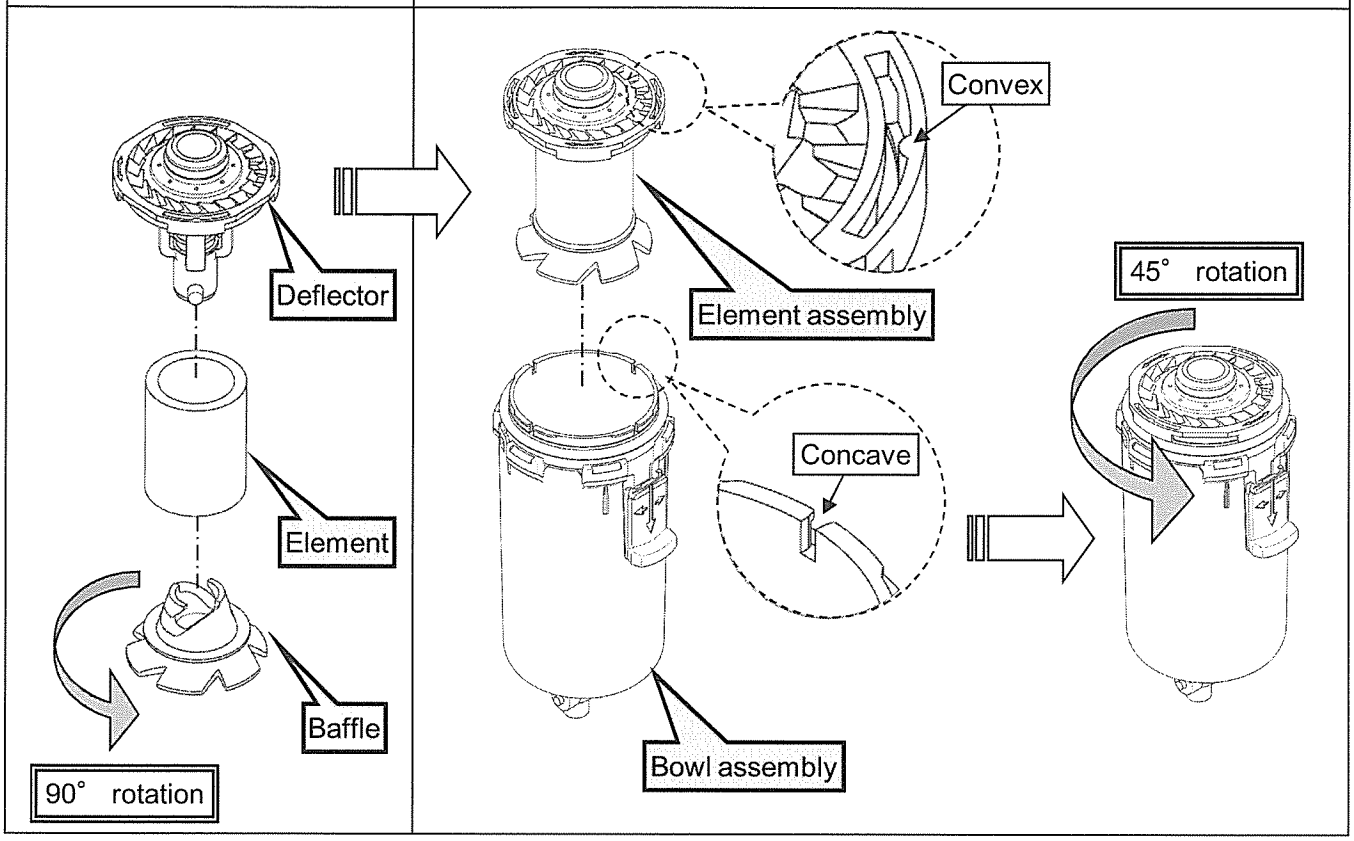
<Assembly>

Step 1

The element is attached to the deflector, and fixed into position in the direction shown.

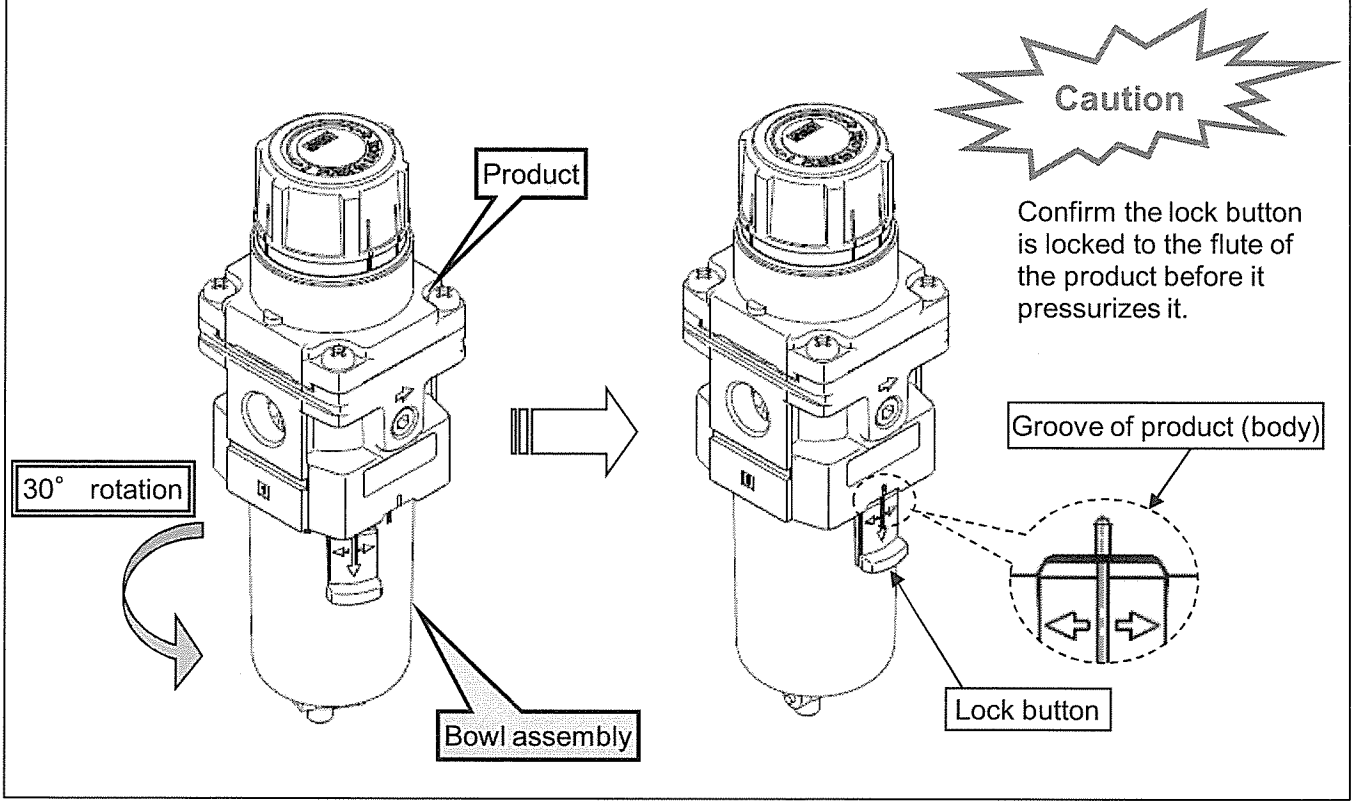
Step 2

To attach element assembly to the bowl assembly. Concave of the bowl assembly is combined with convex of the element assembly. Rotate to either right and left by 45°.



Step 3

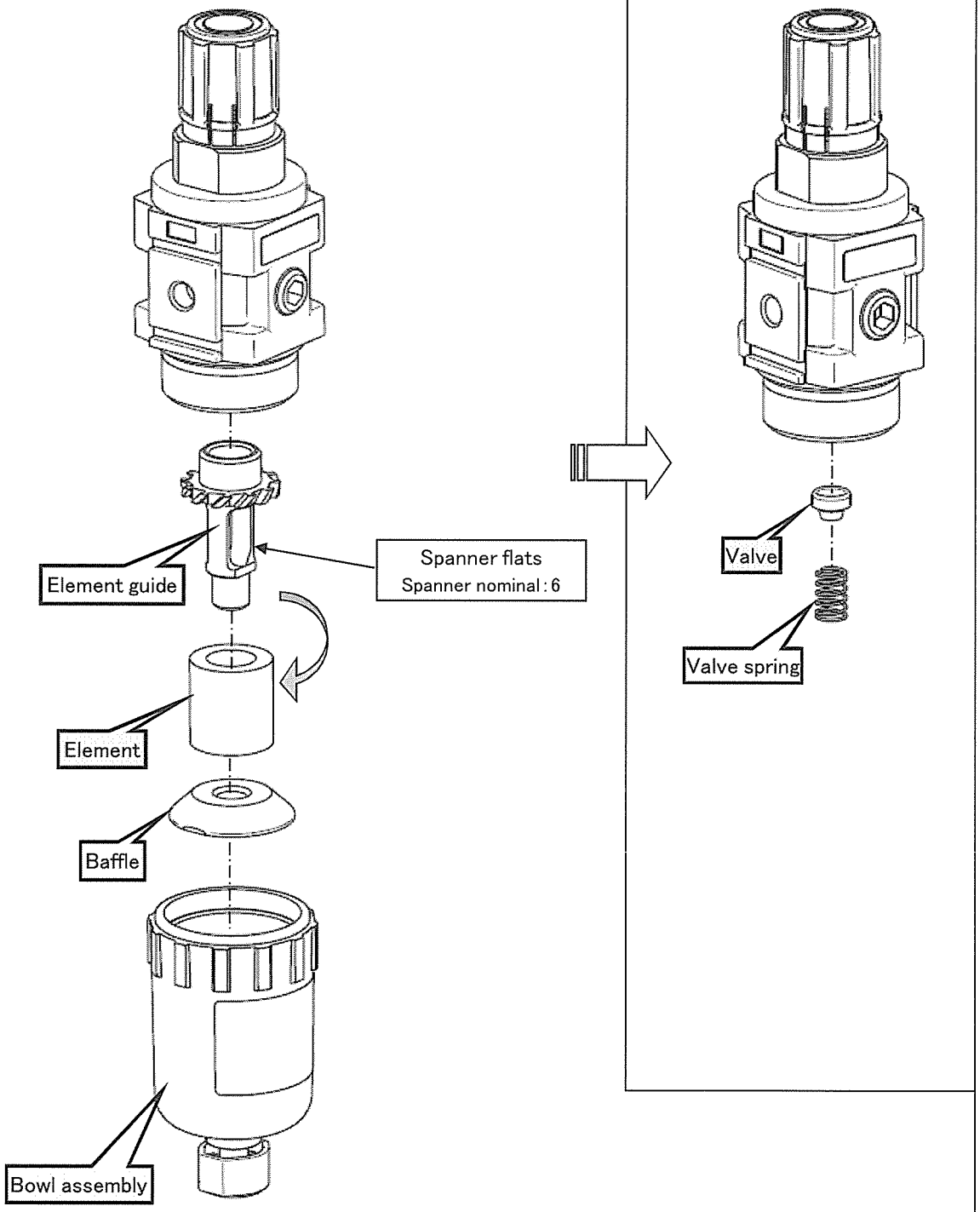
The bowl assembly is rotated until the bowl assembly is attached to the product, and the lock button clicks into body when locked in position.



2) Valve assembly【AW10-A】

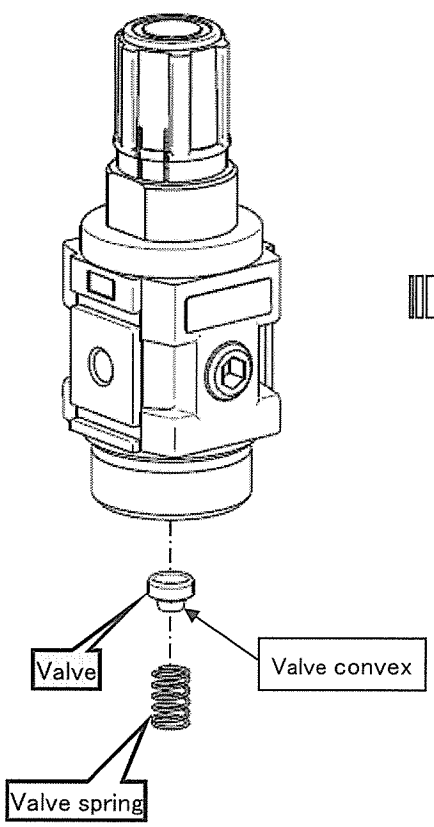
<Disassembly>

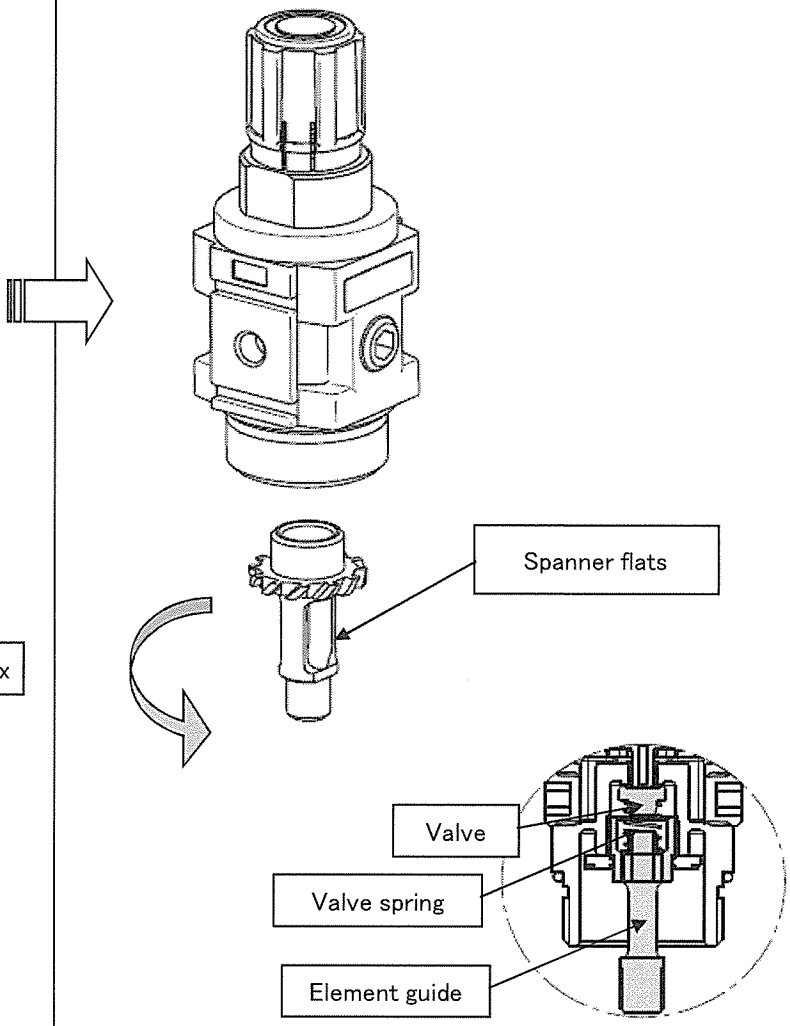
Step 1	Step 2	Step 3
The bowl assembly and the element assembly are detached from the product.	Remove the element guide. Hold the element guide with a spanner to rotate it couterclockwise and remove the element guide.	Remove the valve spring and valve.
* Please see < Disassembly > (AW10-A: P20) of the bowl assembly and the element assembly for detaching method.		



<Assembly>

Step 1	Step 2
①Mount the valve so that convex on the valve could be turned to the element guide. ②Insert internal circumference of the valve spring to the convex on the valve.	Mount the element guide. Hold the element guide with a spanner to rotate it clockwise and mount the element guide. Refer to the table below for the use tool and the tightening torque at this time.



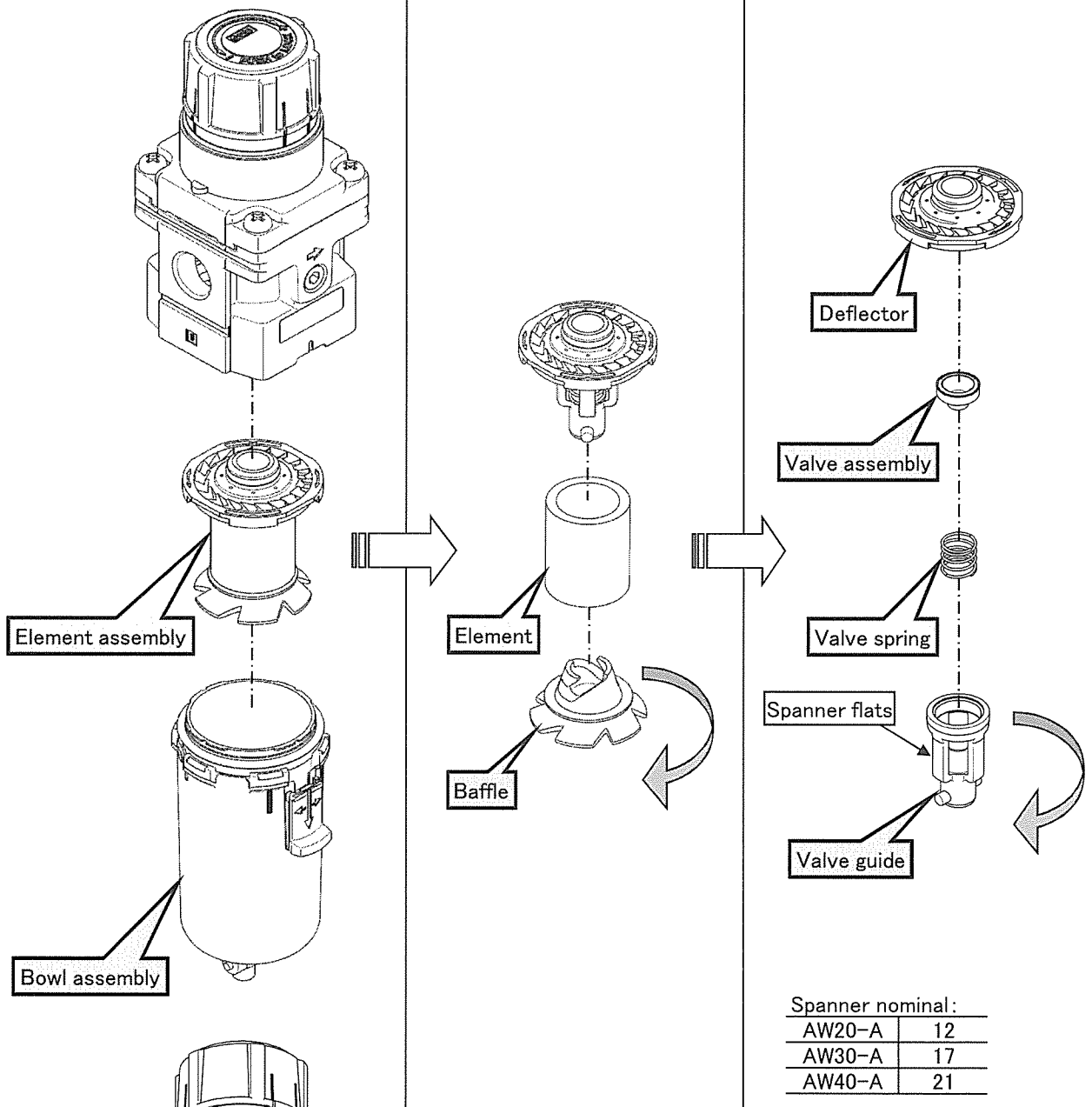


Tool	Tightening torque
Spanner nominal : 6	0.35±0.05 N・m

2) Valve assembly【AW20-A/ AW30-A /AW40-A】

<Disassembly>

Step 1	Step 2	Step 3
The bowl assembly and the element assembly are detached from the product.	The element and the baffle are detached from the element assembly.	Use spanner on flats of valve guide, rotate to the direction of the arrow. The deflector, the valve assembly, and valve spring are then detached. (Spanner nominal: Refer to the table below.)
* Please see < Disassembly > (AW20-A:P22, AW30,40-A:P24) of the bowl assembly and the element assembly for detaching method.		



Spanner nominal:

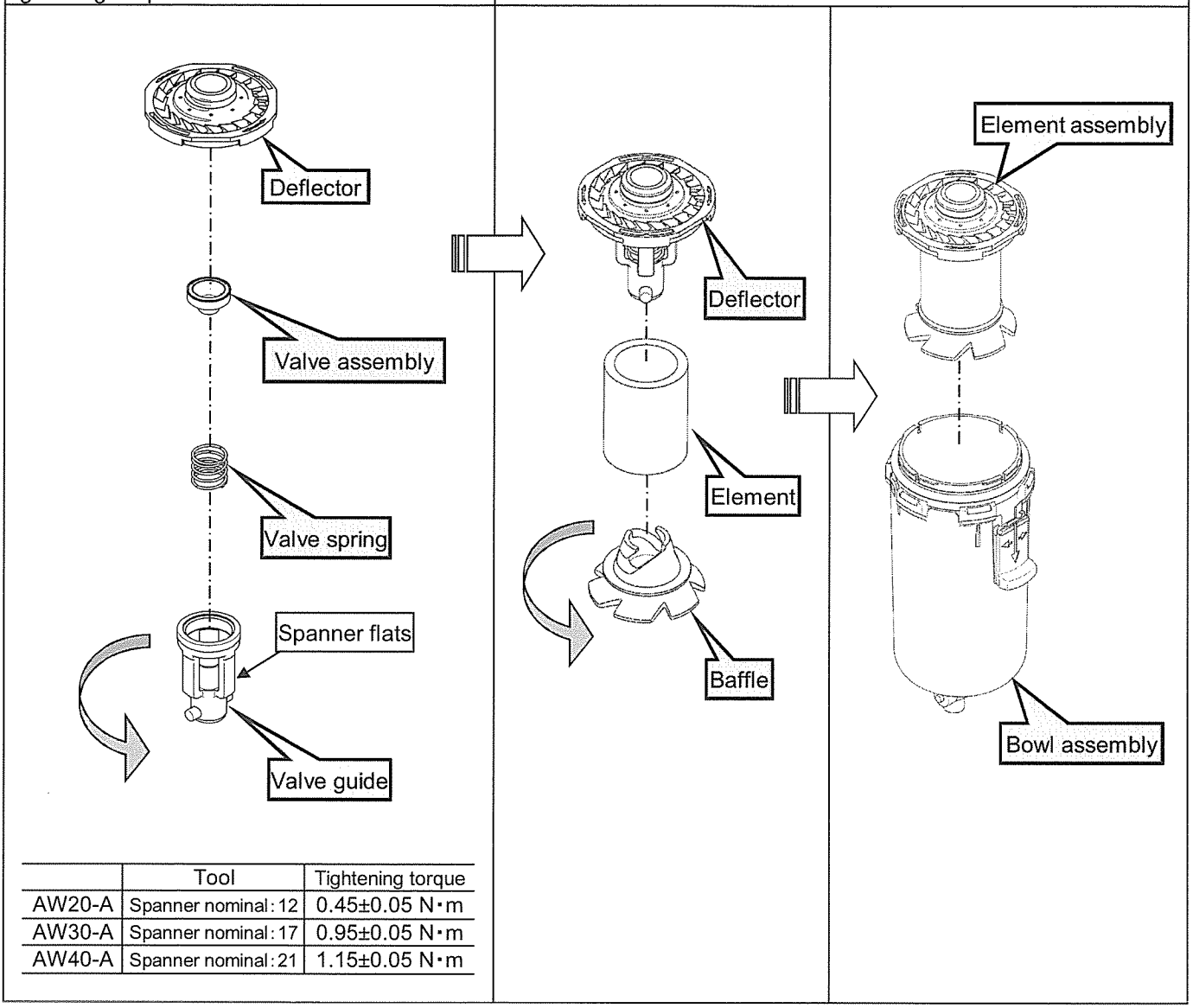
AW20-A	12
AW30-A	17
AW40-A	21

Caution

Do not pull the stem assembly when removing it.
It may lead to a malfunction.

<Assembly>

Step 1	Step 2	Step 3
Use spanner on flats of valve guide, rotate to the direction of the arrow. The deflector, the valve assembly, and valve spring are tightened. Refer to the table below for the use tool and the tightening torque at this time.	The element is attached to the deflector, and the baffle is fixed.	The element assembly is attached to the bowl assembly.
	* Please see < Assembly > (AW20-A:P23, AW30,40-A:P25) of the bowl assembly and the element assembly about the assembly method.	

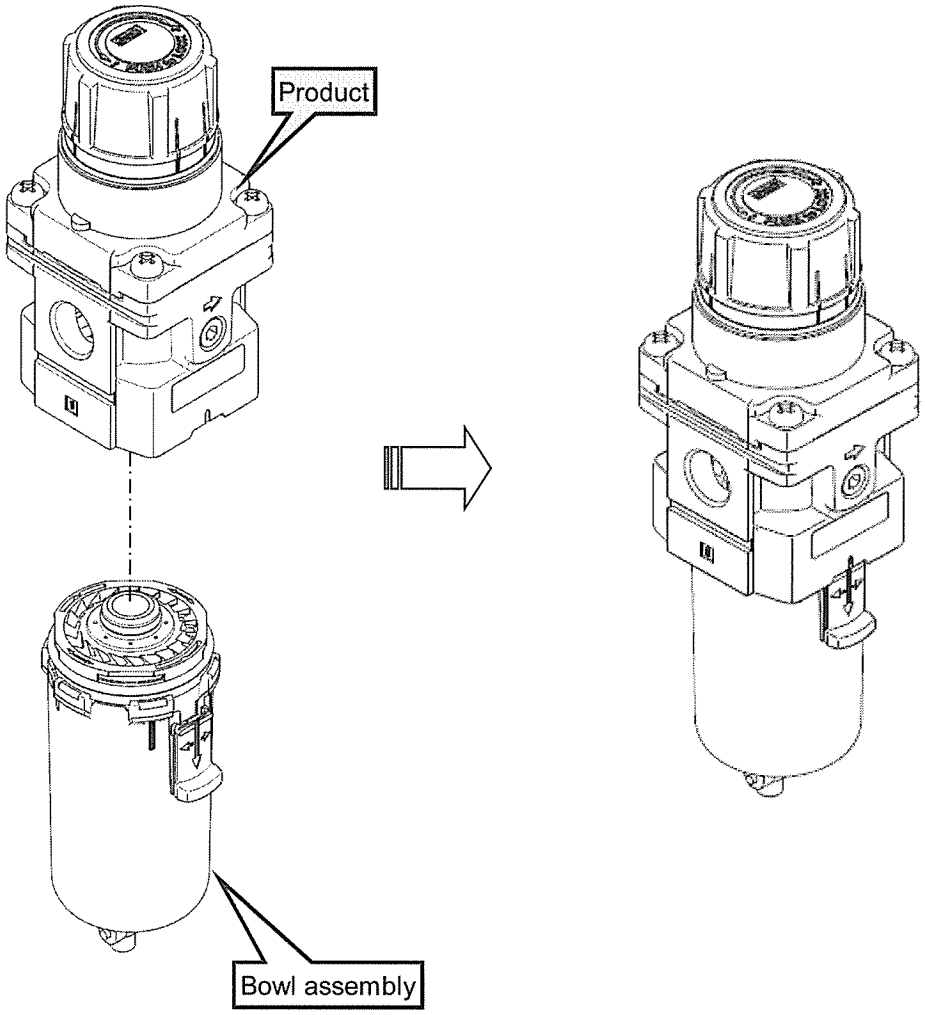


	Tool	Tightening torque
AW20-A	Spanner nominal:12	0.45±0.05 N·m
AW30-A	Spanner nominal:17	0.95±0.05 N·m
AW40-A	Spanner nominal:21	1.15±0.05 N·m

<Assembly>

Step 4

The bowl assembly is attached to the product and fixed in place.
* Please see < Assembly > (AW20-A: P23, AW30,40-A: P25) of the bowl assembly and the element assembly about the assembly method.

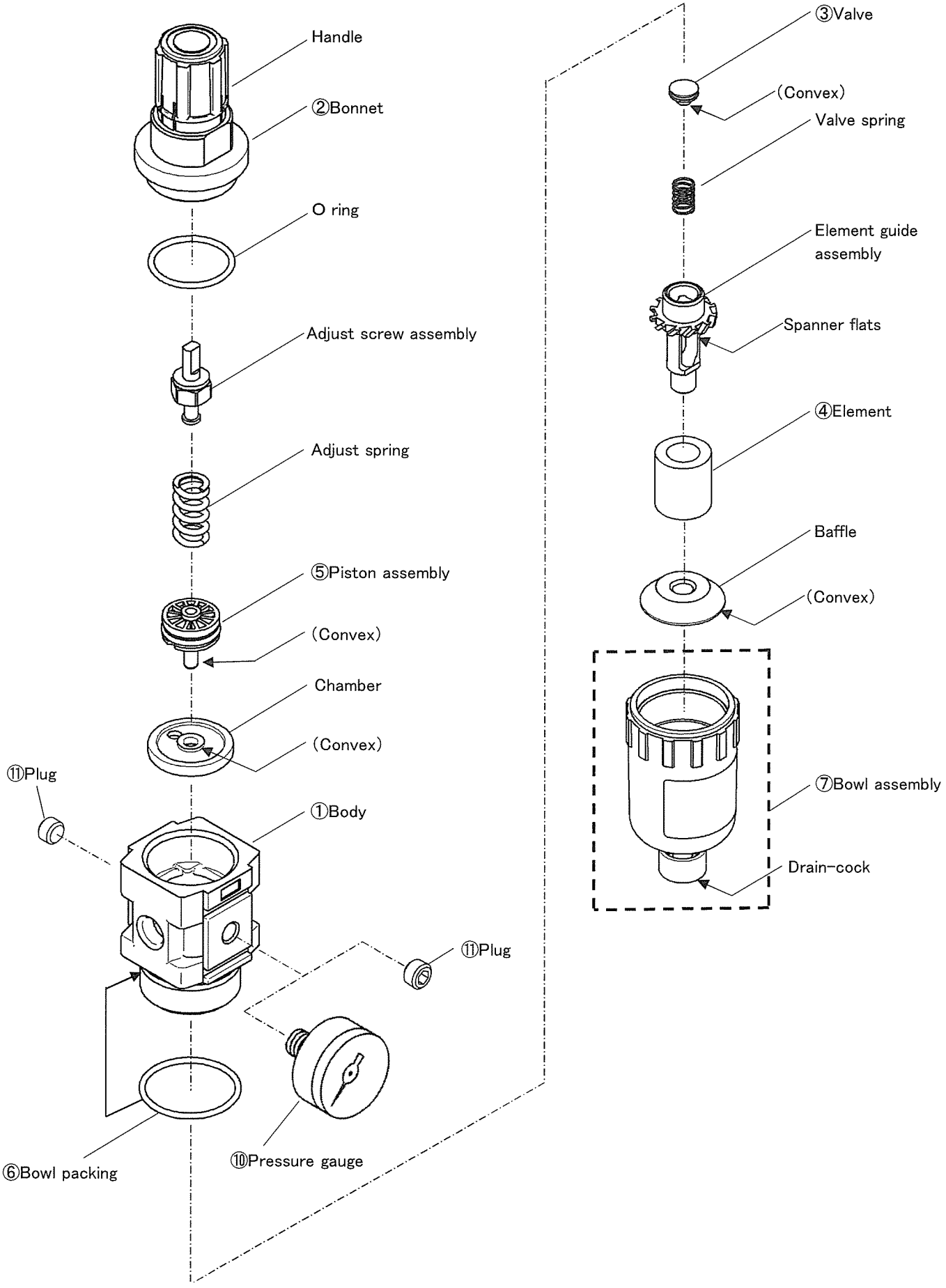


3) Piston assembly【AW10-A】/ Diaphragm assembly【AW20-A/ AW30-A/ AW40-A】

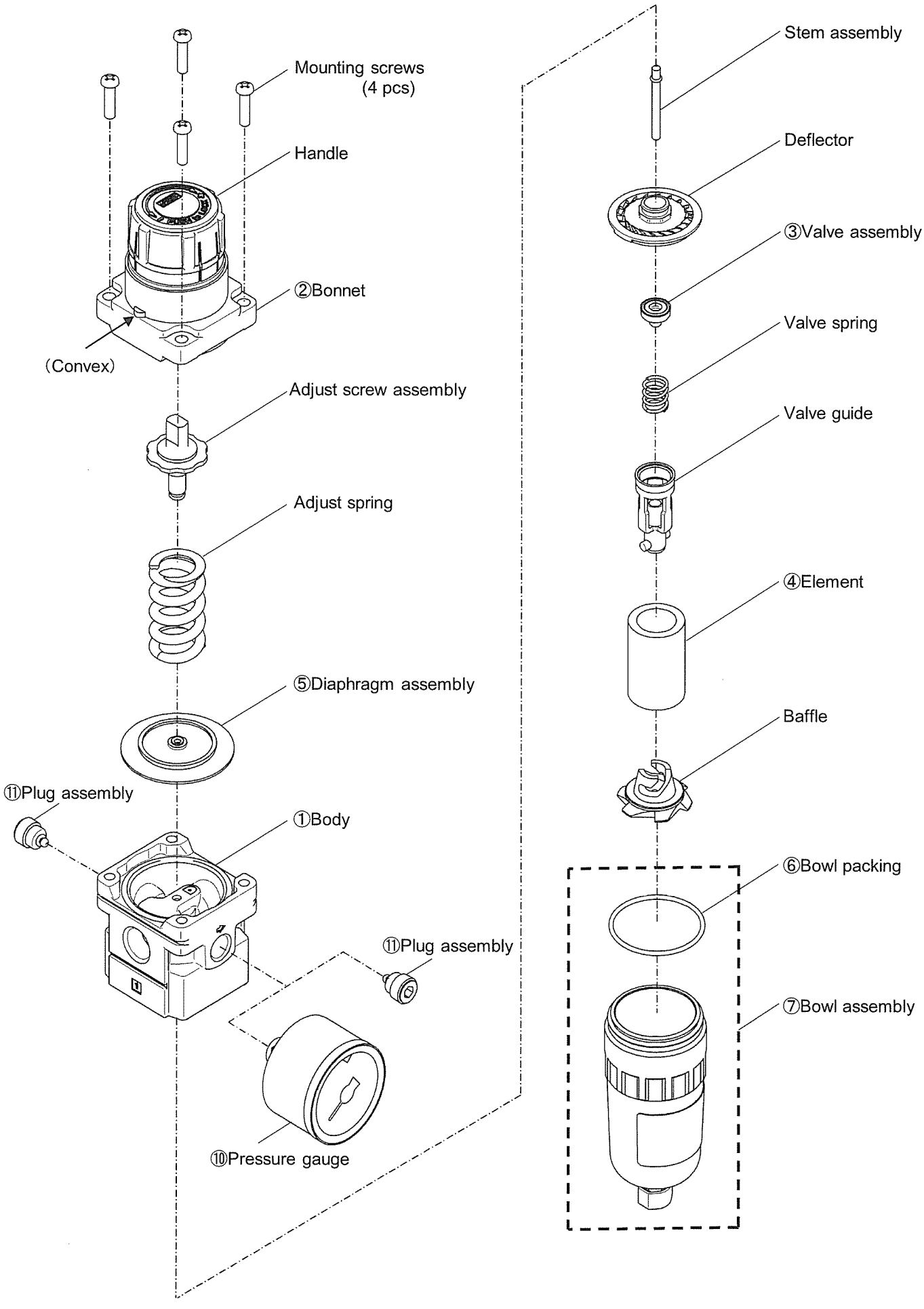
Applicable model	Process	Procedure	Tool	Check item
AW10-A	Disassembly	1. Remove the bonnet assembly. Hold the bonnet with a spanner on the spanner flat, and rotate counterclockwise to remove the bonnet assembly.	Spanner Nominal:16	–
		2. Remove the piston assembly from the bonnet assembly. Pull out the piston assembly facing the handle downwards. Otherwise, pressure adjusting screw assembly or pressure adjusting spring fall off.	–	–
	Assembly	3. Mount the piston assembly to the bonnet assembly. Insert the piston assembly to the bonnet so that the piston assembly convex faces the body. If pressure adjusting screw or pressure adjusting spring is not mounted on the bonnet, mount it before mounting the piston assembly.	–	–
		4. Ensure the chamber is mounted on the body. If the chamber is removed during disassembly, mount the chamber ensuring the right direction of the chamber. Convex of the chamber shall face the bonnet.	–	Presence of chamber. Mount if there is not a chamber direction
		5. Mount the bonnet assembly to the body. Hold the bonnet assembly with a spanner on the spanner flat, and rotate the body clockwise to settle. See check item for the tightening torque.	Spanner Nominal:16	Tightening torque: 1.8±0.3 N・m
AW20-A AW30-A AW40-A	Disassembly	1. Remove the bonnet. Four screws are removed and the bonnet is detached. Please do not lose parts in the bonnet. ＜Parts in the bonnet ＞ ・Adjust screw assembly ・Adjust spring ・Diaphragm assembly	Cross pointed driver	–
	Assembly	2. Disassembled parts are set in the body. Please assemble while confirming "Assembly drawing" (P33-P35).	–	・Direction of diaphragm assembly ・Direction of adjust assembly
		3. Mount the bonnet. Convex of the bonnet is adjusted to the IN side, it attaches to the body, and the installation screw is tightened with cross pointed driver temporarily. Four screws are tightened evenly by the tightening torque shown at opposite angle configuration.	Cross pointed driver	Tightening torque: AW20-A: 1.8±0.1 N・m AW30-A: 3.5±0.3 N・m AW40-A: 2.6±0.3 N・m

10. DISASSEMBLY DRAWING

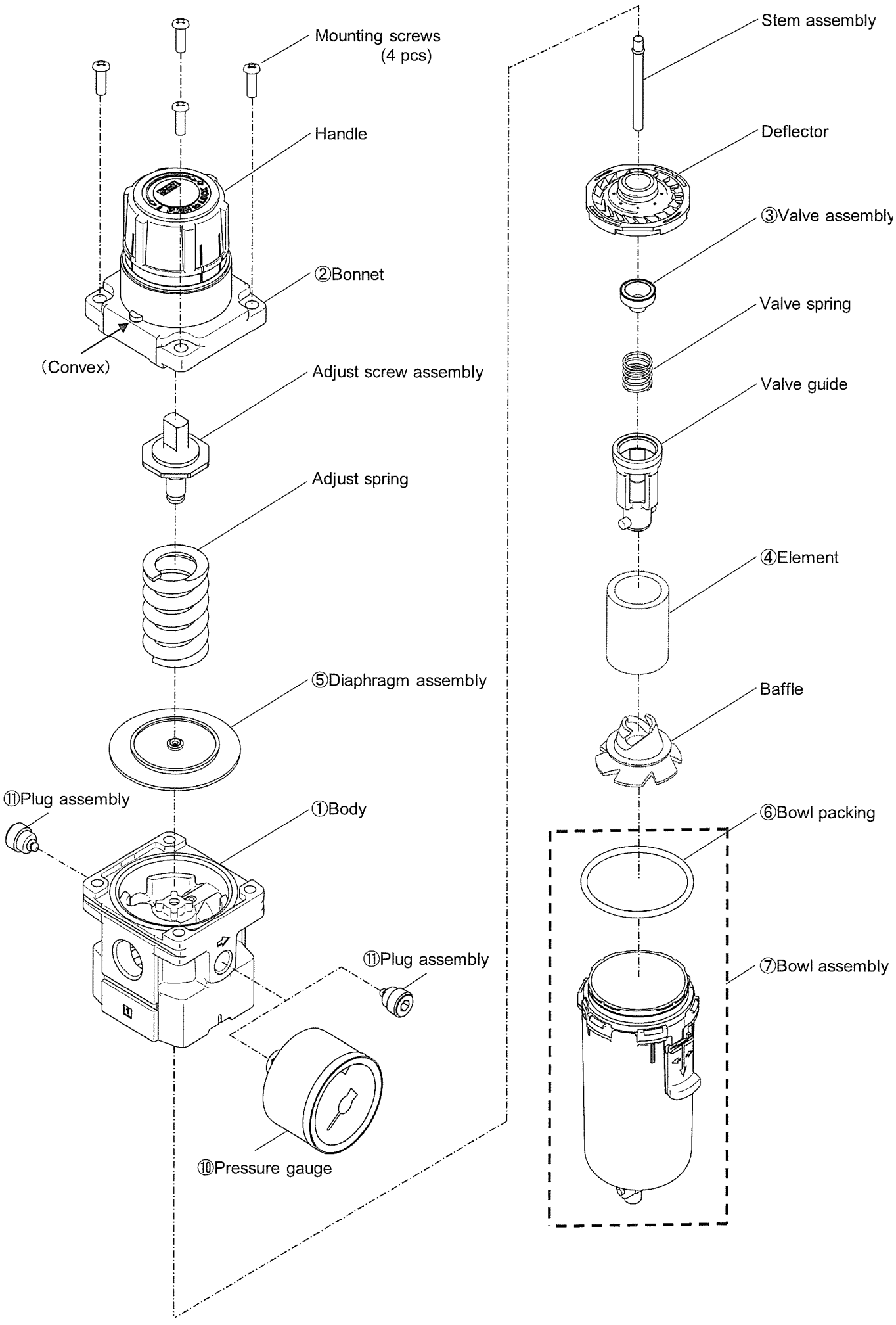
1) AW10-A



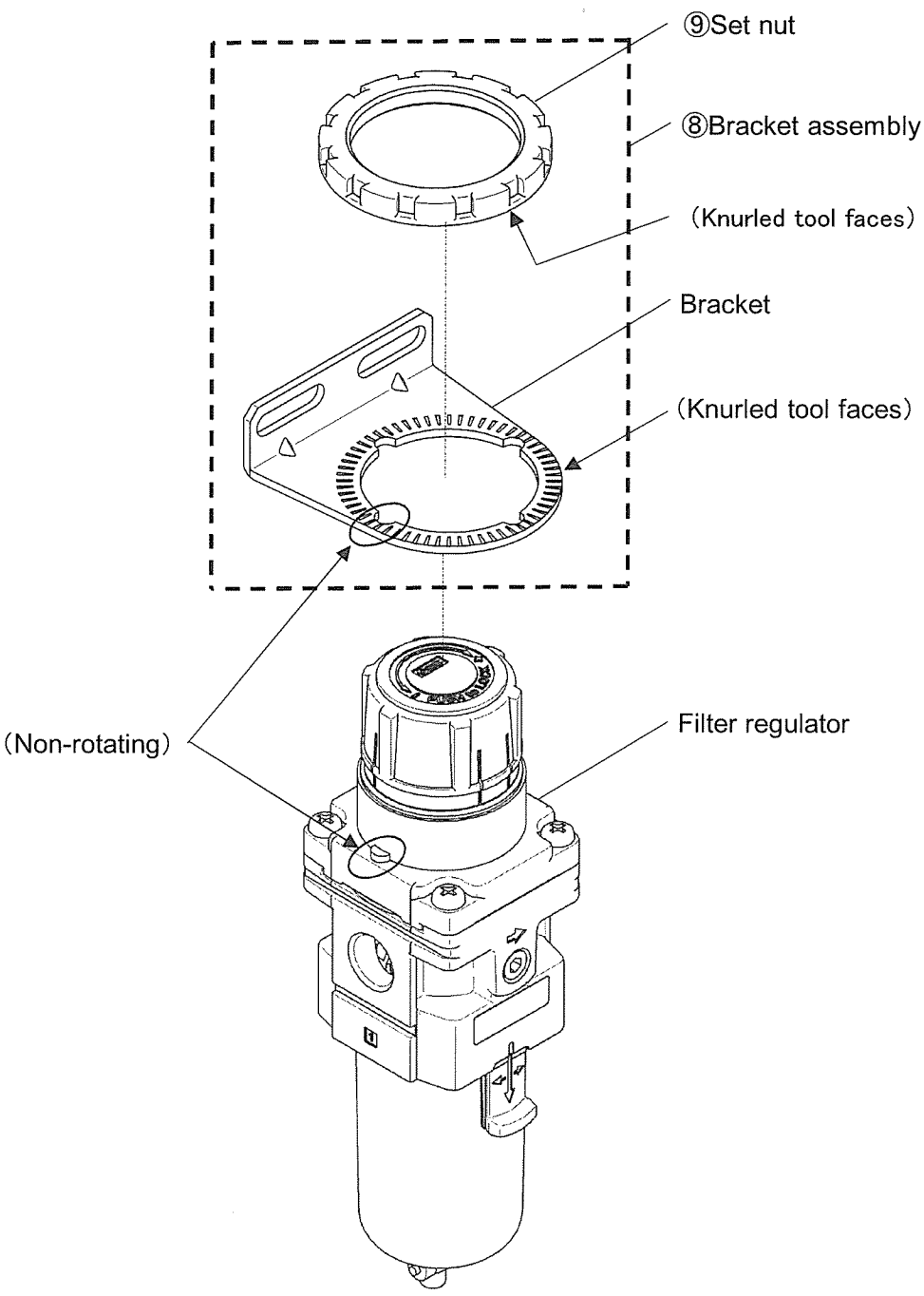
2) AW20-A


Mounting screws
(4 pcs)
Handle
②Bonnet
(Convex)
Adjust screw assembly
Adjust spring
⑤Diaphragm assembly
⑪Plug assembly
①Body
⑪Plug assembly
⑩Pressure gauge
Stem assembly
Deflector
③Valve assembly
Valve spring
Valve guide
④Element
Baffle
⑥Bowl packing
⑦Bowl assembly

3) AW30,40-A

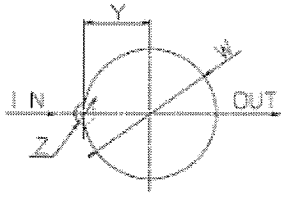

Mounting screws
(4 pcs)
Handle
②Bonnet
(Convex)
Adjust screw assembly
Adjust spring
⑤Diaphragm assembly
⑪Plug assembly
①Body
⑪Plug assembly
⑩Pressure gauge
Stem assembly
Deflector
③Valve assembly
Valve spring
Valve guide
④Element
Baffle
⑥Bowl packing
⑦Bowl assembly

4) Bracket assembly / Panel mounting Disassembly drawing



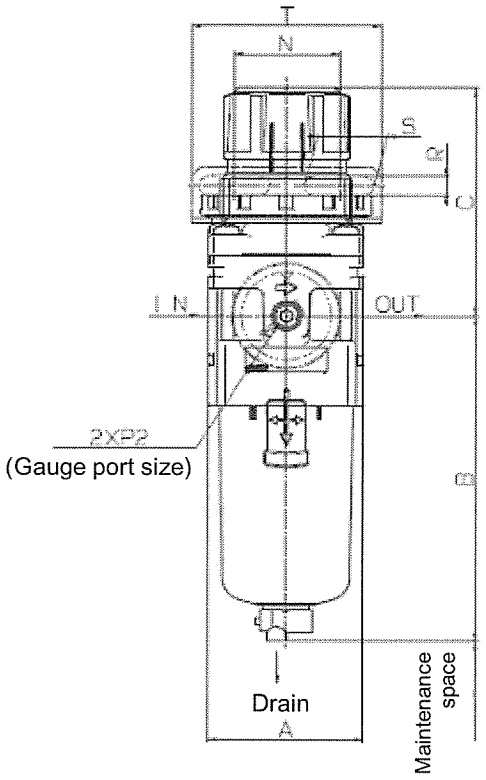
11.DIMENSIONS

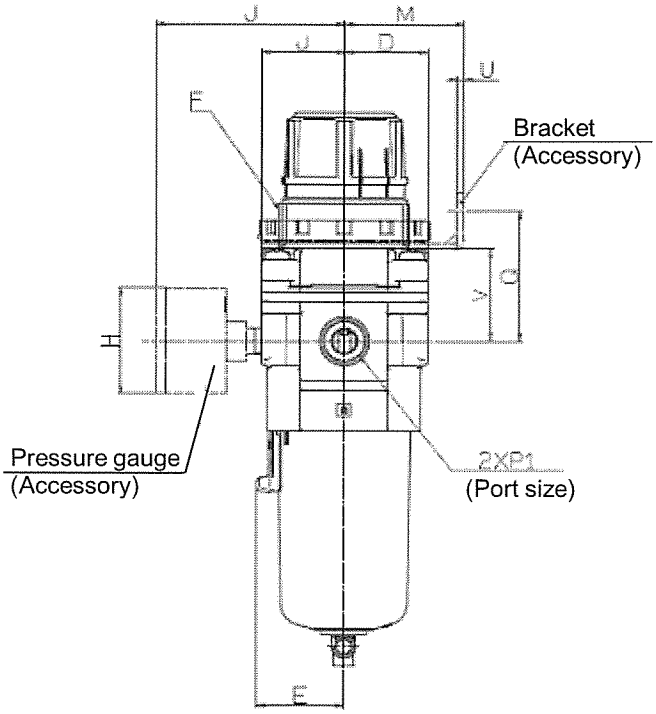
Panel fitting



Thickness of plate

Model	Thickness of plate(mm)
AW10-A	MAX:3.5
AW20-A	MAX:4
AW30-A	MAX:8
AW40-A	
AW40-06-A	





Model	Standard specifications								Pressure gauge dimensions			
									Round type pressure gauge		Round type pressure gauge (with colour zone)	
	P1	P2	A	B	C[Note1)]	D, J	E	G	H	J	H	J
AW10-A	M5	1/16	25	59.9	45.4	12.5	—	25	φ26	26	—	—
AW20-A	1/8・1/4	1/8	40	87.6	67.4	22	—	25	φ37.5	58.5	φ37.5	59.5
AW30-A	1/4・3/8	1/8	53	115.1	83.5	29	30	35	φ37.5	65	φ37.5	66
AW40-A	1/4・3/8・1/2	1/8	70	147.1	100	35	38.4	40	φ42.5	72	φ42.5	72
AW40-06-A	3/4	1/8	75	149.1	101.5	35	38.4	40	φ42.5	72	φ42.5	72

Model	Optional											
	Bracket mount dimensions							Panel mount dimensions				
	M	N	Q	R	S	T	U	F	V	W	Y	Z
AW10-A	25	28	30	4.5	6.5	40	2	M18×1	18	18.5	-	-
AW20-A	30	34	43.9	5.4	15.4	55	2.3	M36×1.5	27.3	36.5	17.5	6
AW30-A	41	36	46	6.5	24	65	2.3	M45×1.5	32.5	45.5	22.5	7
AW40-A	50	38	54	8.5	26.5	70	2.3	M52×1.5	38.4	52.5	26	7
AW40-06-A	50	38	55.5	8.5	26.5	70	2.3	M52×1.5	39.9	52.5	26	7

Model	Optional / semi-standard specifications						
	With auto drain	Drain cock With barb	With drain guide	Metal bowl	Metal bowl, drain guide	Metal bowl with sight glass	Metal bowl with sight glass, drain guide
	B	B	B	B	B	B	B
AW10-A	77.9	—	—	59.3	—	—	—
AW20-A	104.9	—	91.4	87.4	93.9	—	—
AW30-A	156.8	123.6	121.9	117.6	122.1	137.6	142.1
AW40-A	186.9	155.6	153.9	149.6	154.1	169.6	174.1
AW40-06-A	188.9	157.6	155.9	151.6	156.1	171.6	176.1

Note 1) B dimension is a size in the state to unlock the handle.

Note 2) The specifications of auto-drain and optional bowl assembly are described in 「8. SPECIFICATIONS OF BOWL ASSEMBLY」 (P12～P19).

Revision history
A Model (AW10) and option (-2,-6,-8) addition. October, 2014

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