Document No.: AMX-OMX0018-E

Operation Manual

PRODUCT NAME

Line filter
Mist Separator
Micro Mist Separator
Micro Mist Separator with Pre-filter

MODEL / Series / Product Number

AFF20-(F, N)01～(F, N)02(B, C)(-2, 6, C, J, L, M, MM, R, Z)-D
AFF30-(F, N)02～(F, N)03(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D
AFF40-(F, N)02～(F, N)04(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D

AM20-(F, N)01～(F, N)02(B, C)(-2, 6, C, J, L, M, MM, R, Z)-D
AM30-(F, N)02～(F, N)03(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D
AM40-(F, N)02～(F, N)04(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D

AMD20-(F, N)01～(F, N)02(B, C)(-2, 6, C, J, L, M, MM, R, Z)-D
AMD30-(F, N)02～(F, N)03(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D
AMD40-(F, N)02～(F, N)04(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D

AMH30-(F, N)02～(F, N)03(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D
AMH40-(F, N)02～(F, N)04(B, C, D)(-2, 6, 8, J, L, M, MM, R, W, Z)-D

SMC Corporation

Contents

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)[*1)], and other safety regulations.

∗1) ISO 4414: Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 4413: Hydraulic fluid power - General rules and safety requirements for systems and their components
IEC 60204-1: Safety of machinery - Electrical equipment of machines - Part 1: General requirements
ISO 10218-1: Robots and robotic devices - Safety requirements for industrial robots - Part 1:Robots
etc.

Danger	**Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
Warning	**Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
Caution	**Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Warning

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

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

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

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

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

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Our products cannot be used beyond their specifications. Our products are not developed, designed, and manufactured to be used under the following conditions or environments. Use under such conditions or environments is not covered.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Use for nuclear power, railways, aviation, space equipment, ships, vehicles, military application, equipment affecting human life, body, and property, fuel equipment, entertainment equipment, emergency shut-off circuits, press clutches, brake circuits, safety equipment, etc., and use for applications that do not conform to standard specifications such as catalogs and operation manuals.
3. Use for interlock circuits, except for use with double interlock such as installing a mechanical protection function in case of failure. Please periodically inspect the product to confirm that the product is operating properly.

Safety Instructions

⚠ Caution

We develop, design, and manufacture our products to be used for automatic control equipment, and provide them for peaceful use in manufacturing business.
Use in non-manufacturing business is not covered.
Products we manufacture and sell cannot be used for the purpose of transactions or certification specified in the Measurement Act.
The new Measurement Act prohibits use of any unit other than SI units in Japan.

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

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. 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.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

***2) Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty

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 regulations 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.

Precautions for Design

⚠ Warning

1) Do not use the product if no leakage is allowed due to the environment, or if the fluid is not air.
2) Polycarbonate resin is used for the external parts including the bowl. Organic solvents including thinner, acetone, alcohol and ethylene chloride; chemicals including sulphuric acid, nitric acid and hydrochloric acid; cutting oil, synthetic oils, ester-based compressor oil, alkali, kerosene, gasoline, lock material of screw are harmful. Do not use the product where these are present.

Type	Chemical name	Application examples	Material	
			Polycarbonate	Nylon
Acid	Hydrochloric acid Sulphuric acid, Phosphoric acid Acetic acid Chromic acid	Acid washing liquid for metals	△	×
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slacked lime) Ammonia water Carbotane 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	Synthetic oil Anti-rust additives	×	○
Ether	Methyl ether Ethyl ether	Brake oil additives	×	○
Amino	Methyl amine	Cutting oil Brake oil additives Rubber accelerator	×	×
Others	Thread-lock fluid Sea water Leak tester	-	×	△
○: Essentially safe. △: Some effects may occur. ×: Effects will occur.				

Note 1) When the above factors are present, or there is some doubt, use a metal bowl for safety.
The display window material is nylon.

3) Avoid the application where charge and discharge of pressure to/from a standard bowl is switched frequently. This may damage the bowl. A metal bowl is recommended in these cases.
4) Protect from ultra violet ray and radiation heat by shield.
5) If the air equipment is mounted on the outlet of the product, particles will be generated from the equipment and required cleanliness may not be obtained. Instead, install the air equipment at the inlet.

⚠ Caution

AD27-D with auto drain may have leakage of accumulated drain during pressure exhaust (this leakage is allowed in their constructions and not considered failure). Be sure to connect piping for drain.

Selection

⚠ Warning

1) Grease is used on the internal sliding parts and seals. The grease may flow to the outlet side.
2) Select the model so that the maximum discharge value (instantaneous) of the flow rate will not exceed the rated air capacity.
3) N.O. type auto drain should be operated under the following conditions to avoid operating failure.
   Operating compressor: 0.75kW or more.
   Discharged flow rate: 100L/min (ANR) or more. When using 2 or more auto drains, multiply the value above by the number of auto drains to find the capacity of the compressors you will need. For example, when using 2 auto drains, 1.5kW (200L/min (ANR)) of the compressor capacity is required. The operating pressure should be 0.1 MPa or more.
4) N.C. type auto drain should be used under the following requirements to avoid operating failure.
   AD27: Operating pressure 0.1MPa or more.
   AD37, AD47: Operating pressure 0.15MPa or more.

Installation

⚠ Warning

1) Do not drop or apply impact during transportation or installation; It will cause damage to the product and result in operation failure.
2) Do not install in areas of high humidity or high temperature. Operation outside of the product specification range may cause damage to the product or operation failure, or shorten the product life.
3) Connect the product ensuring the direction of "1"(IN) and "2"(OUT) for air direction or an arrow. Incorrect connections may cause malfunction.
4) Install with adequate space for maintenance beneath the product. Refer to [13. Dimensions] (page 35) for necessary space.
5) Install vertically so that outlet of drain is facing downward. It cannot be used in horizontal or upward direction as it may cause operation failure.
6) Do not hit the auto switch with a tool or allow it to receive any other impacts. Doing so may cause damage.
7) Do not attach or detach the auto switch equipped with the clogging switch. Otherwise, the detection accuracy of the clogging switch may be reduced. In addition, note that an auto switch with an element service indicator cannot be installed in combination.
8) Do not place magnetic objects near the product. Otherwise, a machine failure may result.

Piping

⚠ Warning:

1) Before piping, perform flushing or cleaning of the piping, etc. to remove any cutting chips, cutting oil, solid foreign matter, etc. from the piping. Contamination of piping may cause damage or malfunction.
2) When screwing together pipes and fittings, etc., be certain that chips from the pipe threads and sealant do not get inside the pipe. When a sealant tape is used, leave 1 thread ridge exposed at the end of the threads.
3) Connect piping/fittings using the recommended torque while holding the female thread side tightly. Insufficient tightening torque can cause loose piping or sealing failure. Excess tightening torque may cause damage to threads. If the female side is not held while tightening, excessive force will be applied to the bracket directly, causing breakage.

Recommended tightening torque (Unit: N m)

Thread size	1/8	1/4	3/8	1/2
Torque	3 to 5	8 to 12	15 to 20	20 to 25

4) When a one-touch fitting of SMC is used, refer to the operation manual for the one-touch fitting.
5) Do not apply torsion or bending moment other than the weight of the product itself. External piping needs to be supported separately as it may cause damage. Non-flexible piping like steel tube is susceptible to excessive moment load or vibration. Insert flexible tubes to prevent this.
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.
   Tubing for AD27-D: I.D. ø2.5 (ø3/32") or larger, Length 5 m (200 inch) or shorter
   Tubing for AD37, 47(N)-D: I.D. ø4 (ø3/16") or larger, Length 5 m (200 inch) or shorter
   Tubing for AD38, 48(N)-D: I.D. ø6.5 (ø1/4") or larger, Length 5 m (200 inch) or shorter
8) Pipework for auto drain discharge which rises higher than the auto drain outlet should be avoided. It may cause the auto drain operation to fail.

Air Source

⚠ Warning

1) Use clean air. Do not use compressed air containing chemicals, organic solvent, synthetic oil or corrosive gas as it may be cause of breakage of components or operation failure.
2) Air containing too much moisture may deteriorate the performance. Install the refrigerated air dryer or aftercooler before the line filter.
3) Make sure that the supply pressure is not below the minimum operating pressure. If it is used at the minimum operating pressure or less, pressure resistance increases, leading to the decrease of operation life or operation failure.

⚠ Caution

1) Install the air filter AF series or line filter AFF series as a pre-filter to the inlet of the mist separator AM series and the micro mist separator with pre-filter AMH series in order to eliminate excess saturated water and avoid the clogging of early stage.
2) Install the mist separator AFM series or AM series as a pre-filter to the inlet of the AMD series in order to avoid the clogging of early stage.

Maintenance

⚠ Warning

1) Release the pressure in the product to the atmosphere when replacing parts or removing piping.
2) Maintenance and checks should be done by following the procedure in the operation manual. Incorrect handling of the product may cause breakage or operation failure of the equipment or device.
3) Do not touch the product when operating at high temperature (40 to 60°C). The operators may get burnt. Be sure to confirm that the temperature of the container or operating part is reduced to 40 degrees or less to prevent burns.
4) 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. Investigate and/or review the operating conditions if necessary.
5) Check for dirt in resin bowl periodically. If any dirt is seen, replace with new bowl. If removing dirt by washing the resin bowl, never use washing material other than neutral detergent. Otherwise, the bowl is damaged.
6) Open and close drain cock by hand. The use of tools can result in damage to the product.
7) Replace the element before 2 years passed from start of use or pressure drop (difference between the inlet pressure and outlet pressure) reaches 0.1MPa. Or if the element is broken.
8) Check the bowl regularly. Discharge it before drain reaches the element. Refer to [9. Operation and Adjustment] (P24 to 25) for discharging of drain. When a resin bowl or a bowl with level gauge is used, discharge the drain before the drain reaches the MAX. DRAIN LEVEL.

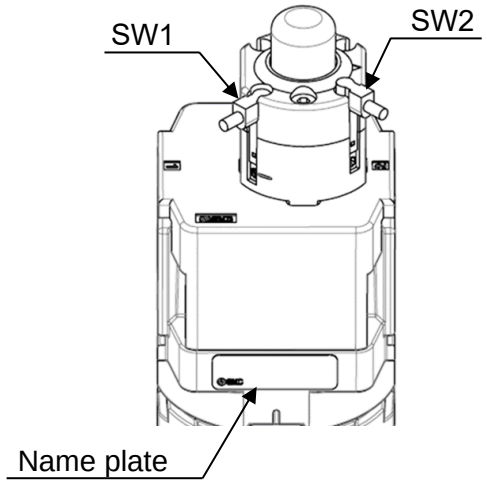
⚠ Caution

1) 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.
2) For the N.O. 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.
3) For models with an element service indicator or clogging switch, as the element becomes more clogged, the indicator will display an increasing level of red. Be sure to replace the element before the level of red reaches the top of the indicator.
4) For the product equipped with a clogging switch, replace the element even if it has been used for 2 years or less when the installed auto switch (SW) is detected.

Element status when auto switch is detected

Symbol	No. of SW	Installation of SW	When SW is detected
-M	SW 1 SW 2	No Yes	— Warning
-MM	SW 1 SW 2	Yes Yes	Caution Warning

Caution: Replacement is recommended because the element is clogged.
Warning: The element is clogged, which may result in the destruction of the element.



2. Application

Series	Application
AFF	This product aims at eliminating excess saturated water and solid foreign matter (1μm) in the air line.
AM	This product aims at eliminating oil mist and solid foreign matter(0.1μm) in the air line.
AMD	This product aims at eliminating oil mist and solid foreign matter(0.01μm) in the air line.
AMH	This product aims at eliminating oil mist and solid foreign matter(0.01μm) in the air line.

3. Standard specifications

3-1. Line Filter (AFF Series)

Model No.		AFF20	AFF30	AFF40
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air		
Ambient and o fluid temperature		-5 to 60 °C (No freezing)		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Min. operating pressure		0.05MPa		
Min. operating pressure of auto drain	N.C.	0.1MPa	0.15MPa	
	N.O.	-	0.1MPa	
Nominal filtration rating Note 1)		1μm (99% filtered particle size)		
Water droplet removal ratio Note 2)		99%		
Max. flow capacity Note 3)		300L/min(ANR)	750L/min(ANR)	1500L/min(ANR)
Compressed air purity class Note 4)		ISO 8573-1:2010 [4:7:4]		
Drain capacity		8cm^3	25cm^3	45cm^3
Bowl material		Polycarbonate		
Bowl guard		Semi-standard (Steel)	Standard (Polycarbonate)	
Weight		0. 19kg	0. 39kg	0. 79kg

Note 1) Conditions in accordance with [Test method ISO 12500-3:2009 compliant] in addition to the conditions above.
- Flow capacity, inlet pressure, and the amount of solid or liquid particles on the filter inlet side are stable.
- New element

Note 2) Conditions in accordance with [Test method ISO 12500-4:2009 compliant] in addition to the conditions above.
- Water droplet on the filter inlet side 33mL/m^3 (ANR).
  (Water droplet indicates condensed moisture. Water vapor which is not condensed is not included.)
- Inlet air temperature: 25°C
- Flow capacity, inlet pressure, and the amount of water droplets on the filter inlet side are stable.
- New element

Note 3) Inlet pressure: 0.7MPa Flow rate at 20°C, atmospheric pressure, and 65% of relative humidity.

Note 4) Based on ISO 8573-1:2010 Compressed air - Part1: Contaminants and purity classes.
The compressed air quality class on the inlet side is [6:8:4].

3-2. Mist Separator (AM Series)

Model No.		AM20	AM30	AM40
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air		
Ambient and o fluid temperature		-5 to 60 °C (No freezing)		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Min. operating pressure		0.05MPa		
Min. operating pressure of auto drain	N.C.	0.1MPa	0.15MPa	
	N.O.	-	0.1MPa	
Nominal filtration rating Note 1)		0.1μm (99% filtered particle size)		
Outlet side oil mist concentration Note 2)		1mg/m^3 or less		
Max. flow capacity Note 3)		300L/min(ANR)	750L/min(ANR)	1500L/min(ANR)
Compressed air purity class Note 4)		ISO 8573-1:2010 [2:7:3]		
Drain capacity		8cm^3	25cm^3	45cm^3
Bowl material		Polycarbonate		
Bowl guard		Semi-standard (Steel)	Standard (Polycarbonate)	
Weight		0.19kg	0.39kg	0.79kg

Note 1) Conditions in accordance with [Test method ISO 12500-3:2009 compliant] in addition to the conditions above.
- Flow capacity, inlet pressure, and the amount of solid or liquid particles on the filter inlet side are stable.
- New element

Note 2) Conditions in accordance with [Test method ISO 12500-1:2007 compliant] in addition to the conditions above.
- Oil aerosol concentration on the filter inlet side = 10mg/m^3
- Inlet air temperature: 25°C
- Flow capacity, inlet pressure, and the oil aerosol concentration on the filter inlet side are stable.
- New element

Note 3) Inlet pressure: 0.7MPa Flow rate at 20°C, atmospheric pressure, and 65% of relative humidity.

Note 4) Based on ISO 8573-1:2010 Compressed air - Part1: Contaminants and purity classes.
The compressed air quality class on the inlet side is [4:7:4].

3-3. Micro Mist Separator (AMD Series)

Model No.		AMD20	AMD30	AMD40
Port size		1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air		
Ambient and o fluid temperature		-5 to 60 °C (No freezing)		
Proof pressure		1.5MPa		
Max. operating pressure		1.0MPa		
Min. operating pressure		0.05MPa		
Min. operating pressure of auto drain	N.C.	0.1MPa	0.15 MPa	
	N.O.	-	0.1MPa	
Nominal filtration rating Note 1)		0.01μm (99.9% filtered particle size)		
Outlet side oil mist concentration Note 2)		0.1mg/m^3 or less		
Max. flow capacity Note 3)		300L/min(ANR)	750L/min(ANR)	1500L/min(ANR)
Compressed air purity class Note 4)		ISO 8573-1:2010 [1:7:2]		
Drain capacity		8cm^3	25cm^3	45cm^3
Bowl material		Polycarbonate		
Bowl guard		Semi-standard (Steel)	Standard (Polycarbonate)	
Weight		0.19kg	0.39kg	0.79kg

Note1) Conditions in accordance with [Test method ISO 12500-3:2009 compliant] in addition to the conditions above.
- Flow capacity, inlet pressure, and the amount of solid or liquid particles on the filter inlet side are stable.
- New element

Note2) Conditions in accordance with [Test method ISO 12500-1:2007 compliant] in addition to the conditions above.
- Oil aerosol concentration on the filter inlet side = 1mg/m^3
- Inlet air temperature: 25°C
- Flow capacity, inlet pressure, and the oil aerosol concentration on the filter inlet side are stable.
- New element

Note 3) Inlet pressure: 0.7MPa Flow rate at 20°C, atmospheric pressure, and 65% of relative humidity.

Note 4) Based on ISO 8573-1:2010 Compressed air - Part1: Contaminants and purity classes.
The compressed air quality class on the inlet side is [2:7:3].

3-4. Micro Mist Separator with Pre-filter (AMH Series)

Model No.		AMH30	AMH40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air	
Ambient and o fluid temperature		-5 to 60 °C (No freezing)	
Proof pressure		1.5MPa	
Max. operating pressure		1.0MPa	
Min. operating pressure		0.05MPa	
Min. operating pressure of auto drain	N.C.	0.15 MPa	
	N.O.	0.1MPa	
Nominal filtration rating Note 1)		0.01μm (99.99% filtered particle size)	
Outlet side oil mist concentration Note 2)		0.1mg/m^3 or less	
Max. flow capacity Note 3)		750L/min(ANR)	1500L/min(ANR)
Compressed air purity class Note 4)		ISO 8573-1:2010 [1:7:2]	
Drain capacity		25cm^3	45cm^3
Bowl material		Polycarbonate	
Bowl guard		Standard (Polycarbonate)	
Weight		0.39kg	0.79kg

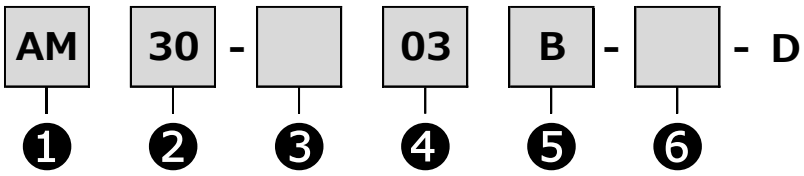
Note1) Conditions in accordance with [Test method ISO 12500-3:2009 compliant] in addition to the conditions above.
- Flow capacity, inlet pressure, and the amount of solid or liquid particles on the filter inlet side are stable.
- New element

Note2) Conditions in accordance with [Test method ISO 12500-1:2007 compliant] in addition to the conditions above.
- Oil aerosol concentration on the filter inlet side = 10mg/m^3
- Inlet air temperature: 25°C
- Flow capacity, inlet pressure, and the oil aerosol concentration on the filter inlet side are stable.
- New element

Note 3) Inlet pressure: 0.7MPa Flow rate at 20°C, atmospheric pressure, and 65% of relative humidity.

Note 4) Based on ISO 8573-1:2010 Compressed air - Part1: Contaminants and purity classes.
The compressed air quality class on the inlet side is [4:7:4].

4. How to Order

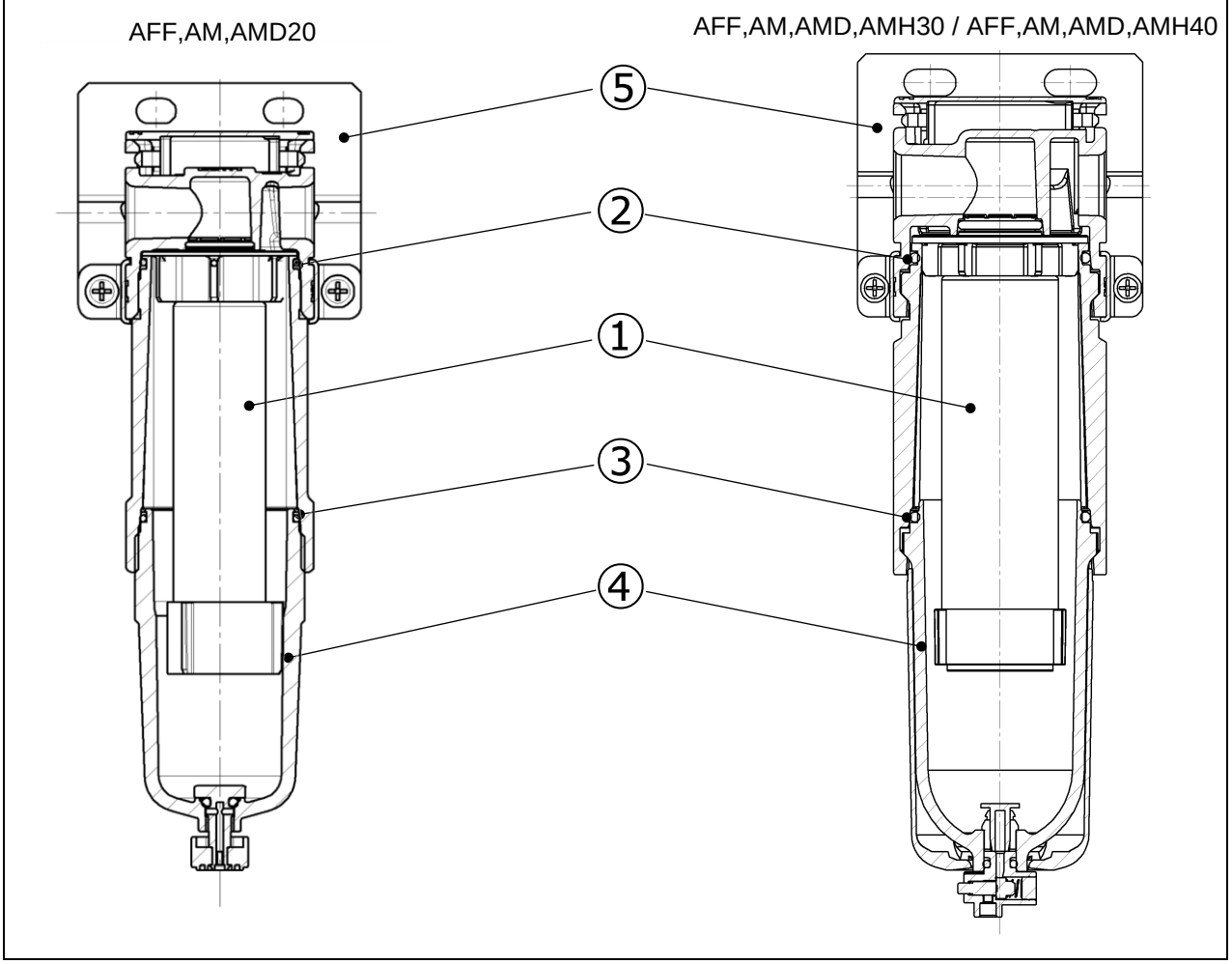


				Symbol	Details		❷ Body size		
							20	30	40
❶	Filter type			AFF	Line Filter		●	●	●
				AM	Mist Separator		●	●	●
				AMD	Micro Mist Separator		●	●	●
				AMH	Micro Mist Separator with Pre-filter		-	●	●
❸	Thread type			Nil	Rc		●	●	●
				N	NPT		●	●	●
				F	G		●	●	●
❹	Port size			01	1/8		●	-	-
				02	1/4		●	●	●
				03	3/8		-	●	●
				04	1/2		-	-	●
❺	Options	a	Mounting	Nil	Without mounting option		●	●	●
				B	With bracket		●	●	●
		b	Float type auto drain	Nil	Without auto drain		●	●	●
				C	N.C. (Normally close)	Drain port is closed when pressure is not supplied.	●	●	●
				D	N.O. (Normally open)	Drain port is open when pressure is not supplied.	-	●	●
❻	Semi-standard	c	Bowl	Nil	Polycarbonate bowl		●	●	●
				2	Metal bowl		●	●	●
				6	Nylon bowl		●	●	●
				8	Metal bowl with level gauge		-	●	●
				C	With bowl guard		●	-	-
				6C	With bowl guard (Nylon bowl)		●	-	-
		d	Drain port	Nil	With drain cock		●	●	●
				J	Drain guide 1/8		●	-	-
					Drain guide 1/4		-	●	●
				W	With drain cock and barb fitting		-	●	●
		e	Indicator	Nil	Without indicator		●	●	●
				L	With element service indicator		●	●	●
				M	With clogging switch (1 point)		●	●	●
				MM	With clogging switch (2 points)		●	●	●
		f	Flow direction	Nil	Flow direction: left to right		●	●	●
				R	Flow direction: Right to left		●	●	●
		g	Pressure unit Temperature unit	Nil	Pressure unit: MPa	Temp. unit: °C	●	●	●
				Z	Pressure unit: psi	Temp. unit: °F	○Note 2)	○Note 2)	○Note 2)

Note 1) ❺Option and ❻Semi-standard: Select one each for a to g.
Note 2) ○: For NPT thread type only.

5. Construction / Options / Replacement parts

Construction / Options / Replacement parts Note 1)



Replacement parts

Component No.	Parts description		Component number		
			20	30	40
①	Element	AFF	AFF24P-060AS	AFF34P-060AS	AFF44P-060AS
		AM	AM24P-060AS	AM34P-060AS	AM44P-060AS
		AMD	AMD24P060AS	AMD34P-060AS	AMD44P-060AS
		AMH	—	AMH34P-060AS	AMH44P-060AS
②	Bowl seal		C2SFP-260S	C32FP-260S	C42FP-260S
③					
④	Bowl assembly		Refer to [6.Bowl assembly specifications] (P13 to P20).		
	Auto drain (N.C.)				
	Auto drain (N.O.)				

Note 1) The numbers in the table and construction are consistent with the number in [11. Replacement work procedure] (P27-33) and [12. Disassembly Drawing] (P34).

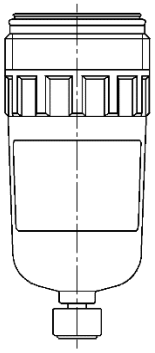
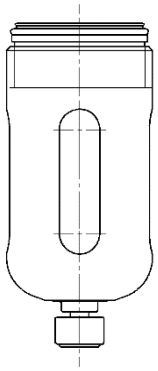
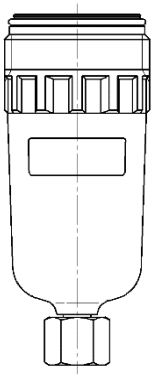
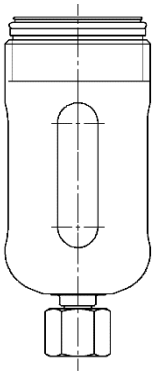
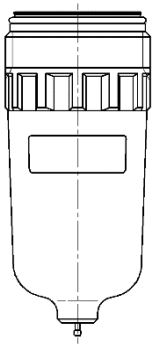
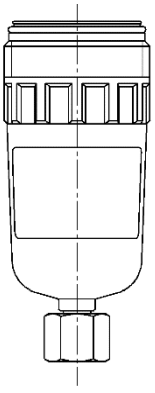
Component number	Parts description	Component number		
		20	30	40
⑤	Bracket assembly Note 1)	AF24P-070AS	AF34P-070AS	AF44P-070AS

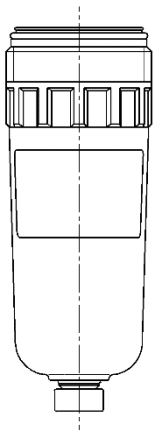
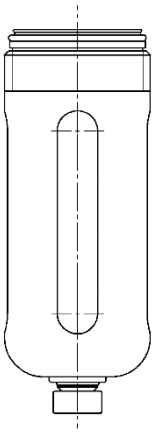
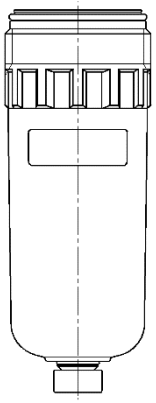
Options

Note 1) Refer to [7. Assembly of Optional parts] (P22) for mounting the bracket assembly.
Note 2) Assembly of the mounting bracket (2 types) and set screw (2 pcs.).

6. Bowl assembly specifications

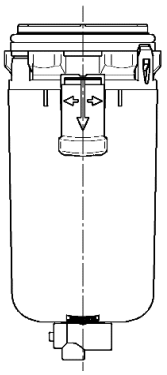
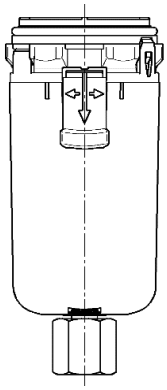
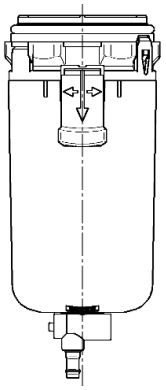
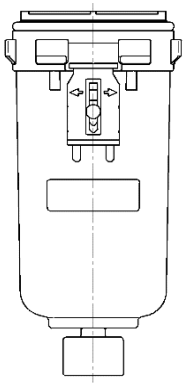
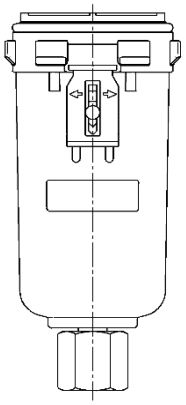
6-1. Bowl assembly / auto drain for AFF,AM,AMD20

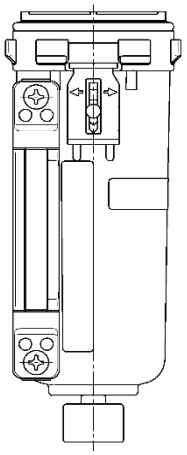
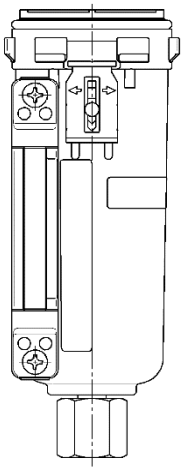
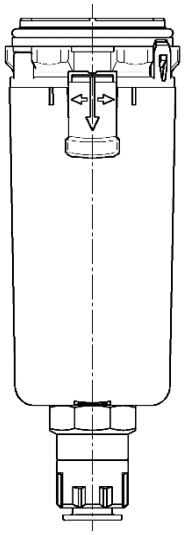
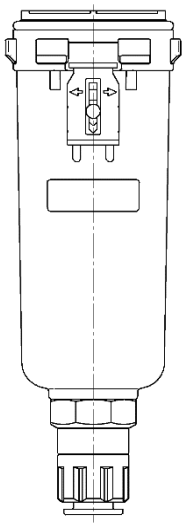
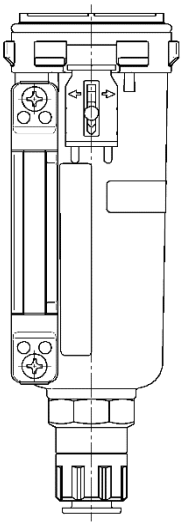
<table>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>C</td><td>6C</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SF(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-6-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SF-6(Z)-A</td></tr></table>  </td><td colspan="2">Semi-standard: "C"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-C-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SF-C(Z)-D</td></tr></table>Semi-standard: "6C"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-(6)C-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SF-6C(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td>J</td><td>6J</td><td>CJ</td><td>6CJ</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-J-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SFN-J(Z)-D</td></tr></table>Semi-standard: "6J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-6J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SFN-6J(Z)-A</td></tr></table>  </td><td colspan="2">Semi-standard: "CJ"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-CJ-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SFN-CJ(Z)-D</td></tr></table>Semi-standard: "6CJ"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-6CJ-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SFN-6CJ(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="2">2</td><td colspan="2">2J</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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 colspan="2">Semi-standard: "2J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C2SF-2J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C2SFN-2J(Z)-A</td></tr></table>  </td></tr>
</table>

<table>
<tr><td>Option symbol</td><td colspan="2">C Note 1)</td><td colspan="2">C Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>C</td><td>6C</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27(-Z)-D</td></tr></table>
Semi-standard: "6C"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>AD27N-6(Z)-A</td></tr></table>
  </td><td colspan="2">Semi-standard: "C"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD27-C-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD27-C(Z)-D</td></tr></table>
Semi-standard: "6C"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>AD27N-6C(Z)-A</td></tr></table>
  </td></tr>
<tr><td>Option symbol</td><td colspan="4">C Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="4">2</td></tr>
<tr><td>Appearance and part No.</td><td colspan="4">Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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></tr>
</table>

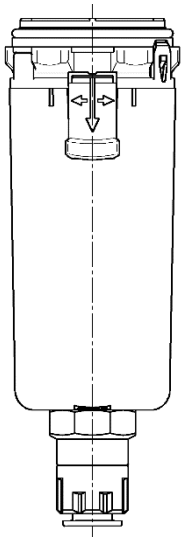
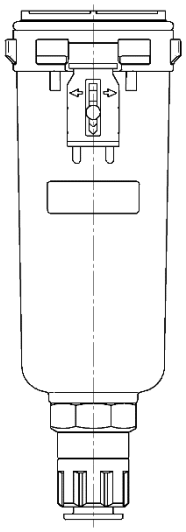
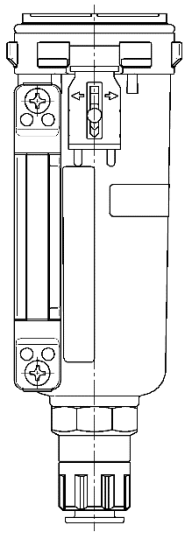
Note 1) Minimum operating pressure is 0.1MPa.
Note 2) Part No. ④ includes Bowl seal ③. Refer to [12. Disassembly Drawing] (P34).
Note 3) “Z” in Part No. ④ indicates standard specifications. The pressure unit: psi. The temperature unit: ºF.
Note 4) Refer to [4. How to Order] (P12) for option and semi-standard symbols.

6-2. Bowl assembly / auto drain for AFF,AM,AMD,AMH30

<table>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>J</td><td>6J</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-6(Z)-D</td></tr></table>  </td><td colspan="2">Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-J-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SFN-J(Z)-D</td></tr></table>Semi-standard: "6J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td>C3SF-6J-D</td></tr><tr><td>G</td><td>C3SFF-6J-D</td></tr><tr><td>NPT</td><td>C3SFN-6J(Z)-D</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2" rowspan="3"></td></tr>
<tr><td>Semi-standard symbol</td><td>W</td><td>6W</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "W"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-W-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-W(Z)-D</td></tr></table>Semi-standard: "6W"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-6W-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-6W(Z)-D</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="2">2</td><td colspan="2">2J</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-2-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SF-W(Z)-A</td></tr></table>  </td><td colspan="2">Semi-standard: "2J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3SF-2J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3SFN-2J(Z)-A</td></tr></table>  </td></tr>
</table>

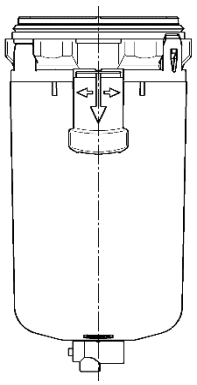
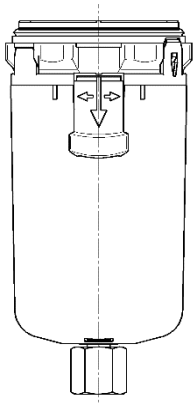
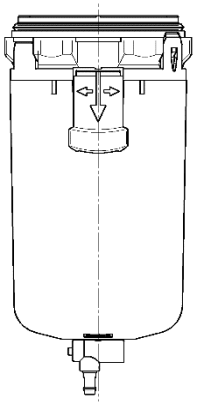
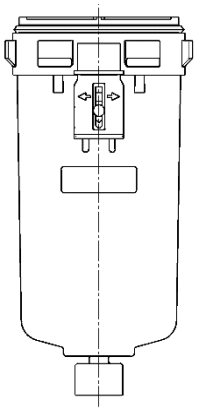
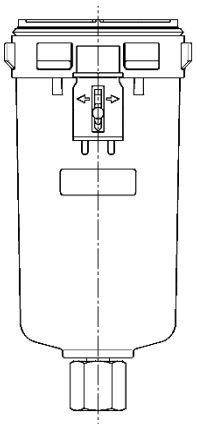
<table>
<tr><td>Option symbol</td><td>-</td><td>-</td></tr>
<tr><td>Semi-standard symbol</td><td>8</td><td>8J</td></tr>
<tr><td>Appearance and part No.</td><td>Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3LF-8-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3LF-8(Z)-A</td></tr></table>  </td><td>Semi-standard: "8J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C3LF-8J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C3LFN-8J(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">C Note 1)</td><td>C Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>2</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD37-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD37N(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD37-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD37N-6(Z)-D</td></tr></table>  </td><td>Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">C Note 1)</td><td rowspan="3"></td></tr>
<tr><td>Semi-standard symbol</td><td colspan="2">8</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>  </td></tr>
</table>

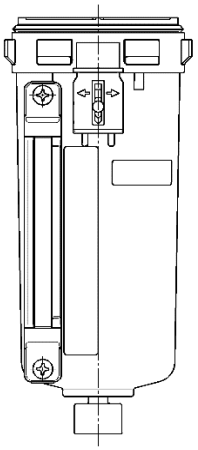
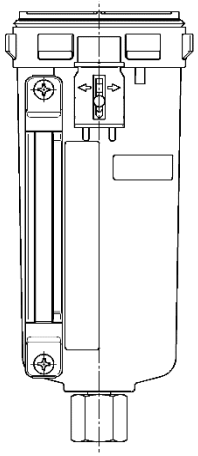
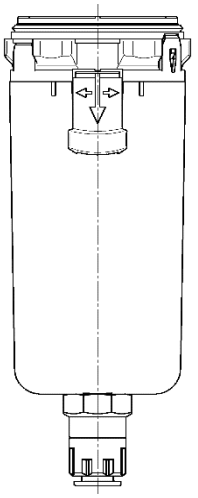
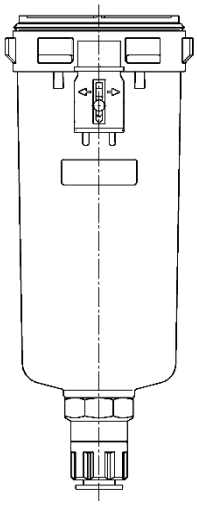
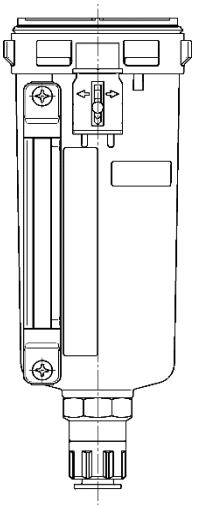
Note 1) Minimum operating pressure is 0.15MPa.
Note 2) Part No. ④ includes Bowl seal ③. Refer to [12. Disassembly Drawing] (P34).
Note 3) “Z” in Part No. ④ indicates standard specifications. The pressure unit: psi. The temperature unit: °F.
Note 4) Refer to [4. How to Order] (P12) for option and semi-standard symbols.

<table>
<tr><td>Option symbol</td><td colspan="2">D Note 1)</td><td>D Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>2</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD38-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD38N(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD38-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD38N-6(Z)-D</td></tr></table>  </td><td>Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>  </td></tr>
<tr><td>Option symbol</td><td colspan="3">D Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="3">8</td></tr>
<tr><td>Appearance and part No.</td><td colspan="3">Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part 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>  </td></tr>
</table>

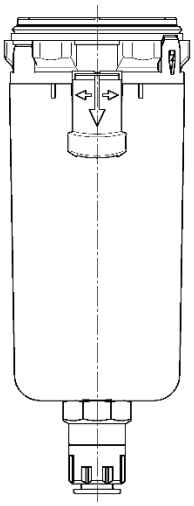
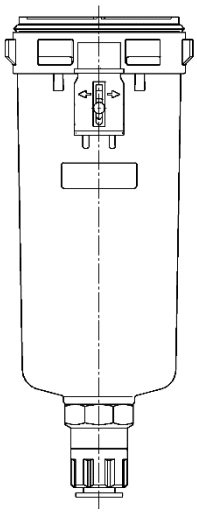
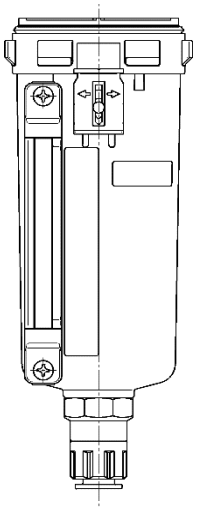
Note 1) Minimum operating pressure is 0.1MPa.
Note 2) Part No. ④ includes Bowl seal ③. Refer to [12. Disassembly Drawing] (P34).
Note 3) “Z” in Part No. ④ indicates standard specifications. The pressure unit: psi. The temperature unit: ºF.
Note 4) Refer to [4. How to Order] (P12) for option and semi-standard symbols.

6-3. Bowl assembly / auto drain for AFF,AM,AMD,AMH40

<table>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>J</td><td>6J</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SF(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SF-6(Z)-D</td></tr></table>  </td><td colspan="2">Semi-standard: "J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-J-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SFN-J(Z)-D</td></tr></table>Semi-standard: "6J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td>C4SF-6J-D</td></tr><tr><td>G</td><td>C4SFF-6J-D</td></tr><tr><td>NPT</td><td>C4SFN-6J(Z)-D</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2" rowspan="3"></td></tr>
<tr><td>Semi-standard symbol</td><td>W</td><td>6W</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "W"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-W-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SF-W(Z)-D</td></tr></table>Semi-standard: "6W"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-6W-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SF-6W(Z)-D</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">-</td><td colspan="2">-</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="2">2</td><td colspan="2">2J</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></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></table>  </td><td colspan="2">Semi-standard: "2J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4SF-2J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4SFN-2J(Z)-A</td></tr></table>  </td></tr>
</table>

<table>
<tr><td>Option symbol</td><td>-</td><td>-</td></tr>
<tr><td>Semi-standard symbol</td><td>8</td><td>8J</td></tr>
<tr><td>Appearance and part No.</td><td>Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4LF-8-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4LF-8(Z)-A</td></tr></table>  </td><td>Semi-standard: "8J"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">C4LF-8J-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>C4LFN-8J(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">C Note 1)</td><td>C Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>2</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD47-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD47N(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD47-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD47N-6(Z)-D</td></tr></table>  </td><td>Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD47-2-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD47N-2(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="2">C Note 1)</td><td rowspan="3"></td></tr>
<tr><td>Semi-standard symbol</td><td colspan="2">8</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD47-8-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD47N-8(Z)-A</td></tr></table>  </td></tr>
</table>

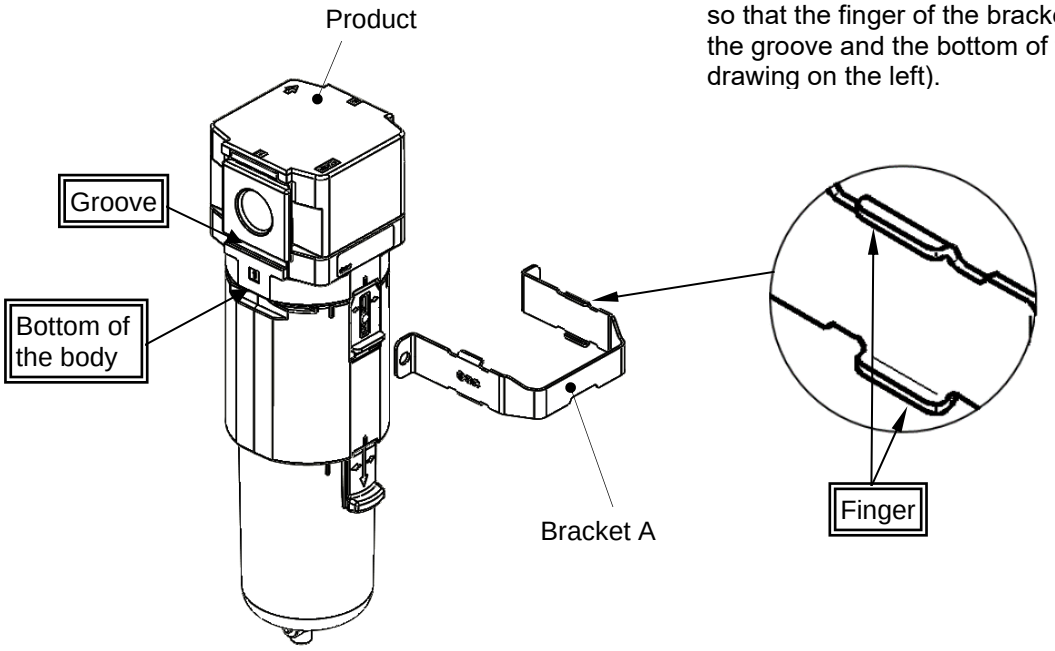
Note 1) Minimum operating pressure is 0.15MPa.
Note 2) Part No. ④ includes Bowl seal ③. Refer to [12. Disassembly Drawing] (P34).
Note 3) “Z” in Part No. ④ indicates standard specifications. The pressure unit: psi. The temperature unit: ºF.
Note 4) Refer to [4. How to Order] (P12) for option and semi-standard symbols.

<table>
<tr><td>Option symbol</td><td colspan="2">D Note 1)</td><td>D Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td>-</td><td>6</td><td>2</td></tr>
<tr><td>Appearance and part No.</td><td colspan="2">Semi-standard: "-"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD48-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD48N(-Z)-D</td></tr></table>Semi-standard: "6"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD48-6-D</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD48N-6(Z)-D</td></tr></table>  </td><td>Semi-standard: "2"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD48-2-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD48N-2(Z)-A</td></tr></table>  </td></tr>
<tr><td>Option symbol</td><td colspan="3">D Note 1)</td></tr>
<tr><td>Semi-standard symbol</td><td colspan="3">8</td></tr>
<tr><td>Appearance and part No.</td><td colspan="3">Semi-standard: "8"
（Standard）
<table><tr><td>Port thread type</td><td>④ Part No.</td></tr><tr><td>Rc</td><td rowspan="2">AD48-8-A</td></tr><tr><td>G</td></tr><tr><td>NPT</td><td>AD48N-8(Z)-A</td></tr></table>  </td></tr>
</table>

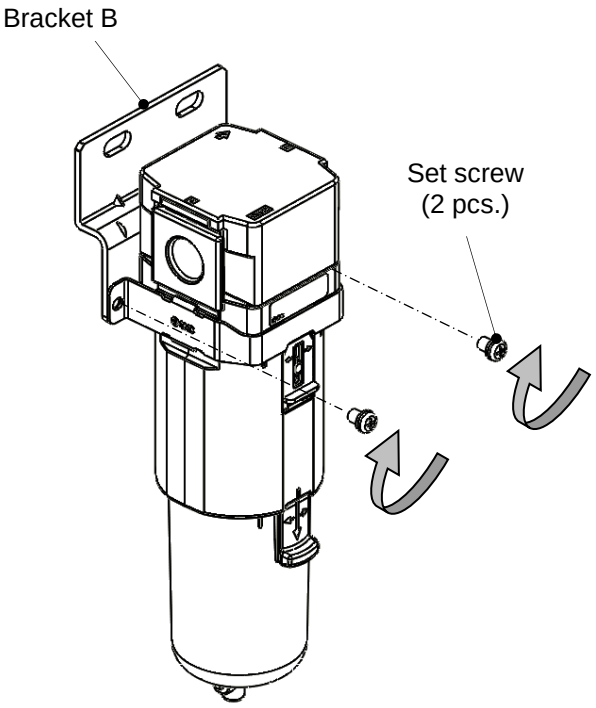
Note 1) Minimum operating pressure is 0.1MPa.
Note 2) Part No. ④ includes Bowl seal ③. Refer to [12. Disassembly Drawing] (P34).
Note 3) “Z” in Part No. ④ indicates standard specifications. The pressure unit: psi. The temperature unit: ºF.
Note 4) Refer to [4. How to Order] (P12) for option and semi-standard symbols.

7. Assembly of Optional parts

Bracket



1) Mounting of bracket A
Insert bracket A from the front side of the product so that the finger of the bracket A engages with the groove and the bottom of the body (see drawing on the left).



2) Mounting of bracket B
Fix the bracket B with the set screw (2pcs.) included in the package. Refer to the table below for the tightening torque.

Model No.	Tools	Tightening torque
AFF,AM,AMD20	Phillips screwdriver(+)	0. 75+/-0. 2 N・m
AFF,AM,AMD,AMH30		
AFF,AM,AMD,AMH40		

8. Auto Switch Specifications

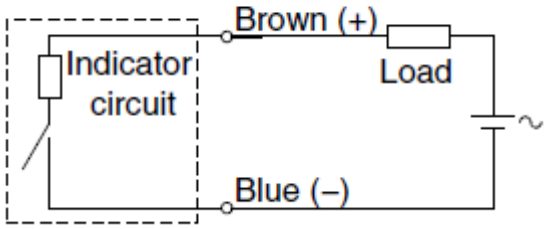
Auto switch model	D-A93VL			
Auto switch specifications	Applicable load		Relay, PLC	
	Load voltage		24VDC	100VAC
	Load current range and Max load current *2		5 to 40mA *3	5 to 20mA
	Internal circuit		∗1	
	Contact protection circuit		None	
	Internal voltage drop		2.7V or less	
	Indicator light		Red LED illuminates when turned ON.	
	Standard		CE/UKCA marking	
	Leakage current		None	
	Operating time		1.2ms	
	Impact resistance		300m/s^2	
	Insulation resistance		50MΩ or more at 500VDC Mega	
	Withstand voltage		1000VAC for 1min	
	Lead wire length		3m	
	Weight		30g	
	Ambient temperature		−10 to 60°C	
	Enclosure		IEC 60529 standard IP67	
Oilproof heavy-duty lead wire specifications	Sheath	Outside diameter	Φ2.7mm	
	Insulator	Number of cores	2 cores (Brown, Blue)	
		Outside diameter	Φ0.96mm	
	Conductor	Effective area	0.18mm^2	
		Strand diameter	Φ0.08mm	
	Lead wire min bending radius		17mm	

∗1 Refer to the following circuit diagram for the internal circuit.

∗2 Under 5mA, the strength of the indicator light is poor. In some cases, visibility of the indicator light will not be possible when the output signal is less than 2.5mA. However, there is no problem in terms of contact output when the output signal exceeds 1mA.

∗3 When using at 12VDC, the auto switch operates normally, but the load may not operate depending on the specifications of the load. For details, refer to the description of the internal voltage drop of the auto switch in the Reed Auto Switch/Common Precautions section in the Web Catalog.

2-wire (Reed switch)

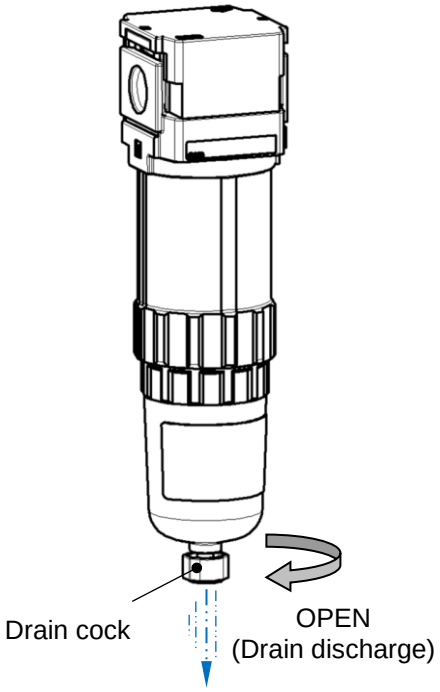


9. Operation and Adjustment

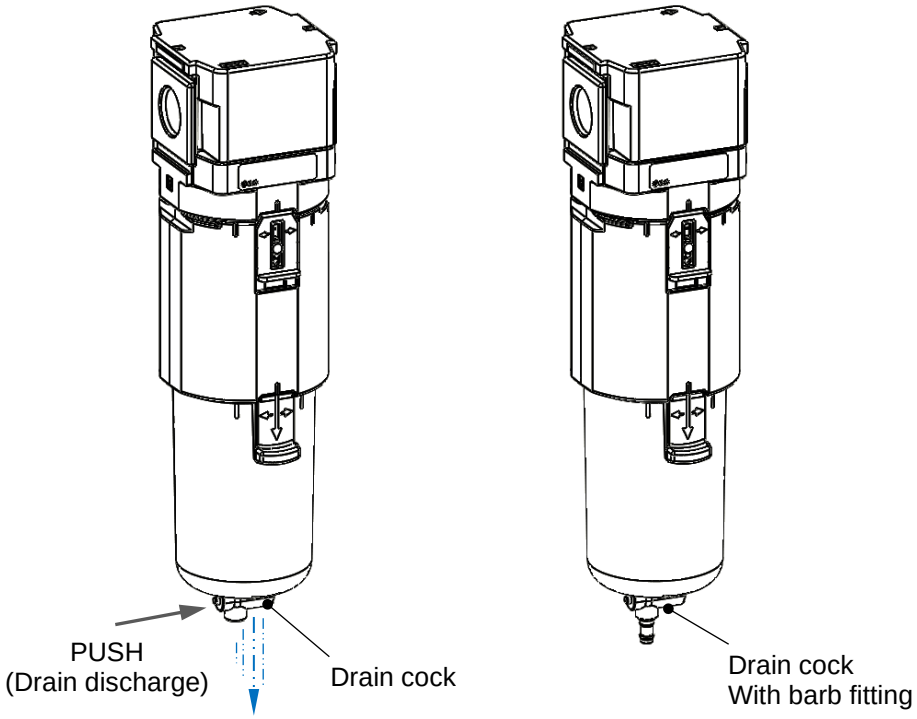
9-1. Discharging the product with drain cock

- Pressurize the inside of the air filter when discharging drain. Drain will not be discharged properly if not pressurized.
- Drain discharge mechanism is different depending on the bowl assembly. Check the bowl assembly and discharge the drain following the method below.
  Rotation type: After discharging the drain, tighten the drain cock to the opposite direction by hand until the seal inside seals correctly.
  Use of a tool can damage the product.

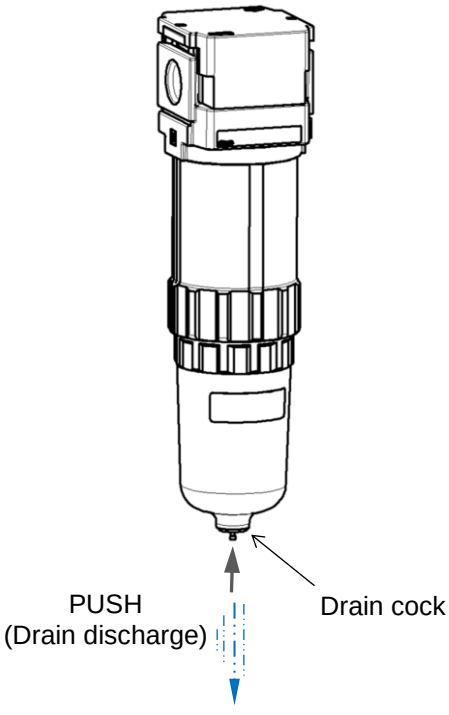
AFF,AM,AMD20:
Drain cock (rotation type)
(Polycarbonate bowl / Nylon bowl)



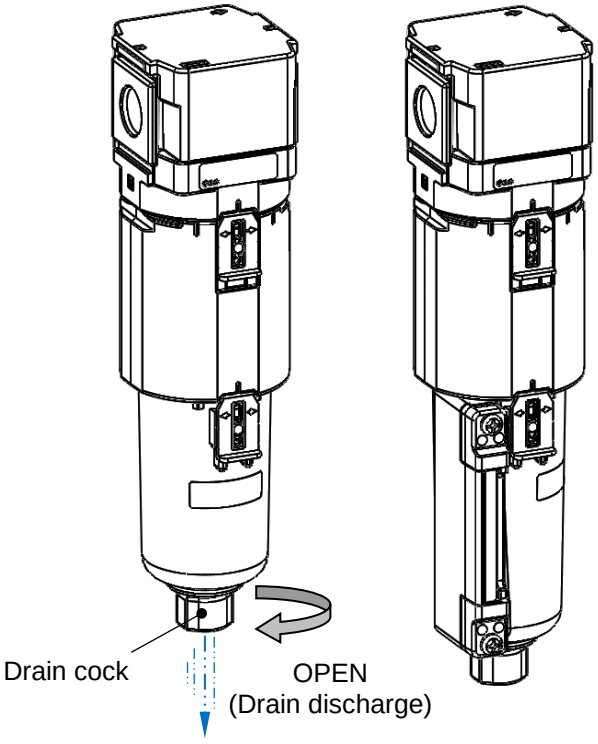
AFF,AM,AMD,AMH30 / AFF,AM,AMD40,AMH40:
With drain cock and barb fitting (push type)
(Polycarbonate bowl / Nylon bowl)



AFF,AM,AMD20:
With drain cock (push type)
(Metal bowl)



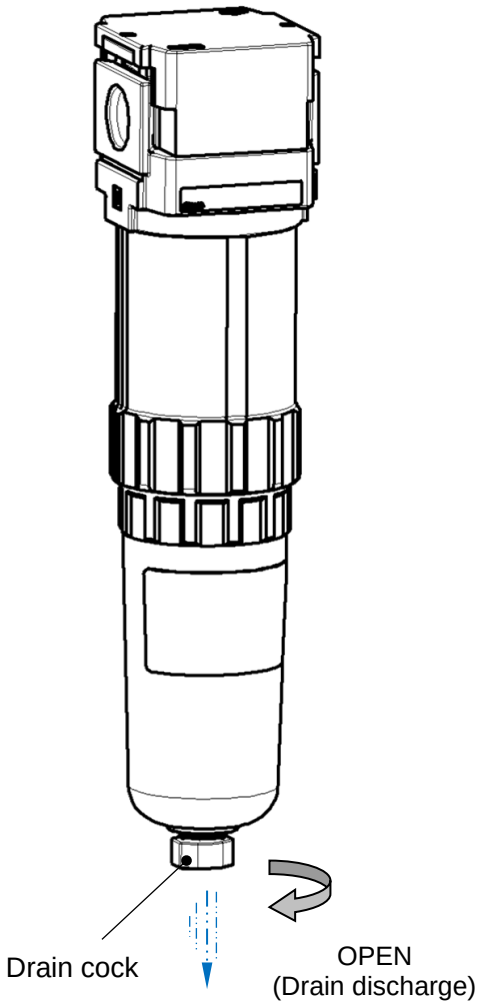
AFF,AM,AMD,AMH30 / AFF,AM,AMD40,AMH40:
Drain cock (rotation type)
(Metal bowl / metal bowl with level gauge)



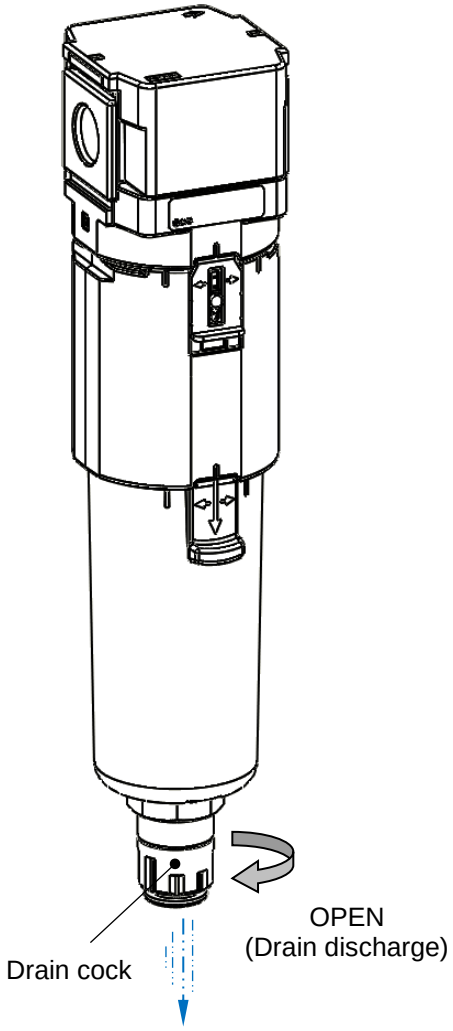
9-2. Manual drain discharge of the auto drain

- Pressurize the inside of the air filter when discharging drain. Drain will not be discharged properly if not pressurized.
- To discharge the auto drain manually, follow the procedure below. After discharging the drain, rotate the cock to the opposite direction by hand to close the drain valve. Use of a tool can damage the product.

AFF,AM,AMD20: Auto drain



AFF,AM,AMD,AMH30 / AFF,AM,AMD,AMH40: Auto drain



10. Troubleshooting

Refer to [11. Replacement work procedure] (P27 to 33) and [12. Disassembly Drawing] (P34).

Problem		Possible causes	Countermeasure	Page for reference
Category	Failure			
Flow rate	As pressure drop is large, fluid does not flow.	1. Clog of the element.	Replace the element.	P27 to 28 P30 to 31
Air leakage	Air leaks between the body and joint.	1. Breakage of joint seal.	Replace the bowl seal.	P27 to 28 P30 to 31
	Air leaks between the joint and the bowl.	1. Breakage of the bowl seal.	Replace the bowl seal.	P29 P32 to 33
	Air leakage from the bowl.	1. Bowl is damaged.	Replace the bowl assembly. (If the solvent is considered to be harmful, replacement to the metal bowl is recommended)	P29 P32 to 33
	Air leakage from the drain cock.	1. Foreign matter caught in the valve of the drain cock.	Open the drain cock for a few seconds for blowing.	P24 to 25
		2. Seating part of the drain cock is damaged.	Replace the bowl assembly.	P29 P32 to 33
	Drainage or air continues blowing out of the drain discharge of the float type auto drain.	1. Low supply pressure	Check the minimum operating pressure of the auto drain.	P14 to 21
		2. The product is not mounted correctly.	Install the drain exhaust so that it will face vertically downward.	-
		3. Foreign matter is caught at the main valve of the auto drain.	Remove the dust by manual drain discharge.	P24 to 25
		4. Main valve of the auto drain is broken.	Replace the bowl assembly.	P29 P32 to 33
		5. Drain piping is long, or I.D. of the piping is small. (Back pressure is applied.)	Be sure to connect the appropriate piping for drain.	P5 to 6
		6. Drain exhaust and bowl seat are broken.	Replace the bowl assembly.	P29 P32 to 33
Operability	Drain is not discharging when the drain cock opens.	1. Blockage of outlet of the drain cock due to solid foreign matter etc.	Replace the bowl assembly.	P29 P32 to 33
	Too much drain comes from the piping of outlet side.	1. Drain level reaches the bottom of the element.	Open the drain cock for draining and replace the element.	P24 to 25 P27 to 28 P30 to 31

Note) Fluorine grease is recommended when applying additional grease.

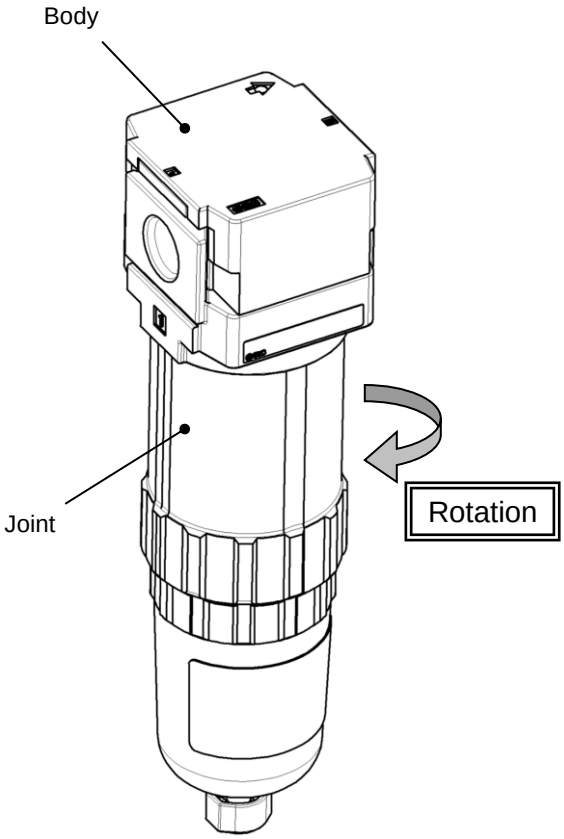
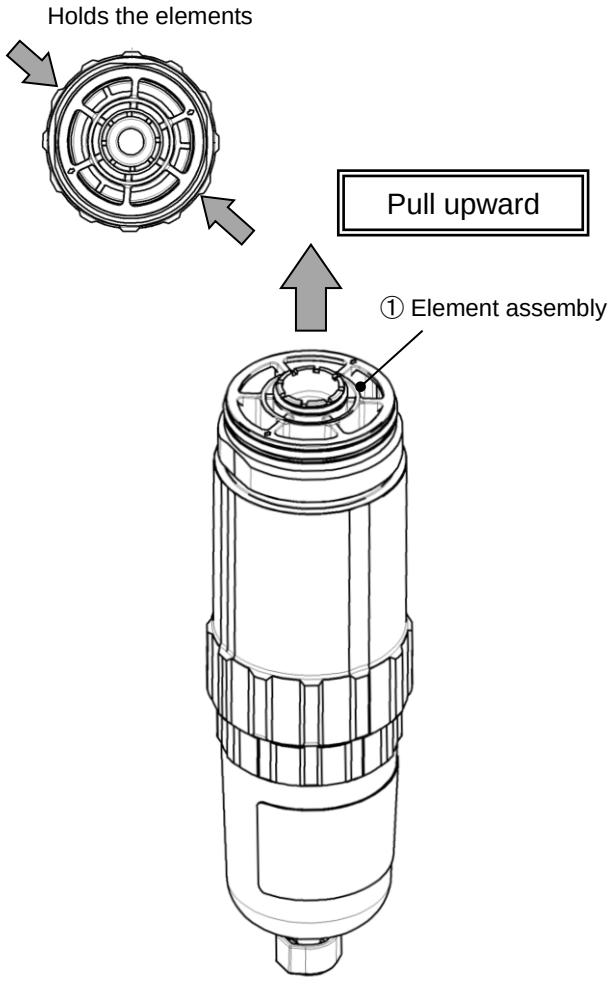
11. How to Replace the Components

⚠ Warning

Before replacement, make sure that no pressure remains in the equipment.
After replacement, confirm that the product satisfies specific functions and no external leakage occurs before operating it.

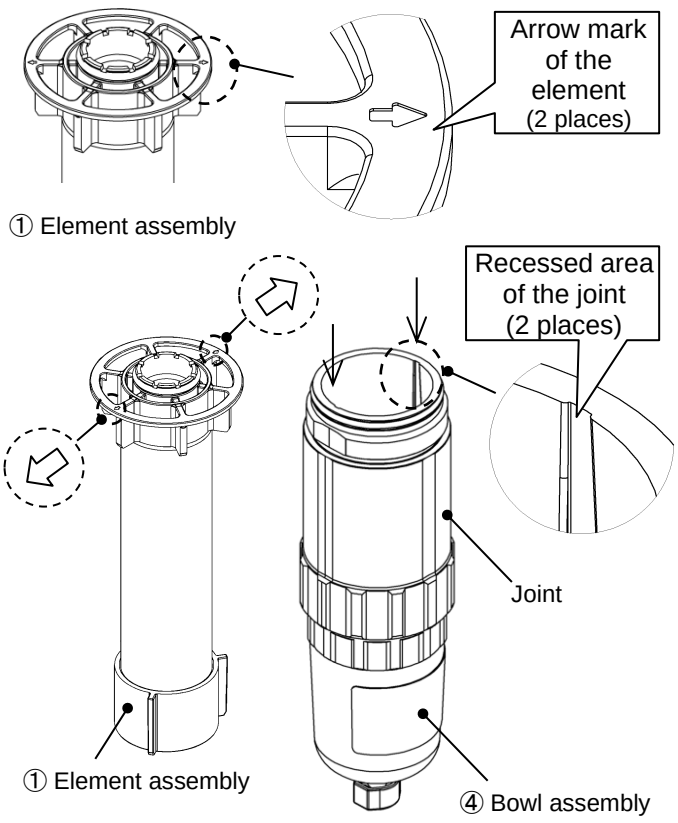
11-1. Element Replacement for AFF,AM,AMD20

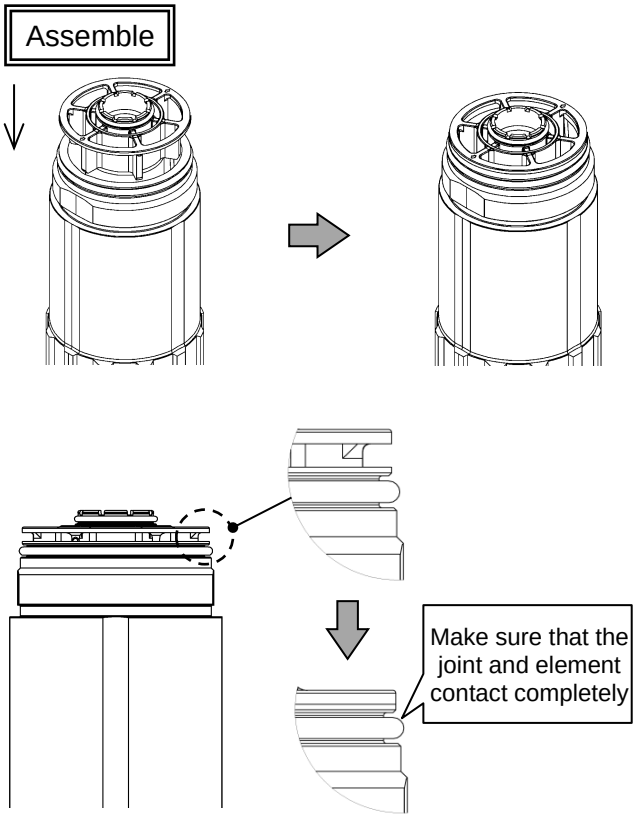
1) Disassembly

Step 1	Step 2
Remove the joint from the product. If the joint is tightened too much to be removed, use a hook spanner until it can be loosened by hand.	Remove the element assembly by the holding part of the element assembly (shown by the arrows below).
	

2) Assembly

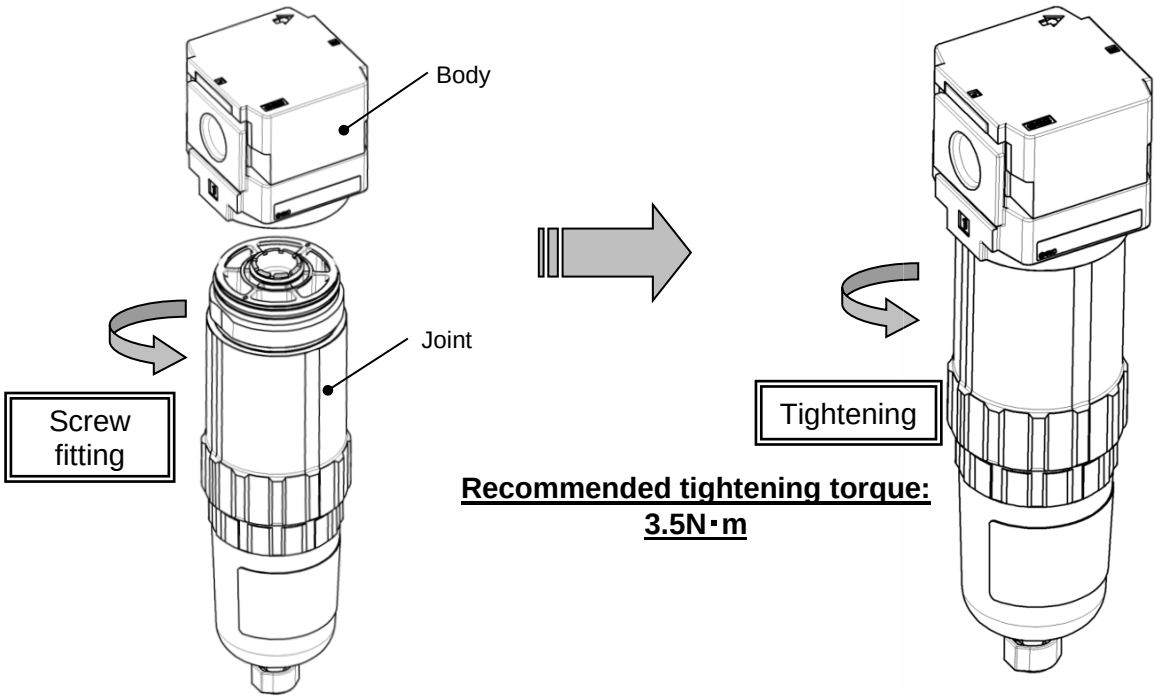
Step 1	Step 2
Aligh 2 arrow marks and 2 recessed areas of the joint.	Press the element downward until the element and joint come into contact with each other completely. If they are forced to be inserted without aligning, the element will break.





Step 3

Screw the bowl assembly into the product.
Tighten it referring to the specified torque below.



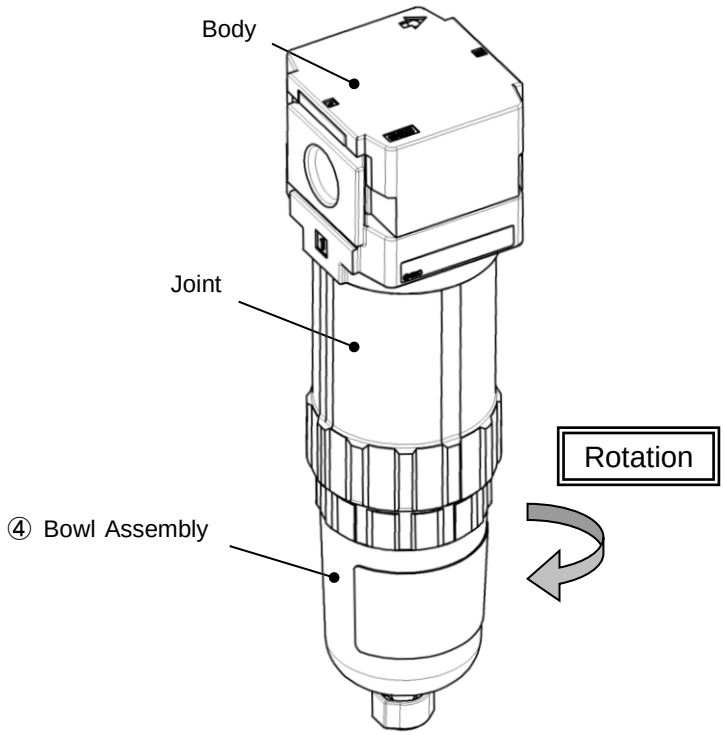
Recommended tightening torque:
3.5N･m

11-2. Bowl Assembly Replacement for AFF,AM,AMD20

1) Disassembly

Step 1

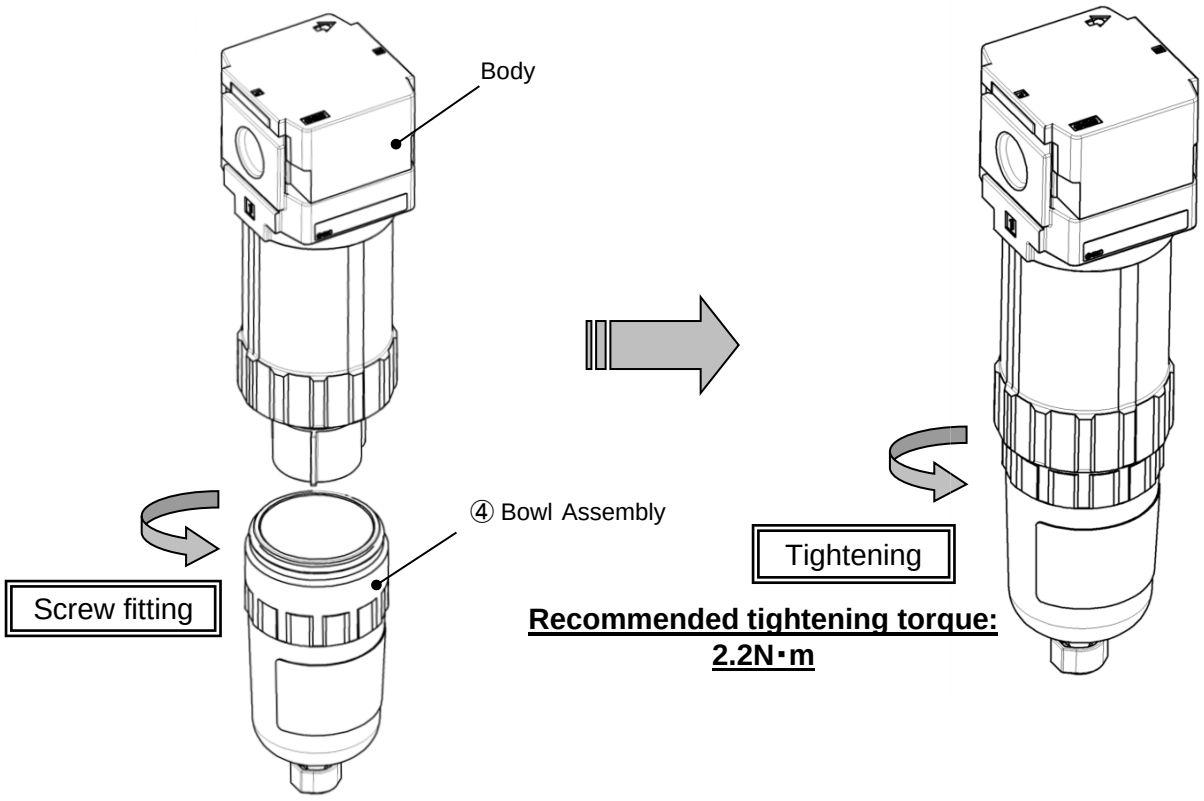
Remove the bowl assembly from the product.
If the bowl assembly is tightened too much to be removed, use a hook spanner until it can be loosened by hand.



2) Assembly

Step 2

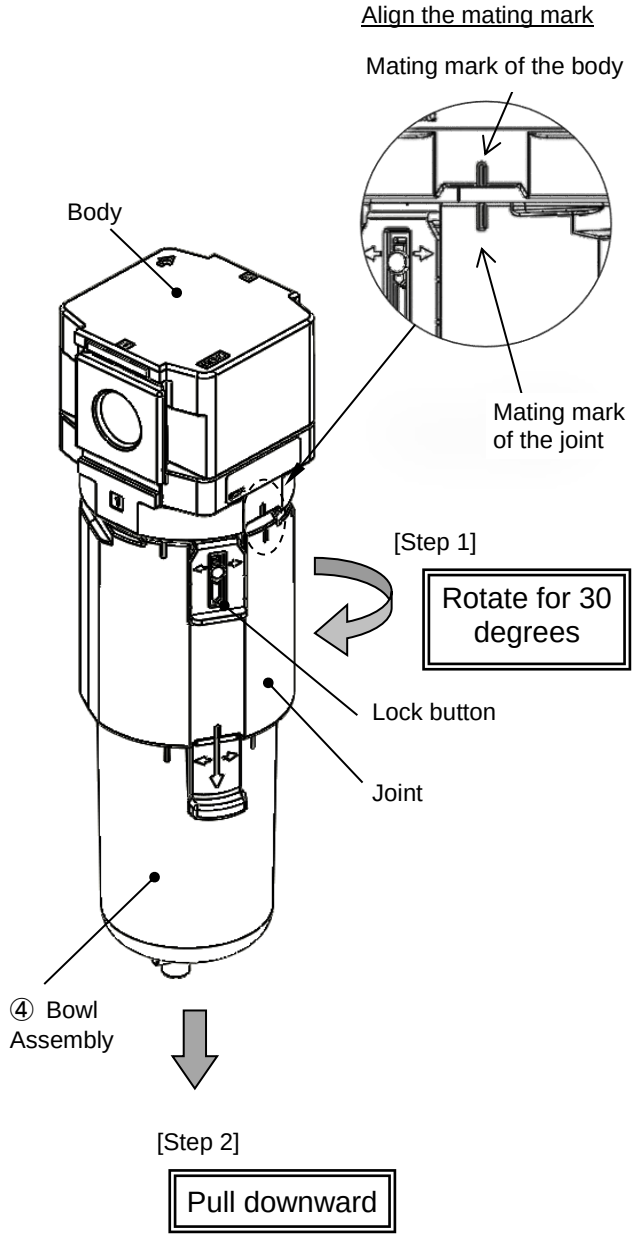
Screw the bowl assembly into the product.
Tighten it referring to the specified torque below.

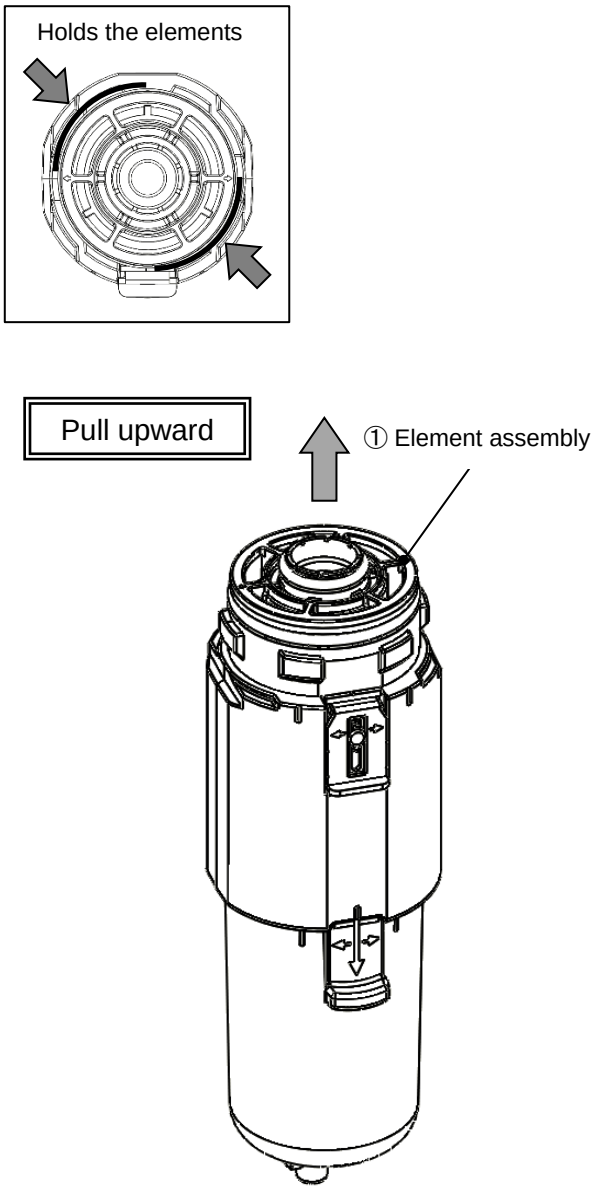


11-3. Element Replacement for AFF,AM,AMD,AMH30 / AFF,AM,AMD,AMH40

1) Disassembly

Step 1	Step 2
To remove the joint from the body, rotate for approx. 30 degrees with the lock button held down. Align the mating mark of the body and joint and pull down the bowl assembly to remove it.	Hold the element as shown below and pull upward to remove the element assembly.

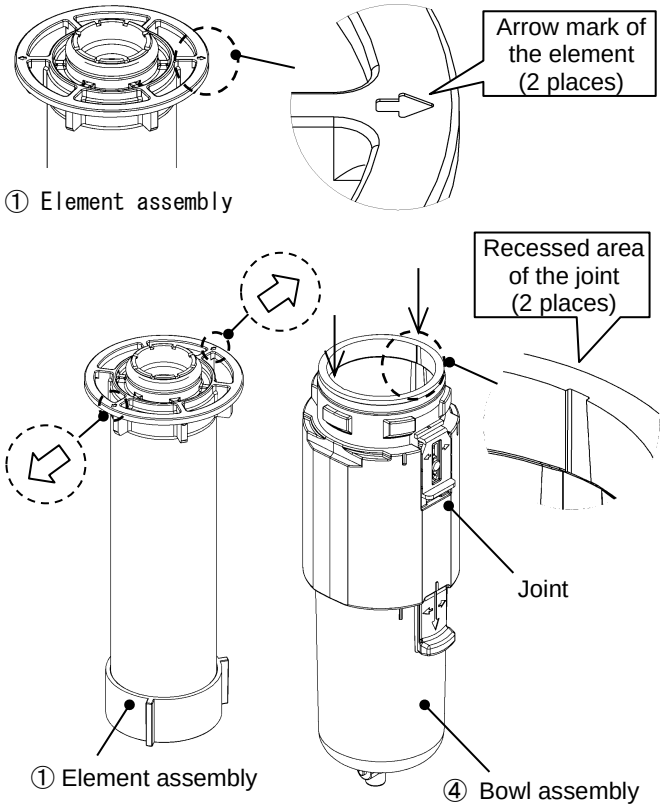




2) Assembly

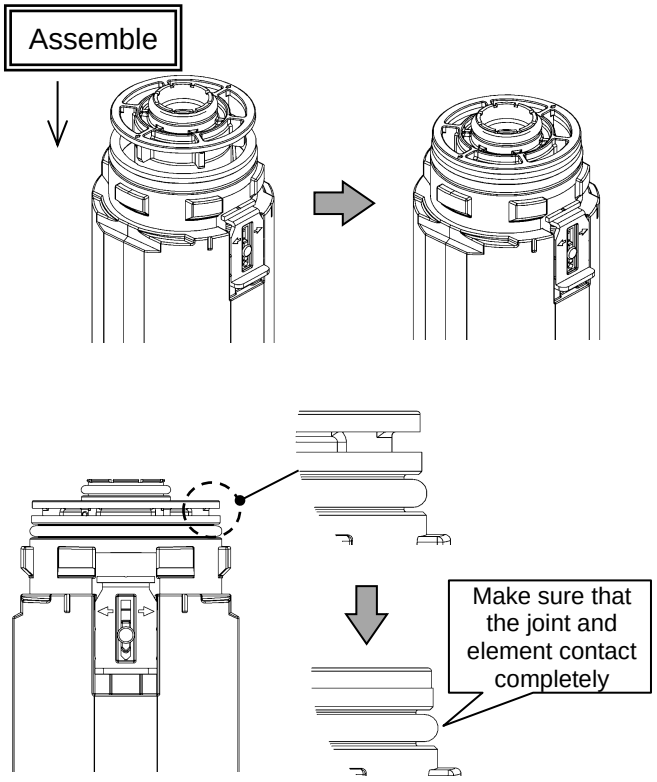
Step 1

Aligh 2 arrow marks and 2 recessed areas of the joint.



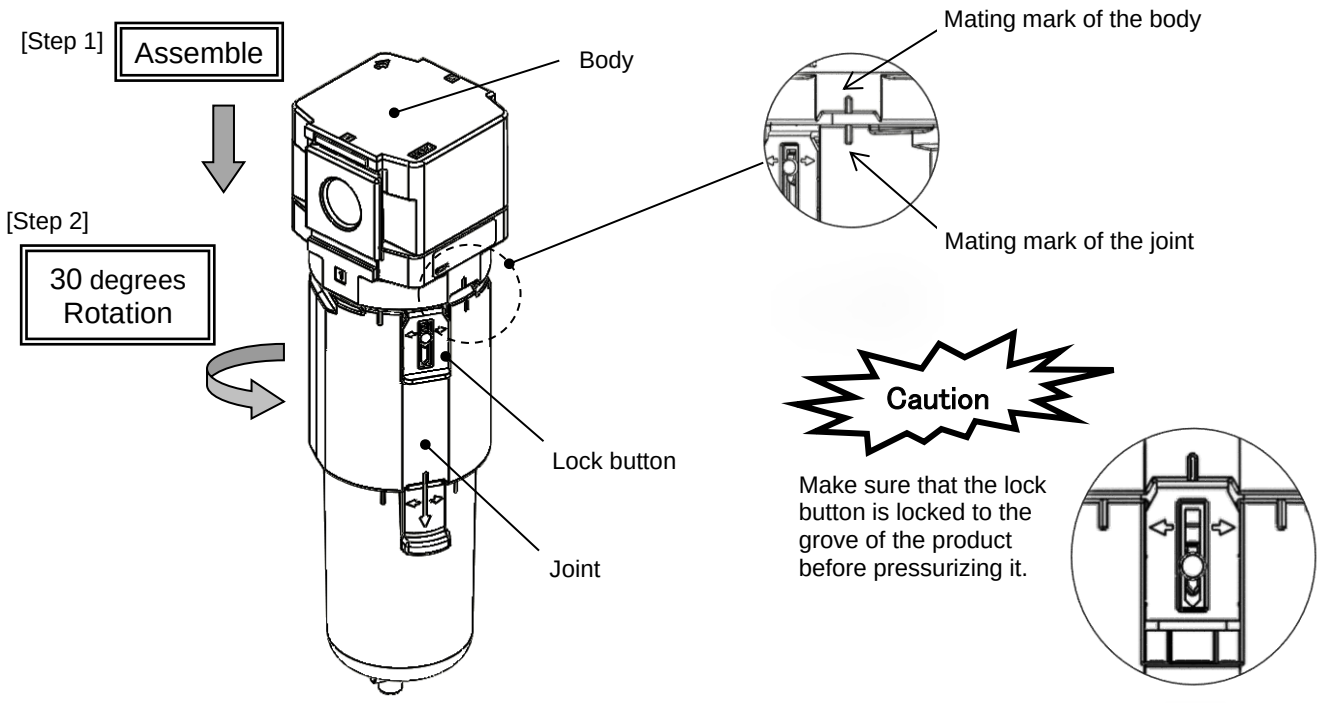
Step 2

Press the element downward until the element and joint come into contact with each other completely. If they are forced to be inserted without aligning, the element will break.



Step 3

While the lock button is held down, mount the body and joint where their marks meet. Rotate the joint until the lock button meets the body groove (approx. 30 degrees).

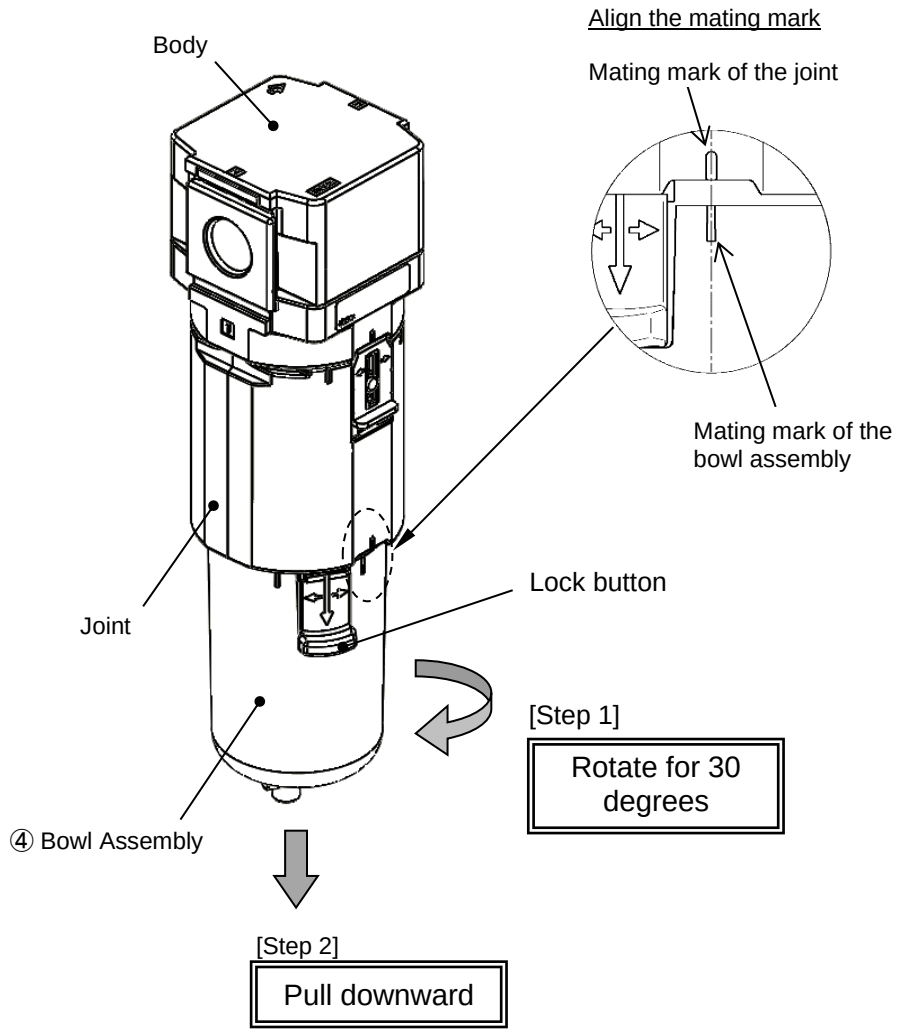


11-4. Bowl Assembly Replacement for AFF,AM,AMD,AMH30 / AFF,AM,AMD,AMH40

1) Disassembly

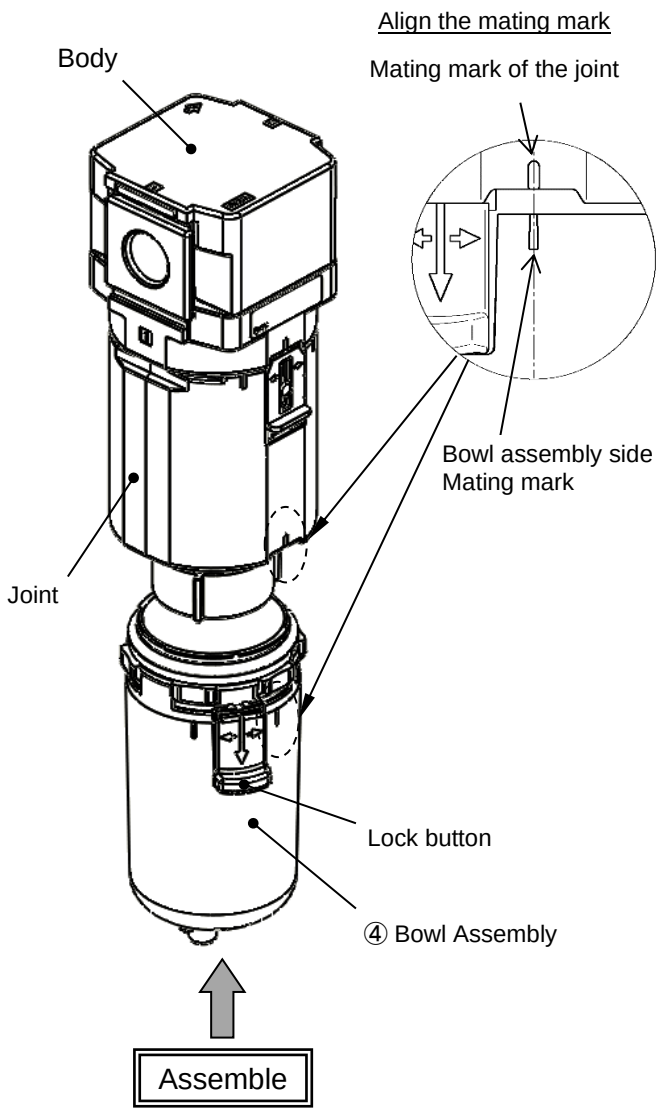
Step 1

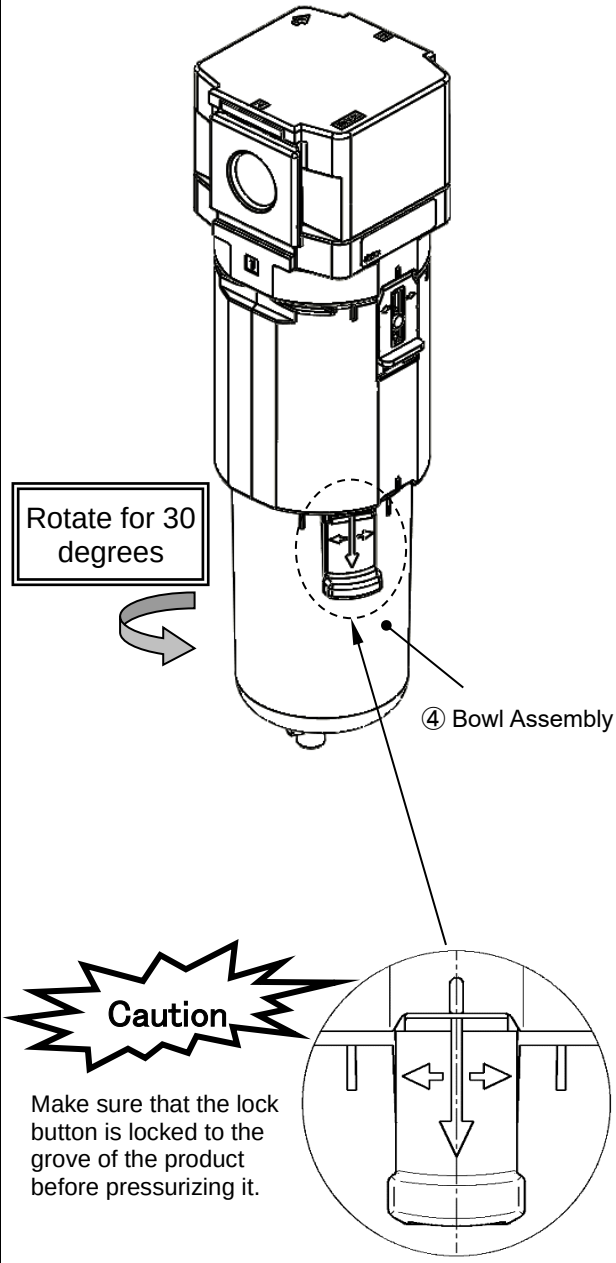
To remove the bowl assembly from the product, rotate for approx. 30 degrees while the lock button is held down. Align the mating mark of the joint and bowl assembly and pull the bowl assembly down to remove it.



2) Assembly

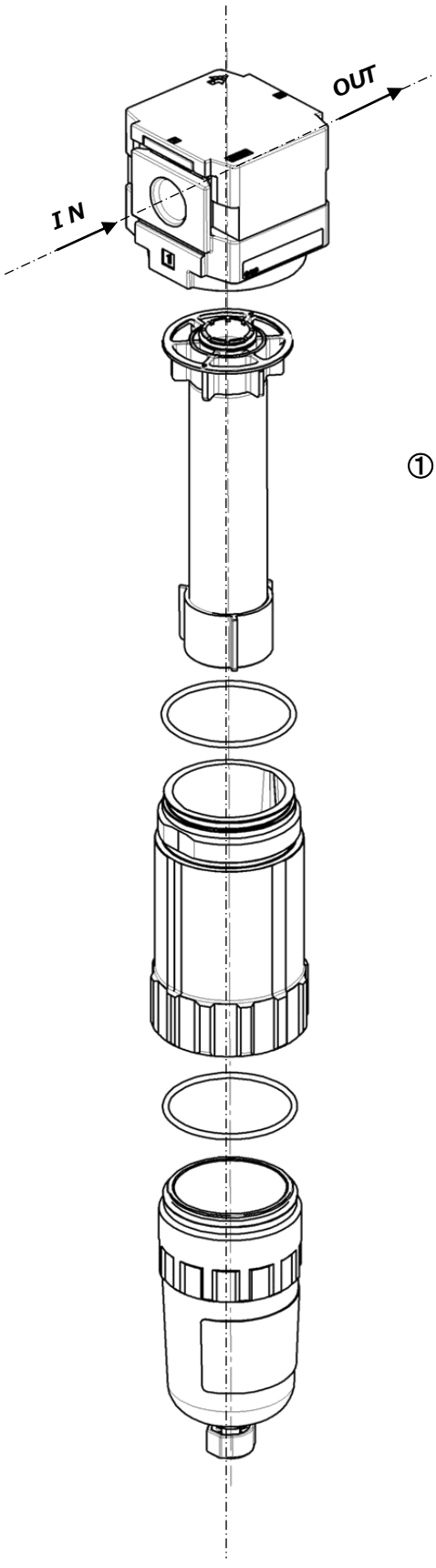
Step 1	Step 2
Mount the bowl assembly at the position where the mating mark of the joint and bowl assembly meet.	While the lock button is held down, rotate the bowl assembly so that the lock button meets the groove of the joint (approx. 30 degrees).





12. Disassembly Drawing

1) AFF,AM,AMD20



Body

① Element assembly

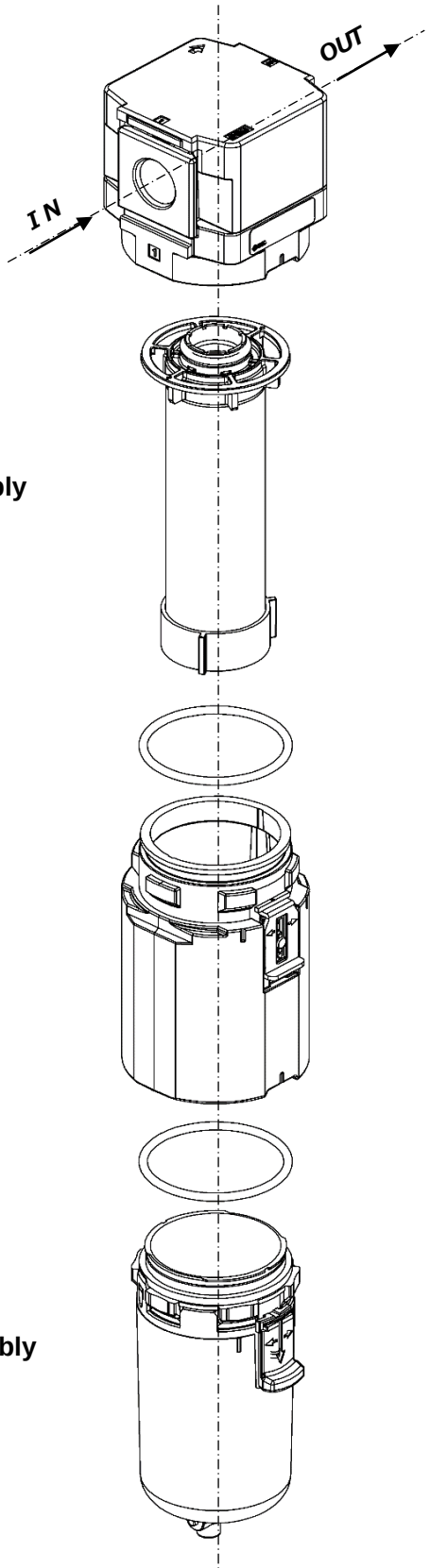
② Bowl seal

Joint

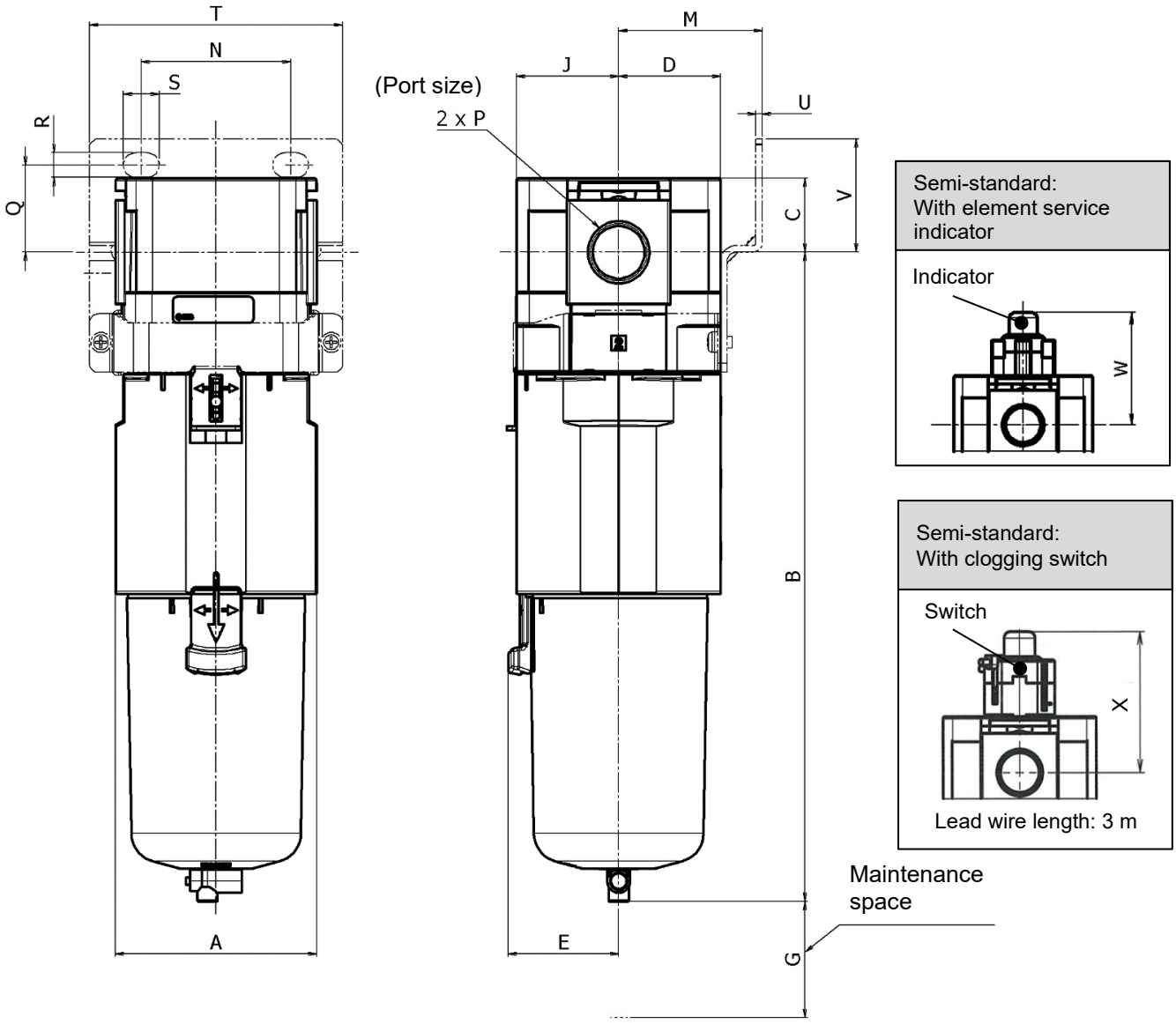
③ Bowl seal

④ Bowl assembly

2) AFF,AM,AMD,AMH30 / AFF,AM,AMD,AMH40



13. Dimensions



Model No.	Standard specifications								Bracket mount								Indicator mount	Switch mount
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	W	X
AFF,AM,AMD20	1/8, 1/4	40	142. 3	17. 5	21	-	25	21	30	27	22	5. 4	8. 4	60	2. 3	28	50. 6	56.6
AFF,AM,AMD,AMH30	1/4, 3/8	53	178. 1	21. 5	26. 5	30	35	26. 5	41	35	25	6. 5	13	71	2. 3	32	54. 3	60.3
AFF,AM,AMD,AMH40	1/4・3/8・1/2	70	223. 5	25. 5	35. 5	38. 4	40	35. 5	50	52	30	8. 5	12. 5	88	2. 3	39	58. 3	64.3

Auto drain / semi-standard bowl

Model No.	drain Auto			Semi-standard specifications					
	PC/PA bowl	Metal bowl	Metal bowl with level gauge	PC/PA bowl		Metal bowl		Metal bowl with level gauge	
				Barb fitting.	With drain guide	With drain cock	With drain guide	With drain cock	With drain guide
	B	B	B	B	B	B	B	B	B
AFF,AM,AMD20	159. 6	159. 4	-	-	146. 1	142. 1	148. 6	-	-
AFF,AM,AMD,AMH30	219. 8	219. 8	219. 8	186. 6	184. 9	180. 6	185. 1	200. 6	205. 1
AFF,AM,AMD,AMH40	263.3	265.1	265.1	232	230. 3	225. 9	230. 4	245. 9	250. 4

Revision history
1st edition: December 2019
Revision: September 2020
Revision: August 2021
Revision: September 2023
Revision: March 2024
Revision: March 2025

SMC Corporation

Tel: + 81 3 5207 8249 Fax: +81 3 5298 5362
URL https://www.smcworld.com