



Operation Manual

PRODUCT NAME

Air Suction Filter

MODEL / Series / Product Number

ZFA Series

ZFA100-*02

ZFA200-*02

SMC Corporation

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Air Suction Filter 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 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.

etc.



Caution

Caution indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.



Warning

Warning indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.



Danger

Danger indicates a hazard with a high level of risk which, if not avoided, will result in death or serious 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. 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.



Air Suction Filter **Safety Instructions**

⚠ Caution

1. 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

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 regulation of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

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

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country.

Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.



ZFA Series / Specific Product Precautions

Be sure to read this before handling the products.

Refer to "Handling Precautions for SMC Products" (M-E03-3) for Safety Instructions

Design

Warning

1. Confirm the specifications.

Products represented in this catalog are designed only for use in compressed air systems (including vacuum).

Do not operate at pressures, temperatures, etc., beyond the range of specifications, as this can cause damage or malfunction. (Refer to the specifications.)

Please contact SMC when using a fluid other than compressed air (including vacuum).

We do not guarantee against any damage if the product is used outside of the specification range.

2. The product may be damaged if used in the line with continuous pressurization.

3. Modification prohibited

Do not make any modifications, including additional machining. It may cause human injury and/or an accident and will void the warranty.

Mounting

Warning

1. Maintenance space

Allow sufficient space for maintenance and inspection.

2. Ensure that chips from the pipe threads or sealing material do not enter the piping.

When a sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the male screw.

Caution

1. When a sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the male screw.

Air Supply

Warning

1. Use clean air.

Do not use compressed air that contains chemicals, synthetic oils that include organic solvents, salt, corrosive gases, etc., as they can cause damage or malfunction.

Operating Environment

Warning

- 1. Do not use in an atmosphere where corrosive gases, chemicals, sea water, water, or water steam is present. Do not use in cases where there is direct contact with any of the above.**
- 2. Do not use in a place subject to heavy vibration and/or impact.**
- 3. Do not use in an environment where flammable gas or explosive gas is present. Usage may cause a fire or explosion. The products do not have an explosion proof construction.**
- 4. The valve should not be exposed to prolonged sunlight. Use a protective cover if necessary.**
- 5. Remove any sources of excessive heat.**
- 6. In locations where there is contact with water, oil, weld spatter, etc., take suitable protective measures.**

Maintenance

Warning

1. Maintenance work

If handled improperly, compressed air can be dangerous.

The assembly, handling, repair, and element replacement of pneumatic systems should be performed by a knowledgeable and experienced person.

2. Removal of equipment and supply/exhaust of compressed air

When components are removed, first confirm that measures are in place to prevent workpieces from dropping, run-away equipment, etc. Then, cut off the supply pressure and electric power, and exhaust all compressed air from the system using the residual pressure release function.

When the equipment is operated after remounting or replacement, confirm that the equipment is operating normally.



ZFA Series / Specific Product Precautions

Be sure to read this before handling the products.

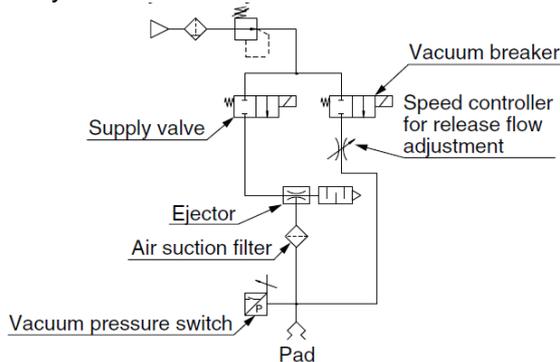
Refer to "Handling Precautions for SMC Products" (M-E03-3) for Safety Instructions

Maintenance

Warning

- 3. The performance of an ejector will deteriorate due to clogged suction filters and silencers.**

High flow filters should be used, especially in dusty locations.



If a filter is required on the release pressure side, a different filter should be prepared.

- 4. When the element becomes clogged, stop operation and adjust the internal pressure of the filter to atmospheric pressure before replacing the element.**

Caution

- 1. When the element comes to the end of its life, immediately replace it with a new filter or replacement element.**
- 2. Timing of element replacement**
Element should be replaced in either of the two cases below.
 - 1) After 1 year of usage has elapsed.
 - 2) When the pressure drop reaches 20 kPa even though the operating period has been less than 1 year.
- 3. During disassembly and assembly, confirm that there are no scratches, damage, etc, to the gasket.**
- 4. Before using, confirm there is no leakage after replacing elements.**

1. Product components and functions

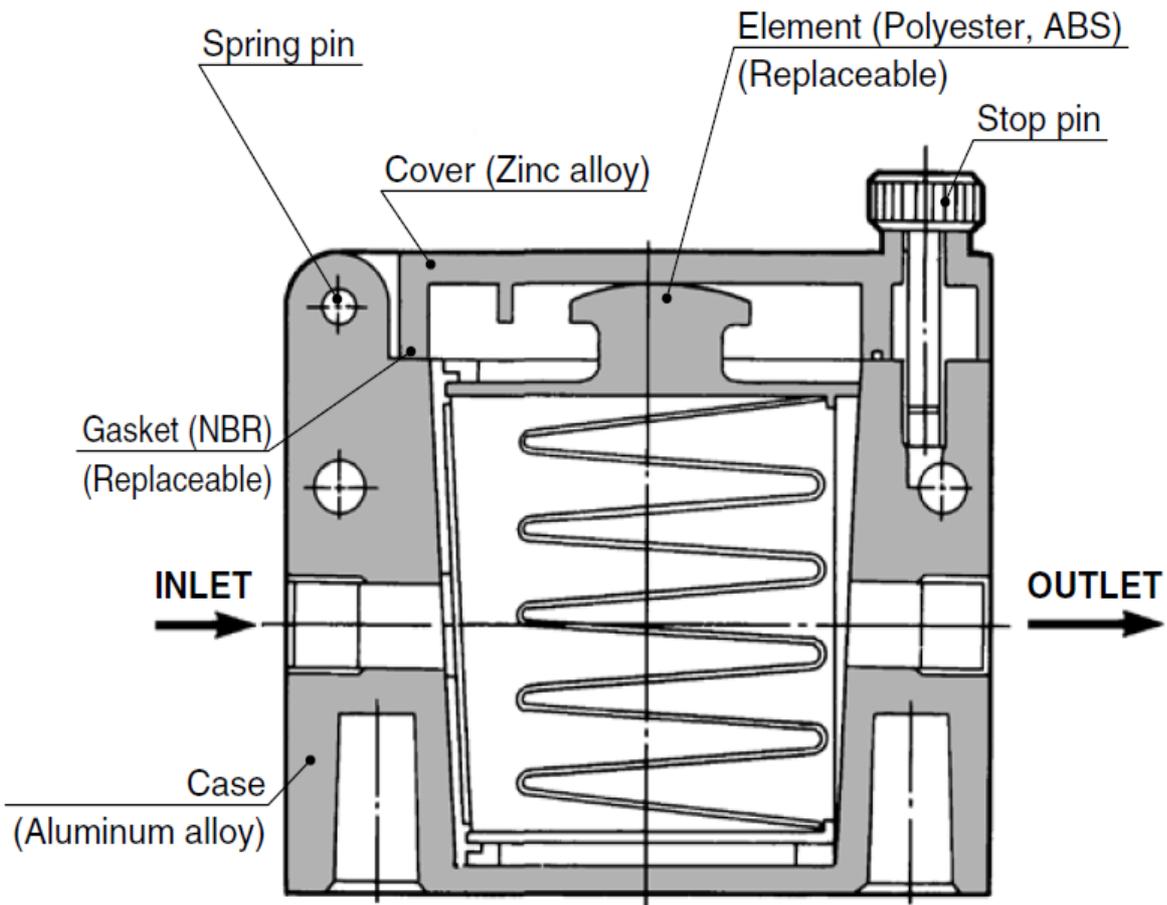
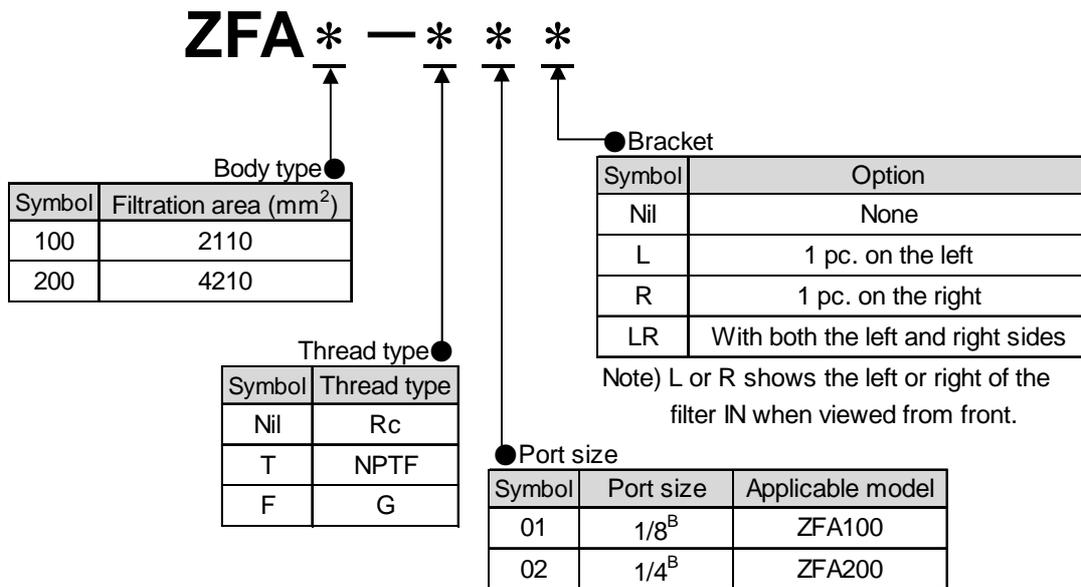


Table 1. Product components and functions

Description	Material	Note
Case	Aluminum alloy	Main body
Cover	Zinc alloy	
Spring pin	Stainless steel alloy	
Element	Polyester ABS	Catches foreign matter. (Replace the element when it is clogged.)
Gasket	NBR	Seals the case and cover.
Stop pin	Carbon steel	Holds the case and cover.

2. Specifications

2-1 How to Order



Bracket Set Part No.

Application		ZFA100	ZFA200	Note
For single unit	One side	BP-1H-1A	BP-1H-2A	With Bolt, Nut, Washer
	Both sides	ZZFA1-01	ZZFA2-01	
For manifold (2 to 10 stations) (Both sides)		ZZFA1-[Stations] ^{Note1)}	ZZFA2-[Stations] ^{Note1)}	

Note 1) Enter a 2-digit number in the stations portion while referring to the example below.

(Example) For 6 stations → 06

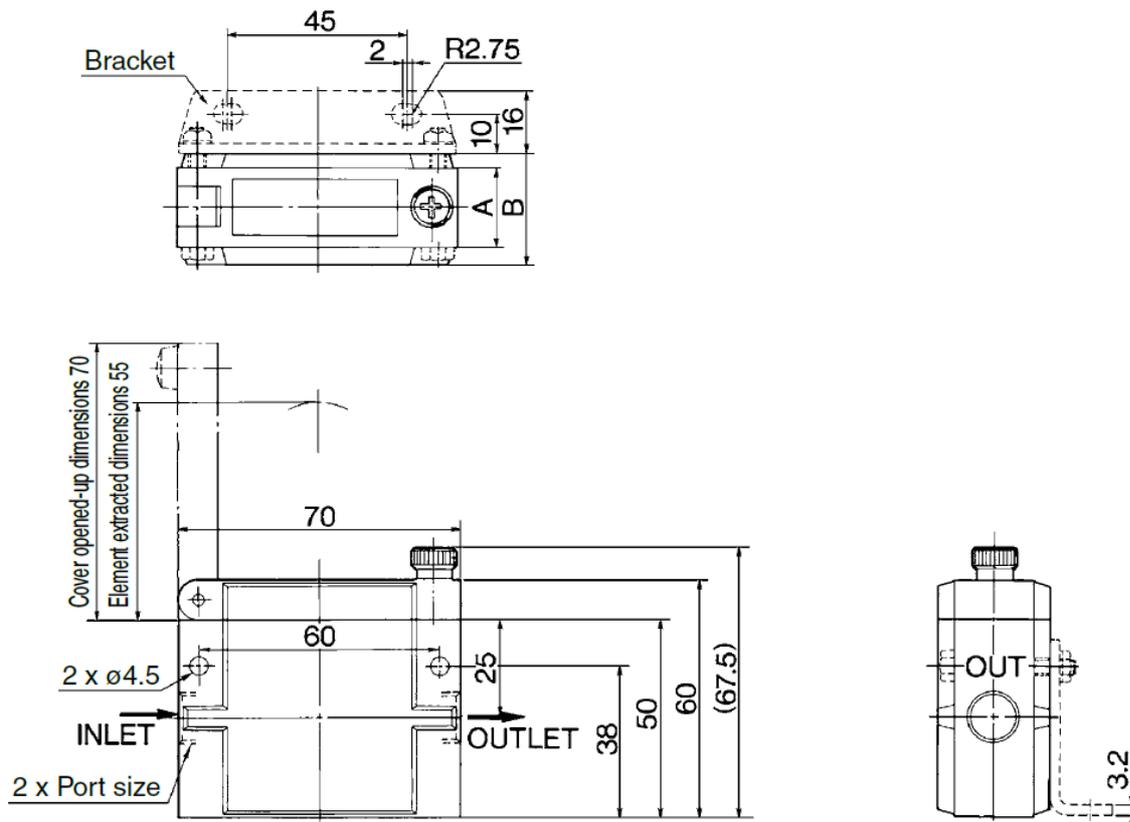
2-2 Specifications

Specifications		Remarks
Fluid	Air, Nitrogen	This product cannot be used in an environment exposed to chemicals. ^{Note)} It may cause damage to the body.
Operating pressure	-100~0kPa	
Vacuum release pressure	MAX.0.5MPa	Pressurised condition cannot be kept. Do not use it in a line that is kept pressurized because it could cause the body to break.
Operating and ambient temperature range	5°C to 60°C	
Filtration	30µm	Filtering efficiency 95%
Element replacement differential pressure	20kPa	

Note) Alcohol, acetone, etc. also cause damage, so be sure for the product not to be close to them.

2-3 Dimensions

1) Single unit

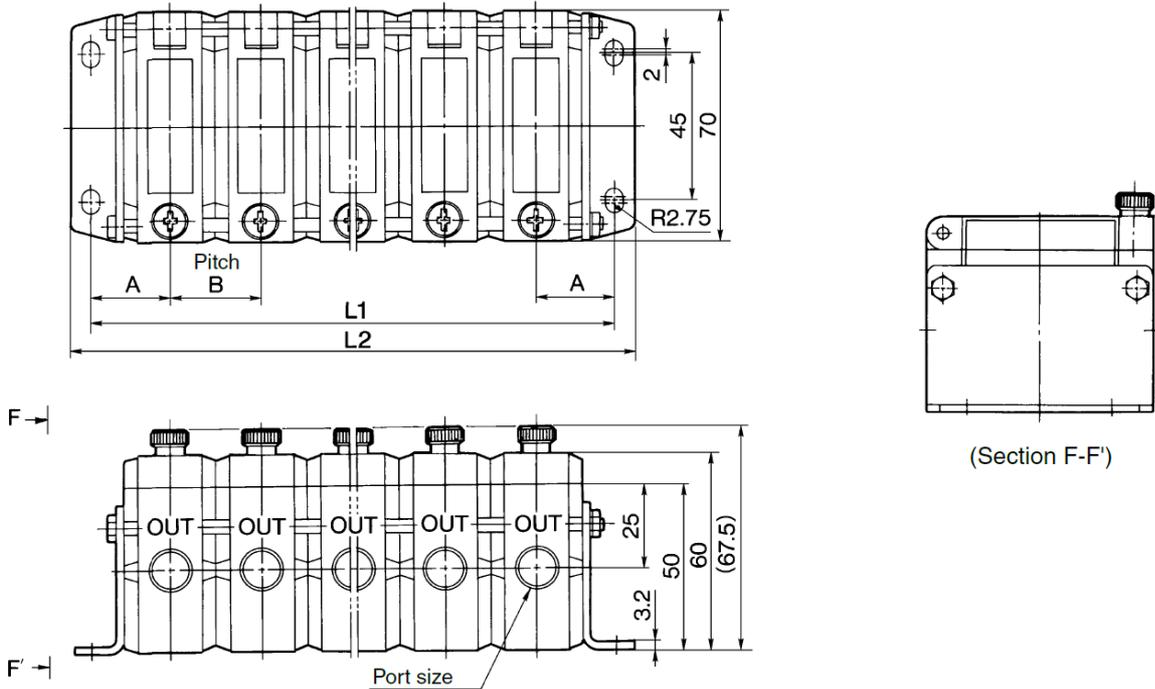


Note) The above diagram is for ZFA200.

The bracket location shows L side.

Model	Symbol	Port size	A	B
ZFA100		1/8	-	18
ZFA200		1/4	20	28

2) Manifold



(The above diagram is for ZFA200)

Model	Symbol	Port size	A	B
ZFA100		1/8	19	18
ZFA200		1/4	24	28

Model	Symbol	Single unit <small>Note)</small>	Number of manifold stations									
			2	3	4	5	6	7	8	9	10	
ZFA100	L1	38	56	74	92	110	128	146	164	182	200	
	L2	50	68	86	104	122	140	158	176	194	212	
ZFA200	L1	48	76	104	132	160	188	216	244	272	300	
	L2	60	88	116	144	172	200	228	256	284	312	

Note) The left and right brackets are mounted on the air suction filter single unit.

3. Mounting

1) Piping

- Flush the piping before connecting the piping
- Confirm the IN and the OUT before piping. The product should not be used with the wrong connection. (IN and OUT direction should be identified by the IN mark indicated on the case.)
- Tighten the product to the recommended torque.
- Confirm that chips from the pipe threads and sealing material do not enter the piping. Also, when sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.

Note) Confirm that there is enough space for maintenance before installing and piping this product.

2) Operation

- Flush the piping line before the starting actual operation when the filter is used for the first time or has been replaced.

4. Element Replacement

The replacement time for elements is when one of the following conditions occurs.

- 1) After 1 year of usage has elapsed.
- 2) When the pressure drop reaches 20 kPa even though the operating period has been less than 1 year.

< Replacement Element Part No. >

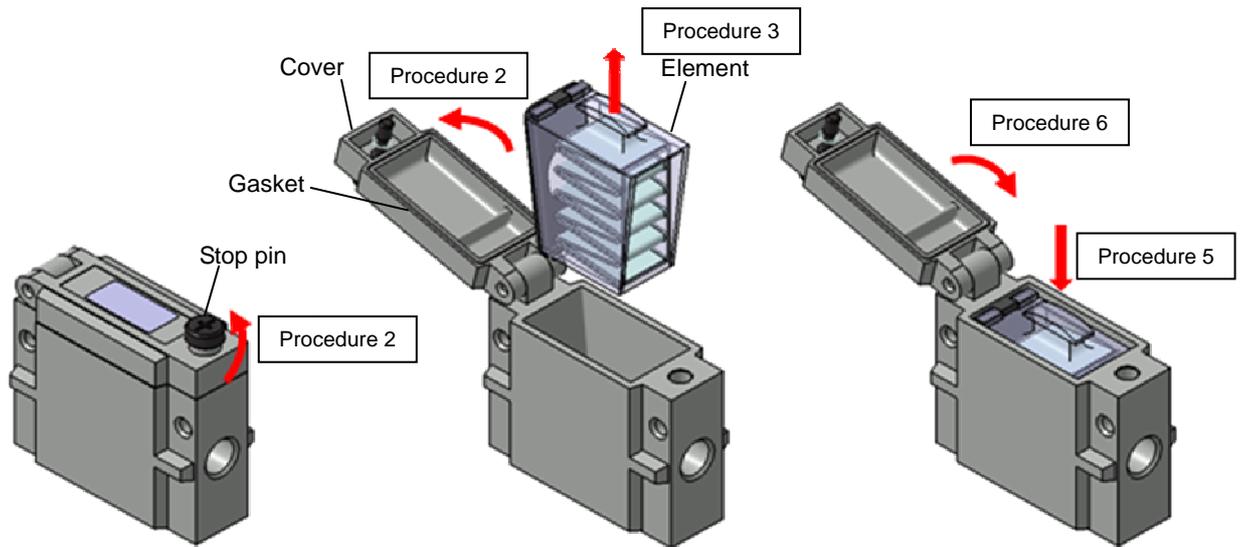
Part No.	Applicable filter model	Element Size	Set description
EJ001H-030N	ZFA100	43 x 42 x 12	Element
EJ101H-030N	ZFA200	43 x 40 x 22	Element

< Replacement Gasket Part No. >

Part No.	Applicable filter model
AL-204H	ZFA100
AL-205H	ZFA200

<Element Replacement >

1. Stop operation and reduce the filter's internal pressure to atmosphere.
 2. Loosen the stop pin and open the cover.
 3. Hold the knob on the top of the element and take it out.
 4. Check the gasket for damage, deformation, or swelling. If any fault is found, replace the gasket with a new one.
 5. Replace the element with a new one in the reverse order.
- Note that the cover cannot be closed if the element is inserted into the case in incorrect orientation.
6. Close the cover and tighten the stop pin firmly. [Tightening torque: $1.2\text{N} \cdot \text{m} \pm 10\%$]
 7. After checking that no leakage is found from each part, start the actual operation.



Revision history

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