



Operation Manual

PRODUCT NAME

Air Suction Filter With One-touch Fittings

MODEL / Series / Product Number

ZFB Series

ZFB10*-*

ZFB20*-*

ZFB30*-*

ZFB401-03

SMC Corporation

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Air Suction Filter With One-touch Fittings 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 With One-touch Fittings 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.



ZFB 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).

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

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. Connect tubing to the IN and OUT

One-touch fittings in accordance with the precautions for Onetouch fittings.

Caution

1. Connect the piping to the correct ports, IN and OUT. This product cannot be used when the connection is reversed.

2. Allow a sufficient margin of tube length when piping in order to prevent twisting, tensile, moment loads, vibration, or impact being applied to the tubes and filter body.

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.



ZFB Series / Specific Product Precautions

Be sure to read this before handling the products.

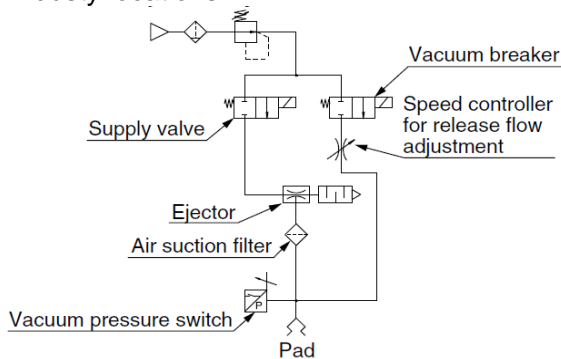
Refer to "Handling Precautions for SMC Products" (M-E03-3) for Safety Instructions

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**
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.
- 3. During disassembly and assembly, confirm that there are no scratches, damage, etc, to the O-ring.**
- 4. Before using, confirm there is no leakage after replacing elements.**

1. Product components and functions

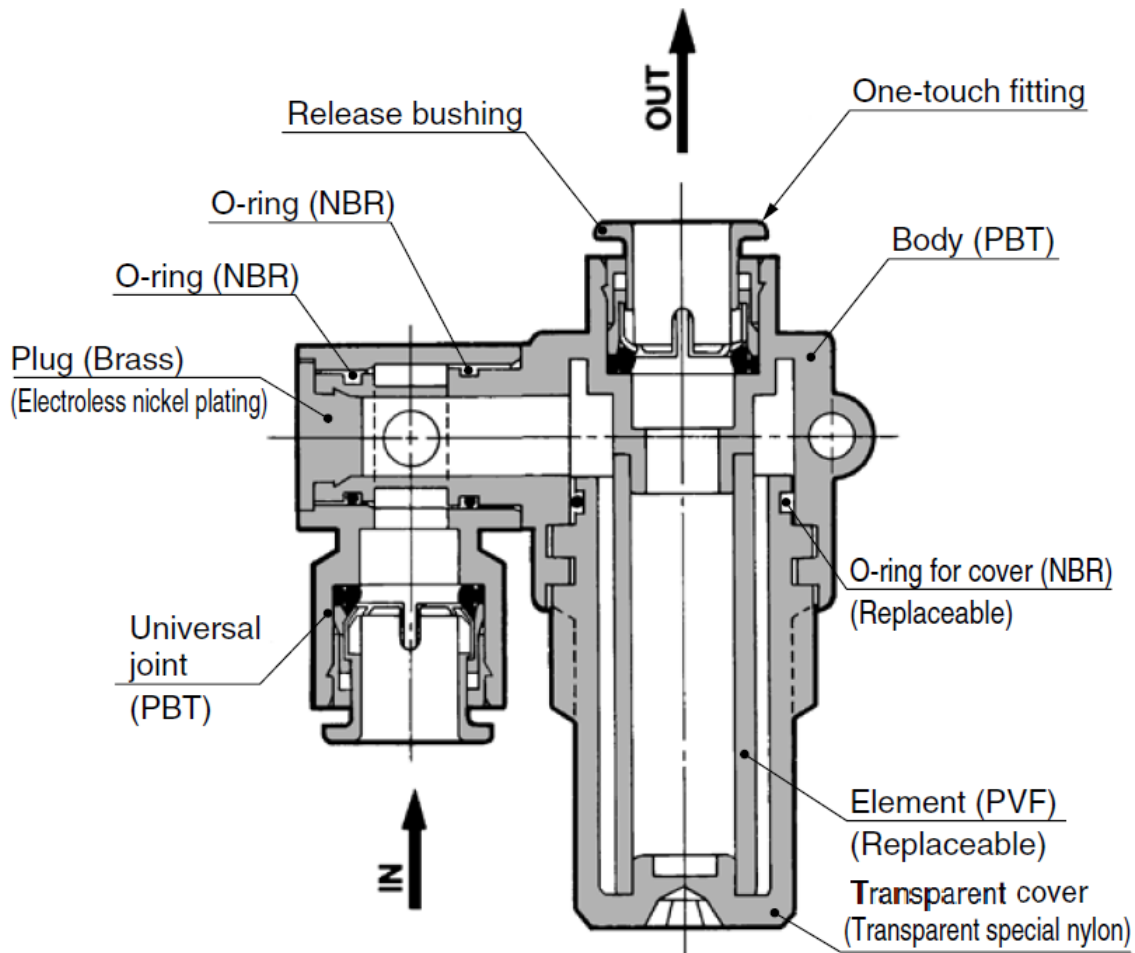
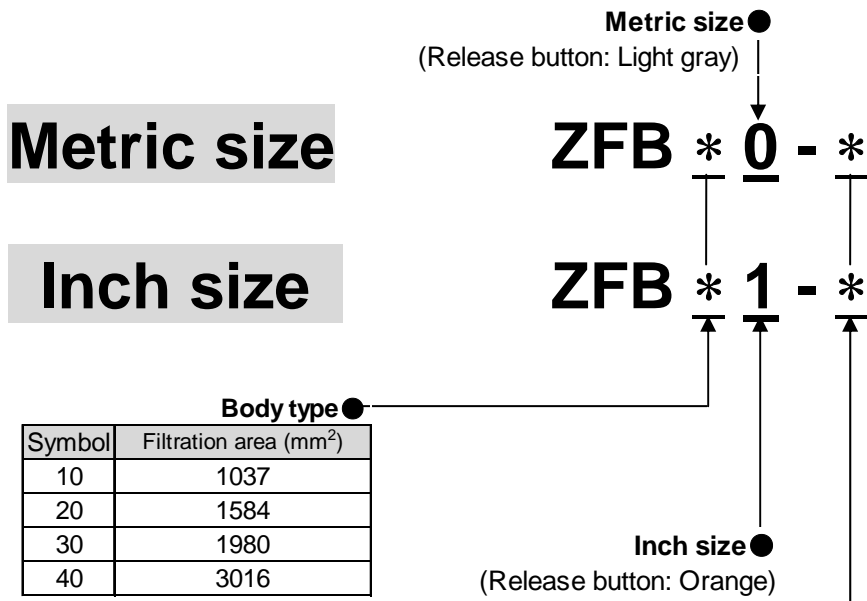


Table 1. Product components and functions

Description	Material	Note
Body	PBT	Main body
Clear cover	Transparent special nylon	
Plug	Brass Electroless nickel plating	
Element	PVF	Catches foreign matter. (Replace the element when it is clogged.)
O-ring	NBR	Seals the body.
Universal joint	PBT	IN side tube can be mounted. (Unrestricted 360° piping tube mounting on the IN side)

2. Specifications

2-1 How to Order



Applicable tubing size ●
Metric size

Symbol	Applicable tubing	Applicable model		
		ZFB10	ZFB20	ZFB30
04	φ4	●	—	—
06	φ6	●	●	—
08	φ8	—	●	●
10	φ10	—	—	●

Inch size

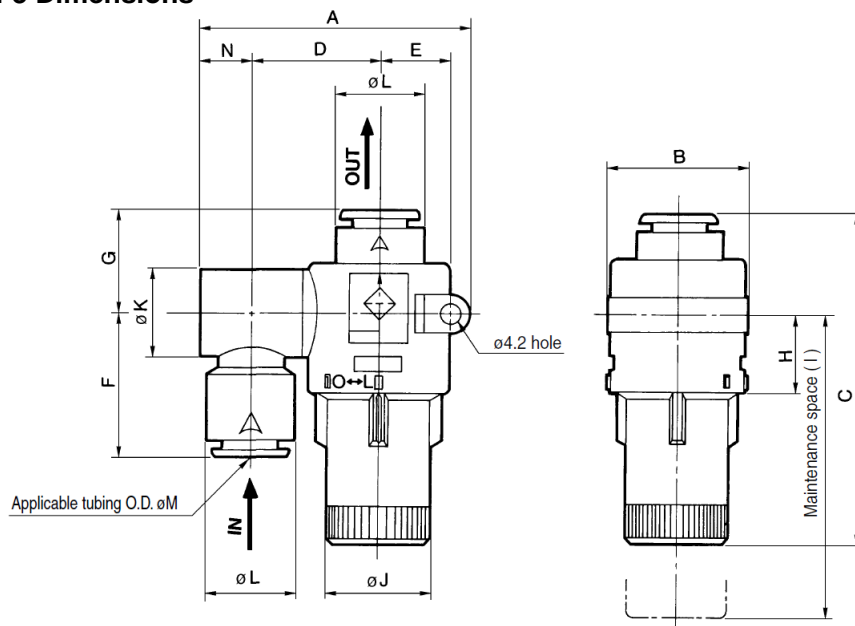
Symbol	Applicable tubing	Applicable model			
		ZFB10	ZFB20	ZFB30	ZFFB40
05	φ3/16"	●	—	—	—
07	φ1/4"	●	●	—	—
11	φ3/8"	—	—	●	—
13	φ1/2"	—	—	—	●

2-2 Specifications

Specifications		Remarks
Fluid	Air, Nitrogen	Do not use the product in an atmosphere and place where there is direct contact with chemicals. ^{Note)} It may cause damage to the body.
Operating pressure range	-100 to 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	0°C to 60°C	No freezing
Filtration accuracy	30µm	Filtration efficiency 95%
Element replacement differential pressure	20kPa	
Applicable tubing material		Nylon/Soft Nylon/Polyurethane

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

2-3 Dimensions

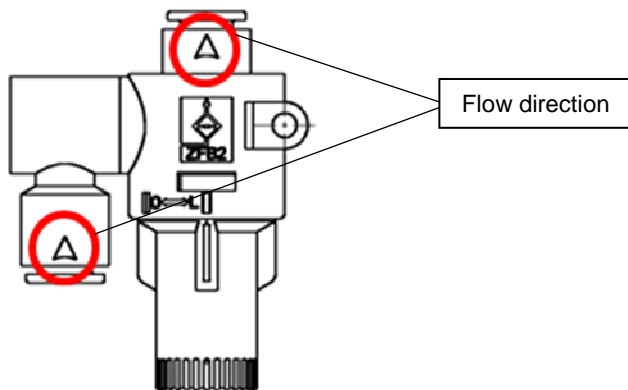


Size	Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
Metric size	ZFB100-04	48	26	53	22.5	12.5	24	17.5	15	50	15.5	14.4	12.8	4	8.5
	ZFB100-06			54										6	
	ZFB200-06	52	28	65	24.5	13.5	27	19.5	16	61	17.5	16.6	15.2	6	9.5
	ZFB200-08													8	
	ZFB300-08	57	30	69.5	27	14.5	29.5	21	17	65	21.5	18	18.5	8	11
	ZFB300-10			70										10	
Inch size	ZFB101-05	48	26	53	22.5	12.5	24	17.5	15	50	15.5	14.4	12.8	3/16"	8.5
	ZFB101-07			54			24.2	17.7						1/4"	
	ZFB201-07	52	28	65	24.5	13.5	27.2	19.7	16	61	17.5	16.6	15.2	1/4"	9.5
	ZFB301-11	57	30	70	27	14.5	30.2	21.7	17	65	21.5	18	18.5	3/8"	11
	ZFB401-13	64.5	34	87.5	30.5	16.5	34	24	21.5	81	25.6	23	21.7	1/2"	13.5

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 mark indicated on the body.)



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

Note) Refer to the catalog for One-touch Fittings for mounting and removal of the tube.

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.

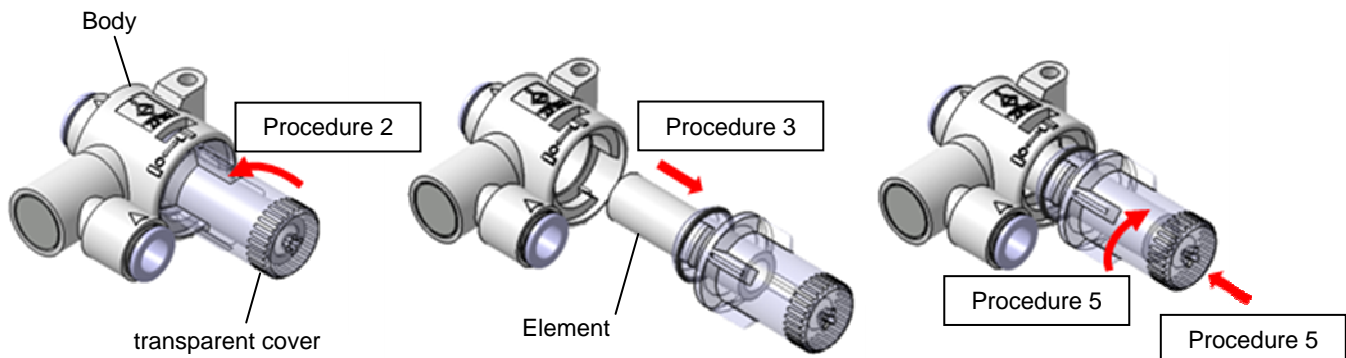
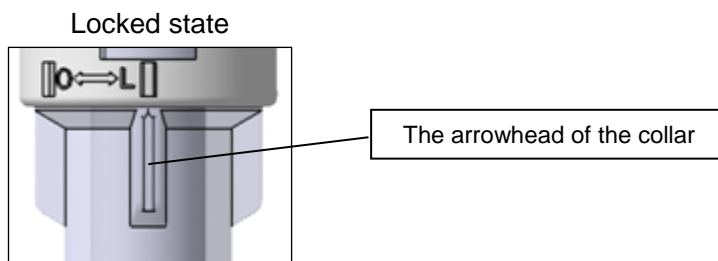
- 1) After 1 year of usage has elapsed.
- 2) When the pressure drop reaches 20 kPa even though the operating period has been less than 1 year.

< Replacement Element Part No. >

Part No.	Applicable filter model	Element size mm	Set description	
			Element	O-ring for cover
I-34S-A	ZFB10*	φ10 x φ6 x L33	10 pcs.	10 pcs.
I-35S-A	ZFB20*	φ12 x φ8 x L42	10 pcs.	10 pcs.
I-36S-A	ZFB30*	φ14 x φ10 x L45	10 pcs.	10 pcs.
I-39S-A	ZFA401	φ16 x φ14 x L60	10 pcs.	10 pcs.

< Element Replacement >

1. Stop the operation and reduce the internal pressure of the filter to atmospheric pressure.
2. Turn the transparent cover in counterclockwise direction and position the arrowhead of the collar in the transparent cover from the protruding in the "L" (LOCK) side to the protruding portion in the "O" (OPEN) side.
3. Pull the transparent cover downward to take out the element. Eliminate any dust in the transparent cover by blowing air. (Make sure there is no damage of the O-ring.)
4. Insert a new element into the body.
5. Set the arrowhead on the collar of the transparent cover to the protruding portion on the "O" side, push the transparent cover into the body and set the arrowhead from the protruding portion on the "O" side to the protruding portion on the "L" side to make the LOCK complete.
6. Restart 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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