



Operation Manual

PRODUCT NAME

Clean Exhaust Filter

Series / Product Number

SFE Series

SFE11/SFE42/SFE52/SFE53/SFE73

SFE3A/SFE4B/SFE5C/SFE7D

SFE3F/SFE4G/SFE5H/SFE7J

SMC Corporation

Contents

Safety Instructions	2
Specific Product Precautions for SFE Series	4
Specifications	5



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

Warning

Caution

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

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

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 industries.

Use in non-manufacturing industries 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.



SFE Series

Mounting

Caution

1. When piping or fitting is used, flush or clean it before connecting it to the product.
2. Do not apply excessive force to the product when connecting piping to the product.
Connect piping so that force such as tension, compression or bending is not applied to the product.
Tighten the screw by hand, and then apply a spanner to the spanner flats to tighten the screw for additional 1 to 2 rotations.
For M thread, tighten it by hand completely until the ends of the fitting come into contact with the mounting surface. Then apply additional tightening. Do not rotate the screw more than 30 degrees for additional tightening. (The maximum tightening torque: 0.2 Nm)
3. Do not mount the product in a place where dust will be stirred up by the exhaust air from the product and affect peripheral equipment.
4. Do not mount the product in a location where air from the product will be directly exhausted to the workpiece.
5. Check the dimensions to select the correct product size, as a fitting may interfere with the product and it may not be possible to mount the product when it is mounted to a tube connection port of a solenoid valve, etc.

Supply Air

Warning

1. Do not use air which contains ozone, corrosive gases, organic solvents, or chemicals, as it will cause damage to the product.

Caution

1. Do not use air containing water drops.
2. Install a mist separator (AM series), micro mist separator (AMD series), or micro mist separator with pre-filter (AMH series) on the upstream side.
3. For use of the product with ejector, avoid sucking liquid such as water and oil together with air.

Operating Environment

Warning

1. Do not use in the following environments, as it may cause failure.
 - 1) Environments where corrosive gases, organic solvents, or chemicals are present, or a location where the product is exposed to these substances.
 - 2) Where the product is exposed to sea water, water, or water vapor.
 - 3) Where the product is exposed to ultraviolet rays or temperature increase.
 - 4) Where product is exposed to heat sources or in areas that the product is exposed to radiant heat.
 - 5) An area exposed to direct sunlight.
 - 6) Where impact or vibration is present.

One-touch Fitting Precautions

Caution

1. Clean One-touch fitting (KP Series) is used for the One-touch fitting type. Grease is not used due to the Series KP oil-free specifications. For this reason, greater insertion force is required when tubing is installed. In particular, polyurethane tubing may fold when inserted due to its softness. Hold the end of the tubing, and insert it all the way in slowly and securely.
2. The outside diameter of tubes that have been used at high temperatures or for long periods of time will expand, and in some cases pipe fitting cannot be reattached. Tubes that cannot be attached should be discarded and replaced with new ones.
3. Refer to the precautions for KP Series for handling One-touch fittings.

Specifications

■ Model

S F E 11

Port size

Male thread type		Plug-in type		One-touch fitting type		Max. flow capacity L/min (ANR)
Symbol	Port size	Symbol	Port size	Symbol	Applicable tube O.D.	
11	M5 × 0.8	-	-	-	-	3
-	-	3A	Ø 4	3F	Ø 4	30
42	R1/8	4B	Ø 6	4G	Ø 6	65
52	R1/8	5C	Ø 8	5H	Ø 8	130
53	R1/4	-	-	-	-	130
73	R1/4	7D	Ø 10	7J	Ø 10	200

Accessory (Bracket)

S F E – B R 3

Symbol	Applicable model
3	SFE3□
4	SFE4□
5	SFE5□
6	SFE7□

■ Specifications

Model	SFE11	SFE3□	SFE4□	SFE5□	SFE7□	
Fluid ^{Note 1)}	Air					
Max. flow capacity (L/min (ANR)) ^{Note 2)}	3	30	65	130	200	
Filtration ^{Note 3)}	0.01µm (Filtration efficiency 99.99%)					
Noise level ^{Note 3)}	30dB(A)					
Operating temperature	5 to 45°C					
Maximum operating pressure ^{Note 4)}	0.1MPa					
Material ^{Note 5)}	Body	PBT, Polyolefin, Polyurethane PP*, stainless steel*, EPDM (with fluorine coating)*				
	Gasket	NBR, Stainless steel	-			
Mass (g)	Male thread type	1	-	7	12	17
	Plug-in type	-	3	6	11	16
	One-touch fitting	-	5.5g	8g	16g	24g
Mass of bracket (g)	-	1.2g	2.5g	3.5g	5.5g	
Applicable tube material ^{Note 6)} (One-touch fitting type)	-	PFA, Polyolefin, Soft polyolefin, Polyurethane				
Product life (as a guide)	- 2 years after using the product or when the back pressure of SFE reaches 0.1 MPa - When the system fails to operate normally due to clogging					
Packaging	Hermetically sealed anti static double packaging					

Note 1) Do not use with fluid or in an environment which contains ozone.

Note 2) Model should be selected based on the flow capacity.

Note 3) Based on SMC's measuring conditions.

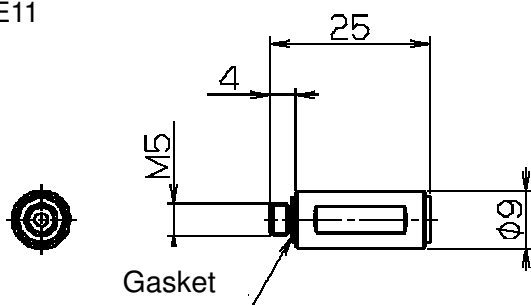
Note 4) Pressure applied to SFE, and not supply pressure to the equipment that SFE is mounted to (e.g. solenoid valve, cylinder).

Note 5) Materials which are marked with "*" are for use with One-tough fitting type only.

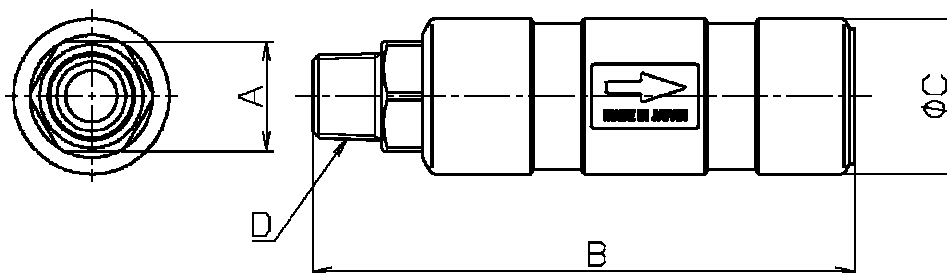
Note 6) Polyurethane tubing is soft and may bend when inserted into the fitting. To prevent bending, hold the tube at the base and securely connect it into the fitting.

■ Dimensions

1) SFE11



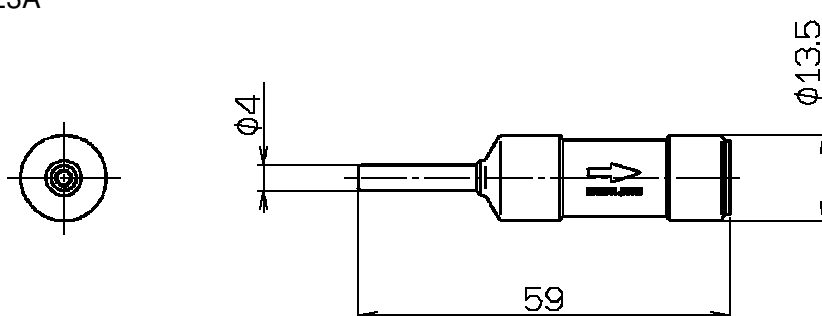
2) SFE42/52/53/73



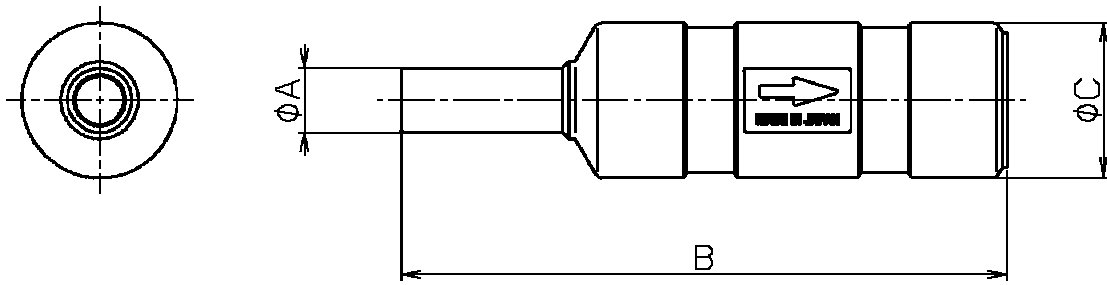
Dimensions: SFE42/52/53/73

Model	A	B	C	D
SFE42	10	62	16.5	R1/8
SFE52	10	71	20.5	R1/8
SFE53	17	75	20.5	R1/4
SFE73	17	84	24	R1/4

3) SFE3A



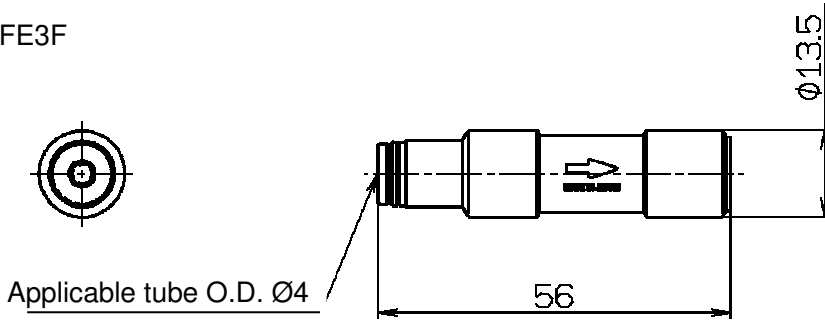
4) SFE4B/5C/7D



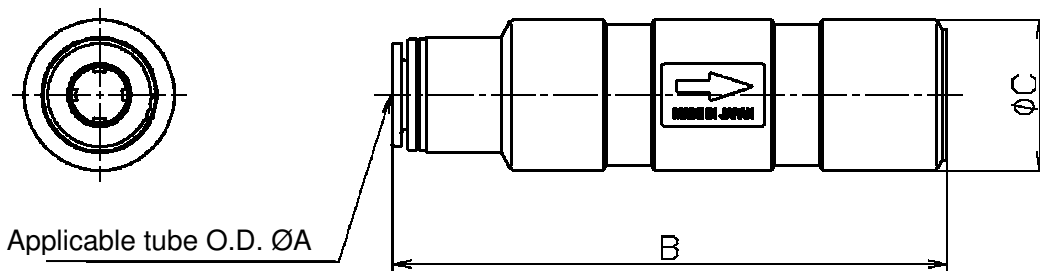
Dimensions: SFE4B/5C/7D

Model	A	B	C
SFE4B	6	73	16.5
SFE5C	8	84	20.5
SFE7D	10	94	24

5) SFE3F



6) SFE4G/5H/7J

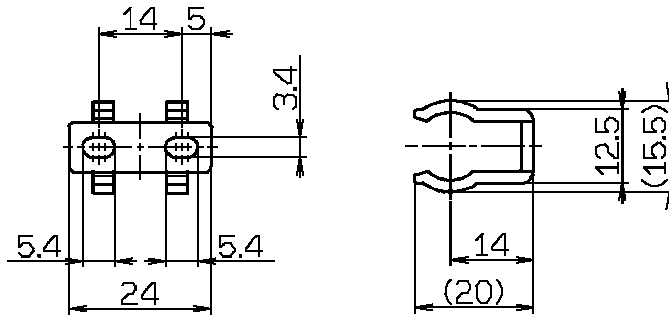


Dimensions: SFE4G/5H/7J

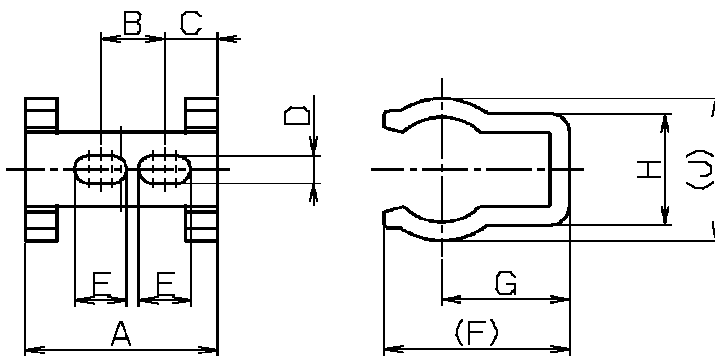
Model	A	B	C
SFE4G	6	68.5	16.5
SFE5H	8	79	20.5
SFE7J	10	89	24

■ Dimensions (Bracket)

1) SFE-BR3



2) SFE-BR4/5/7



Dimensions: SFE-BR4/5/7

Model	A	B	C	D	E	F	G	H	J
SFE-BR4	30	16	7	4.5	7.5	(24.5)	17	15.5	(19.5)
SFE-BR5	30	10	8.2	4.5	8.1	(29)	20	18	(23)
SFE-BR7	34	14	7.35	4.5	9.8	(35)	24	20	(27.3)

(): The values inside the brackets are given as a guide.

Revision history

1st edition : October 2016
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