

Vacuum filter

VFA

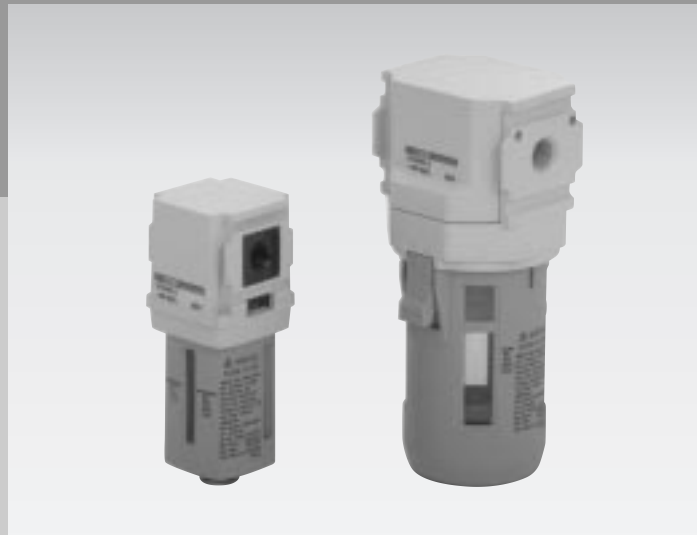
■ Vacuum component

Overview

VFA 1000/3000/4000 Series are vacuum filters to remove dust and moisture absorbed with air by vacuum pump and ejector.

Feature

- (1) Long service life
Removing dust by two steps, by louver centrifugal separation effect, then by element filtration, if the product is used for long time, pressure loss does not increase.
- (2) Moisture can be removed
Moisture removal more than 80% is enabled with centrifugal separation effect by louver. (at recommended flow rate)
- (3) Element can be re-used
For standard element, mesh is used at filtration section, so if dust contaminates, the element is simply washed to re-use.



C O N T E N T S

▲ Safety precautions	1020
● VFA1000/3000/4000	1022

Refrigerating type dryer
Desiccant type dryer
High polymer membrane type dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact cont. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)
Ending

Vacuum filter
Vacuum component



Vacuum component

Safety precautions

Always read this section before starting use.

'Refer to Intro 67 for general precautions, and to "▲ Safety precautions" for details on each series.

Vacuum filter VFA Series

Design & Selection

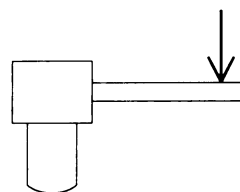
▲ WARNING

- Use the product within specifications range.
- The product is a vacuum filter. Do not apply the pressure to the product except instantaneous pressurization by vacuum breaking. (Do not use the product for pressurization purpose.)
- Install the product avoiding direct sun lay.
- Do not use this product under the following conditions: corrosive gas, flammable gas, explosive gas, chemicals, sea water, or moisture.
- If the polyamide bowl is used, do not use the product where acid, alcohol, carboxylic acid, other organic compound, or screw locking adhesive is present or contaminates on the product, nor in the vacuum circuit to absorb these substances. The bowl may be damaged.
- Refer to "Chemical resistant of plastic bowl" on page 283 for polyamide bowl. Use optional aluminum alloy bowl when polyamide bowl can not be used. (Only VFA3000/4000 Series)

- Avoid installation where vibration or impact is applied.

- Piping load torque
Do not apply bending moment of piping load to the body and piping part.

	VFA1000 Series	VFA3000/4000 Series
Allowable bending moment (N·m)	15	50



Avoid piping fixed with a single support, as this can result in excessive force and lead to damage.

Installation

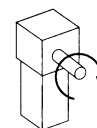
▲ CAUTION

- Install the body vertically facing the bowl downward. Also, secure enough room to mount or dismount the bowl and bowl guard.
- Before connecting to devices, flush piping with air to remove foreign matter.
- When screwing in piping or joints, check that swarf from piping threads or sealing agent does not get inside.
- Check IN and OUT side direction before piping.

- For piping, check no leakage from seal section of port. After piping, check if required degree of vacuum is reached.

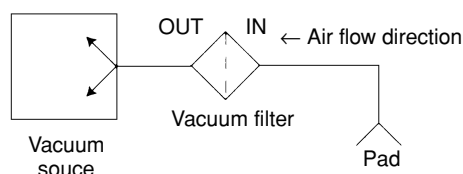
- Piping screw-in torque
When piping, do not apply excessive torque to the body and piping section.

	VFA1000 Series	VFA3000/4000 Series
Allowable torque (N·m)	15	30



- Also, refer to Intro 70 for precautions for installation and adjustment.

(Connection)



During Use & Maintenance

⚠ WARNING

- Use a polyamide bowl and bowl guard together.
- Check crack, scratch, and other deterioration on the polyamide bowl periodically. If these damages are found, replace the bowl with new one or the aluminum alloy one, or causing a breakage.
- Clogged filter element may cause degradation of vacuum source, so perform periodical inspection and cleaning of the element.
- Dust and drain accumulated in the bowl must be discharged periodically before reaching the upper limit of bowl guard. If the upper limit is overflowed, these dust and drain will entrain into OUT side of pipe, causing troubles in components.
- When the bowl and bowl guard are dismantled to remove dust, or to clean or replace the filter element, the pressure in bowl must be reduced to atmospheric pressure before starting work. When the bowl and bowl guard are remounted, check if they are securely inserted into the body and fixed, and if the required degree of vacuum is reached.

- Rinse the bowl with water after washing with household neutral detergent.
- To regenerate the element, flash or wash with household neutral detergent.
- Do not push the mesh section of filter element by a hand, or mesh may peel out.

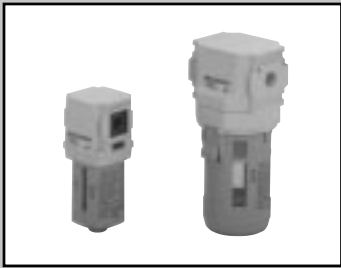
⚠ CAUTION

- Refer to the instruction manual attached to the product for maintenance of filter element.

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Desiccant type dryer
High polymer membrane type dryer
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Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact cont. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)

Ending

Vacuum filter
Vacuum component



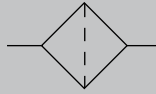
Vacuum filter

VFA1000/3000/4000 Series

Removing dust & moisture from air when absorbing air by vacuum pump or ejector.

● Port size: Rc1/8 to Rc1/2

JIS symbol



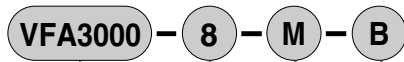
Specifications

Model no.	VFA1000		VFA3000		VFA4000	
Working pressure range kPa	-100 to 0					
Withstanding pressure MPa	0.5					
Ambient temperature range °C	5 to 50					
Bowl capacity cm ³	10		45		80	
Port size Rc	1/8	1/4	1/4	3/8	3/8	1/2
Product weight kg	0.1		0.3		0.5	
Recommended flow rate Note 1 ℓ/min. (ANR)	60	80	100	200	250	400

Note 1: Flow rate applies where initial pressure loss is 3 kPa or less (at standard element used).

Note 2: For standard element, 40μm of mesh (average) is used in filtration section (Material: Polyamide), while for an option, filtration rating 5μm fiber is used (Material: polyamide).

How to order



A Model no.

B Port size

C Option

D Attachment

A Model no.	VFA1000	VFA3000	VFA4000
●			
●	●		
		●	●
			●

Symbol	Descriptions	VFA1000	VFA3000	VFA4000	
B Port size					
6	Rc1/8	●			
8	Rc1/4	●	●		
10	Rc3/8		●	●	
15	Rc1/2			●	
C Option					
Bowl material	Blank	Polyamide (nylon)	●	●	●
	M	Aluminum alloy (metal)		●	●
Element	Blank	40μm Polyamide	●	●	●
	Y5	5μm Polypropylene	●	●	●
D Attachment					
Blank	None	●	●	●	
B	C type bracket	●	●	●	

⚠ Note on model no. selection

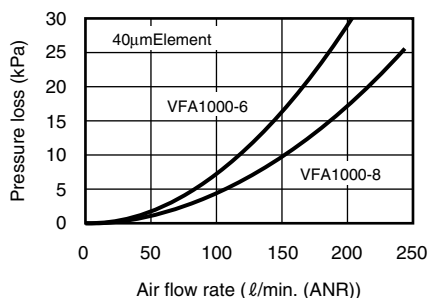
Note1: Indicate options in turn of bowl material and element.

Discrete bracket model no.

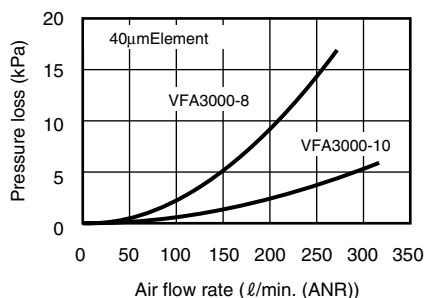
Model no.	Bracket model no.
VFA1000	B120
VFA3000	B320
VFA4000	B420

Flow characteristics

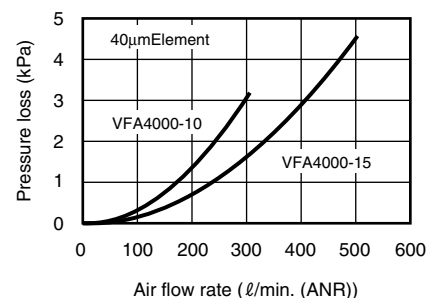
● VFA1000



● VFA3000



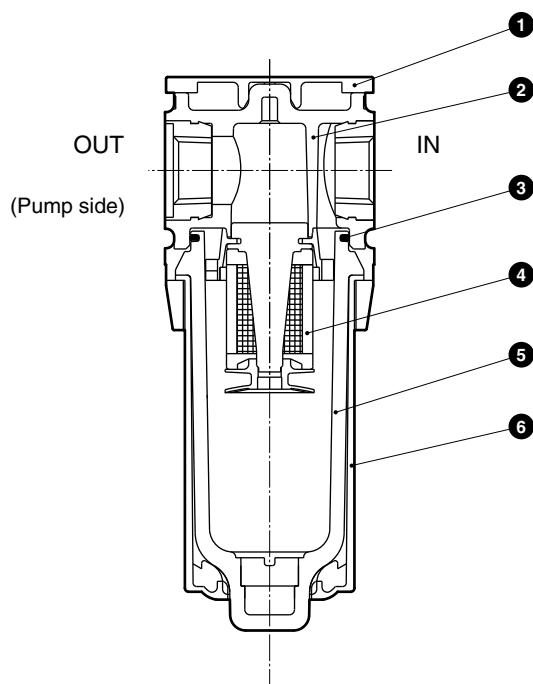
● VFA4000



Note 1: For 5 μm element, 80% of flow rate of 40 μm element is applied.

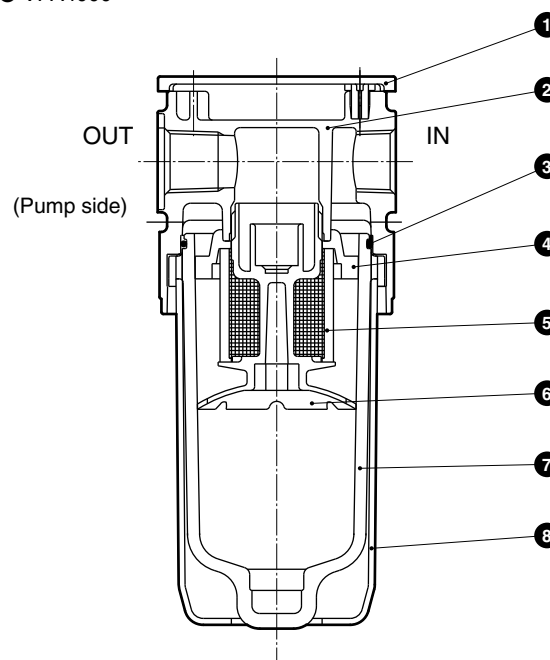
Internal structure and parts list

● VFA1000



● VFA3000

● VFA4000



No.	Parts name	Material
1	Plate cover	ABS resin
2	Body assembly	Polyamide resin, steel
3	Packing seal	Special nitrile rubber
4	Element assembly	Polyamide resin Polyacetal resin
5	Bowl	Polyamide resin
6	Bowl guard	Polyamide resin

No.	Parts name	Material
1	Plate cover	ABS resin
2	Body	Aluminum alloy die-casting
3	O ring	Special nitrile rubber
4	Louver	Polypropylene resin
5	Element	Polyamide resin
6	Baffle	Polyacetal resin
7	Bowl	Polyamide resin
8	Bowl guard	Polyamide resin

Repair parts list

No./Parts name	④	④
Model no.	40μm Polyamide Element assembly	5μm Polypropylene Element assembly
VFA1000	VFA1000-ELEMENT-ASSY	VFA1000-ELEMENT-ASSY-Y5

No./Parts name	⑤	⑤
Model no.	40μm Polyamide Element	5μm Polypropylene Element
VFA3000	VFA3000-ELEMENT	VFA3000-ELEMENT-Y5
VFA4000	VFA4000-ELEMENT	VFA4000-ELEMENT-Y5

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- Clean F.R.
- Electro pneumatic regulator
- Air booster
- Speed control valve
- Silencer
- Check valve / others
- Joint / tube
- Vacuum filter**
- Vacuum regulator
- Suction plate**
- Magnetic spring buffer
- Mechanical pressure SW
- Electronic pressure SW
- Contact / close contact cont. SW
- Air sensor
- Pressure SW for coolant
- Small flow sensor
- Small flow controller
- Flow sensor for air
- Flow sensor for water
- Total air system
- Total air system (Gamma)
- Ending

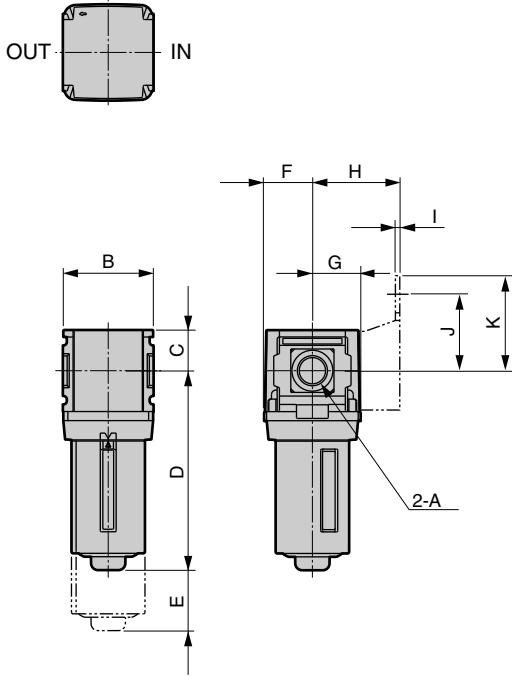
Vacuum filter
Vacuum component

Dimensions

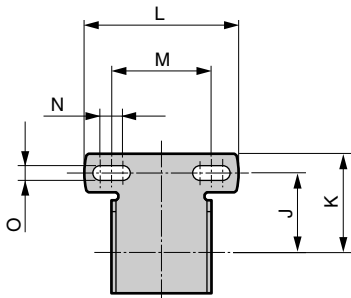


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Total air system (Gamma)
Ending

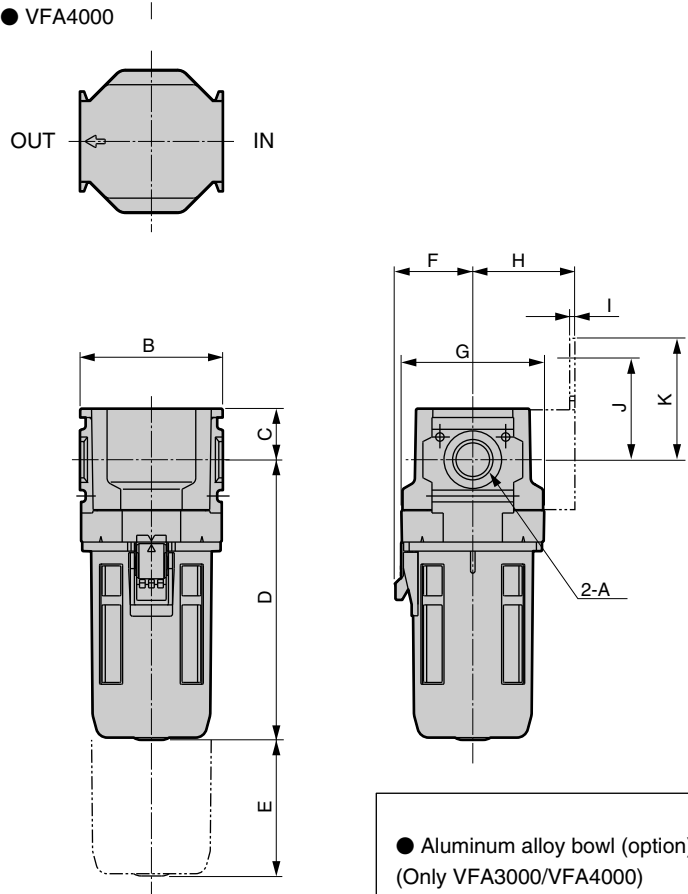
● VFA1000



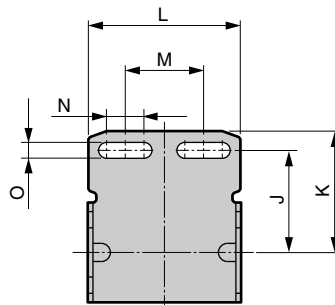
● C type bracket (attachment) Model no. B120 (VFA1000)



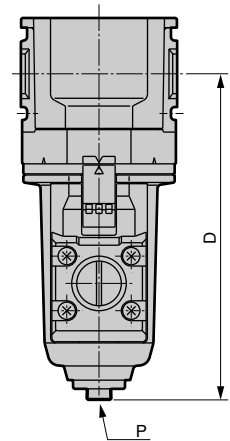
● VFA3000 ● VFA4000



● C type bracket (attachment) Model no. B320 (VFA3000) Model no. B420 (VFA4000)



● Aluminum alloy bowl (option) (Only VFA3000/VFA4000)



Model no.	D	P
VFA3000	129	Rc1/8
VFA4000	152	

Model no.	A	B	C	D	E	F	G	C type bracket dimension								
								H	I	J	K	L	M	N	O	
VFA1000	-6	Rc1/8	40	18	88	40	21.5	21.5	40	2	35	43.5	68	44	10	6.5
	-8	Rc1/4														
VFA3000	-8	Rc1/4	63	22.5	123.5	60	-34.5	63	45	2.3	45	53.5	67	34.5	16.5	7
	-10	Rc3/8														
VFA4000	-10	Rc3/8	80	22.5	149	60	-42.5	79	55	2.3	45	53.5	84	55	14	7
	-15	Rc1/2														