



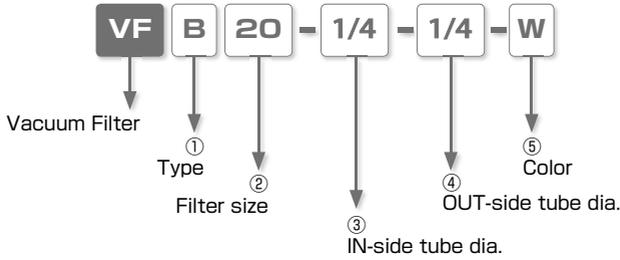
Vacuum Filter for Various Vacuum Piping Wide Variety Vacuum Filter

- *Dust and drains are removed via the filters' cyclone effect and filter element. (Large Capacity Type: VFB and VFR)*
 - *Large capacity plastic bowl reduces maintenance/emptying frequency. (Large Capacity Type: VFR)*
 - *Easy detachment of bowl cartridge eliminates scattered dust and debris messes. (Large Capacity In-Line Type: VFB)*
- *Small vacuum filter is suitable for high-cycle vacuum operation. (Small Union Type: VFUO&1)*
- *There are 2 element length sizes available, depending on volume or exchange period of the element. (Small Union Type: VFU1)*
 - *PP resin material allows for a low price Plug-In vacuum filter. (Plug-in Type: VFJ)*
 - *Selections (VFU1,2,3) added for "Copper alloy free" and "low ozone measure".*

No copper based metal for metal parts and HNBR for seal rubber.

Vacuum Filter Series

Model Designation for Large Capacity Union Type: VFB and VFR (Example)



① Type

Code	B	R
Type	Large Capacity In-line Type	Large Capacity Type

② Filter size

Code	20
Filter area	20cm ²

③ IN-side tube dia.

Code	1/4	3/8	1/2	6	8 (5/16")	10	12	16 (5/8")
Tube dia.	1/4"	3/8"	1/2"	ø6mm	ø8mm (5/16")	ø10mm	ø12mm	ø16mm (5/8")

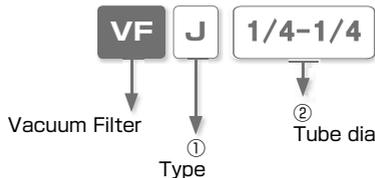
④ OUT-side tube dia.

Code	1/4	3/8	1/2	6	8 (5/16")	10	12	16 (5/8")	No code
Tube dia.	1/4"	3/8"	1/2"	ø6mm	ø8mm (5/16")	ø10mm	ø12mm	ø16mm (5/8")	Large Capacity (VFR) Line End Type

⑤ Color

Code	W	No code
Color	Light-gray	Black

Model Designation for Plug-in Type: VFJ (Example)



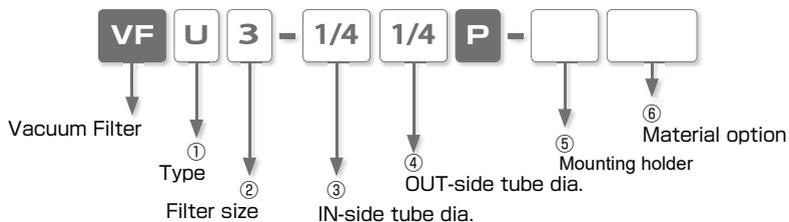
① Type

Code	J
Type	Plug-in

② Tube dia

Code	1/8-1/8M	1/4-1/4	44	33M	66
Tube dia.	1/8" (ø3.2mm)	1/4"	ø4mm (5/32")	ø3mm	ø6mm

■ Model Designation for In-Line Type: VFU 2 and 3 (Example)



① Type

Code	U
Type	Small In-Line

② Filter size

Code	2	3
Filter area	7.5cm ²	12.5cm ²

③ IN-side tube dia.

Code	5/32	1/4	5/16	3/8	4	6	8	10
Tube dia.	5/32"	1/4"	5/16"	3/8"	ø4mm	ø6mm	ø8mm	ø10mm

④ OUT-side tube dia.

Code	5/32	1/4	5/16	3/8	4	6	8	10
Tube dia.	5/32"	1/4"	5/16"	3/8"	ø4mm	ø6mm	ø8mm	ø10mm

⑤ Mounting holder

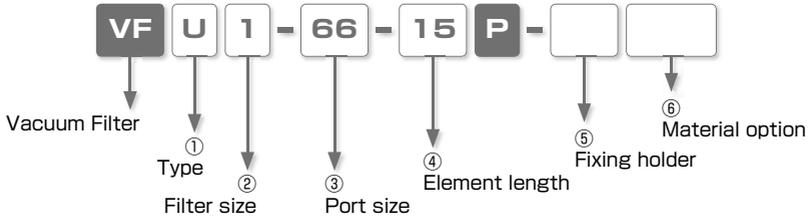
Code	No code	NH
Holder	with Mounting holder	without Mounting holder

⑥ Material option

Code	No code	-S3
Material	Standard	Copper alloy free material
Filter size	All filter size	VFU2, VFU3

Vacuum Filter

■ Model Designation for In-Line Type: VFU0 and 1 (Example)



① Type

Code	U	
Type	Small In-Line	

② Filter size

Code	0	1
Filter area	1.4cm ²	2.8cm ² (Element length : 15mm)

③ Port size

Joint type	Push-In Fitting				Metric thread	
Code	180180*	33*	44	66	M3M3*	55
Port size	ø1.8mm	ø3mm	ø4mm (5/32")	ø6mm	M3×0.5	M5×0.8

※ . * markings are for VFU0 type only.

④ Element length (Selectable for only ② Filter size code: 1)

Code	15	25
Element length	15mm	25mm

⑤ Mounting holder

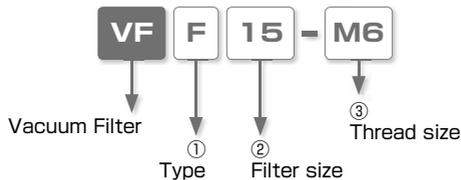
Code	No code	NH
Holder	with Fixing holder	without Fixing holder

⑥ Material option

Code	No code	-S3
Material	Standard	Copper alloy free material
Filter size	All filter size	VFU1

※ . This option is not available for ③ Port size ø3mm.

■ Model Designation for Pad Direct Mounting Type: VFF (Example)



① Type

Code	F	
Type	Pad Direct Mounting	

② Filter size

Code	15	30
Filter area	1.7cm ²	7cm ²

③ Thread size

Code	M4	M6
Thread size	M4×0.7	M6×1

Specifications

Type	VFR	VFB	VFU0	VFU1	VFU2	VFU3	VFF	VFJ
Fluid medium	Air							
Operating pressure range	-29.5 ~ 0 in. Hg (-100 ~ 0kPa)							
Filtering accuracy	5 μm							
Operating temp. range	32 ~ 140°F (0 ~ 60°C) (No freezing)							
Filter area	20cm ²	1.4cm ²	2.8cm ² *1	7.5cm ²	12.5cm ²	1.7cm ² *3	0.8cm ² *5	
			4.7cm ² *2			7cm ² *4	1.1cm ² *6	

*1. Element length: 15mm

*2. Element length: 25mm

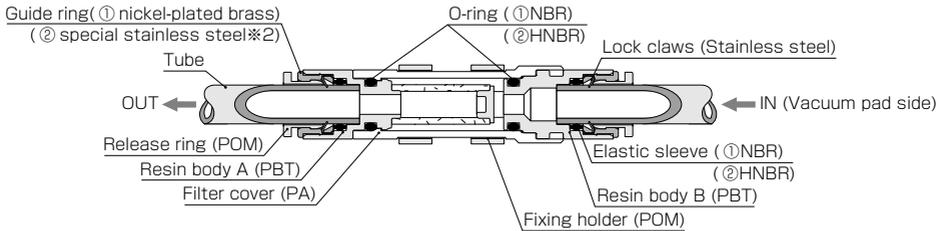
*3. Filter size: 15mm

*4. Filter size: 30mm

*5. Port size: 33M, 44, 1/8-1/8M

*6. Port size: 66

Construction (VFU1 type)

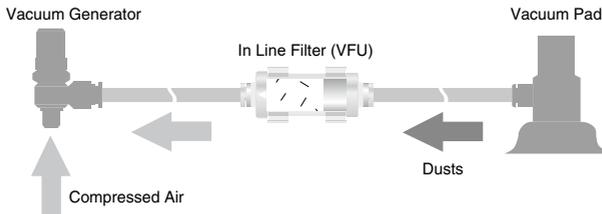


※ 1. The above ① is standard material and ② is copper alloy free material.

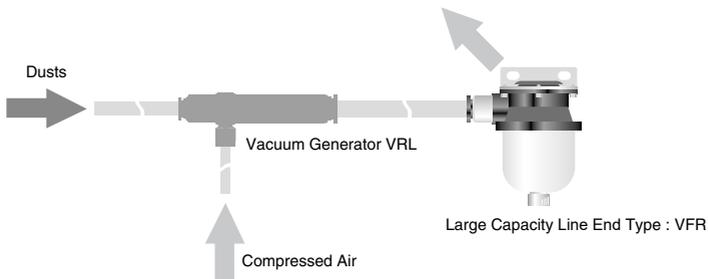
※ 2. Equivalent Anti-Corrosive Level to SUS303

Piping Arrangement Example

- Place a vacuum filter between vacuum generator and vacuum pad in order to filter out dusts and prevent damage to vacuum generator.



- Large Capacity Line End Type "VFR" is to be installed on the exhaust side of Vacuum Generator VRL conveying tiny work-pieces like granule and powder.



Vacuum Filter Series

Standard Size List

Large Capacity In-Line Union Type (Filter area: 20cm²)

Type	Vacuum port	Exhaust port						
		1/4"	1/2"	6mm	8mm	10mm	12mm	16mm
VFR Tube exhaust	1/4"	●						
	1/2"		●					
	1/2"			●				
	6mm				●			
	8mm					●		
	10mm						●	
	12mm							●
16mm								●

Type	Vacuum port	Exhaust port						
		1/4"	1/2"	6mm	8mm	10mm	12mm	16mm
VFB Tube exhaust	1/4"	●						
	1/2"		●					
	1/2"			●				
	6mm				●			
	8mm					●		
	10mm						●	
	12mm							●
	16mm							

Type	Vacuum port	Exhaust port
VFR Open-air exhaust	6mm	●
	8mm	●
	10mm	●
	12mm	●
	16mm	●

Small In-Line Union Type (Filter area "VFU0" : 1.4cm² / "VFU1" :

Type	Vacuum port	Exhaust port					
		1.8mm	3mm	4mm	6mm	M3×0.5	M5×0.8
VFU Small in-line Union	1.8mm	●					
	3mm		●				
VFU0, VFU1	4mm			●			
	6mm				●		
	M3×0.5					●	
	M5×0.8						●

In-Line Union Type ("VFU2" : 7.5cm² / "VFU3" : 12.5cm²)

Type	Vacuum port	Exhaust port							
		5/32"	1/4"	5/16"	3/8"	4mm	6mm	8mm	10mm
VFU In Line Union	5/32"	●							
	1/4"		●						
	5/16"			●					
VFU2, VFU3	3/8"				●				
	4mm					●			
	6mm						●		
	8mm							●	
	10mm								●

Plug-in Type (Filter area: 0.8cm², 1.1cm²)

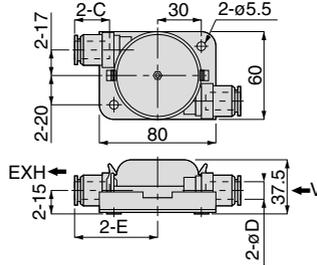
Type	Vacuum port	Exhaust port				
		1/8"	5/32" (4mm)	1/4"	3mm	6mm
VFF	1/8"	●				
	5/32" (4mm)		●			
	1/4"			●		
	3mm				●	
	6mm					●

Vacuum Cup Direct Mounting (Filter area: 1.7cm², 7cm²)

Type	Vacuum port	Exhaust port	
		M4×1	M6×1
VFF	M4×1	●	
	M6×1		●

VFB Large Capacity Union Type (Tube exhaust)

RoHS compliant



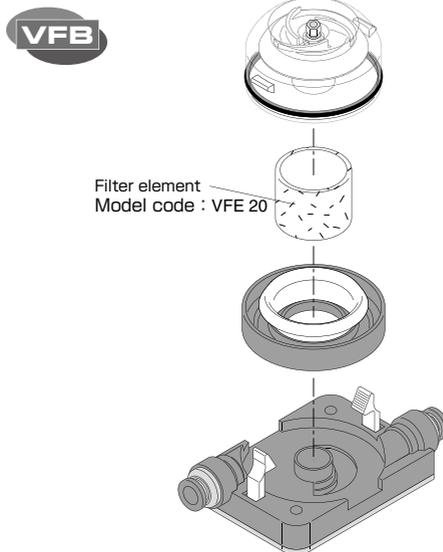
Unit : mm

Model code	Tube O.D. ϕ D	C	E	Filter area (cm ²)	Weight (g)	CAD file name
VFB20-1/4-1/4-□	1/4"	17	52.6		208	VGF-001
VFB20-3/8-3/8-□	3/8"	20.7	54.8		201	
VFB20-1/2-1/2-□	1/2"	23.3	57.4		198	
VFB20-6-6-□	6	17	52.6	20	208	
VFB20-8-8-□	8 (5/16")	18.2	53.9		207	
VFB20-10-10-□	10	20.7	54.8		201	
VFB20-12-12-□	12	23.3	57.4		198	
VFB20-16-16-□	16 (5/8")	24.8	63.8		215	

※ Fill in □ in Model code with "W" for body color : light-gray.

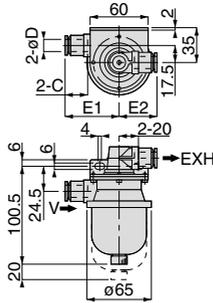
※ Replacement Filter Element model code : VFE20

Replacement Element



VFR Large Capacity In-Line Type (Tube exhaust)

RoHS compliant



Unit : mm

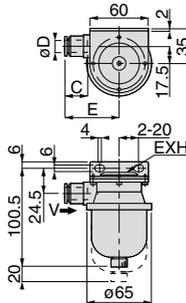
Model code	Tube O.D. øD	C	E1	E2	Filter area (cm ²)	Weight (g)	CAD file name
VFR20-1/4-1/4-□	1/4"	17	44.1	34.1		245	VGF-002
VFR20-3/8-3/8-□	3/8"	20.7	46.3	36.3		238	
VFR20-1/2-1/2-□	1/2"	23.3	48.9	38.9		234	
VFR20-6-6-□	6	17	44.1	34.1	20	245	
VFR20-8-8-□	8 (5/16")	18.2	45.4	35.4		244	
VFR20-10-10-□	10	20.7	46.3	36.3		238	
VFR20-12-12-□	12	23.3	48.9	38.9		234	
VFR20-16-16-□	16 (5/8")	24.8	55.3	45.3		252	

※ Fill in □ in Model code with "W" for body color : light-gray.

※ Replacement Filter Element model code : VFE20

VFR Large Capacity Line End Type

RoHS compliant



Unit : mm

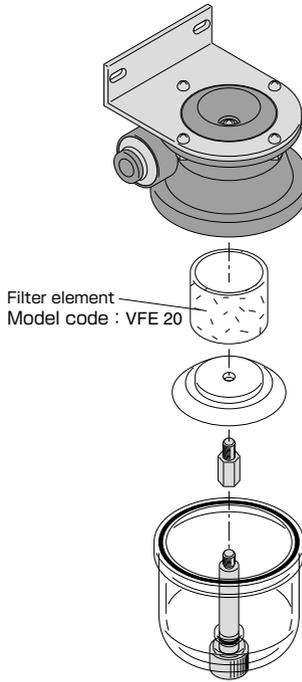
Model code	Tube O.D. øD	C	E	Filter area (cm ²)	Weight (g)	CAD file name
VFR20-6-□	6	17	44.1		206	VGF-003
VFR20-8-□	8 (5/16")	18.2	45.4		206	
VFR20-10-□	10	20.7	46.3	20	202	
VFR20-12-□	12	23.3	48.9		201	
VFR20-16-□	16 (5/8")	24.8	55.3		209	

※ Fill in □ in Model code with "W" for body color : light-gray.

※ Replacement Filter Element model code : VFE20

※ Ask us for the availability VFR20-1/4, VFR20-3/8, VFR20-1/2

■ Replacement of Filter Element

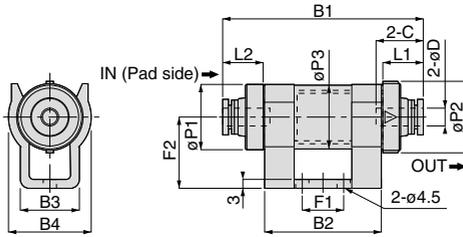


Vacuum Filter Series

VFU In-Line Type (VFU2 and VFU3)

RoHS compliant

Copper alloy free
Selectable



Unit : mm

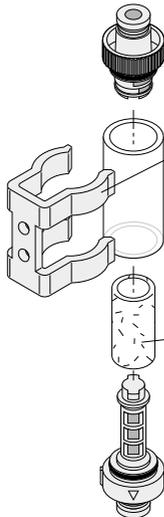
Model code	Tube O.D. øD	B1	B2	B3	B4	L1	L2	øP1	øP2	øP3	C	F1	F2	Filter area (cm ²)	Weight (g)	CAD file name
VFU2-5/32 5/32P-□	5/32"	58	33	18	24	11.9	11.9	18.2	20	17.5	14.9	10	20	7.5	17	N/A
VFU2-1/4 1/4P-□	1/4"	60				13	13				16				18	
VFU3-1/4 1/4P-□	1/4"	67.7	39.5	20	28	13.5	13.8	22.1	24	21.5	16.5	14	24	12.5	26	N/A
VFU3-5/16 5/16P-□	5/16"	70.1				14.9	14.7				17.9				29	
VFU3-3/8 3/8P-□	3/8"	72.7	33	18	24	16.2	16	18.2	20	17.5	19.2	10	20	7.5	34	N/A
VFU2-44P-□	4	58				11.9	11.9				14.9				18	
VFU2-66P-□	6	60	39.5	20	28	13	13	22.1	24	21.5	16	14	24	12.5	19	VFU2-66P
VFU3-66P-□	6	67.7				13.5	13.8				16.5				27	VFU3-66P
VFU3-88P-□	8	70.1	39.5	20	28	14.9	14.7	22.1	24	21.5	17.9	14	24	12.5	29	VFU3-88P
VFU3-1010P-□	10	72.7				16.2	16				19.2				32	VFU3-1010P

※ 1. Fill in □ in Model code with "NH" for no fixing holder.

※ 2. Add "-S3" at the end of model code for "Copper alloy free".

Replacement of Filter Element

VFU 2 and 3



Mounting holder

Filter type		Holder model code
VFU2-5/32 5/32P	VFU 2-44P	VFUH 2
VFU2-1/4 1/4P	VFU 2-66P	
VFU3-1/4 1/4P	VFU 3-66P	VFUH 3
VFU3-5/16 5/16P	VFU 3-88P	
VFU3-3/8 3/8P	VFU 3-1010P	

Filter element

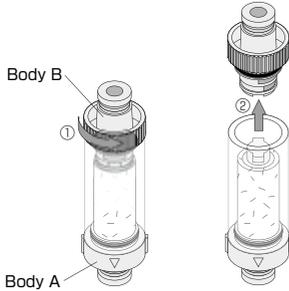
Filter type		Element model code
VFU2-5/32 5/32P	VFU 2-44P	VFE 2
VFU2-1/4 1/4P	VFU 2-66P	
VFU3-1/4 1/4P	VFU 3-66P	VFE 3
VFU3-5/16 5/16P	VFU 3-88P	
VFU3-3/8 3/8P	VFU 3-1010P	

Replacement & Lock Method of Filter: In-Line Type

VFU2 and VFU3

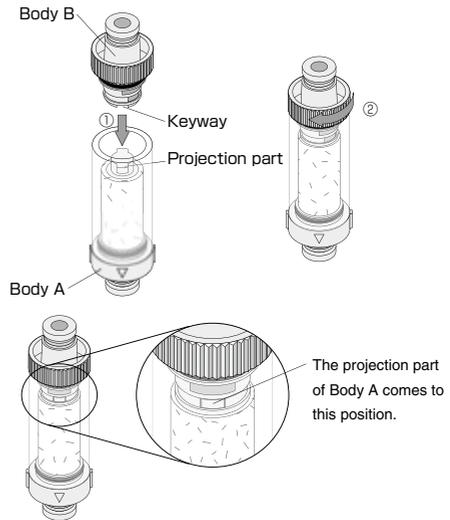
Removing Method

- ① Turn Body B in the counterclockwise direction by 45 degrees[※].
 - ② Pull out Body B.
- ※. Do not rotate Body B over 45 degrees. It may cause damage to the product.



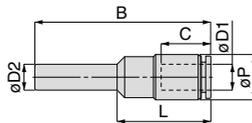
Lock Method

- ① Push the keyway of Body B into the projection part of Body A until Body A and B touches each other.
 - ② Turn Body B in the clockwise direction by 45 degrees to lock^{※1}.
- ※1. Do not rotate Body B over 45 degrees. It may cause damage to the product.
- ※2. When Body A and B combine as the drawing below, make sure the projection part of Body A fits keyway of Body B properly.



VFJ Plug-in Type

RoHS compliant



Unit : mm

Model code	Tube O.D. øD1	Fitting dia. øD2	B	L	C	øP	Filter area (cm ²)	Weight (g)
VFJ1/8-1/8M	1/8"	1/8"	34.7	22	11	8	0.8	1.4
VFJ1/4-1/4	1/4"	1/4"	41.2	22	11.4	10.5	1.1	2.1
VFJ44	4 (5/32")	4 (5/32")	38.6	21.5	11	8	0.8	1.5
VFJ33M	3	3	34.7	22	11	8	0.8	1.4
VFJ66	6	6	41	21.8	11.6	10.5	1.1	2.5

Vacuum Filter Series

VFU Small In-Line Type (VFU0 and VFU1)

RoHS compliant

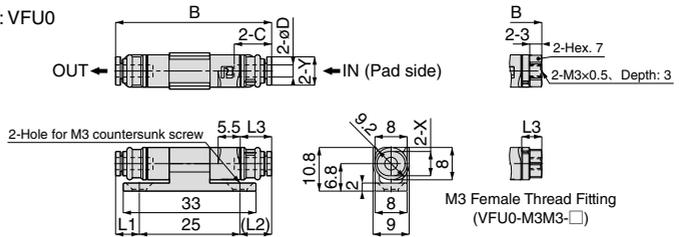
● Dimensional Drawings: VFU0



Push-In Fitting



Female Thread Fitting



● Dimensional Drawings: VFU1

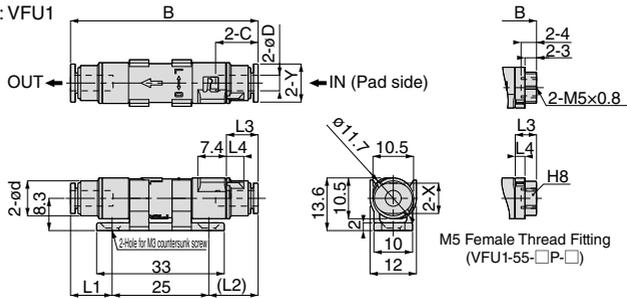
Copper alloy free
Selectable



Push-In Fitting



Female Thread Fitting



Unit : mm

Model code	Tube O.D. ∅D	B	C	L1	(L2)	L3	L4	∅d	X	Y	Element length	Filter area (cm ²)	Weight (g)	CAD file name
VFU0-180180-□	1.8	37.7	8.4	5.4	7.4	7.3	—	—	4.8	4.8		1.4	3	VFU0-180180
VFU0-33-□	3	38.8	9.3	5.9	7.9	7.8	—	—	6	7		1.4	2.9	VFU0-33
VFU1-33-15P-□	3	48.5	11	10.8	12.7	8.2	4	10	7.8	9.8	15	2.8	5.6	VFU1-33-15P
VFU1-33-25P-□		25		4.7	5.9						VFU1-33-25P			
VFU1-44-15P-□	4(5/32)	48.5	11	10.8	12.7	8.2	4	10	7.8	9.8	15	2.8	5.1	VFU1-44-15P
VFU1-44-25P-□		25		4.7	5.4						VFU1-44-25P			
VFU1-66-15P-□	6	53.4	11.6	13.2	15.2	10.6	4.5	10.5	9.8	11.8	15	2.8	6	VFU1-66-15P
VFU1-66-25P-□		25		4.7	6.4						VFU1-66-25P			
VFU0-M3M3-□	—	34.1	—	1.1	5.1	5	—	—	—	—		1.4	4.7	VFU0-M3M3
VFU1-55-15P-□	—	40.6	—	5.6	10	5.5	2.5	—	—	—	15	2.8	7.6	VFU1-55-15P
VFU1-55-25P-□		25		4.7	8						VFU1-55-25P			

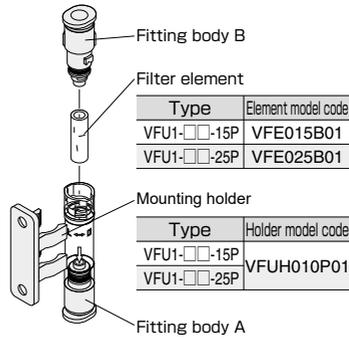
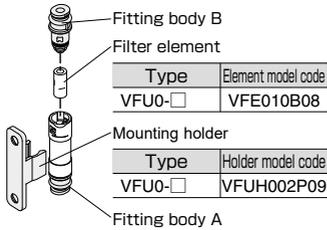
※ 1. Fill in □ in Model code with "NH" for no mounting holder.

※ 2. Add "-S3" at the end of model code for "Copper alloy free".

This option is not available for VFU1 with Tube O.D. ∅3mm.

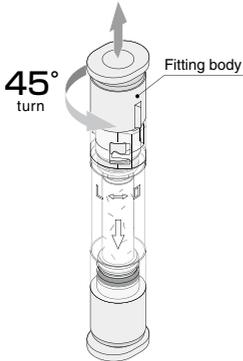
VFU0 and VFU1

■ Replacement of Filter Element



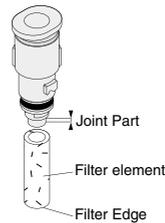
■ Replacement of Filter Element: Small In-Line Type

- ① Turn fitting body to the direction of "O" marked on filter cover by 45 degrees.
(Turn fitting body to the direction of "L" marked on filter cover until it locks after filter replacement)
- ② Take out the fitting body from the filter cover and replace filters. Insert Joint Part of fitting body into the filter up to half and combine with fitting body A. Pay attention not to squash Filter Edge.



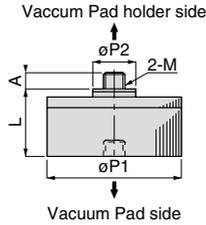
Note 1) There are two types of filter element (15mm and 25mm). Select the suitable one before the replacement.

Note 2) Assemble the vacuum filter properly after the replacement by reversing the procedure mentioned above.



VFF Vacuum Cup Direct Mounting

RoHS compliant

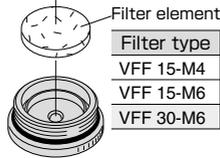
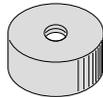


Unit : mm

Model code	M	A	L	øP1	øP2	Filter area (cm ²)	Weight (g)	CAD file name
VFF15-M4	M4×0.7	3	12	25	7.8	1.7	13.5	VGF-006
VFF15-M6	M6×1	4			8.8		14	
VFF30-M6	M6×1	4	15.5	40	8.8	7	37.5	

※ Filter element model code VFF15-M□ : VFFE15
 VFF30-M6 : VFFE30

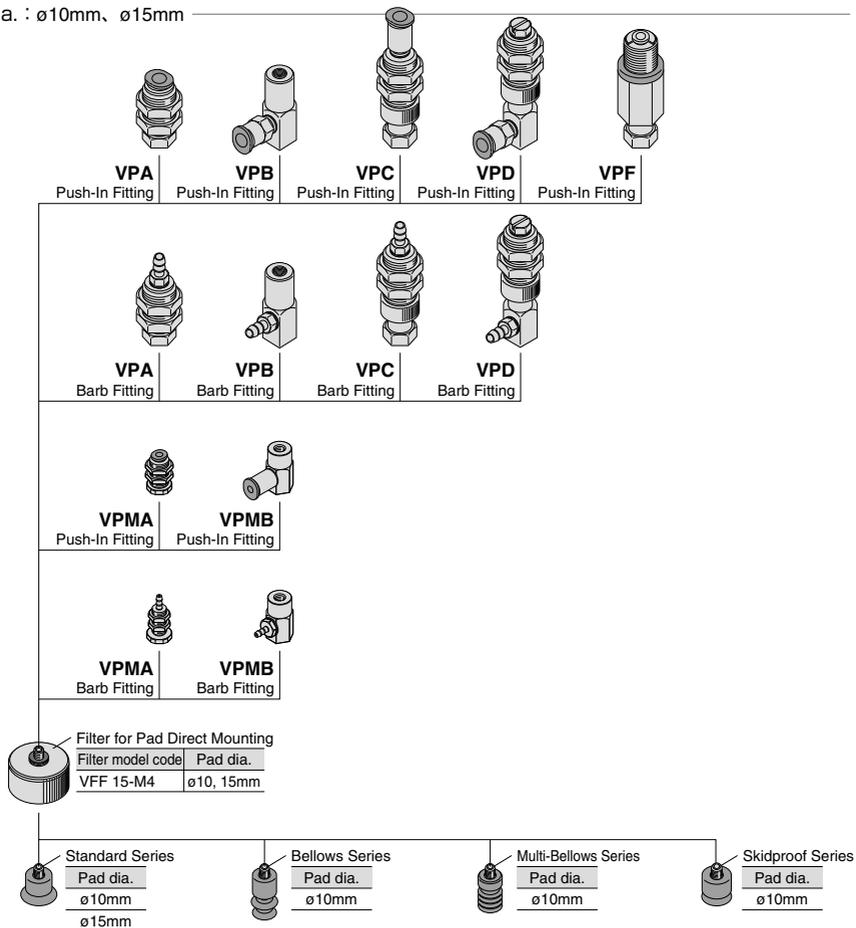
■ Replacement of Filter Element



Filter type	Element model code
VFF 15-M4	VFFE 15
VFF 15-M6	VFFE 15
VFF 30-M6	VFFE 30

Construction (VFF15-M4)

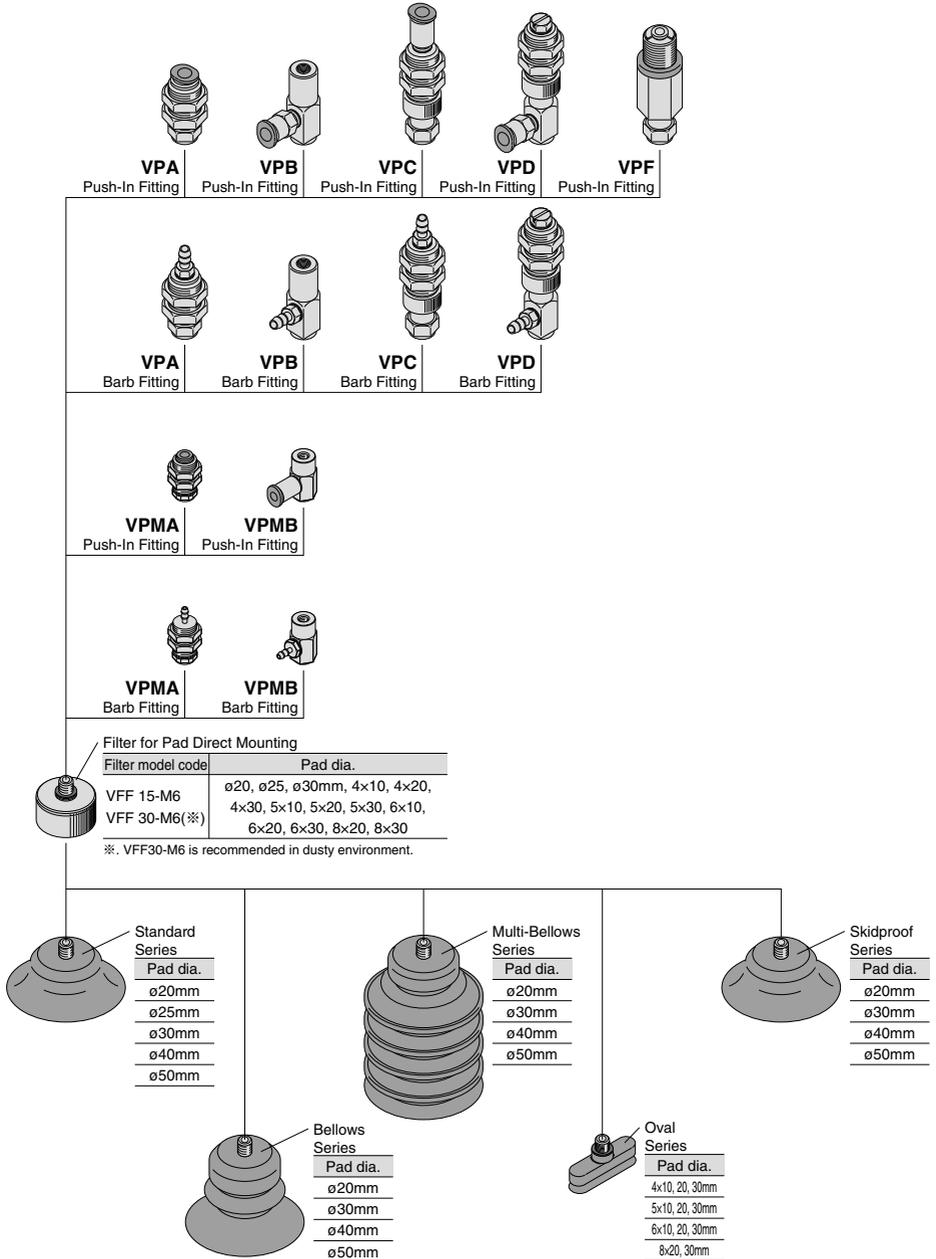
● Pad dia. : $\phi 10\text{mm}$, $\phi 15\text{mm}$



Vacuum Filter Series

Construction (VFF15-M6, VFF30-M6)

- Pad dia. : $\phi 20\text{mm}$, $\phi 25\text{mm}$, $\phi 30\text{mm}$, $\phi 40\text{mm}$, $\phi 50\text{mm}$, $4 \times 10\text{mm}$, $4 \times 20\text{mm}$, $4 \times 30\text{mm}$, $5 \times 10\text{mm}$, $5 \times 20\text{mm}$, $5 \times 30\text{mm}$, $6 \times 10\text{mm}$, $6 \times 20\text{mm}$, $6 \times 30\text{mm}$, $8 \times 20\text{mm}$, $8 \times 30\text{mm}$

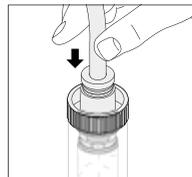


How to install and disconnect

1. How to install and disconnect tubings (Push-In Fitting)

① Tube insertion

Insert a tubing into Push-In Fitting up to the tube end. Lock-claws bite the tubing and fix it automatically, then the elastic sleeve seals around the tubing. Refer to "2. Instructions for Tube Insertion" under "Common Safety Instructions for Fittings" .



② Tubing disconnection

The tubing is disconnected by pushing release-ring to release Lock-claws. Make sure to stop air supply before the tubing disconnection.

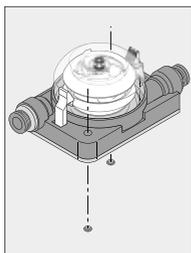


2. How to install body

① Large Capacity In-Line

Type: VFB

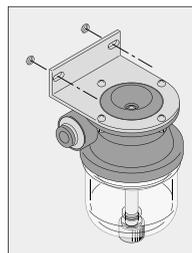
Install the body with M5 screws. Refer to the dimensional drawings for the hole pitch.



② Large Capacity Line

End Type for VFR

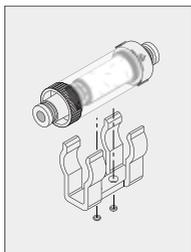
Use 2 holes on bracket to fix the body with M5 screws. Refer to the dimensional drawings for the hole pitch.



③ Small In-Line Type,

Union Type: VFU

Use 2 holes on the mounting holder to fix the body with screws below. Refer to the dimensional drawings for the hole pitch.



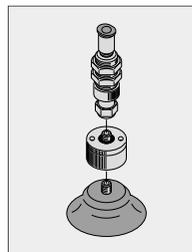
VFU1: M3 countersunk screw

VFU2, 3: M4 screw

④ Pad Direct Mounting

Type: VFF

Attach VFF filter between a vacuum pad holder and a vacuum pad. Tighten metric male and female threads with a proper tool. Refer to the recommended tightening torque listed below and the dimensional drawings for thread size.



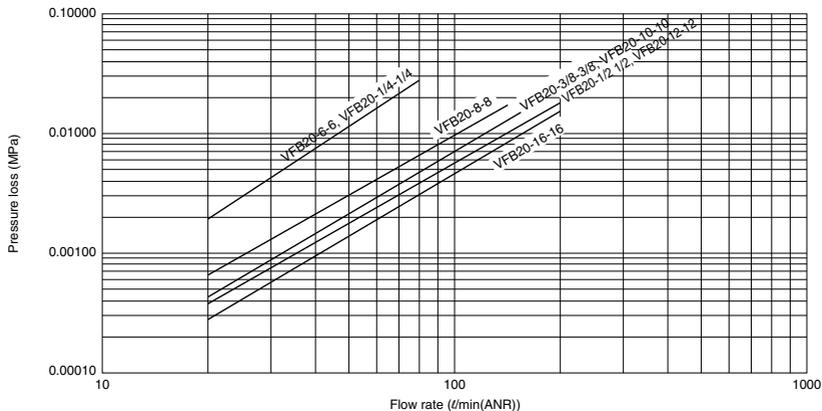
● Table: Recommended tightening torque

Thread size	Tightening torque
M4×0.7	0.5 ~ 0.6N·m
M6×1	1.5 ~ 2N·m

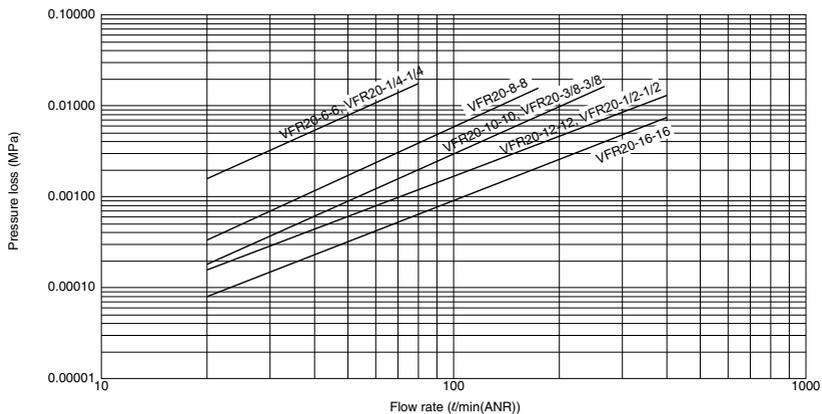
Vacuum Filter Series

Pressure Loss Chart

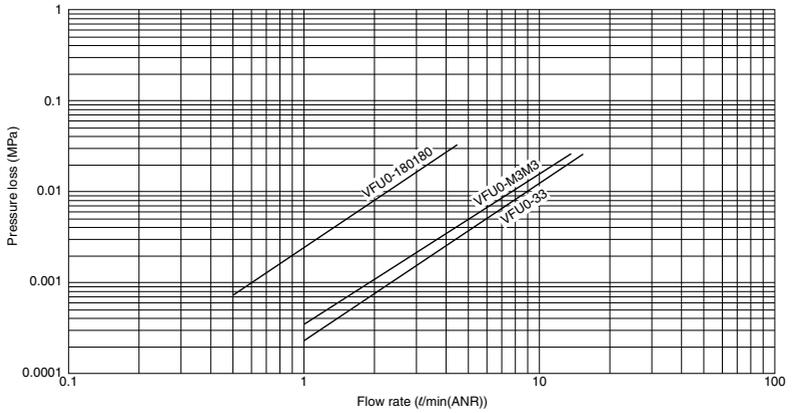
Large Capacity In-Line Type: VFB



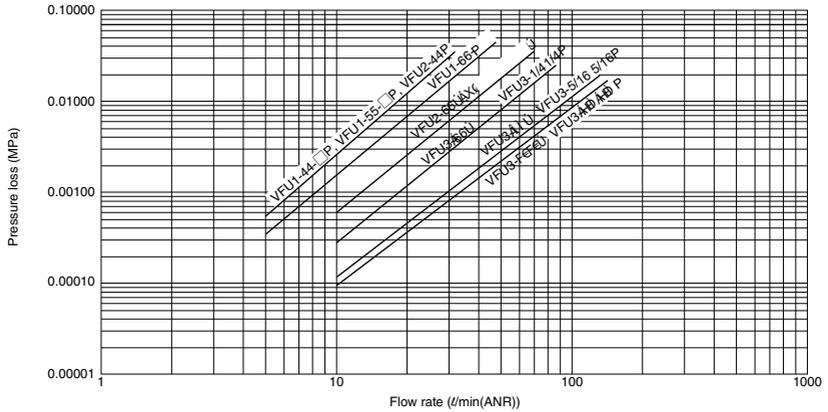
Large Capacity : VFR



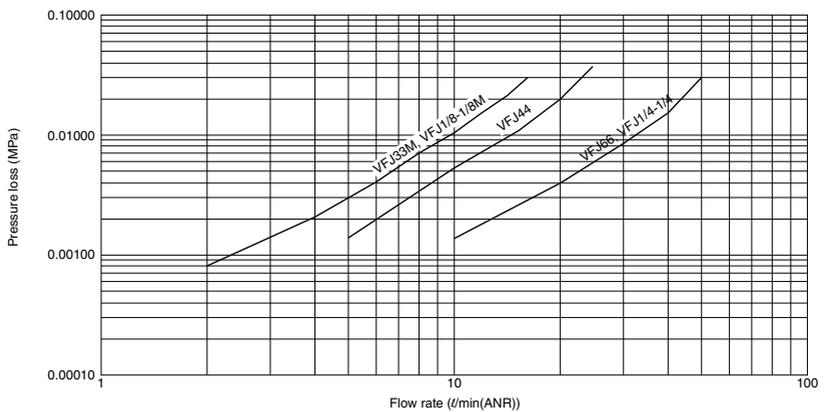
In-Line Type: VFUO



In-Line Type: VFU1,2,3



Plug-in Type: VFJ





Common Safety Instructions for Vacuum Series

Before selecting or using PISCO products, read the following instructions. Read the detailed instructions for individual series.

Warning

1. If there is a risk of dropping work-pieces during vacuum suction, take a safety measure against the falling of them.
2. Avoid supplying more than 0.1MPa pressure constantly in a vacuum circuit. Since vacuum generators are not explosive-proof, there is a risk of damaging the products.
3. Pay attention to drop of vacuum pressure caused by problems of the supplied air or the power supply. Decrease of suction force may lead to a danger of falling work-piece so that safety measure against the falling of them is necessary.
4. When more than 2 vacuum pads are plumbed on a single ejector and one of them has a suction problem such as vacuum leak, there is a risk of releasing work-pieces from the other pad due to the drop of the vacuum pressure.
5. Do not use in the way by which exhaust port is blocked or exhaust resistance is increased. Otherwise, there is a risk of no vacuum generation or a drop of the vacuum pressure.
6. Do not use the product in the circumstance of corrosive gas, inflammable gas, explosive gas, chemicals, seawater and vapor or do not expose the product to those. Never allow the product to suck those things.
7. Provide a protective cover on the products when it is exposed to sunlight.
8. Carry out clogging check for silencer element in an ejector and a vacuum filter periodically. Clogged element will be a cause to impair the performance or a cause of troubles.
9. Before replacing the element, thoroughly read and understand the method of filter replacement in the catalog.
10. Make sure the correct port of the vacuum generator by this catalog or marking on the products when plumbing. Wrong plumbing can be a risk to damage the product.
11. Supply clean air without sludge or dusts to an ejector. Do not lubricate by a lubricator. There is a risk of malfunction or performance impairing by impurities and oil contained in the compressed air.
12. Do not apply extreme tension, twist or bending forces on a lead wire. Otherwise, it may cause a wire breaking.
13. Locknut needs to be tightened firmly by hand. Do not use any tool to tighten. In case of using tools to tighten the locknut, it may damage the locknut or the product. Inadequate tightening may loosen the locknut and the initial setting can be changed.
14. Do not force the product to rotate or swing even its resin body is rotatable. It may cause damage to the product and a fluid leakage.
15. Do not supply an air pressure or a dry air to the products over the necessary amount. There is a risk of deteriorating rubber materials and malfunction due to oil.
16. Keep the product away from water, oil drops or dusts. These may cause malfunction. Take a proper measure to protect the product before the operation.

17. Do not use the product in the environment of inflammable or explosive gas / fluid. It can cause a fire or an explosion hazard.
18. Do not use the product in the circumstance of corrosive gas, inflammable gas, explosive gas, chemicals, seawater and vapor or do not expose the product to those. Otherwise, it may be a cause of malfunction.
19. Do not clean or paint the products by water or a solvent.

Caution

1. Operating pressure range in the catalog is the values during ejector operation. Secure the described value of the supplied air, taking a drop of the pressure into consideration. Insufficient pressure, which does not satisfy the spec, may cause abnormal noise, unstable performance and may negatively affect sensors, bringing troubles at last.
2. Effective cross-section area of the air supply side needs to be three times as large as effective cross-section area of the nozzle bore. When arranging piping or selecting PISCO products, secure required effective cross-section area. Insufficient supply pressure may be a cause to impair performance.
3. A Shorter distance of plumbing with a wider bore is preferable at vacuum system side. A long plumbing with a small bore may result in slow response time at the time of releasing work-piece as well as in failure to secure adequate suction flow rate.
4. Plumb a vacuum switch and an ejector with vacuum switch at the end of vacuum system as much as possible. A long distance between a vacuum switch and a vacuum system end may increase plumbing resistance which may lead to a high vacuum level at the sensor even when no suctioning and a malfunction of vacuum switch. Make sure to evaluate the products in an actual system.
5. Refer to "4. Instructions for Installing a fitting" and "5. Instructions for Removing a fitting" under "Common Safety Instructions for Fittings" , when installing or removing Fittings.
6. Refer to "Common Safety Instructions for Pressure Sensors" and "Detailed Safety Instructions" for the handling of digital vacuum switch sensor.
7. Refer to "Common Safety Instructions for Mechanical Vacuum Sensor" for the handling of mechanical vacuum switch.
8. The material of plastic filter cover for VG, VK, VJ, VZ and VX series is PCTG. Avoid the adherence of Chemicals below to the products, and do not use them under those chemical environments.

● Table Chemical Name

Chemical Name
Thinner
Carbon tetrachloride
Chloroform
Acetate
Aniline
Cyclohexane
Trichloroethylene
Sulfuric acid
Lactic acid
Water soluble cutting oil (alkaline)

* There are more chemicals which should be avoided. Contact us for the use under chemical circumstance.

Vacuum Filter Series

9. The material of plastic filter cover for VQ and VFU series is PA. Avoid the adherence of chemicals below to the products, and do not use them under those chemical environments.

● Table Chemical Name

Chemical Name
Methanol
Ethanol
Nitric acid
Sulfuric acid
Hydrochloric acid
Lactic acid
Acetone
Chloroform
Aniline
Trichloroethylene
Hydrogen peroxide

* There are more chemicals which should be avoided. Contact us for the use under chemical circumstance.