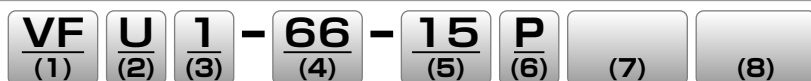


Vacuum Filter for Various Vacuum Piping

⚠ Safety instructions for this product

Safety instructions, Common safety instructions for each product category and Detailed safety instructions for each product are in the end of this catalog and our website.

Model Designation (Example) of VFU (union type)



(1) Vacuum Filter

(2) Type

U: Union type

(3) Filter size

Code	0	1	2	3	
Filter area (cm ²)	1.4	2.8 (*1)	4.7 (*2)	7.5	12.5

*1. Filter area for element length: 15mm type

*2. Filter area for element length: 25mm type

(4) Connection type and size

Code	Tube O. D. (mm)						Tube O. D. (inch)				Female thread size	
	180180	33	44	66	88	1010	5/32-5/32	3/16-3/16	1/4-1/4	3/8-3/8	M3M3	55
Size	ø1.8	ø3	ø4	ø6	ø8	ø10	ø5/32	ø3/16	ø1/4	ø3/8	M3×0.5	M5×0.8

(5) Element length (Code entry for VFU 1 only)

Code	15	25
Element length (mm)	15	25

(6) Body material (Code entry for VFU1, 2, 3)

P: Resin body type

(7) Holder

Code	No code	-NH
Holder	With holder	Without holder

(8)-S3 spec. (Metal option)

Code	No code	-S3 (*)
Metal material	Standard spec.	No copper-based metallic materials used in flow paths.
Seal rubber material	Standard spec.	HNBR or FKM
Release-ring color	Light gray	Dark blue

*1. VFU0 type and connection size dia. 3mm are not available for -S3 spec.

*2. -S3 spec. is not available for inch size.

Characteristics of VFU type (union type)



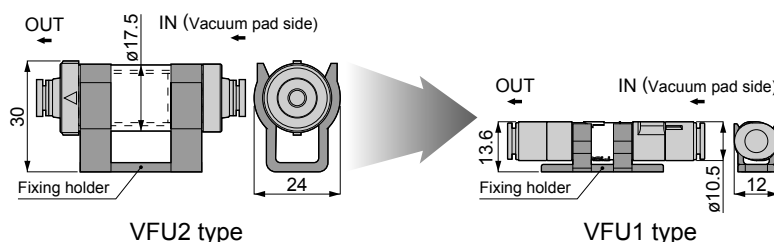
● VFU2, 3 type

Easy installing in-line type. Pipe resistance is small and stable.

● VFU0, 1 type

Smallest footprint. Best suitable for applications where a high-cycle vacuum system is required.

As shown in the drawings below, VFU0, 1 types can be installed in narrow spaces.



2 options (for VFU1 type only) of element size (Filter area)

Selectable from 2 types, depending on dust size or replacement timing of the element.

For IN and OUT side connection, Push-in fitting and female thread are selectable.

Piping with various items, especially with a Minimal fitting, can save installation space.

Example of connection with a Minimal fitting. ▶



● -S3 spec. (Metal option)

No copper-based metallic materials used in flow paths.

Seal rubber material is HNBR or FKM, both of which have good ozone resistance.

Vacuum Filter

Model designation (Example) of VFB (large capacity: union type) and VFR (large capacity : bowl capacity 60 m² type)



(1) Vacuum Filter

(2) Type

Code	B	R
Type	Large capacity union type	Large capacity (bowl capacity 60 m ²) type

(3) Filter size
20: 20cm²

(4) IN side tube dia.

Code	6	8	10	12	16
Size	ø6	ø8	ø10	ø12	ø16

(5) OUT side tube dia.

Code	6	8	10	12	16	3/16	1/4	5/16	3/8	1/2	No code
Tube O.D.	ø6mm	ø8mm	ø10mm	ø12mm	ø16mm	ø3/16"	ø1/4"	ø5/16"	ø3/8"	ø1/2"	Open to air (VFR only) type

(6) Body color

Code	No code	-W
Body color	Black	Light gray

Characteristics of VFB (large capacity: union type) and VFR (large capacity : bowl capacity 60m² type)

• VFB (Union) type

Easy detachment of dust case prevents scattering of dust.

To be used in the vacuum circuit, between vacuum generator and vacuum pad, or between vacuum pump and matched device.



• VFR (bowl capacity 60m²) type

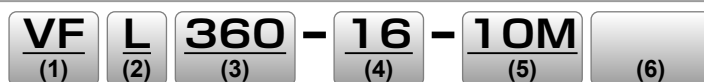
Removing dust and water droplets sucked in by vacuum generator or vacuum pump by cyclone effect and element.

Large dust case reduces maintenance frequency.

Filter for vacuum generator exhaust port is also available.



Model Designation (Example) of VFL (large capacity: bowl capacity 90m² type)



(1) Vacuum Filter

(2) Type

L: Large capacity (bowl capacity 90m²) type

(3) Processing flow rate

360: 360ℓ / min [ANR]

(4) Connection type and size

Code	Push-in fitting			Taper pipe female thread			Parallel pipe female thread		
	10	12	16	03	04	06	G3	G4	G6
Size	ø10	ø12	ø16	R3/8	R1/2	R3/4	G3/8	G1/2	G3/4

(5) Filtering accuracy

Code	1M	5M	10M	200M
Filtering accuracy (μm)	1	5	10	200

(6) Bracket

Code	No code	-NB
Bracket	With bracket	Without bracket

Characteristics of VFL (large capacity: bowl capacity 90m²) type

Flow rate: 360ℓ/min [ANR]. Large capacity ensures large flow rate.

Four types of filtration accuracy can be selected according to applications.

Filtration accuracy: 1μm, 5μm, 10μm, 200μm

Various types of connections.

Taper pipe female thread, Parallel pipe female thread and Push-in fitting are available.



Model Designation (Example) of VFJ (Plug-in type)



(1) Vacuum Filter

(2) Type

J: Plug-in type

(3) Joint size

Code	33M	44	66	1/8-1/8M	1/4-1/4
Size	ø3mm	ø4mm	ø6mm	ø1/8"	ø1/4"

Characteristics of VFJ (Plug-in type)

Suitable for vacuum generator stand-alone type without built-in filter.

Plug-in type with filter. PP material achieves a low price.

Built-in filter inside.

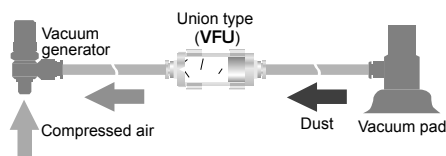


VFJ

Piping example

Union type (VFU), Large capacity union type (VFB)

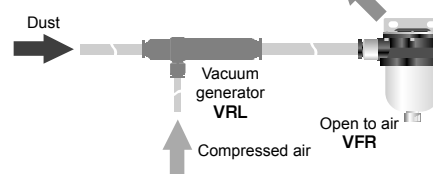
Place a vacuum filter between vacuum generator and vacuum pad, or between vacuum pump and matched device to filter out dust and prevent damage to vacuum generator or vacuum pump.



Large capacity type (bowl capacity 60m³) Open to air exhaust (VFR)

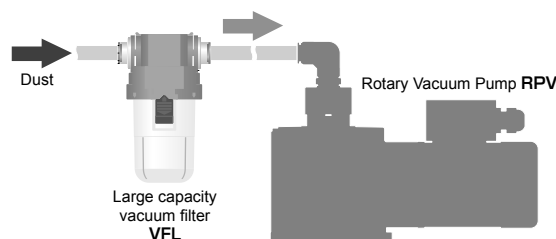
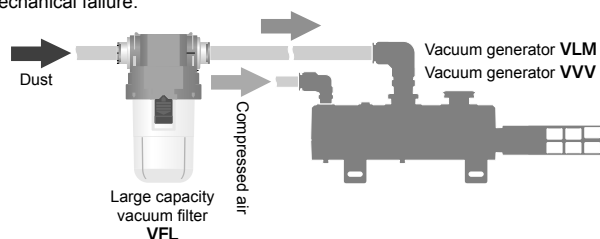
Open to air exhaust "VFR" is to be installed on the exhaust side of Vacuum Generator VRL for transferring tiny work-pieces like particles and powder.

* Contact us for particle transferring application.



Large capacity type (bowl capacity 90m³) (VFL)

Large capacity vacuum filter, by being installed close to the large flow vacuum generator or the vacuum pump, would remove dust particles and prevent their mechanical failure.



Specifications

VFU type

Type	VFU0	VFU1	VFU2	VFU3
Fluid medium	Air			
Operating pressure range	-100 to 0 kPa			
Filtering accuracy (*1)	5 μm (Trapping efficiency : 95%)			
Operating temp. range	0 to 60 °C (No freezing)			
Filter area	1.4cm²	2.8cm² (*2) 4.7cm² (*3)	7.5cm²	12.5cm²

*1. Based on PISCO measuring condition.

*2. Filter area for element length: 15mm type

*3. Filter area for element length: 25mm type

VFR, VFB type

Type	VFR	VFB
Fluid medium	Air	
Operating pressure range	-100 to 0 kPa	
Filtering accuracy (*)	10 μm	
Operating temp. range	0 to 60 °C (No freezing)	
Filter area	20 cm²	

* Based on PISCO measuring condition.

VFL type

Fluid medium	Air
Operating pressure range	-101 to 0 kPa
Filtering accuracy (*1)	1, 5, 10, 200 μm (Trapping efficiency : 95%)
Operating temp. range	0 to 60 °C (No freezing)
Filter area	64.4 cm²
Processing flow rate (*2)	360 l/min [ANR]
Bowl capacity	90 cm³
Blow-off pressure (*3)	0.1 MPa max

*1. Based on PISCO measuring condition.

*2. Processing flow rate with the condition under which the filtration accuracy is 5 μm and the pressure loss is 3 kPa of a representative filter.

*3. Allowable internal pressure when a momentary positive pressure is applied for blow-off purpose.

VFJ type

Fluid medium	Air
Operating pressure range	-100 to 0 kPa
Filtering accuracy (*1)	5 μm (Trapping efficiency : 95%)
Operating temp. range	0 to 60 °C (No freezing)
Filter area	Joint size 33M, 44, 1/8-1/8M: 0.8cm² Joint size 66 1/4-1/4 : 1.1cm²

*1. Based on PISCO measuring condition.

*2. Proof pressure is 0.2MPa (29psi) max. when blow-off pressure is applied.

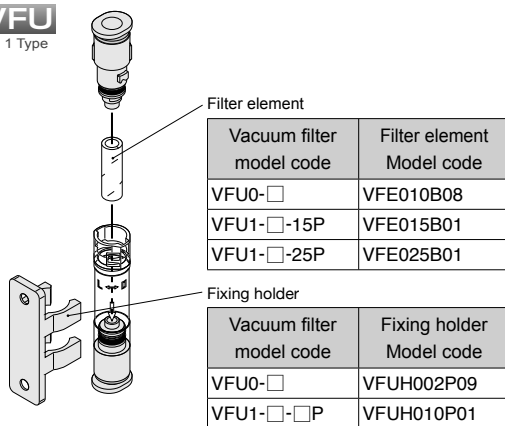
Vacuum Filter

RoHS2 (2011/65/EU+EU2015/863) compliant

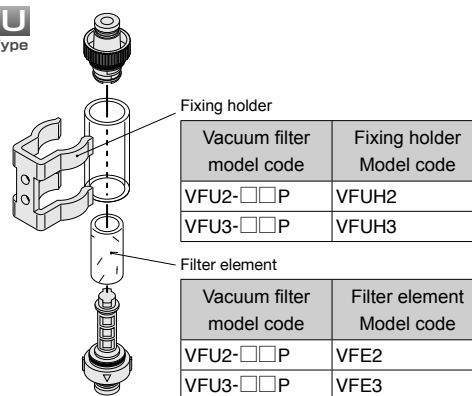
Union type			Large capacity type (bowl capacity 60m ²)					
Type	Model code		Type	Model code	Model code	Type	Model code	Model code
	VFU3-M-5P78			VFR20-øD-øD6	VFR20-øD-øD		VFR20-øD6	VFR20-øD
Union type Female thread	VFU0-M3M37		Union type	VFR20-6-66	VFR20-3/16-3/16	Open to air type	VFR20-66	VFR20-3/16
VFU	VFU1-55-15P78		VFR	VFR20-8-86	VFR20-1/4-1/4		VFR20-86	VFR20-1/4
0, 1 Type	VFU1-55-25P78			VFR20-10-106	VFR20-5/16-5/16		VFR20-106	VFR20-5/16
M		* The picture shows the product with Holder.		VFR20-12-126	VFR20-3/8-3/8		VFR20-126	VFR20-3/8
				VFR20-16-166	VFR20-1/2-1/2		VFR20-166	VFR20-1/2

Replacement element

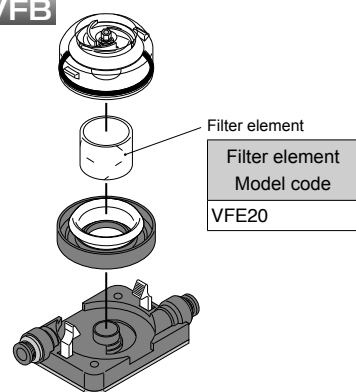
VFU
0, 1 Type



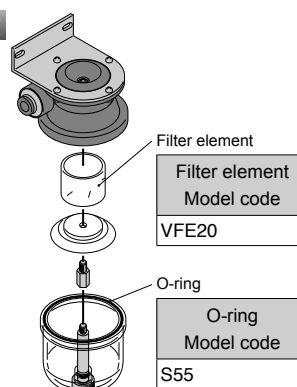
VFU
2, 3 Type



VFB



VFR



CAD data is available
at PISCO website.

Packaging specifications
1 pc. /bag
10 pcs /bag : Filter element

Option

VFU type
7: -HN ⇒ Without holder
8: -S3 ⇒ -S3 spec.
VFB VFR type
6: -W ⇒ Light gray

RoHS2 (2011/65/EU+EU2015/863) compliant

Large capacity type (bowl capacity 90m²)

Type	Model code VFL360- ϕ D- $\square$ 5 $\square$ 6	Type	Model code VFL360-R- $\square$ 5 $\square$ 6	Model code VFL360-R- $\square$ 5 $\square$ 6
Push-in fitting type VFL	VFL360-10-1M $\square$ 6 VFL360-10-5M $\square$ 6 VFL360-10-10M $\square$ 6 VFL360-10-200M $\square$ 6 VFL360-12-1M $\square$ 6 VFL360-12-5M $\square$ 6 VFL360-12-10M $\square$ 6 VFL360-12-200M $\square$ 6 VFL360-16-1M $\square$ 6 VFL360-16-5M $\square$ 6 VFL360-16-10M $\square$ 6 VFL360-16-200M $\square$ 6	Female thread type VFL	Taper pipe female thread VFL360-03-1M $\square$ 6 VFL360-03-5M $\square$ 6 VFL360-03-10M $\square$ 6 VFL360-03-200M $\square$ 6 VFL360-04-1M $\square$ 6 VFL360-04-5M $\square$ 6 VFL360-04-10M $\square$ 6 VFL360-04-200M $\square$ 6 VFL360-06-1M $\square$ 6 VFL360-06-5M $\square$ 6 VFL360-06-10M $\square$ 6 VFL360-06-200M $\square$ 6	Parallel pipe female thread VFL360-G3-1M $\square$ 6 VFL360-G3-5M $\square$ 6 VFL360-G3-10M $\square$ 6 VFL360-G3-200M $\square$ 6 VFL360-G4-1M $\square$ 6 VFL360-G4-5M $\square$ 6 VFL360-G4-10M $\square$ 6 VFL360-G4-200M $\square$ 6 VFL360-G6-1M $\square$ 6 VFL360-G6-5M $\square$ 6 VFL360-G6-10M $\square$ 6 VFL360-G6-200M $\square$ 6

* The picture shows the product with Bracket.

* The picture shows the product with Bracket.

Plug-in Type

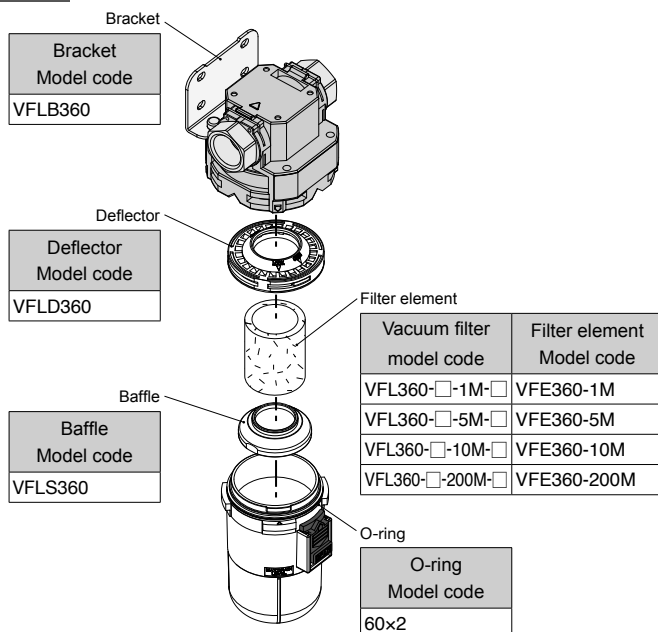
Type	Model code VFJ ϕ D ϕ D
Plug-in Type VFJ	VFJ33M VFJ44 VFJ66 VFJ $\frac{1}{8}$ - $\frac{1}{8}$ M VFJ $\frac{1}{4}$ - $\frac{1}{4}$



Option
6: -NB $\Rightarrow$ No bracket

Replacement element

VFL



CAD data is available
at PISCO website.

Packaging specifications
1 pc. /bag

■ How to fix the body

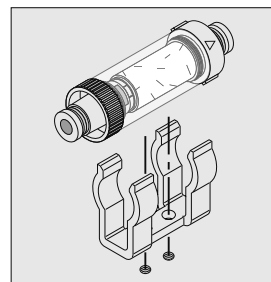
● VFU type

Use the fixing holes in Fixing Holder to fasten with the screws below. (Refer to the dimensional drawings for the hole pitch.)

Fixing screws

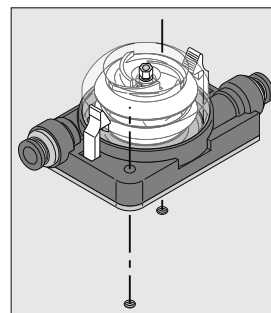
VFU1 series: M3 machine screws

VFU2, 3 series: M4 screws



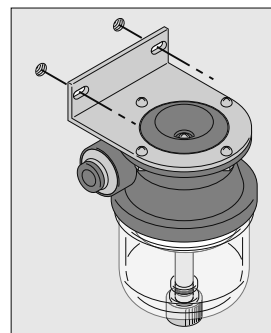
● VFB type

Use the fixing holes to fasten with M5 screws. (Refer to the dimensional drawings for the hole pitch.)



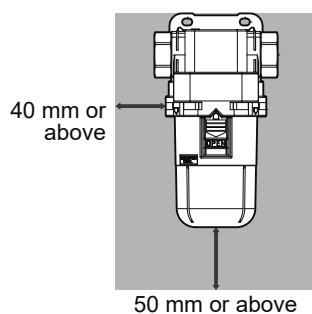
● VFR type

Use the fixing holes in Bracket to fasten with M5 screws. (Refer to the dimensional drawings for the hole pitch.)

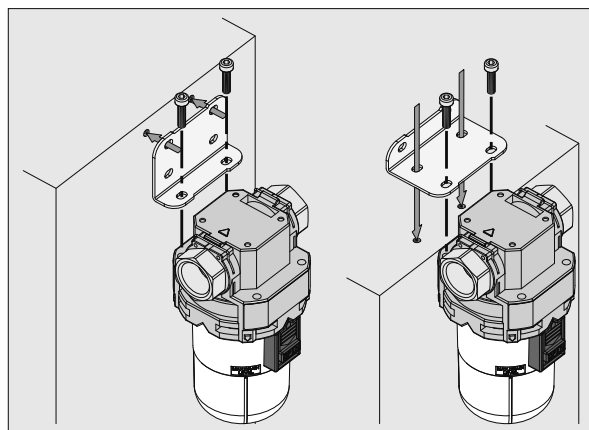


● VFL type

Fix Bracket to the product as shown in the right figure (fixing torque: 3.5 N·m), and fasten with M5 screws using the fixing holes in Bracket. (Refer to the dimensional drawings for the hole pitch.)

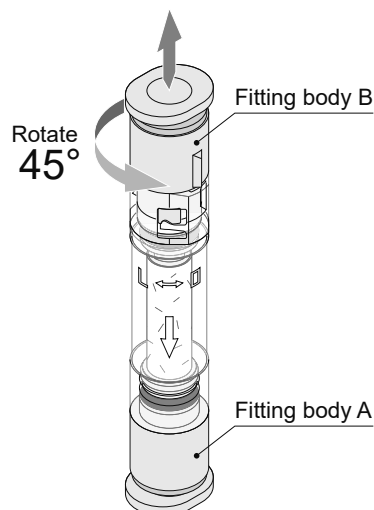


*Ensure sufficient space for maintenance as shown on the left when installing or fixing the product.



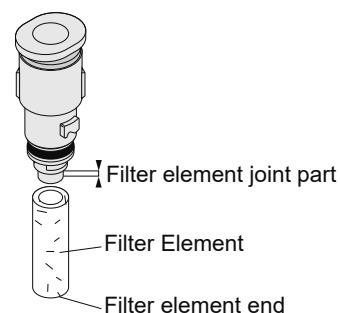
■ How to replace Filter Element for VFU0 & 1 type

- (1) Rotate the fitting body 45° in the direction of “O”.
(After replacement, rotate the fitting body in the direction of “L” until it locks.)



- (2) Remove the rotated fitting body from the filter cover and replace Filter Element. Insert Filter Element halfway into the filter element joint part, and then insert it into the fitting body A without crushing the end of Filter Element.

- *1. There are two types of replacement element (15 mm and 25 mm). Be sure to select the suitable one beforehand.
*2. After replacement, reverse the procedure mentioned above, and make sure to lock the fitting body.

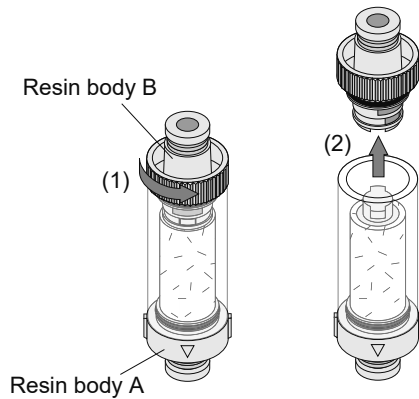


■ How to remove/lock the body when replacing Filter Element for VFU2 & 3 type

● Removing

- (1) Rotate resin body B 45° counterclockwise. (*)
- (2) Pull out resin body B.

*When rotating resin body B, be sure not to rotate it beyond 45°. It may cause damage to the body.

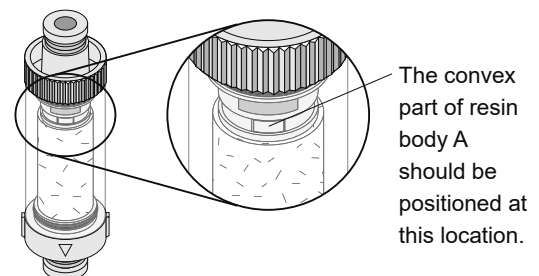
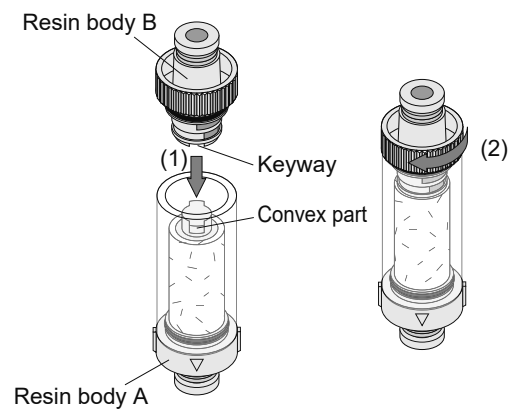


● Locking

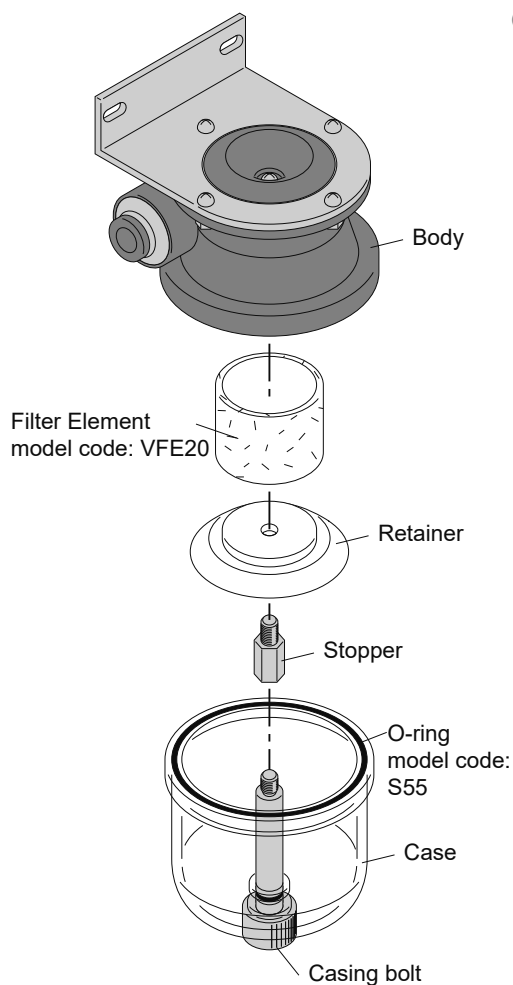
- (1) Align the convex part of resin body A with the keyway of resin body B and push until it stops.
- (2) Rotate resin body B 45° clockwise (*) to lock it.

*1. When rotating resin body B, be sure not to rotate it beyond 45°. It may cause damage to the body.

*2. When locking, as shown in the figure below, make sure the convex part of resin body A fits into the center of resin body B's hole.



■ Replacement element for VFR type



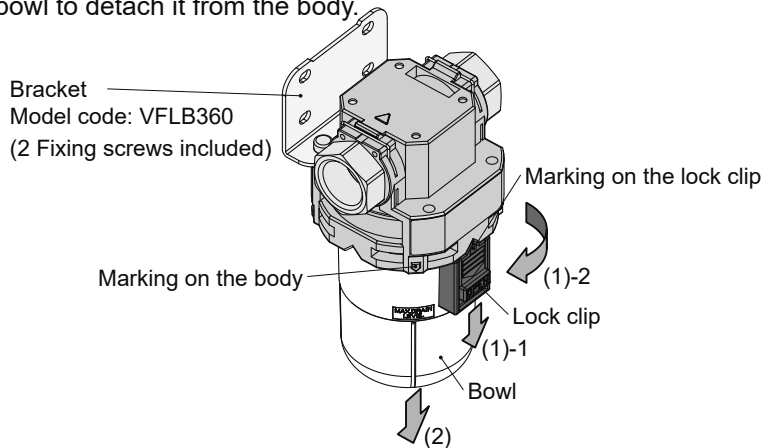
● Replacing Filter Element

- (1) Remove the casing bolt.
- (2) Remove the case.
- (3) Remove the stopper.
- (4) Remove the retainer and Filter Element.
- (5) Insert Filter Element into the body, mount the retainer on the stopper, and fix it securely at the designated torque.
- (6) Check that O-ring on the case has not dropped off, tighten the casing bolt manually until it touches the bottom of the case lightly, and then retighten the bolt 180°.

Designated torque	0.36 to 0.44 N·m
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■ VFL Type / How to remove dust from the bowl and replace Filter Element

- (1) Turn the bowl to the arrowed direction [(1)-2] while pushing down the lock clip [(1)-1]. Align the marking on the lock clip with the marking on the body.
- (2) Pull down the bowl to detach it from the body.



- (3) Turn Deflector to the arrowed direction to align its OPEN ▽ marking to △ marking on the bowl.
- (4) Detach Deflector from the bowl and take out Filter Element from the bowl.
- (5) Take out the Baffle from Filter Element. (Only for replacement of Filter Element)
- (6) Remove dust from the bowl and replace Filter Element.
- (7) Attach Baffle to the new Filter Element. (Only for replacement of Filter Element)
- (8) Place Filter Element in the bowl and confirm that O-ring is installed in the right position. Attach Deflector to the bowl with its OPEN ▽ marking aligned with △ marking on the bowl. Then turn Deflector to align its LOCK ▽ marking with △ marking on the bowl.
- (9) Attach the bowl to the body with the marking on the lock clip aligned with the marking on the body. Turn the bowl until the lock clip goes up and clicks into place to lock.

