

Clean exhaust filter

FAC Series

● Port size: $\phi 4, \phi 6, \phi 8, \phi 10, R1/8, R1/4, R3/8, R1/2, Rc3/8, Rc1/2$

- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FlmResistFR
- Oil-ProhR
- MedPresFR
- No Cu/PTFE FRL
- Outdrs FR
- F.R.L (Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr
- CheckV/other
- Jnt/tube
- AirUnt
- PrecsCompn
- Mech/ElecPresSw
- ContactSW
- AirSens
- PresSW Cool
- AirFloSens/Contr
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending

Direct exhaust in clean rooms.

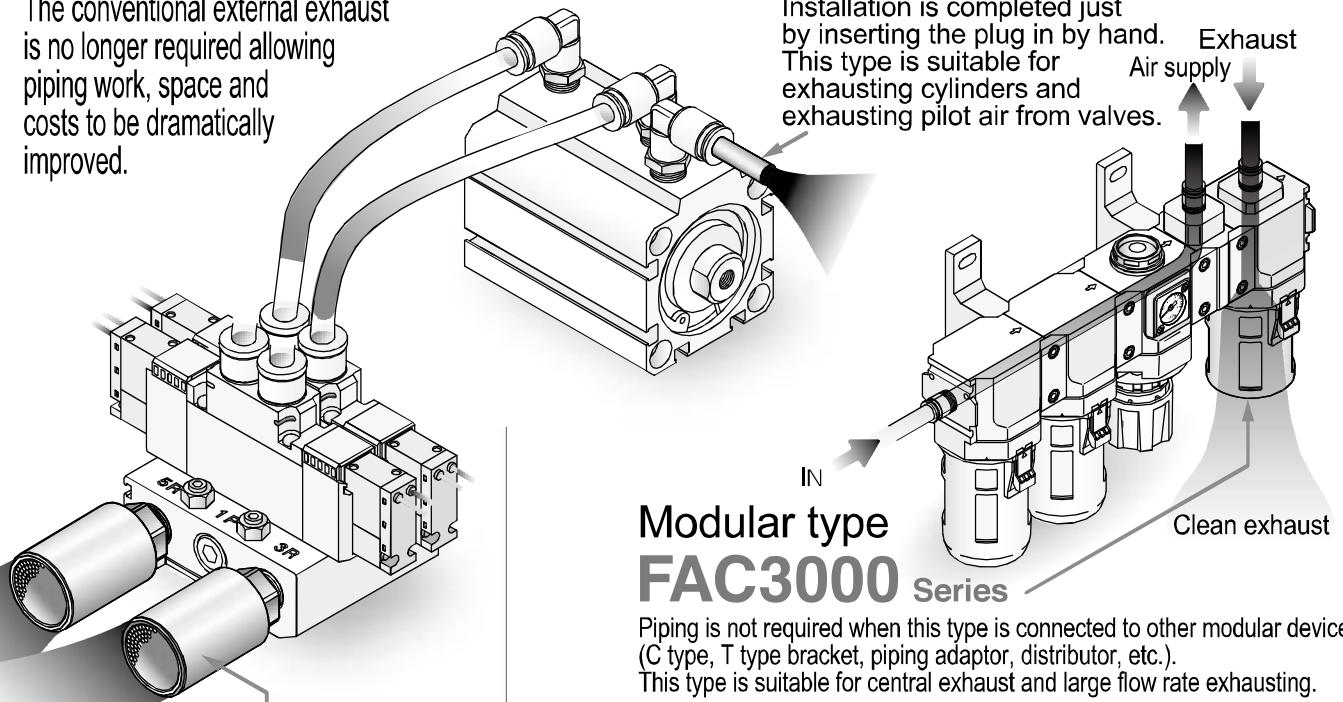
The innovative clean exhaust filter FAC Series with newly incorporated hollow fiber membrane structure allows the exhaust air in the pneumatic circuit to be cleaned with high precision.

Direct exhausting is possible just by mounting this filter onto the exhaust port of devices in a Class 10 or below clean room.

The conventional external exhaust is no longer required allowing piping work, space and costs to be dramatically improved.

Plug type FAC10 Series

Installation is completed just by inserting the plug in by hand. This type is suitable for exhausting cylinders and exhausting pilot air from valves.



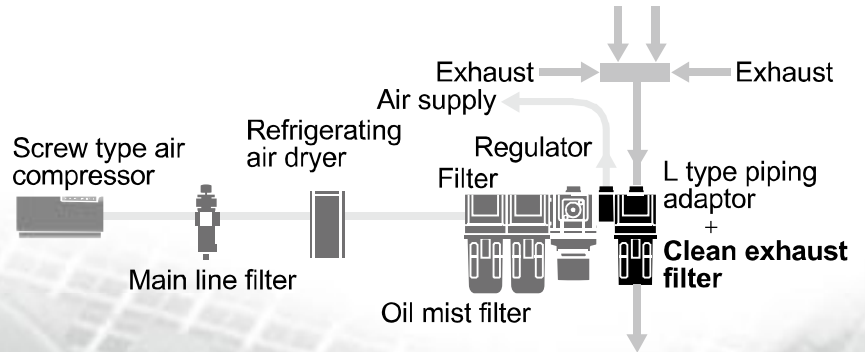
Modular type FAC3000 Series

Piping is not required when this type is connected to other modular devices (C type, T type bracket, piping adaptor, distributor, etc.). This type is suitable for central exhaust and large flow rate exhausting.

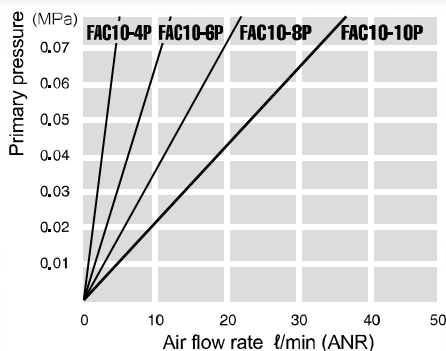
Silencer type FAC100/200 Series

This male thread type is provided with a silencer function, and can be directly installed on the valve's R port.

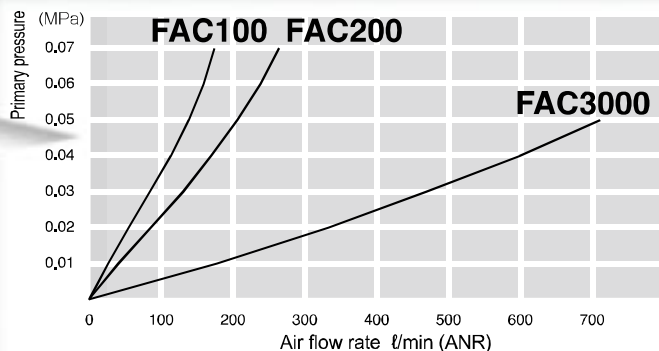
* For installation, refer to the safety precautions (page 501).



Flow characteristics/FAC10



Flow characteristics/FAC100, FAC200, FAC3000



Revolutionary exhaust system for clean rooms

Precise filtration

0.01 μm filtration, 99.99% removal efficiency

High secondary cleanliness

100% of 0.1 μm and larger particles are removed
 * Measurement conditions: 28.3 ℓ/min (ANR) flow rate

Cost reducing and space saving

The work, costs and space required for conventional external exhaust piping are eliminated.

Simplified piping

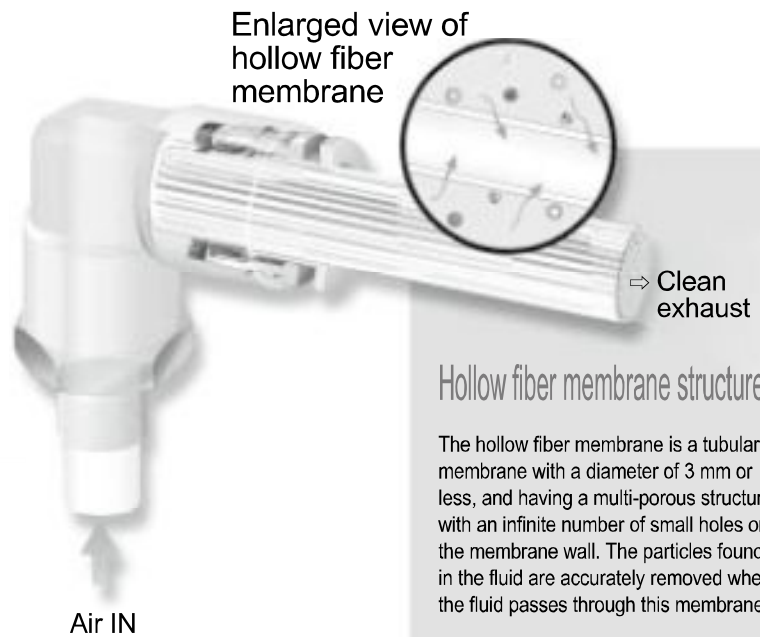
All external exhaust piping can be eliminated by mounting the plug type on the cylinder and the silencer on the switching valve, thereby simplifying the piping.

Silencer function

The exhaust noise can be suppressed to 60dB (A) or less.

Ample variations

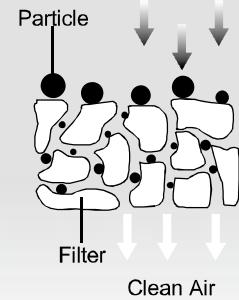
Three styles, the plug type, silencer type and modular type, as well as four flow rate series, 4 to 35, 100, 200 and 600 ℓ/min (ANR) are available.



Hollow fiber membrane structure

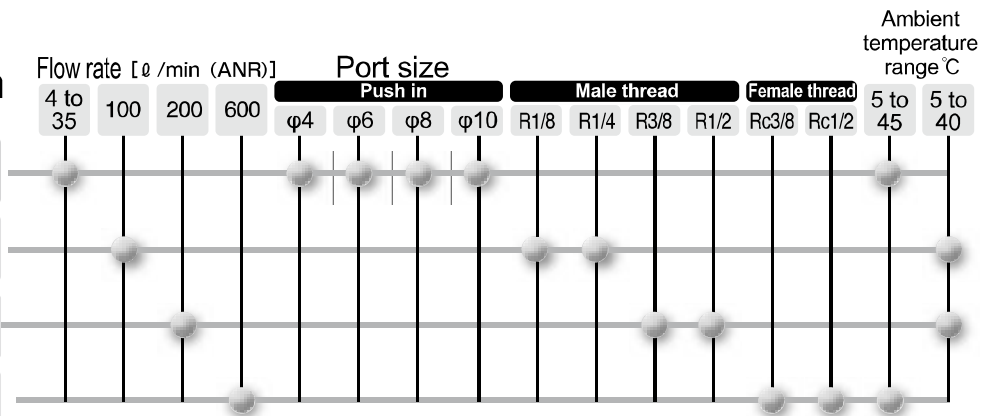
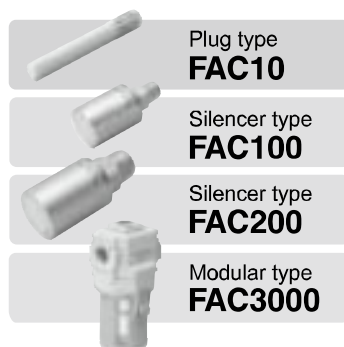
The hollow fiber membrane is a tubular membrane with a diameter of 3 mm or less, and having a multi-porous structure with an infinite number of small holes on the membrane wall. The particles found in the fluid are accurately removed when the fluid passes through this membrane.

■ Hollow fiber membrane



Clean exhaust filter

FAC Series Variation



Precautions for selecting model

This is a high precision filtration type, so the flow rate is lower than the normal silencer and cleaner. Refer to each specification for details.



Read Safety Precautions to ensure correct, safe product use.

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FmResistFR
Oil-ProhR
MedPresFR
No Cu/PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/other
Jnt/tube
AirUnt
PresCompn
Mech/ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending

Clean exhaust filter

FAC10 Series

● Port size: $\phi 4$, $\phi 6$, $\phi 8$, $\phi 10$



Specifications

Model No.	FAC10-4P	FAC10-6P	FAC10-8P	FAC10-10P
Working fluid	Compressed air			
Max. working pressure MPa	0.1 (≈ 15 psi, 1 bar)			
Min. working pressure MPa	0 (≈ 0 psi, 0 bar)			
Proof pressure MPa	0.3 (≈ 44 psi, 3 bar)			
Ambient / fluid temperatures $^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$) to 45 (113 $^{\circ}\text{F}$)			
Port size	$\phi 4$	$\phi 6$	$\phi 8$	$\phi 10$
Weight g	2		3	
Filtration rating μm	0.01 (removal efficiency 99.99% and over)			
Secondary side cleanliness	0.1 μm or larger particles are completely (100%) eliminated *1			
Max. processing flow rate $\ell/\text{min}(\text{ANR})$	4	10	20	35

*1: Maximum processing flow rate for measurement, or 28.3 ℓ/min . (ANR) when the maximum processing flow rate is 28.3 ℓ/min . (ANR) or more

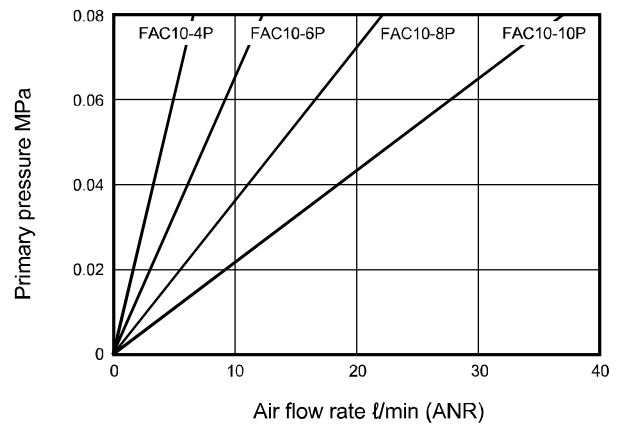
How to order

FAC10-4P

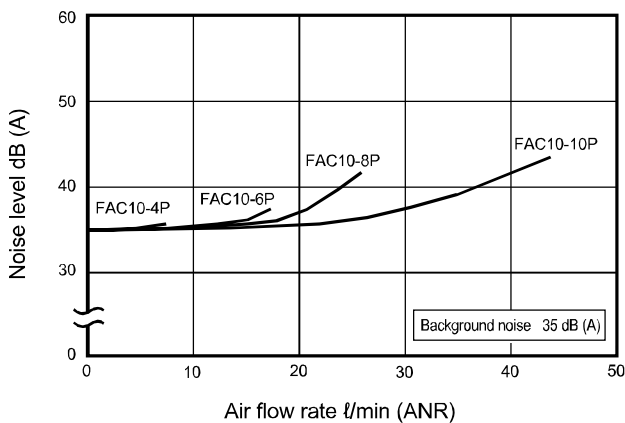
Ⓑ Port size

Code	Content
Ⓑ Port size	
4P	$\phi 4$
6P	$\phi 6$
8P	$\phi 8$
10P	$\phi 10$

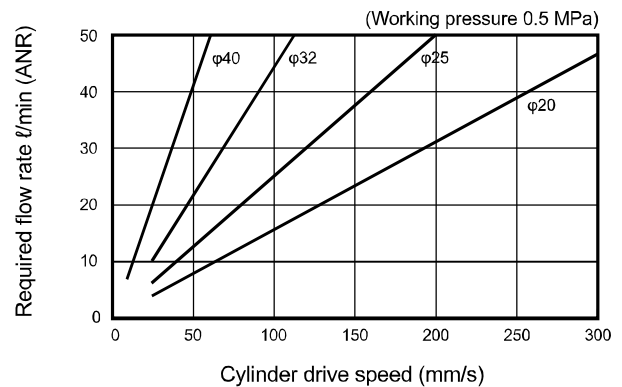
Flow characteristics



Noise level



Selection guide



The clean exhaust filter model is selected based on the working circuit's required flow rate.

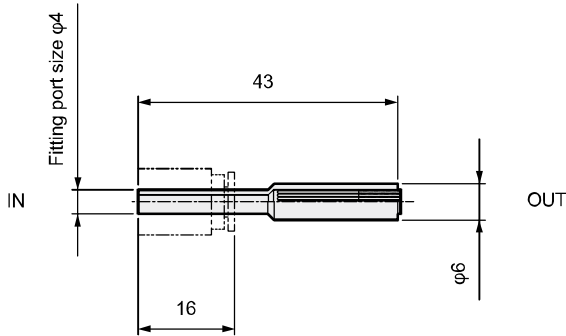
- (1) Calculate the required flow rate for the actuator being used.
- (2) Multiply the calculated required flow rate by 1.4.
- (3) Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The above graphs show the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.

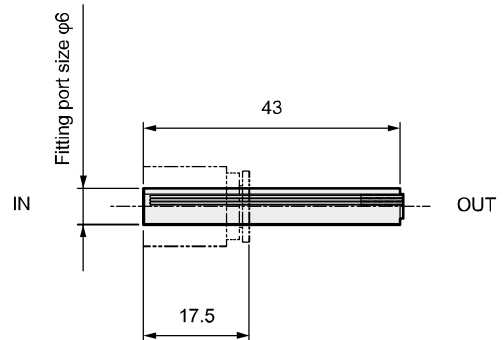
Internal structure diagram and parts list/dimensions



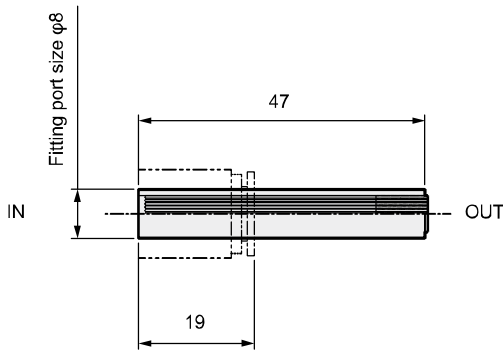
● FAC10-4P



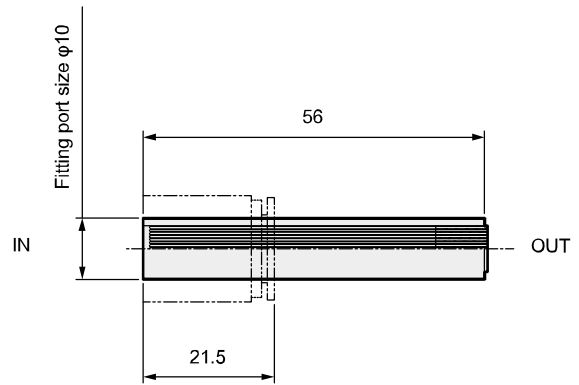
● FAC10-6P



● FAC10-8P



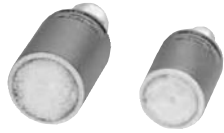
● FAC10-10P



No.	Part name	Material
1	Housing	Polyamide
	Filter	Polypropylene
	Filler material	Urethane

Cannot be disassembled

F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FlnResistFR
Oil-ProhR
MedPresFR
No Cu/ PTFE FRL
Outdrs FR
F.R.L (Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



Clean exhaust filter

FAC100/FAC200 Series

● Port size: R1/8, R1/4, R3/8, R1/2



- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FlmResistFR
- Oil-ProhR
- MedPresFR
- No Cu/PTFE FRL
- Outdrs FR
- F.R.L (Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr
- CheckV/other
- Jnt/tube
- AirUnt
- PrecsCompn
- Mech/ElecPresSw
- ContactSW
- AirSens
- PresSW Cool
- AirFloSens/Contr
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending

Specifications

Model No.	FAC100	FAC200
Working fluid	Compressed air	
Max. working pressure MPa	0.1 (≈15 psi, 1 bar)	
Min. working pressure MPa	0 (≈0 psi, 0 bar)	
Proof pressure MPa	0.3 (≈44 psi, 3 bar)	
Ambient / fluid temperatures °C	5 (41°F) to 40 (104°F)	
Port size	R 1/8,R1/4	R 3/8,R1/2
Weight g	65	85
Filtration rating μm	0.01 (removal efficiency 99.99% and over)	
Secondary side cleanliness	0.1 μm or larger particles are completely (100%) eliminated *1	
Max. processing flow rate ℓ/min(ANR)	100	200

*1: Flow rate at the time of measurement: 28.3 ℓ/min (ANR).

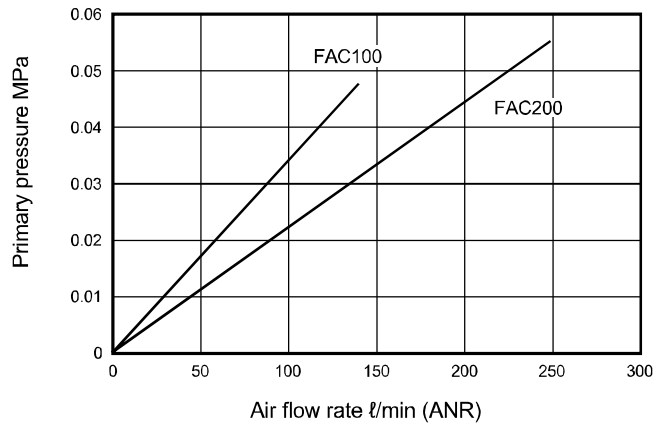
How to order

FAC100 - 8A

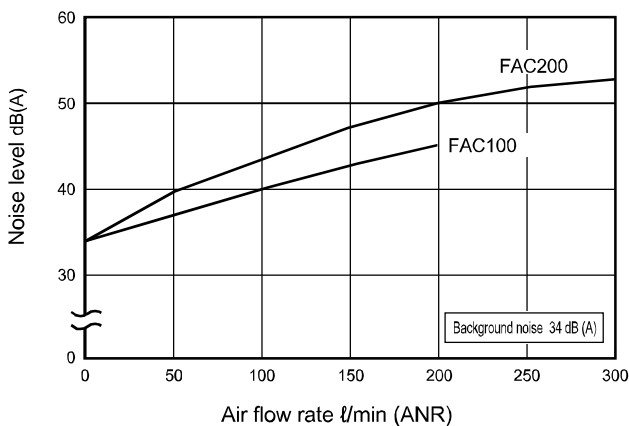
Ⓐ Model No. Ⓑ Port size

		Ⓐ Model No.	
Code	Content	FAC100	FAC200
Ⓑ Port size			
6A	R1/8	●	
8A	R1/4	●	
10A	R3/8		●
15A	R1/2		●

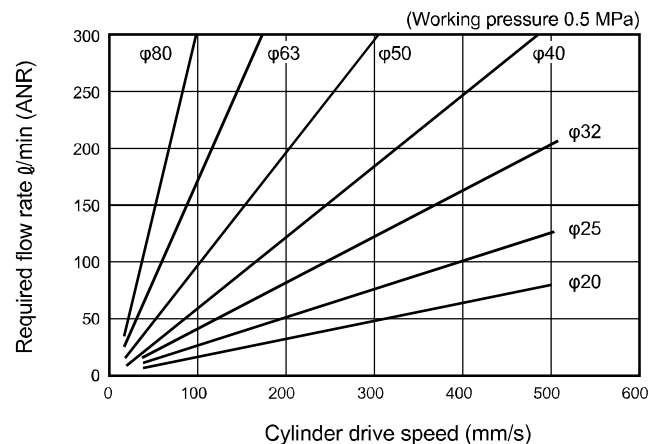
Flow characteristics



Noise level



Selection guide



The clean exhaust filter model is selected based on the working circuit's required flow rate.

- (1) Calculate the required flow rate for the actuator being used.
- (2) Multiply the calculated required flow rate by 1.4.
- (3) Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The above graphs show the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.

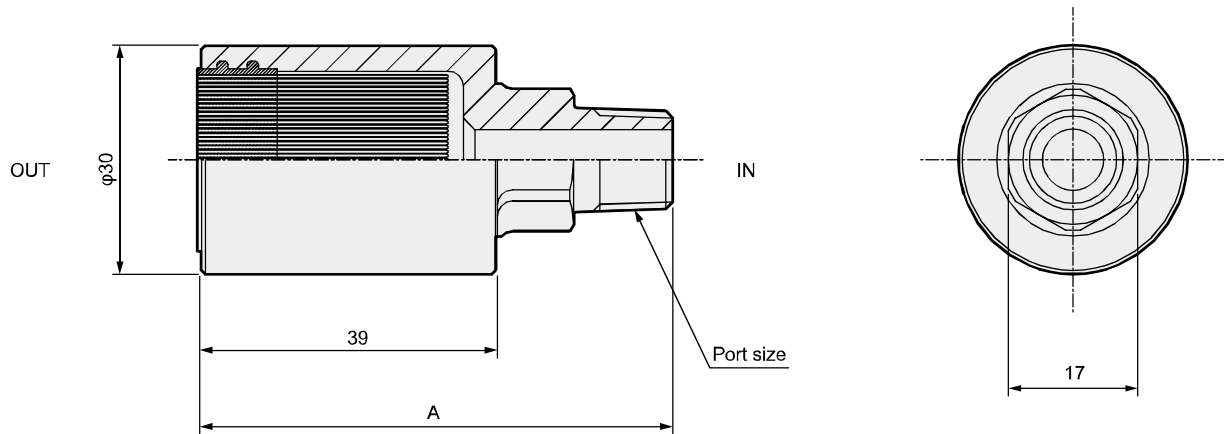
FAC100/FAC200 Series

Internal structure diagram and parts list/dimensions

Internal structure diagram and parts list/dimensions



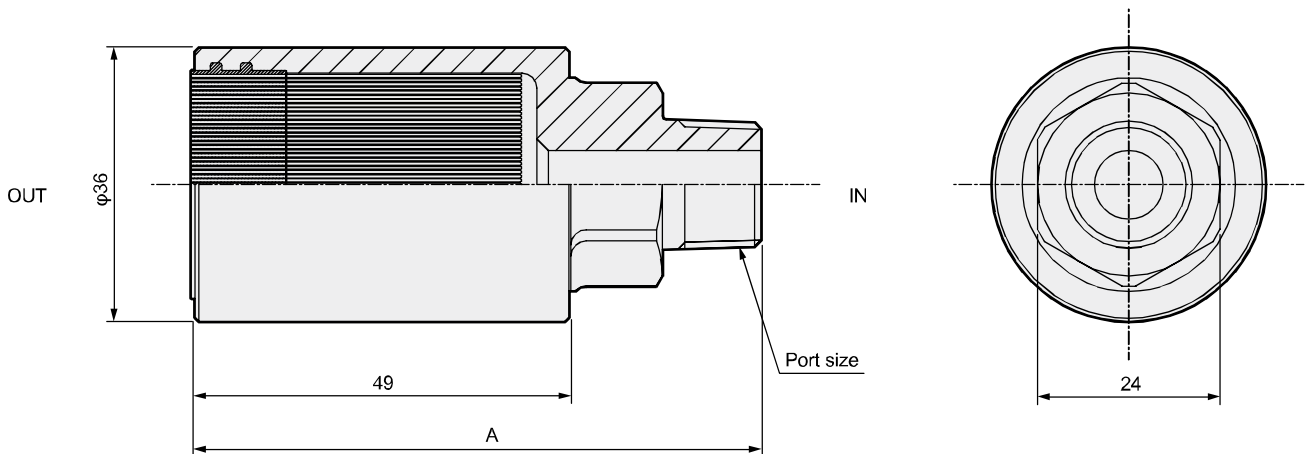
● FAC100



No.	Part name	Material
1	Housing	Aluminum alloy (alumite treatment)
	Filter	Polypropylene
	Filler material	Urethane

Model No.	A	Port size
FAC100-6A	59	R1/8
FAC100-8A	62	R1/4

● FAC200



No.	Part name	Material
1	Housing	Aluminum alloy (alumite treatment)
	Filter	Polypropylene
	Filler material	Urethane

Model No.	A	Port size
FAC200-10A	75	R3/8
FAC200-15A	78	R1/2

Cannot be disassembled

- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FmResistFR
- Oil-ProhR
- MedPresFR
- No Cu/PTFE FRL
- Outdrs FR
- F.R.L (Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr
- CheckV/other
- Jnt/tube
- AirUnt
- PresCompn
- Mech/ElecPresSw
- ContactSW
- AirSens
- PresSW Cool
- AirFloSens/Contr
- WaterRtSens
- TotAirSys (Total Air)
- TotAirSys (Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg etc
- Ending



Clean exhaust filter

FAC3000 Series

● Port size: Rc3/8, Rc1/2

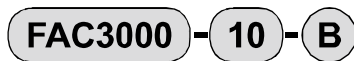


Specifications

Model No.	FAC3000	
Working fluid	Compressed air	
Max. working pressure	MPa	0.1 (≈15 psi, 1 bar)
Min. working pressure	MPa	0 (≈0 psi, 0 bar)
Proof pressure	MPa	0.3 (≈44 psi, 3 bar)
Ambient / fluid temperatures	°C	5 (41°F) to 45 (113°F)
Port size	Rc3/8,Rc1/2	
Weight	kg	0.29
Filtration rating	µm	0.01 (removal efficiency 99.99% and over)
Attachment weight	kg	0.17
Secondary side cleanliness	0.1 µm or larger particles are completely (100%) eliminated *1	
Max. processing flow rate	ℓ/min(ANR)	600

*1: Flow rate at the time of measurement: 28.3 ℓ/min (ANR).

How to order



Model No.

Ⓐ Port size

Ⓑ Attachment

Code	Content
Ⓐ Port size	
10	Rc3/8
15	Rc1/2
Ⓑ Other attachments	
Blank	Without attachment
B	C type bracket: B320-P70

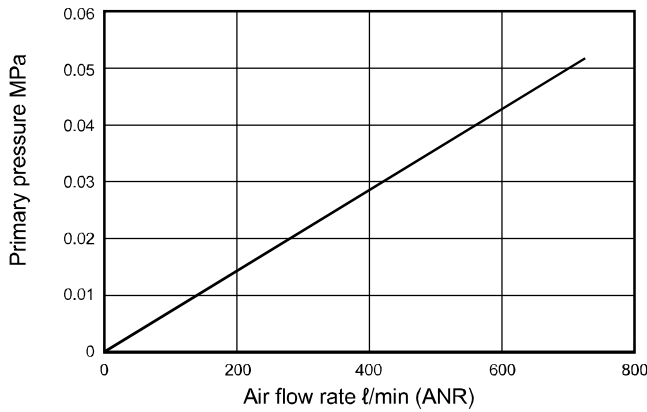
Note: Two attachments are included, one R1/8 plug and one plug corresponding to the connection port size (R3/8 or R1/2).

Model No. of single bracket

B320-P70

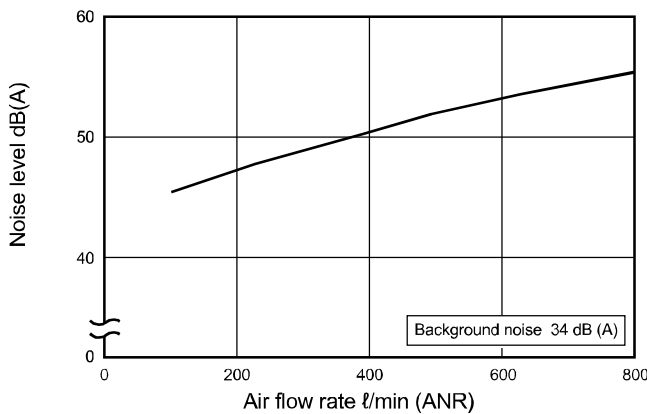
Flow characteristics

● FAC3000



Noise level

● FAC3000

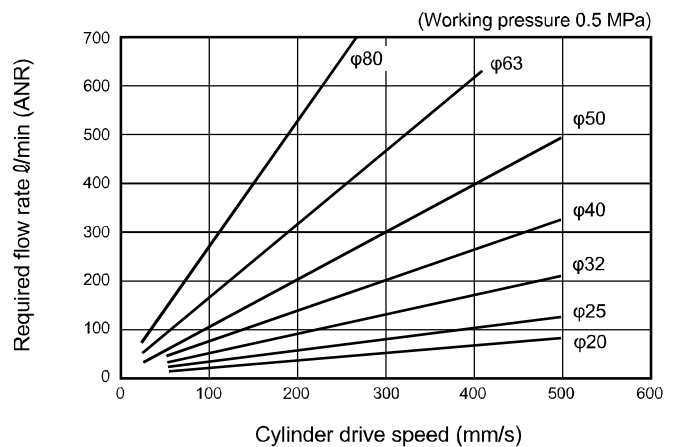


Selection guide

The clean exhaust filter model is selected based on the working circuit's required flow rate.

- (1) Calculate the required flow rate for the actuator being used.
- (2) Multiply the calculated required flow rate by 1.4.
- (3) Select a model having a processing flow rate exceeding the required flow rate multiplied by 1.4.

The graph at right shows the required flow rate multiplied by 1.4 for each air cylinder size. Use this graph to select a model.



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- F (Filtr)
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- LgFRL
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- SpdContr
- Silncr
- CheckV/ other
- Jnt/tube
- AirUnt
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- Mech/ ElecPresSw
- ContactSW
- AirSens
- PresSW Cool
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- TotAirSys (Gamma)
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- MainFiltr
- Dischrg etc
- Ending

FAC3000 Series

F.R.L Internal structure and parts list

F (Filtr) ● FAC3000

R (Reg)

L (Lub)

PresSW

Shutoff

SlowStart

FlmResistFR

Oil-ProhR

MedPresFR

No Cu/
PTFE FRL

Outdrs FR

F.R.L
(Related)

CompFRL

LgFRL

PrecsR

VacF/R

Clean FR

ElecPneuR

AirBoost

SpdContr

SiIncr

CheckV/
other

Jnt/tube

AirUnt

PrecsCompn

Mech/
ElecPresSw

ContactSW

AirSens

PresSW
Cool

AirFloSens/
Contr

WaterRtSens

TotAirSys
(Total Air)

TotAirSys
(Gamma)

RefrDry

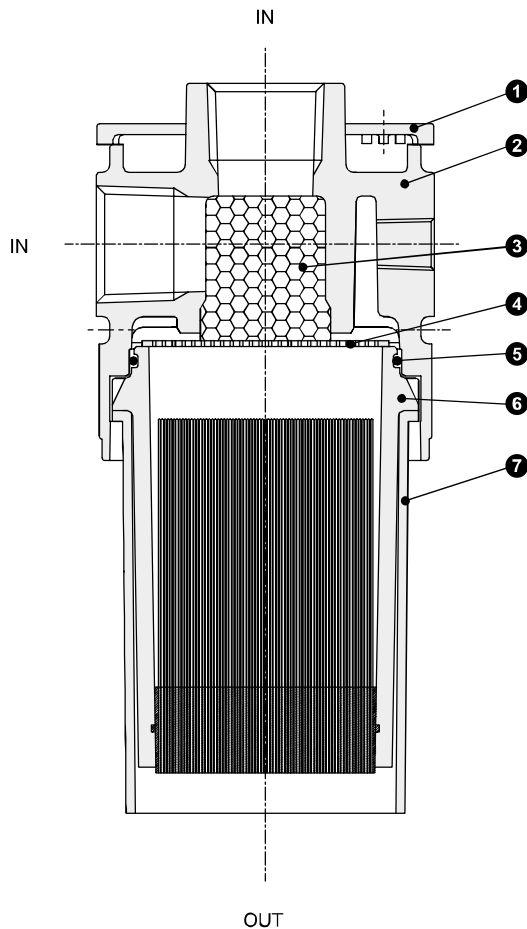
DesicDry

HiPolymDry

MainFiltr

Dischrg
etc

Ending



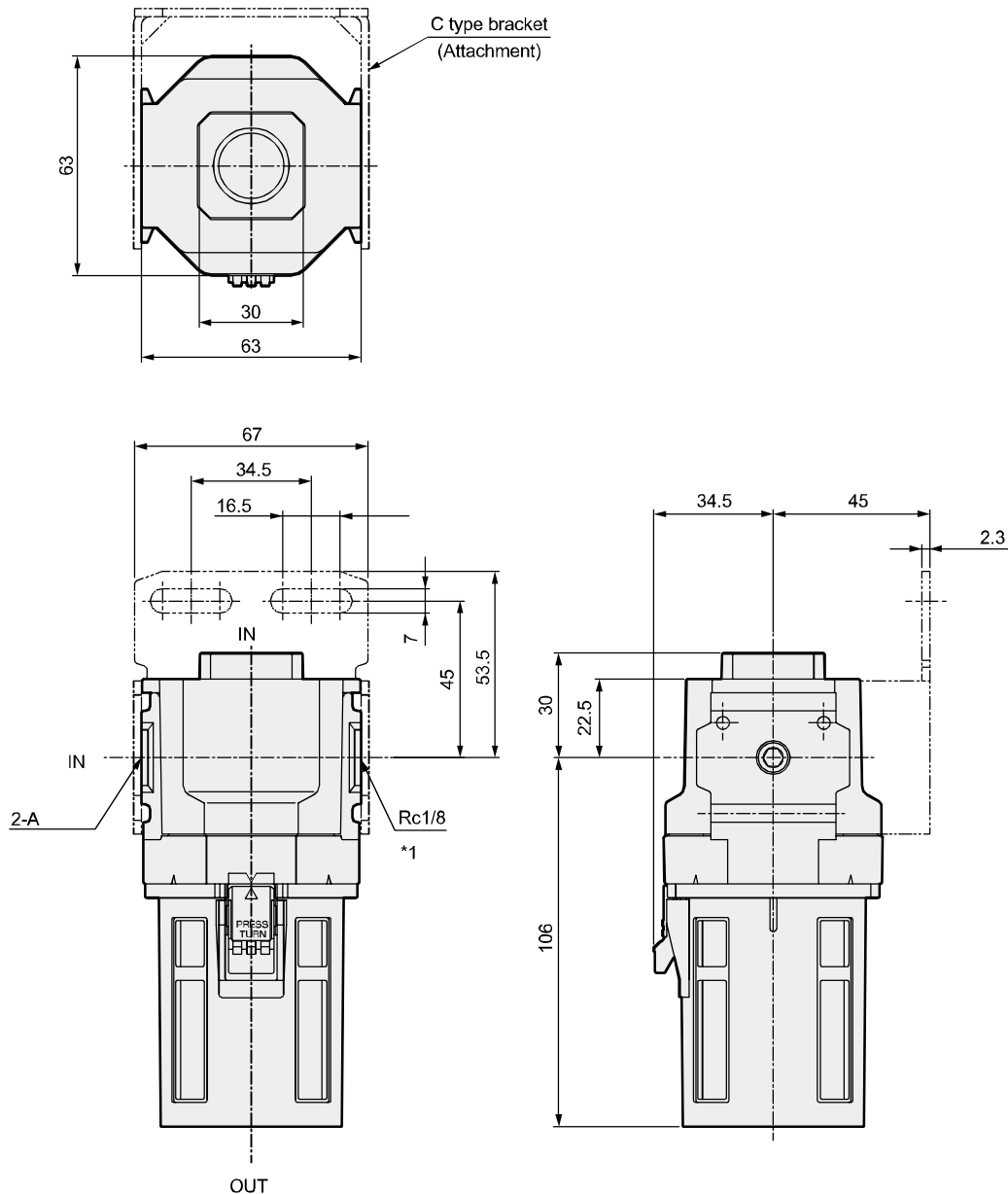
Cannot be disassembled

No.	Part name	Material	
1	Plate cover	ABS resin	
2	Body	Aluminum alloy die-casting	
3	Sound insulation material	Vinylidene chloride	
4	Rectification plate	Stainless steel	
5	O-ring	Special nitrile rubber	
6	Hollow fiber membrane element	Housing	Polycarbonate
		Filter	Polypropylene
		Filler material	Urethane
7	Bowl guard	Polyamide resin, stainless steel	

Dimensions



● FAC3000



Model No.	A
FAC3000-10	Rc3/8
FAC3000-15	Rc1/2

*1: The Rc1/8 port can be used for treating air exhaust and monitoring element life. Replace the element when primary pressure exceeds 0.1 MPa. When not using this port, plug it with the R1/8 plug provided. Contact CKD for details on repair parts such as elements.

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VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/ other
Jnt/tube
AirUnt
PresCompn
Mech/ ElecPresSw
ContactSW
AirSens
PresSW Cool
AirFloSens/ Contr
WaterRtSens
TotAirSys (Total Air)
TotAirSys (Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg etc
Ending



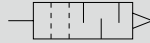
Exhaust cleaner

FA Series

Exhaust noise and oil mist have been minimized.

● Port size: Rc3/8 to Rc2

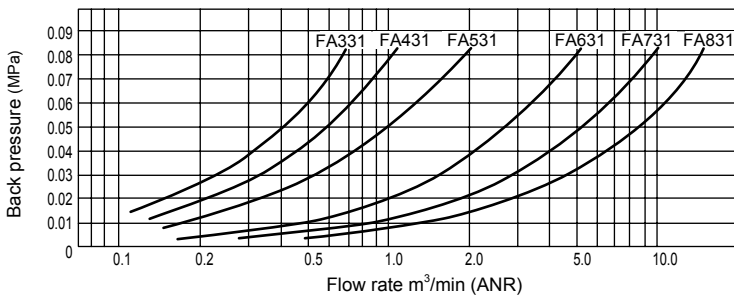
JIS symbol



Specifications

Descriptions	FA331-10A	FA431-15A	FA531-20A	FA631-25A	FA731-40A	FA831-50A
Port size Rc	3/8	1/2	3/4	1	1 1/2	2
Effective cross-sectional area mm ²	16	33	55	165	330	550
Max. processing flow rate m ³ /min(ANR)	0.3	0.6	1	3	6	10
Fluid temperature	5 (41°F) to 65 (149°F)°C (no freezing)					
Ambient temperature	0 (32°F) to 65 (149°F)°C (no freezing)					
Noise reduction effect	35 dB and over (at the max. processing flow rate in oil saturated state)					
Oil mist collection efficiency	99.9% and over					
Oil storage capacity cm ³	80	130	150	250	350	550
Weight kg	0.2	0.3	0.4	0.6	1.1	1.5
Bracket No. (option)	B351-10A	B451-15A	B551-20A	B651-25A	-	-

Flow characteristics

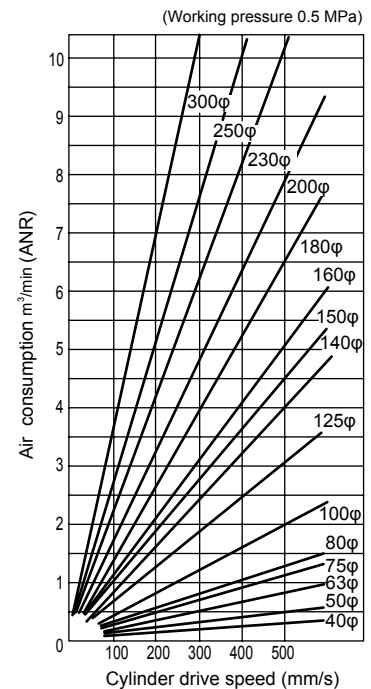


Selection guide

Select an exhaust cleaner based on the air consumption in the circuit being used.

- (1) Calculate the air consumption for the actuator being used.
- (2) Multiply the calculated air consumption by 1.4.
- (3) Select a model that has a processing flow rate exceeding the air consumption multiplied by 1.4.

The figure below shows the air consumption when multiplied by 1.4 for each air cylinder size. Use this graph to select a model.



How to order

FA **3** **31** - **10A** - **B**

Exhaust cleaner

A Series code

B Port size
*1

C Option
*2

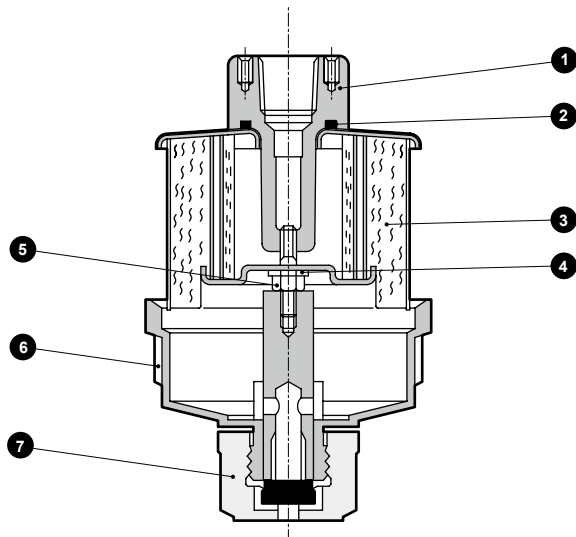
Code	Content
A Series code	
3	Compact
4	Standard
5	Large
6	Large
7	Large bore size
8	Large bore size
B Port size	
	Series 3 4 5 6 7 8
10A	Rc3/8 ●
15A	Rc1/2 ●
20A	Rc3/4 ●
25A	Rc1 ●
40A	Rc1 1/2 ●
50A	Rc2 ●
C Option	
Blank	Not attached ● ● ● ● ● ●
B	Bracket ● ● ● ● ●

⚠ Precautions for model No. selection

*1: If port size NPT thread is required, do not indicate nominal size A. (Example) FA431-15

*2: Bracket option is not available for FA731 and FA831.

Internal structure and parts list



No.	Part name	Material				
		FA331	FA431	FA531	FA631	FA731
1	Adaptor assembly	Aluminum alloy die-casting, steel			Aluminum alloy casting, steel	
2	O-ring	Nitrile rubber				
3	Element assembly	Aluminum alloy, steel, glass fiber				
4	Gasket	Polyacetal resin				
5	Nut	Steel				
6	Case assembly	Polycarbonate resin, aluminum alloy				
7	Drain cock assembly	Nitrile rubber, polyamide resin				

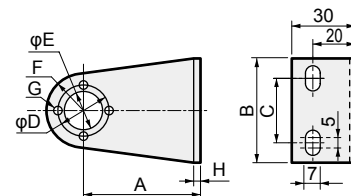
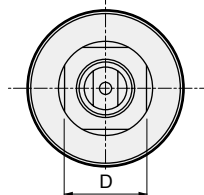
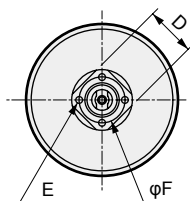
Dimensions



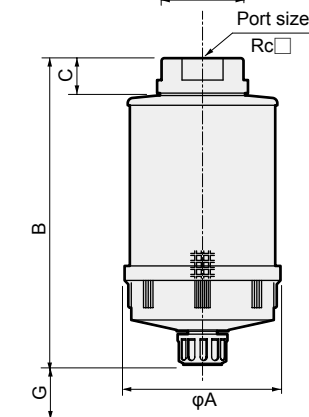
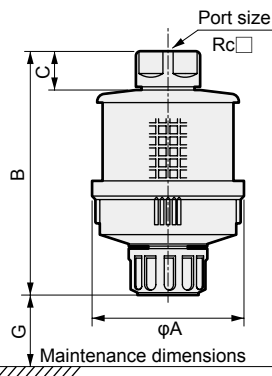
● FA331 to FA631

● FA731 to FA831

● Bracket (option)



Note) Four screws for mounting the body are attached.

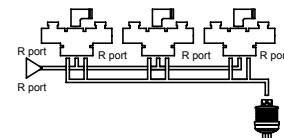


Model No.	A	B	C	D	E	F	G	H	Wt. kg
B351-10A	55	50	30	24	φ18	R16.5	4-φ3.5	2.3t	0.07
B451-15A	60	60	40	32	φ23	R20	4-φ4.5	2.3t	0.09
B551-20A	70	70	40	40	φ29	R25.4	4-φ4.5	3.2t	0.16
B651-25A	80	70	40	48	φ37	R27.5	4-φ4.5	3.2t	0.18

Common piping method

When many valves are used in one place, common piping method is recommended.

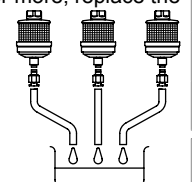
- Easy maintenance control
- Low cost



Model No.	FA331	FA431	FA531	FA631	FA731	FA831
A	80	90	100	112	132	150
B	129	147	171	201	258	311
C	20	23	25	28	32	36
D	27	32	41	46	70	80
E	4-M3 (depth 7)	4-M4 (depth 8)	4-M4 (depth 8)	4-M4 (depth 10)	-	-
F	24	32	40	48	-	-
G	80	100	100	100	200	250
Port size	Rc ³ / ₈	Rc ¹ / ₂	Rc ³ / ₄	Rc1	Rc1 ¹ / ₂	Rc2

⚠ Safety precautions

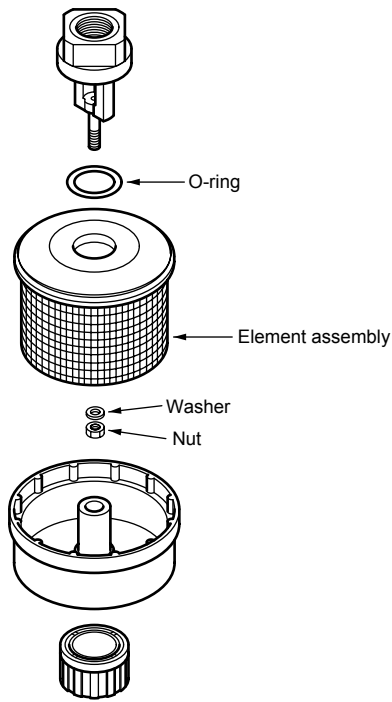
- 1 Drain the oil accumulated inside the case by opening the drain cock before the oil level reaches the element.
- 2 To connect a drain tube to the case, follow the following steps.
 - (1) Remove the drain cock.
 - (2) Screw in the R 1/8 male half union and connect the resin tube.
 - (3) Hold the adaptor assembly and screw in, taking care not to apply load to the case.
 - (4) If the back pressure increases to 0.1 MPa or more, replace the element assembly.



F.R.L
F (Filtr)
R (Reg)
L (Lub)
PresSW
Shutoff
SlowStart
FimResistFR
Oil-ProhR
MedPresFR
No Cu/
PTFE FRL
Outdrs FR
F.R.L
(Related)
CompFRL
LgFRL
PrecsR
VacF/R
Clean FR
ElecPneuR
AirBoost
SpdContr
Silncr
CheckV/
other
Jnt/tube
AirUnt
PresCompn
Mech/
ElecPresSw
ContactSW
AirSens
PresSW
Cool
AirFloSens/
Contr
WaterRiSens
TotAirSys
(Total Air)
TotAirSys
(Gamma)
RefrDry
DesicDry
HiPolymDry
MainFiltr
Dischrg
etc
Ending

Exhaust cleaner optional parts diagram

Exhaust cleaner optional parts diagram



- F.R.L
- F (Filtr)
- R (Reg)
- L (Lub)
- PresSW
- Shutoff
- SlowStart
- FimResistFR
- Oil-ProhR
- MedPresFR
- No Cu/
PTFE FRL
- Outdrs FR
- F.R.L
(Related)
- CompFRL
- LgFRL
- PrecsR
- VacF/R
- Clean FR
- ElecPneuR
- AirBoost
- SpdContr
- Silncr**
- CheckV/
other
- Jnt/tube
- AirUnt
- PrecsCompn
- Mech/
ElecPresSw
- ContactSW
- AirSens
- PresSW
Cool
- AirFloSens/
Contr
- WaterRtSens
- TotAirSys
(Total Air)
- TotAirSys
(Gamma)
- RefrDry
- DesicDry
- HiPolymDry
- MainFiltr
- Dischrg
etc
- Ending

Element kit (Element assembly, O-ring, washer and nut set)

Model	Element kit model No.
FA331-10A	FA331-ELEMENT
FA431-15A	FA431-ELEMENT
FA531-20A	FA531-ELEMENT
FA631-25A	FA631-ELEMENT
FA731-40A	FA731-ELEMENT
FA831-50A	FA831-ELEMENT