

# Medium Main Line Filter AF2

## ■ Main Line Components / Main Line Filters



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## Energy Saving Filter

Unique Design for Lower Pressure Loss

Medium Main Line Filter AF2 Series helps reduce operation costs.



### Pop-up indicator

A 360-degree high-visibility indicator, enabling differential pressure checking from all directions, is equipped as standard. (P/M-types)  
Clear Visual Indication: Turns red for immediate notification.



### Modular Connections for Space-Saving Installations

Modular Connections for Space-Saving Installations: The filters can be connected with the modular kit, enabling space-saving installation. The linked structure is simplified for easy connection.

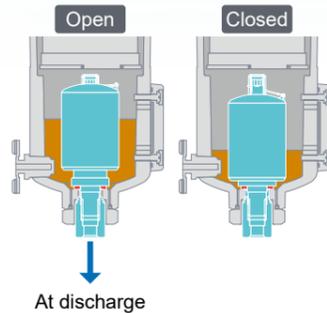


### Easy element replacement

Easy Installation: Push-fit elements allow for quick and easy installation.



### Highly reliable automatic drain equipped as standard



### With residual pressure exhaust valve

A residual pressure air release valve is equipped as standard. Versatile Drainage: This unit can also be used for manual condensate drainage for added flexibility.



### Liquid level gauge

The drain level can be visually confirmed.



## Diverse Lineup

Choose from 18 models across 3 types, each with 6 flow rates. The ideal model can be selected based on the flow rate and quality of air.

Processing air flow rate m <sup>3</sup> /min (ANR)	4.95			7.93			11.3			12.8			19.8			24.1		
Element	P	M	X	P	M	X	P	M	X	P	M	X	P	M	X	P	M	X
Rc1	●	●	●															
Rc1 1/4				●	●	●												
Rc1 1/2							●	●	●									
Rc2										●	●	●	●	●	●			
Rc2 1/2																●	●	●

\*Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa.

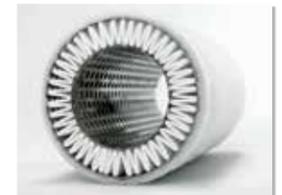
## Internal filter structure

### Double seal structure

Realizes high sealing performance.

### Colored end cap

Elements are easily identifiable due to the different colors assigned to each type.



### Pleated structure

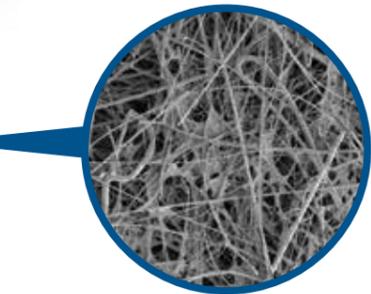
With a large filtration area, the capacity for catching impurities is increased. Pressure loss reduction and compactness are realized.

### Conventional Material Sample



The conventional element where water and oil are adhering to the material, causing pressure loss.

### AF2 Series



With hydrophobic/lipophobic borosilicate media, pressure loss is minimized.

## AF2 series variation

**Oil Mist Removal for improved air quality.**  
**Solid Particle Removal**  
Protects expensive pneumatic components



P TYPE

- Removal of particles 1 μm and over
- Removes oil up to secondary side oil concentration of 0.3 mg/m<sup>3</sup> (21°C)

**High-performance removal of oil mist and solids**  
For Pneumatic Circuits Which Prohibit Passage of Oil.



M TYPE

- Removal of particles 0.01 μm and over
- Removes oil up to secondary side oil concentration of 0.01 mg/m<sup>3</sup> (21°C)

**Removes oil vapor and odors**  
For pneumatic circuits which prohibit passage of odors



X TYPE

- Suction by activated carbon
- Removes oil vapor and odors in steam up to secondary side oil concentration of 0.003 mg/m<sup>3</sup> (21°C)

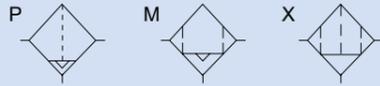


Medium Main Line Filter

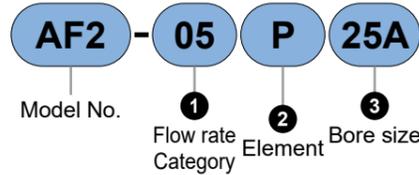
# AF2 Series

Ideal for removal of solids, oil removing and deodorizing applications  
 Processing air flow rate: 4.95 to 24.1 m<sup>3</sup>/min (ANR) (0.7 MPa)

Circuit  
 Diagram  
 Symbol



## Model No. Notation



Note: The unit's full performance may not be obtained if used at less than the selected pressure. Be sure to select the model No. with your working pressure.

### 1 Flow Rate Category

Code	Description
05	4.95 m <sup>3</sup> /min (ANR)
08	7.93 m <sup>3</sup> /min (ANR)
11	11.3 m <sup>3</sup> /min (ANR)
13	12.8 m <sup>3</sup> /min (ANR)
20	19.8 m <sup>3</sup> /min (ANR)
24	24.1 m <sup>3</sup> /min (ANR)

### 2 Element

Code	Description
P	P-type (Solids / Oil Removing Filter)
M	M-type (High-Performance Solids / Oil Removing Filter)
X	X-type (Deodorizing Filter)

### 3 Bore size

Code	Description
25A	Rc1
32A	Rc1- <sup>1</sup> / <sub>4</sub>
40A	Rc1- <sup>1</sup> / <sub>2</sub>
50A	Rc2
65A	Rc2- <sup>1</sup> / <sub>2</sub>

### Flow rate compensation coefficient

Pressure (MPa)	Compensation coefficient
0.1	0.38
0.2	0.53
0.3	0.65
0.4	0.76
0.5	0.84
0.6	0.92
0.7	1.0
0.8	1.07
0.9	1.13
1.0	1.19

If working pressure is other than 0.7 MPa, multiply processing air flow rate by the above coefficient.

### Specifications for Rechargeable Batteries

(Catalog No. CC-1226AA)

● Design compatible with rechargeable battery manufacturing processes

**AF2-.....-P4**

\*Contact CKD for details.

## Specifications

Item	AF2-05 □25A	AF2-08 □32A	AF2-11 □40A	AF2-13 □50A	AF2-20 □50A	AF2-24 □65A
Processing air flow rate m <sup>3</sup> /min (ANR)	4.95	7.93	11.3	12.8	19.8	24.1
Working fluid	Compressed air					
Working pressure MPa	0.1 to 1.0					
Proof pressure MPa	1.5					
Port size Rc	1	1- <sup>1</sup> / <sub>4</sub>	1- <sup>1</sup> / <sub>2</sub>	2.		2- <sup>1</sup> / <sub>2</sub>
Weight kg	2.2	6	5.9	5.7	6.9	13
Pop-up indicator	Standard equipment (Excluding X-type)					
Condensate Drains	Integrated (NO: exhausts when not pressurized). Excluding X-type)					
Drain outlet bore size Rc	1/8 (Excluding X-type)					

\* indicates-type name.

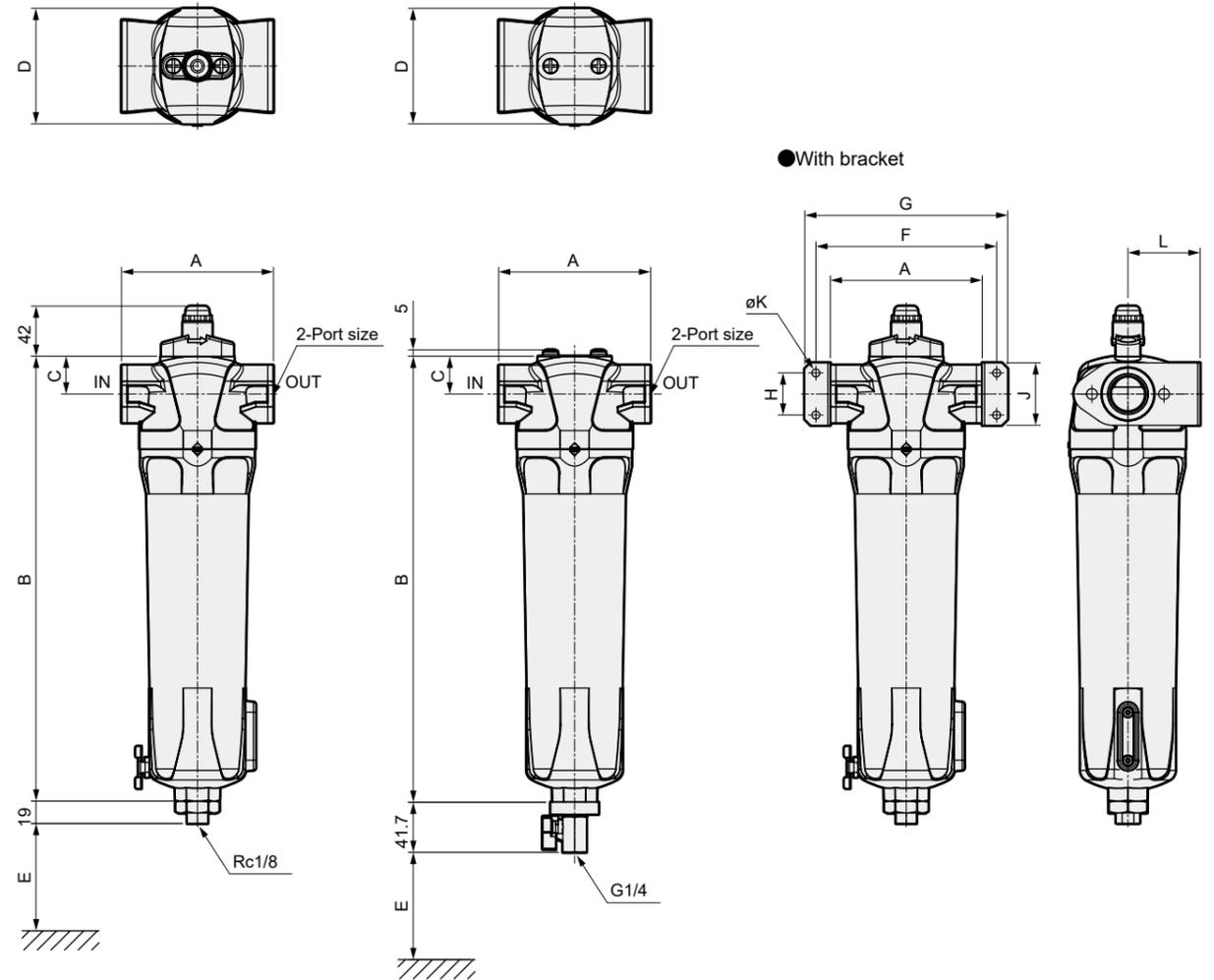
Item	P-type	M-type	X-type
Operating ambient temperature range °C	5 to 60		5 to 50
Filtration rating μm	1	0.01	Suction by activated carbon
Secondary side oil concentration mg/m <sup>3</sup>	0.3	0.01	0.003
Initial pressure drop MPa	0.0055	0.0085	0.0115
Regular pressure drop MPa	0.0125	0.0125	-

- \*1: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa.
- \*2: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.
- \*3: The secondary side oil concentration is the value when the inlet air temperature is 21°C.
- \*4: The drain discharger is NO. Air is purged with initial drainage until pressure reaches 0.1 MPa.
- \*5: The P/M elements must be replaced after one year or when the pop-up indicator turns red, whichever comes first.
- \*6: Replace the X element after 1,000 hours (at 21°C) or when the deodorizing effect is lost.
- \*7: The X-type has a ball valve (G1/4) at the discharge outlet.
- \*8: The initial pressure drop is 0.008 MPa for AF2-20P50A and 0.011 MPa for AF2-20M50A.

## Dimensions

● AF2-05P25A to AF2-24P65A  
 AF2-05M25A to AF2-24M65A

● AF2-05X25A to AF2-24X65A



Model No.	Port size	A	B	C	D	E	F	G	H	J	K	L
AF2-05P25A / 05M25A	Rc1	127	370	31.4	96	80	151	169	36	52	6.5	60
AF2-05X25A	Rc1	127	370	31.4	96	80	151	169	36	52	6.5	60
AF2-08P32A / 08M32A	Rc1- <sup>1</sup> / <sub>4</sub>	170	508	53	133	100	206	230	65	95	9	90
AF2-08X32A	Rc1- <sup>1</sup> / <sub>4</sub>	170	508	53	133	100	206	230	65	95	9	90
AF2-11P40A / 11M40A	Rc1- <sup>1</sup> / <sub>2</sub>	170	508	53	133	100	206	230	65	95	9	90
AF2-11X40A	Rc1- <sup>1</sup> / <sub>2</sub>	170	508	53	133	100	206	230	65	95	9	90
AF2-13P50A / 13M50A	Rc2	170	508	53	133	100	206	230	65	95	9	90
AF2-13X50A	Rc2	170	508	53	133	100	206	230	65	95	9	90
AF2-20P50A/20M50A	Rc2	170	708	53	133	100	206	230	65	95	9	90
AF2-20X50A	Rc2	170	708	53	133	100	206	230	65	95	9	90
AF2-24P65A/24M65A	Rc2- <sup>1</sup> / <sub>2</sub>	219	735	69	185	100	257	283	95	125	11	118
AF2-24X65A	Rc2- <sup>1</sup> / <sub>2</sub>	219	735	69	185	100	257	283	95	125	11	118

\*1: The X-type does not have a pop-up indicator.

\*2: E dimension shows the minimum dimension required to remove the element. When actually installing the auto-drain, be sure to consider the piping dimensions and maintenance workability of the auto-drain and set dimensions with sufficient margin.

Main Line Components

Refrigeration Dryers

Desiccant Dryers

High Polymer Membrane Dryers

Main Line Filters

Drain discharger, etc.

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Drain discharger, etc.

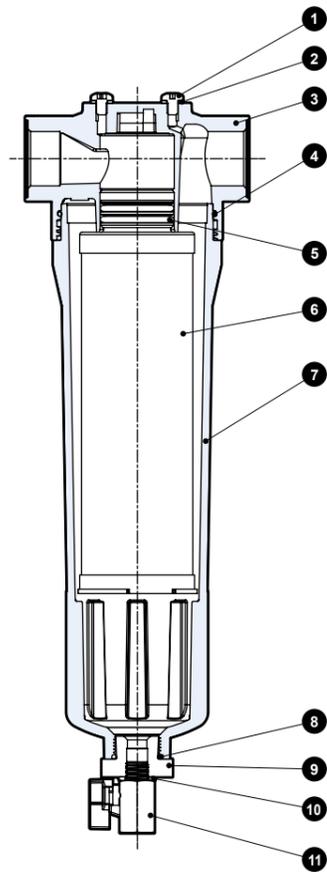
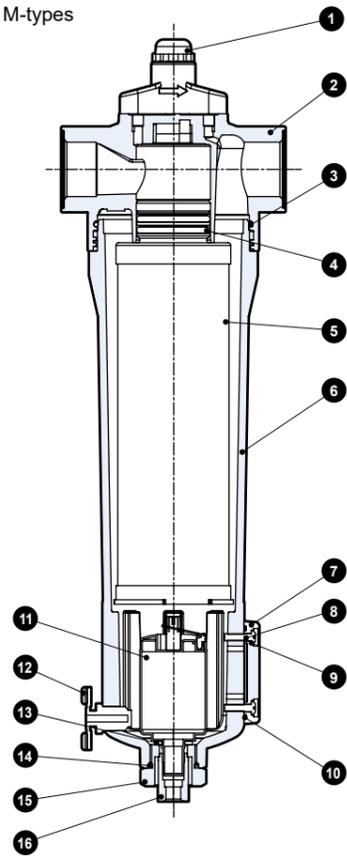
Ending

Ending

Internal Structure Diagram / Material

●P, M-types

●X-type



NO.	Part name	Material
1	Pop-up indicator	Polyamide Resin
2	Cover	Aluminum
3	O-ring	Nitrile Rubber
4	O-ring	Nitrile Rubber
5	Element	
6	Bowl	Aluminum
7	Sight Glass	Polyamide Resin
8	Small Machine Screw	Steel
9	Packing	Polyamide Resin
10	Packing	Nitrile Rubber
11	Automatic Condensate Drain	
12	Valve	Brass
13	Packing	Nitrile Rubber
14	O-ring	Nitrile Rubber
15	Drain Adapter	Aluminum
16	Adapter Nut	Brass

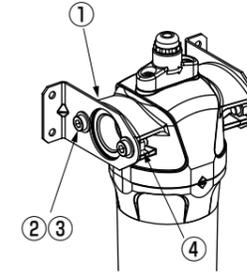
NO.	Part name	Material
1	Small Machine Screw	Steel
2	Seal Washer	Polyamide Resin, Nitrile Rubber
3	Cover	Aluminum
4	O-ring	Nitrile Rubber
5	O-ring	Nitrile Rubber
6	Element	
7	Bowl	Aluminum
8	O-ring	Nitrile Rubber
9	Drain Adapter	Aluminum
10	Seal Washer	Steel, Nitrile Rubber
11	Valve	Brass

For maintenance parts, refer to the CKD Components Product site  
 Refer to (<https://www.ckd.co.jp/kiki/en/>) → "Model No." → Maintenance Parts

Accessory

Bracket kit

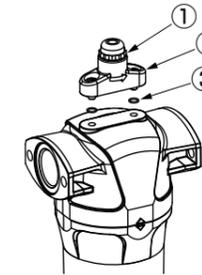
Model	Model No.
AF2-05□	AF2-05M-FLA12524
AF2-08□ to AF2-20□	AF2-08M-FLA12525
AF2-24□	AF2-24M-FLA12526



Part No.	Part name	Quantity
①	Mounting bracket	2.
②	Hexagon socket head cap screw	4
③	Flat washer	4
④	Hexagon nut	4

Pop-up indicator

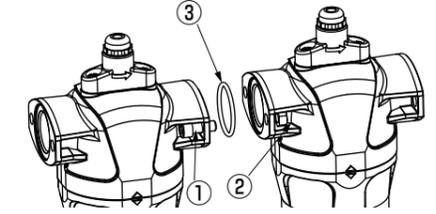
Model	Model No.
AF2-05□ to AF2-24□	AF2-DPU-FLA12527



Part No.	Part name	Quantity
①	Pop-up indicator	1
②	Mounting screw	2.
③	O-ring	2.

Modular kit

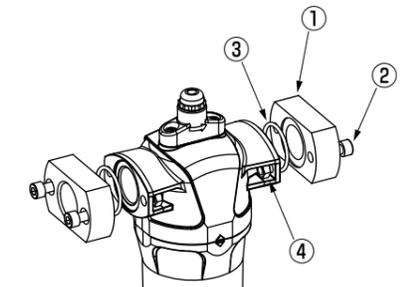
Model	Model No.
AF2-05□	AF2-05C-FLA12521
AF2-08□ to AF2-20□	AF2-08C-FLA12522
AF2-24□	AF2-24C-FLA12523



Part No.	Part name	Quantity
①	Hexagon socket head cap screw	2.
②	Hexagon nut	2.
③	O-ring	1
Accessory	Allen wrench (mounting tool)	1

Pipe adaptor

Model	Model No.	
AF2-05□	For Rc1	AF2-05A-FLA15316
	For G1	AF2-05A-FLA15317
	For NPT1	AF2-05A-FLA15318
AF2-08□	For Rc1 <sup>1</sup> / <sub>4</sub>	AF2-08A-FLA15319
	For G1 <sup>1</sup> / <sub>4</sub>	AF2-08A-FLA15320
	For NPT1 <sup>1</sup> / <sub>4</sub>	AF2-08A-FLA15321
AF2-11□	For Rc1 <sup>1</sup> / <sub>2</sub>	AF2-11A-FLA15322
	For G1 <sup>1</sup> / <sub>2</sub>	AF2-11A-FLA15323
	For NPT1 <sup>1</sup> / <sub>2</sub>	AF2-11A-FLA15324
AF2-13□, AF2-20□	For Rc2	AF2-13A-FLA15325
	For G2	AF2-13A-FLA15326
	For NPT2	AF2-13A-FLA15327
AF2-24□	For Rc2 <sup>1</sup> / <sub>2</sub>	AF2-24A-FLA15328
	For G2 <sup>1</sup> / <sub>2</sub>	AF2-24A-FLA15329
	For NPT2 <sup>1</sup> / <sub>2</sub>	AF2-24A-FLA15330



Part No.	Part name	Quantity
①	Piping adaptor	2
②	Hexagon socket head cap screw	4
③	O-ring	2
④	Hexagon nut	4

Main Line Components

Refrigeration Dryers

Desiccant Dryers

High Polymer Membrane Dryers

Main Line Filters

Drain discharger, etc.

Ending

Main Line Components

Refrigeration Dryers

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Drain discharger, etc.

Ending



Pneumatic components (Main Line Filter)

# Safety Precautions

Be sure to read this section before use.  
Refer to Intro 15 for General Precautions.

MEMO

Product-Specific Cautions: Medium Main Line Filter AF2 Series

## Manufacturer's Disclaimer

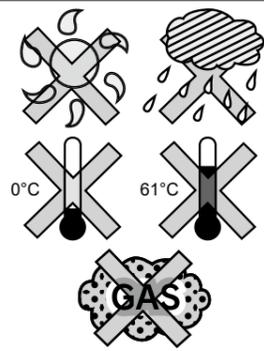
### WARNING

- The manufacturer cannot be held liable in the following cases:
  - In the case where there are serious errors in the operator's use.
  - Illegal modifications or repairs using non-standard parts by user.

## Design / Selection

### WARNING

- Do not use for applications other than compressed air.
- Do not use for caisson shields or medical devices such as breathing devices.  
Doing so may result in serious injury.
- Do not mount and use this device on transportation components such as vehicles or ships.  
Vibration may cause internal damage.
- Avoid direct sunlight and rain water. Resin parts, etc., are likely to deteriorate and break.
- Do not use in locations with corrosive gases.
- Use this product within the range of the working temperature.



- Do not use in locations where there is a risk of freezing. There is a risk that condensate accumulated inside the product may freeze and damage the product.
- Do not use in hazardous locations (e.g., potentially explosive atmospheres).
- The inlet air temperature should be kept as low as possible. The higher the temperature, the worse the oil removal rate.

- Avoid use in environments where ozone is generated.
- Avoid use in places subject to vibration or shock.
- Do not use this product in areas containing dust, etc.
- Do not use in environments where the following gaseous substances are contained in compressed air.
  - Sulfur dioxide, Chlorine gas
  - Aromatic hydrocarbon compounds (For example, benzene, toluene, phenol, cyclohexane, etc.)
  - Chlorinated hydrocarbon compounds (Example: Trichloroethylene, Chloroform, etc.)
  - Ketones (Example: Acetone, etc.)
  - Aldehydes (Example: Formaldehyde, Acetaldehyde, etc.)
  - Amines (Example: Ethylamine, Methylamine, etc.)
- Always set the air flow to within the working pressure range and the processing air rate.  
Otherwise, water, dust, and oil removal performance may be compromised.
- Install indoors.
- The drain discharger is a normally open type.  
Applicable compressor should be 0.75 kW or more (discharge flow 90 L/min or more).
- The filter life is one year or when the pop-up indicator turns red, whichever comes first. Replace the element with a new one when its lifespan is reached. (However, the X-type should be replaced after 1000 hours (at 21°C) or when it loses its deodorizing effect.)
- The condensate drain purges air with the initially generated condensate until the pressure rises to 0.1 MPa.

For precautions during mounting, installation, adjustment, use and maintenance, refer to the CKD Components Product Site (<https://www.ckd.co.jp/kiki/en/>) → "Model No. → [Instruction Manual](#)