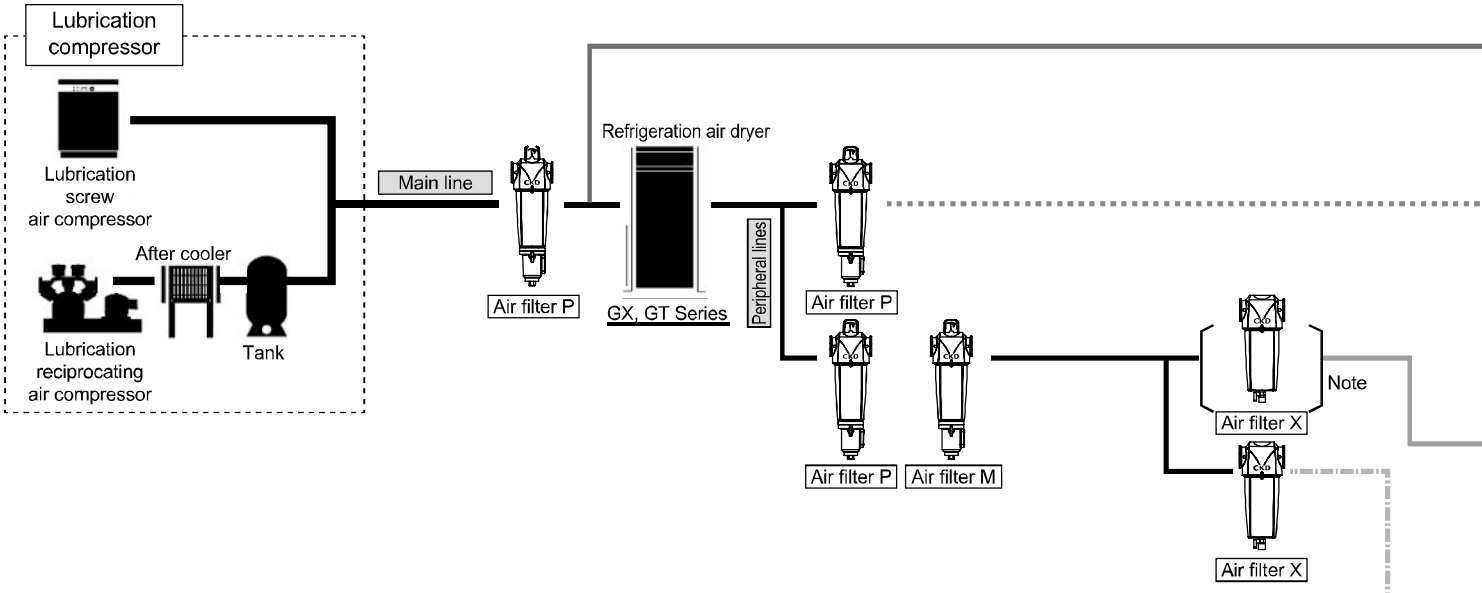
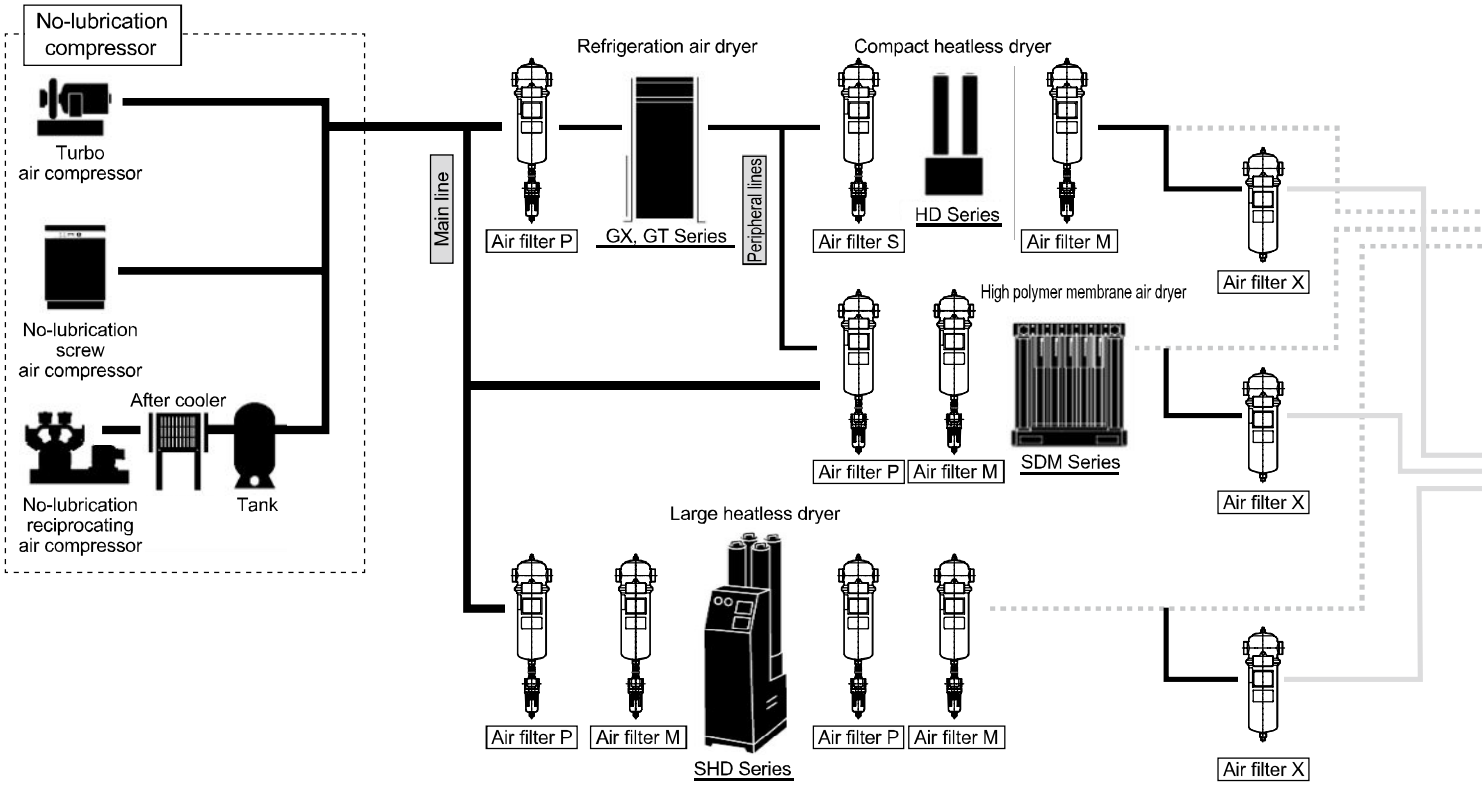
Main line component system configuration

Medium main line filter device recommended system configuration



Note: Install the X type shown in brackets when the inlet oil vapor is 0.005 mg/m^3 or more (at 21°C).
The oil grade is "Grade 2" when not installed.



JIS B 8392-1:2012 Compressed air purity grade

Grade	Solid particles				Humidity and moisture		Oil
	Max. number of particles per 1 m^3 for particle diameter d (μm)			Mass concentration Cp	Pressure dew point	Water conc Cw	Total oil concentration
	0.1 < d ≤ 0.5	0.5 < d ≤ 1.0	1.0 < d ≤ 5.0	mg/m^3	°C	g/m^3	mg/m^3
0	Conditions stricter than Grade 1 to be specified by user or supplier.						
1	≤ 20,000	≤ 400	≤ 10	-	≤ -70	-	≤ 0.01
2	≤ 400,000	≤ 6,000	≤ 100	-	≤ -40	-	≤ 0.1
3	-	≤ 90,000	≤ 1,000	-	≤ -20	-	≤ 1
4	-	-	≤ 10,000	-	≤ +3	-	≤ 5
5	-	-	≤ 100,000	-	≤ +7	-	-
6	-	-	-	0 < Cp ≤ 5	≤ +10	-	-
7	-	-	-	5 < Cp ≤ 10	-	Cw ≤ 0.5	-
8	-	-	-	-	-	0.5 < Cw ≤ 5	-
9	-	-	-	-	-	5 < Cw ≤ 10	-
X	-	-	-	Cp > 10	-	Cw > 10	> 5

JIS B 8392-1:2003 has been revised to JIS B 8392-1:2012.

For example,
What is Grade 1:2:1?

- Solid particles 0.1 to 0.5 μm are 20,000 particles or less,
  0.5 to 1.0 μm are 400 particles or less, and
  1.0 to 5.0 μm are 10 particles or less
- Pressure dew point -40°C or less
- Oil concentration 0.01 mg/m^3 or less.

Air quality	Applications	Impurities in air			Grade
		Solid particles	Moisture	Oil content	
Water drip removal air/ coarse dust removal air	For construction/civil engineering machinery Air for cleaning (dry air not required)	1 µm	-	-	2:-:-
General dry air	Standard pneumatic components Standard pneumatic tools Labor saving components Jigs and tools for air Air chucks Air vices Air for cleaning precision components	1 µm	Pressure dew point 10°C	0.6 mg/m^3	2.6.3
			Pressure dew point 7°C		2.5.3
Dry air (oil-free)	For instrumentation For measurement Sequence control High-grade paint	0.01 µm	Pressure dew point 10°C	0.01 mg/m^3 [0.003 mg/m^3]	1.6.1
			Pressure dew point 7°C		1.5.1
Dry air (odorless)	Food product industry (where air is not directly blown onto food) Pharmaceutical industry For stirring/transporting/drying/packaging/ brewing	0.01 µm	Pressure dew point 10°C	0.003 mg/m^3	1.6.1
			Pressure dew point 7°C		1.5.1
Ultra dry air (oil-free)	Ozone generator Powder transfer Drying of atmospheric gas for furnaces Drying of high-voltage generator insulation gas Drying of computer rooms For centralized control instruments	0.01 µm	Pressure dew point -20°C	0.01 mg/m^3	1.3.1
			Pressure dew point -40°C		1.2.1
			Pressure dew point -60°C		1.2.1
Ultra dry air (odorless)	Food product industry (where air is not directly blown onto food) Pharmaceutical industry For stirring/transporting/drying/packaging/ brewing	0.01 µm	Pressure dew point -20°C	0.003 mg/m^3	1.3.1
			Pressure dew point -40°C		1.2.1
			Pressure dew point -60°C		1.2.1

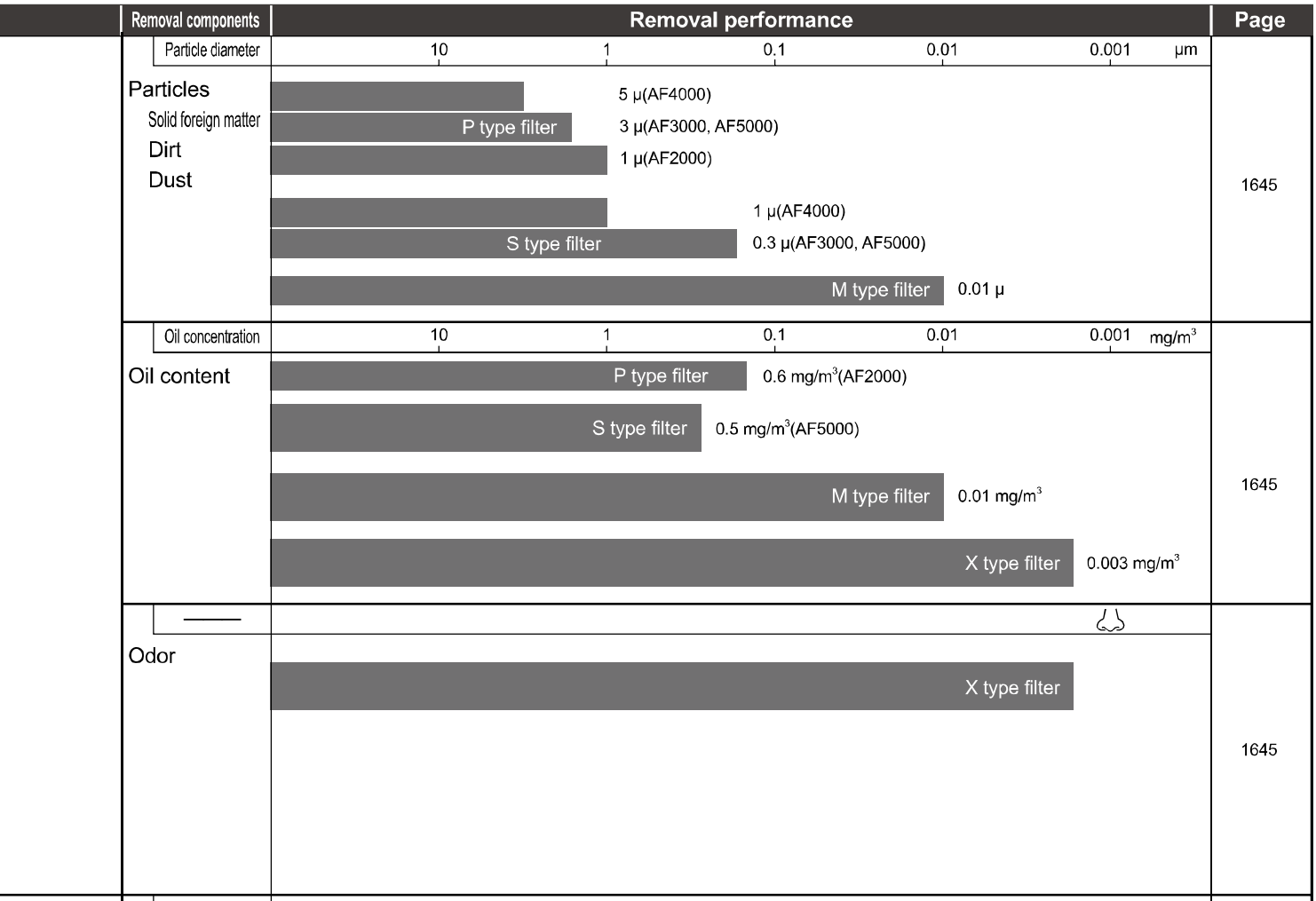
*1: The system No. is based on the P2 class.
X in the table indicates odor removal. "-" indicates no specification.

⚠ Precautions for system selection

*1: If your conditions are different, refer to the specifications in the catalog to select a model.
*2: This example of system selection is based on an air-cooling refrigeration air dryer.
When selecting based on an air-cooling refrigeration air dryer, since standard processing air flow rate may differ, model No. of filter may vary.
Contact CKD for details.
*3: Air filter and oil mist filter are to be used where the inlet air temperature is 60°C or less, and X type where the inlet air temperature is 30°C or less.
If air temperature from the secondary side of the refrigeration air dryer is high, keep enough distance from the refrigeration air dryer to maintain a temperature no greater than the inlet air temperature.
*4: This system cannot be used for high pressure specifications (1 to 1.6 MPa). Consult with CKD for details.
*5: Use anti-rust processed materials for piping (zinc plated pipe, lining pipe or stainless steel pipe).
*6: If a processing air rate larger than the refrigeration air dryer supplies may be used instantaneously, install a tank to the secondary side of the refrigeration air dryer.
Installing a tank supplies stable moisture removed air.
*7: The air filter at the secondary side of the refrigeration air dryer can be used as a pre-filter before an oil mist filter.
*8: Depending on working conditions, condensation may form on the inside of the refrigeration air dryer and drip to the floor. To prevent water drops from flowing out, install a drain-pan, etc., before installing the dryer.
*9: Consult with CKD for energy-saving systems.
*10: Install a filter immediately before the equipment to be used to remove contaminants caused in piping.

Roles and functions of main line components

	Appearance
Main line filter	·AF2000 Series  ·AF4000 Series  ·AF3000 Series  ·AF5000 Series 
Air dryer	·GX Series  ·SU Series  ·SDM Series  ·GT Series  ·HD Series  ·SHD Series 


Removal components
Removal performance
Page
Particle diameter
10
1
0.1
0.01
0.001
μm
Particles
Solid foreign matter
Dirt
Dust
5 μ(AF4000)
P type filter
3 μ(AF3000, AF5000)
1 μ(AF2000)
1 μ(AF4000)
S type filter
0.3 μ(AF3000, AF5000)
M type filter
0.01 μ
1645
Oil concentration
10
1
0.1
0.01
0.001
mg/m3
Oil content
P type filter
0.6 mg/m3(AF2000)
S type filter
0.5 mg/m3(AF5000)
M type filter
0.01 mg/m3
X type filter
0.003 mg/m3
1645
Odor
X type filter
1645
Atmospheric dew point
0
-10
-20
-30
-40
-50
-60
-70
°C
Moisture
Refrigeration air dryer
GX Series
GT Series
-17
High polymer separation membrane dryer
SD SU
SDM Series
-60
Desiccant air dryer
HD Series
SHD Series
-72
Refrigerating
1539
High
polymer
membrane
1619
Desiccant
1595

Air compressor	Refrigeration air dryer				Main line filter	Micro alescer
kW (horsepower) (*5)	Standard processing air flow rate m^3/min (ANR)	GX	GT	Water cooling	P type (Water and solid removing)	S type (Oil removing)
to 0.75(to 1)	0.10/0.11	GX3203D GX5203D	——	——	F2000-10-W-F1 (5 μ)	M2000-10-W-F1S (0.3 μ)
1.5(2)	0.20/0.22	GX3203D GX5203D	——	——	F2000-10-W-F1 (5 μ)	M2000-10-W-F1S (0.3 μ)
2.2(3)	0.30/0.35	GX3203D GX5203D	——	——	F3000-10-W-F (5 μ)	M3000-10-W-F1S (0.3 μ)
3.7(5)	0.40/0.52	GX3206D GX5204D	——	——	F3000-10-W-F (5 μ)	M4000-10-W-F1S (0.3 μ)
5.5(7.5)	0.64/0.72	GX3206D GX5206D	——	——	F4000-15-W-F (5 μ)	M4000-15-W-F1S (0.3 μ)
7.5(10)	1.22/1.32	GX3208D GX5208D	——	——	F6000-20-W-F (5 μ)	M6000-20-W-F1S (0.3 μ)
11(15)	1.65/1.82	GX3211D GX5211D	——	——	F8000-25-W-F (5 μ)	M8000-25-W-F1S (0.3 μ)
15(20)	2.40/2.80	GX3215D GX5215D	——	——	AF2004P-25 (1 μ)	
					AF4004P-25 (5 μ)	AF4004S-25 (1 μ)
22(30)	3.70/4.20	GX3222D GX5222D	——	——	AF2007P-40 (1 μ)	
					AF4007P-40 (5 μ)	AF4007S-40 (1 μ)
37(50)	5.70/6.10	GX3237D GX5237D	——	——	AF2007P-40 (1 μ)	
					AF4010P-40 (5 μ)	AF4010S-40 (1 μ)
55(75)	8.40/9.80	GX3255D GX5255	——	——	AF2013P-50 (1 μ)	
					AF4013P-50 (5 μ)	AF4013S-40 (1 μ)
75(100)	10.4/12.3	GX5275	GT9075	GT9075W	AF2020P-50(1 μ) AF3016P-50 (3 μ)	AF3016S-50 (0.3 μ)
					AF4020P-50(5 μ) AF5016P-50(3 μ)	AF4020S-50(1 μ) AF5016S-50(0.3 μ)
90(120)	14.8/17.5	——	GT9090	GT9090W	AF2020P-50(1 μ) AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)
					AF5032P-80 (3 μ)	AF4020S-50(1 μ) AF5032S-50(0.3 μ)
120(160)	18.7/22.0	——	GT9120	GT9120W	AF2026P-65(1 μ) AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)
					AF5032P-80 (3 μ)	AF5032S-50 (0.3 μ)
150(200)	23.8/28.0	——	GT9150	GT9150W	AF3032P-80 (3 μ)	AF3032S-80 (0.3 μ)
					AF5032P-80 (3 μ)	AF5032S-80 (0.3 μ)
190(250)	27.5/32.4	——	GT9190	GT9190W	AF3048P-100 (3 μ)	AF3048S-100 (0.3 μ)
					AF5048P-100 (3 μ)	AF5048S-100 (0.3 μ)
240(320)	36.5/43.0	——	GT9240	GT9240W	AF3048P-100 (3 μ)	AF3048S-100 (0.3 μ)
					AF5048P-100 (3 μ)	AF5048S-100 (0.3 μ)
300(400)	44.2/52.0	——	GT9300	GT9300W	AF3064P-100 (3 μ)	AF3064S-100 (0.3 μ)
					AF5064P-100 (3 μ)	AF5064S-100 (0.3 μ)
380(505)	55.2/65.0	——	GT9380	GT9380W	AF3080P-100 (3 μ)	AF3080S-100 (0.3 μ)
					AF5080P-100 (3 μ)	AF5080S-100 (0.3 μ)
450(600)	70.3/82.8	——	GT9450	GT9450W	AF3096P-150 (3 μ)	AF3096S-150 (0.3 μ)
					AF5096P-150 (3 μ)	AF5096S-150 (0.3 μ)
710(950)	139.1	——	——	GT9710WV	AF3160P-200 (3 μ)	AF3160S-200 (0.3 μ)
					AF5160P-200 (3 μ)	AF5160S-200 (0.3 μ)
960(1280)	184.2	——	——	GT9960WV	AF3192P-200 (3 μ)	AF3192S-200 (0.3 μ)
					AF5192P-200 (3 μ)	AF5192S-200 (0.3 μ)

Micro alescer		Micro alescer	Drain discharger		Flow rate sensor
	M type (High-performance oil removing)	X type (Odor removing)	DT, 5100	DB	
	M2000-10-W-F1 (0.01 μ)	M2000-10-W-X	DT3010-W DT4010-W	DB3003D	PF500F
	M2000-10-W-F1 (0.01 μ)	M2000-10-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F
	M4000-10-W-F1 (0.01 μ)	M4000-10-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F
	M6000-20-W-F1 (0.01 μ)	M6000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF500F PF1000F
	M6000-20-W-F1 (0.01 μ)	M6000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF1000F
	M8000-20-W-F1 (0.01 μ)	M8000-20-W-X	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF2000F
	M8000-25-W-F1 (0.01 μ)	M8000-25-W-X1	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF2000F
	AF2004M-25 (0.01 μ)	AF2004X-25	DT3000-W DT4000-W DT3010-W DT4010-W	DB3003D	PF4000F
	AF4004M-25 (0.01 μ)	AF4004X-25			
	AF2007M-40 (0.01 μ)	AF2007X-40	DT4000-W DT4010-W	DB1006E DB3006E	PF8000F
	AF4007M-40 (0.01 μ)	AF4007X-40			
	AF2007M-40 (0.01 μ)	AF2007X-40	DT4000-W DT4010-W	DB1006E DB3006E	PF8000F
	AF4010M-40 (0.01 μ)	AF4010X-40			
	AF2013M-50 (0.01 μ)	AF2013X-50	DT4000-W DT4010-W 5100-4C	DB1006E DB3006E	PF16000F
	AF4013M-50 (0.01 μ)	AF4013X-50			
	AF2020M-50 AF3016S-50 (0.01 μ)	AF2020X-50 AF3016S-50	5100-4C	DB1024 DB3024	PF16000F
	AF4020M-50 AF5016M-50 (0.01 μ)	AF4020X-50 AF5016X-50			
	AF2020M-50 AF4020M-50 (0.01 μ)	AF2020X-50 AF4020X-50	5100-4C	DB1024 DB3024	—
	AF4020M-50 AF5032M-80 (0.01 μ)	AF4020X-50 AF5032X-80			
	AF2026M-65 AF3032M-80 (0.01 μ)	AF2026X-65 AF3032X-80	5100-4C	DB1024 DB3024	—
	AF5032M-80 (0.01 μ)	AF5032X-80			
	AF3032M-80 (0.01 μ)	AF3032X-80	5100-4C	DB1024 DB3024	—
	AF5032M-80 (0.01 μ)	AF5032X-80			
	AF3048M-100 (0.01 μ)	AF3048X-100	5100-4C	DB1024 DB3024	—
	AF5048M-100 (0.01 μ)	AF5048X-100			
	AF3048M-100 (0.01 μ)	AF3048X-100	5100-4C	DB1024 DB3024	—
	AF5048M-100 (0.01 μ)	AF5048X-100			
	AF3064M-100 (0.01 μ)	AF3064X-100	5100-4C	DB1024 DB3024	—
	AF5064M-100 (0.01 μ)	AF5064X-100			
	AF3080M-100 (0.01 μ)	AF3080X-100	5100-4C	DB1024 DB3024	—
	AF5080M-100 (0.01 μ)	AF5080X-100			
	AF3096M-150 (0.01 μ)	AF3096X-150	5100-4C	DB1024 DB3024	—
	AF5096M-150 (0.01 μ)	AF5096X-150			
	AF3160M-200 (0.01 μ)	AF3160X-200	5100-4C	DB1024 DB3024	—
	AF5160M-200 (0.01 μ)	AF5160X-200			
	AF3192M-200 (0.01 μ)	AF3192X-200	5100-4C	DB1090D DB3090D	—
	AF5192M-200 (0.01 μ)	AF5192X-200			

*1: This list is a selection guideline. Refer to the appropriate catalog for selection, and select a model after checking installation and operating conditions.
*2: Drain discharger DB Series cannot be used with the refrigeration air dryer.
*3: Use AF2000 and AF3000 Series in oil type compressor systems, and AF4000 and AF5000 Series in oil free type compressor systems.
*4: 1 PS (horsepower) is equivalent to 0.7355 kW, but conventionally 1 PS is expressed as 0.75 kW.

Displaying air flow rate

Display values of air flow rate differ depending on the state of the air. Pneumatic components must be selected upon checking the condition for displayed flow rate.
There are two main methods for displaying the air flow rate.

(1) Flow rate unit expressing volume in reference state: ℓ/min (normal) (Nℓ/min.)

(2) Flow rate unit expressing volume in standard condition: ℓ/min (ANR)

The reference state refers to: Absolute pressure: 101.3 KPa
Temperature: 0°C
Relative humidity: 0%
This state is usually used for the flow rate meter.
The standard condition refers to: Absolute pressure: 101.3 KPa
Temperature: 20°C
Relative humidity: 65%
This is the standard condition (refer to Japan Fluid Power Association Standards JPAS008) in which people are active.
The approximation formula is usually used to convert both conditions.

1 ℓ/min(normal)(1 Nℓ/min)≈1.08 ℓ/min(ANR)

Even if the air flow rate is the same, smaller values are displayed for N ℓ/min. Under the Japan Fluid Power Association Standards, the air flow rate unit is ANR (Note). Therefore, all flow rates in catalogs are displayed in ANR. (Excluding flow rate sensor)
Other than the above, some flow rates are displayed with the manufacturer's original reference values. In these cases, make sure to convert values to ANR when selecting the model.

(Note) ANR is the abbreviation of a French term:
Conditions de l'atmosphére normale de référence (Standard reference atmospheric conditions).

Cost of air and energy saving

1 Cost of air

The cost of compressed air is calculated as the total sum of all expenses required to compress 1 m^3 of air to a specified pressure with atmospheric pressure conversion.

$$\text{Cost of compressed air} = \frac{\text{Electricity cost (compressor/auxiliary components such as dryer, pump, etc.) + facility depreciation cost + running cost + maintenance cost (yen/year)}}{\text{Amount of discharged compressed air } (m^3/\text{year})}$$

When simply calculated from equipment performance, it differs due to contracted basic power rates. However, it is generally set to 2.5 yen/m^3. Practically, the used flow rate (air discharge rate) differs with the daily operation time zone, such as daytime, nighttime, weekday, or month. When the flow rate and pressure change, power consumption also changes. To calculate the actual cost of air, the average annual cost must be found by measuring the total amount of power and amount of used air flow rate through the year.
When assuming the general operation state, some calculation examples provide 3.0 yen/m^3 for the cost of air.

The cost of air must be understood to promote energy conservation of the pneumatic system, and to illustrate the improvement effect. This is also important for increasing awareness in making improvements.

2 Points of energy saving

(1) Suppressing wasted air consumption
- ·Reduction of air leakage
- ·Review and reduction of air blow consumption
- ·Optimization of pneumatic component sizing, etc.

(2) Selecting devices and components with low power consumption

(3) Lowering pneumatic pressure
Driving the compressor shaft, which consumes the most energy, is reduced by lowering discharge pressure. (Example: If using a screw, savings of 8% or more are achieved by lowering discharge from 0.7 to 0.6 MPa). Thus, the working pressure at the end must be reduced and pneumatic components with small pressure loss must be selected.

3 Efforts by CKD

·High efficiency is pursued in every aspect of CKD products.
By enhancing efficiency, high processing performance is realized with small power consumption.
·By reducing pressure loss of components, low pressure air sources can be used, reducing compressor shaft force (power consumption).

Series variation

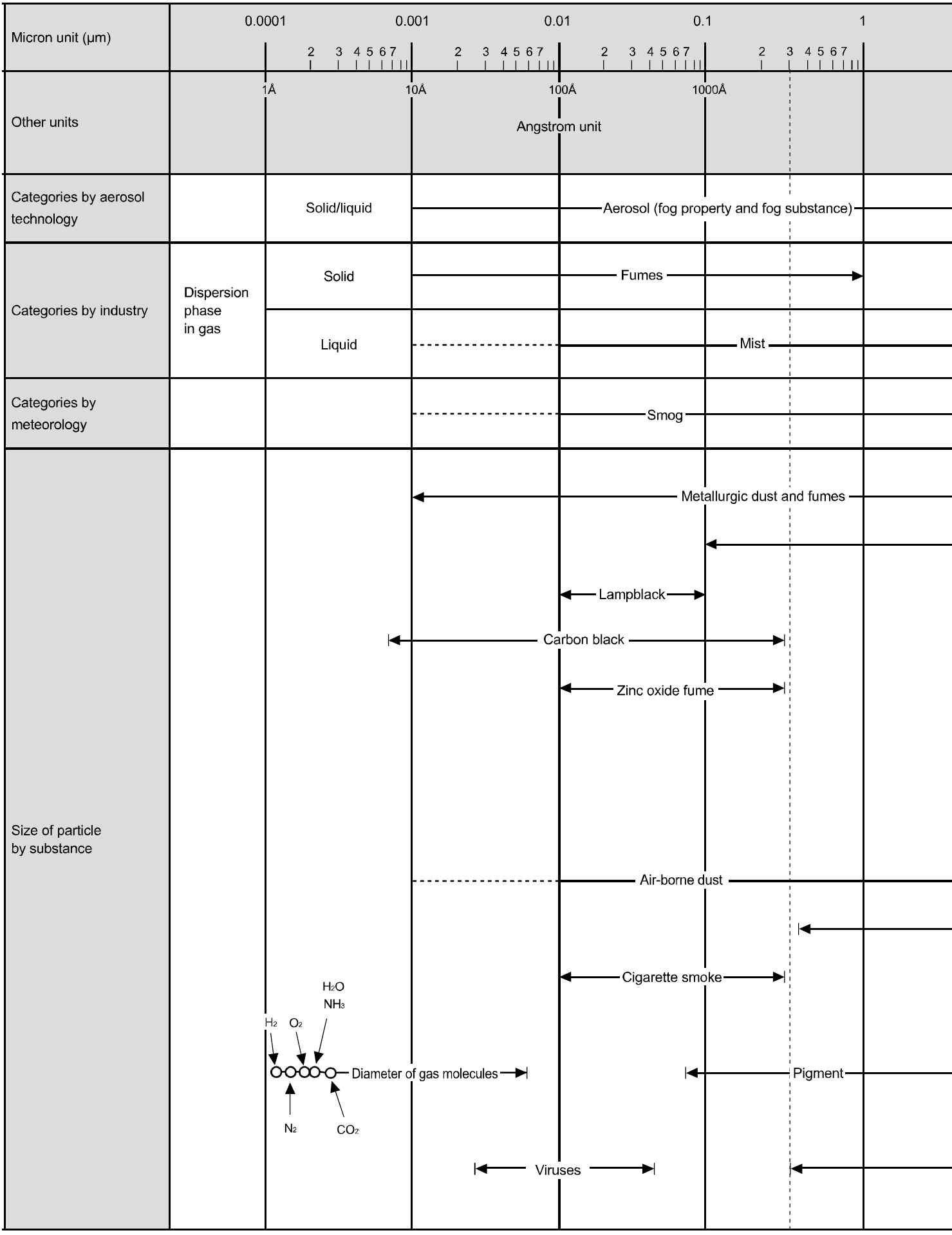
Medium/large filter

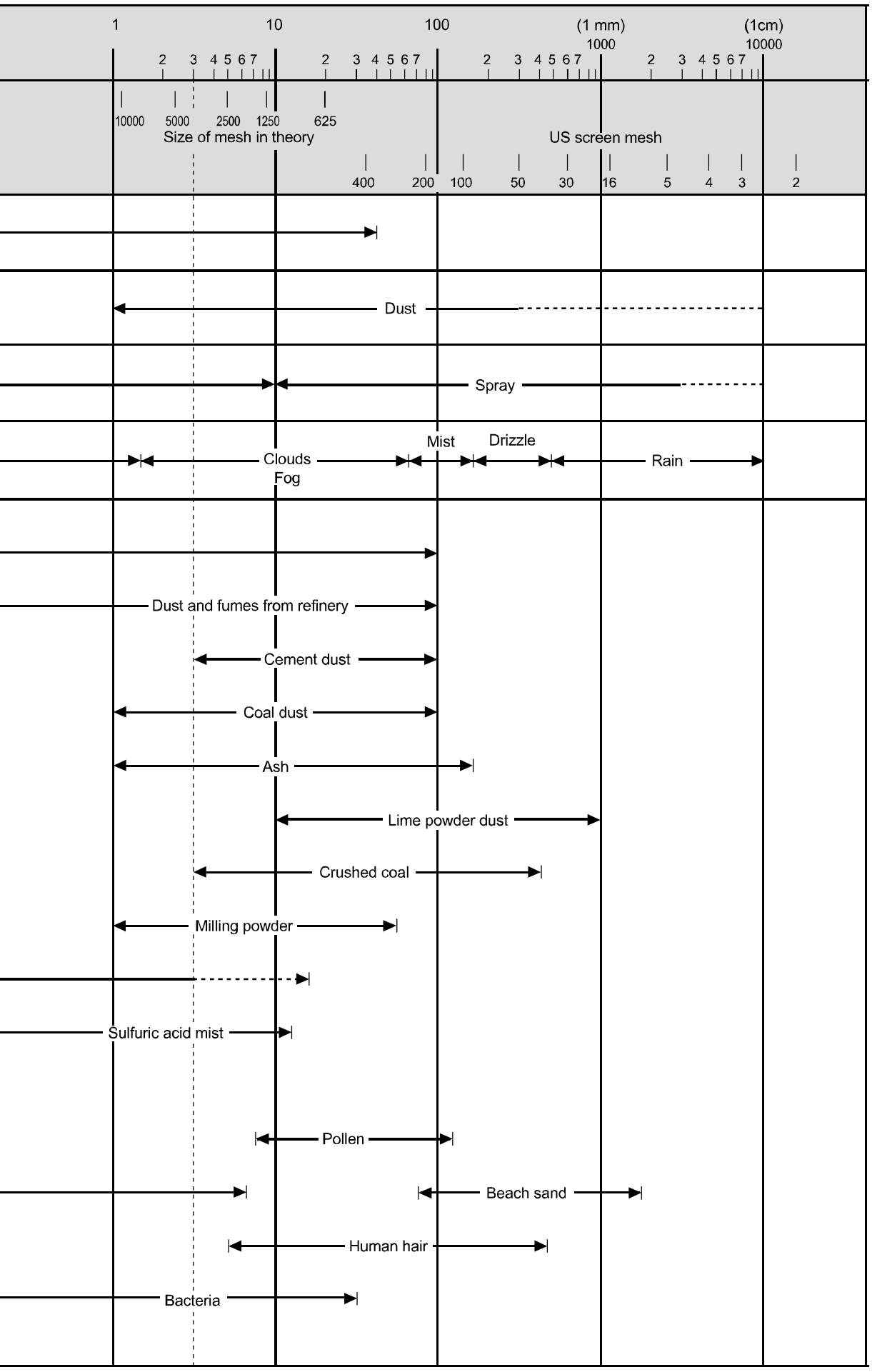
	Medium (general purpose)			Medium (oil-free)			
Series	AF2000P	AF2000M	AF2000X	AF4000P	AF4000S	AF4000M	AF4000X
Specifications				Stainless steel vessel			
Applicable air compressor kW (reference) / Processing flow rate m³/min	• Dust 1 μm	• Dust 0.01 μm • Oil content 0.01 mg/m³	• Oil content 0.003 mg/m³ • Deodorization	• Dust 5 μm	• Dust 1 μm	• Dust 0.01 μm • Oil content 0.01 mg/m³	• Oil content 0.003 mg/m³ • Deodorization
0.75 / 0.15							
1.5 / 0.22							
2.2 / 0.35							
3.7 / 0.5							
5.5 / 0.825							
7.5 / 1.0							
11 / 1.5							
15 / 3.7	●	●	●				
22 / 3.7	●	●	●	● (3.7)	● (3.7)	● (3.7)	● (3.7)
37 / 6.6/8	● (6.6)	● (6.6)	● (6.6)	● (6.2)	● (6.2)	● (6.2)	● (6.2)
55 / 9.6/10	● (9.6)	● (9.6)	● (9.6)	● (10)	● (10)	● (10)	● (10)
75 / 13/13.2	● (13.2)	● (13.2)	● (13.2)	● (13)	● (13)	● (13)	● (13)
95 / 16/18.8/19.8	● (19.8)	● (19.8)	● (19.8)		● (18.8)	● (18.8)	● (18.8)
120 / 25.8							
150 / 32							
200 /							
250 / 48							
300 / 64							
400 / 80							
480 / 96							
- / 128							
710 / 160							
960 / 192							
1450 / 256							
Differential pressure gauge	● Standard equipment	● Standard equipment	-	● Option	● Option	● Option	● Option
Differential pressure alarm output	-	-	-	-	-	-	-
Auto-drain	Float	Float	-	Float	Float	Float	-
Low pressure loss element	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment
Shut-off valve	● Standard equipment	● Standard equipment	● Standard equipment	● Included in auto-drain	● Included in auto-drain	● Included in auto-drain	-
Specified color paint	×	×	×	-	-	-	-
Companion flange attached	×	×	×	-	-	-	-
Foundation bolt/nut attached	×	×	×	-	-	-	-
Foundation bolt/nut attached (SUS)	×	×	×	-	-	-	-
Outdoor	×	×	×	-	-	-	-
IN/OUT reverse direction	-	-	-	-	-	-	-
Product photo	×	×	×	-	-	-	-
Appearance							
Page	1658			1668			

Note) This list is a selection guideline.
Refer to the page for selection, and select a model after checking installation and operating conditions.

		Large (regular)				Large (oil-free)			
Series		AF3000P	AF3000S	AF3000M	AF3000X	AF5000P	AF5000S	AF5000M	AF5000X
Specifications						Stainless steel vessel			
Applicable air compressor kW (reference)	Processing flow rate m³/min	• Dust 3 µm	• Dust 0.3 µm • Oil content 0. 5 mg/m³	• Dust 0.01 µm • Oil content 0.01 mg/m³	• Oil content 0.03 mg/m³ • Deodorization	• Dust 3 µm	• Dust 0.3 µm • Oil content 0. 5 mg/m³	• Dust 0.01 µm • Oil content 0.01 mg/m³	• Oil content 0.003 mg/m³ • Deodorization
0.75	0.15								
1.5	0.22								
2.2	0.35								
3.7	0.5								
5.5	0.825								
7.5	1.0								
11	1.5								
15	3								
22	3.7/4.5								
37	6.2/8								
55	10/12								
75	13/13.2								
95	16/17/18.8	● (16)	● (16)	● (16)	● (16)	● (16)	● (16)	● (16)	● (16)
120									
150	32	●	●	●	●	●	●	●	●
200									
250	48	●	●	●	●	●	●	●	●
300	64	●	●	●	●	●	●	●	●
400	80	●	●	●	●	●	●	●	●
480	96	●	●	●	●	●	●	●	●
-	128	●	●	●	●	●	●	●	●
710	160	●	●	●	●	●	●	●	●
960	192	●	●	●	●	●	●	●	●
1450	256	●	●	●	●	●	●	●	●
Differential pressure gauge		● Standard equipment	● Standard equipment	● Standard equipment	-	● Standard equipment	● Standard equipment	● Standard equipment	-
Differential pressure alarm output		▲ Custom order	▲ Custom order	▲ Custom order	-	● Standard equipment	● Standard equipment	● Standard equipment	-
Auto-drain		Float	Float	Float	-	Electronic (with alarm output)	Electronic (with alarm output)	Float	-
Low pressure loss element		● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment	● Standard equipment
Shut-off valve		● Included in auto-drain	● Included in auto-drain	● Included in auto-drain	×	● Included in auto-drain	● Included in auto-drain	● Included in auto-drain	● Standard equipment
Specified color paint		● Option	● Option	● Option	● Option	-	-	-	-
Companion flange attached		● Option	● Option	● Option	● Option	● Option	● Option	● Option	● Option
Foundation bolt/nut attached		● Option	● Option	● Option	● Option	● Option	● Option	● Option	● Option
Foundation bolt/nut attached (SUS)		● Option	● Option	● Option	● Option	● Option	● Option	● Option	● Option
Outdoor		● Option	● Option	● Option	● Option	▲ Custom order	▲ Custom order	▲ Custom order	▲ Custom order
IN/OUT reverse direction		● Option	● Option	● Option	● Option	● Option	● Option	● Option	● Option
Product photo		● Option	● Option	● Option	● Option	● Option	● Option	● Option	● Option
Appearance									
Page		1680	1682	1684	1686	1694	1698	1702	1706

Guide to particle sizes




1
10
100
(1 mm)
1000
(1cm)
10000
10000
5000
2500
1250
625
Size of mesh in theory
US screen mesh
400
200
100
50
30
16
5
4
3
2
Dust
Spray
Mist
Drizzle
Clouds
Fog
Rain
Dust and fumes from refinery
Cement dust
Coal dust
Ash
Lime powder dust
Crushed coal
Milling powder
Sulfuric acid mist
Pollen
Beach sand
Human hair
Bacteria

Replacing the element

1 ⚠ Spent element must be disposed properly as industrial waste.
The filter cannot be regenerated and reused.
If the filter contains toxic or harmful substances, dispose of substances based on local laws.

2 Replace the element based on the following replacement standards.

P type: Replace when the differential pressure indicator in the filter body reaches the red zone or after one year of use, whichever comes first.
If use is continued while the indicator is in the red zone, the filter element could be damaged by the pressure difference, or pressure required for device operation may not be attained.

S type, M type:
Replace when the differential pressure indicator in the filter body reaches the red zone or after one year of use, whichever comes first.
If use is continued while the indicator is beyond the red zone, the filter element could be damaged by the pressure difference, or pressure required for device operation may not be attained.
When using the filter to remove oil, if the indicator is in the red zone and it is still being used, the oil captured by the element may flow out into the air again, and be carried to the secondary side. This will inhibit oil removal.

X type: Replace the element after the period specified for each model, or when the deodorizing effect is lost.
The X type filter adsorbs odorous molecules with adsorbent, so the service life cannot be detected by the element's pressure difference. Judge the status by odor or manage the service life based on usage time.

⚠ Valve operation at start and end of daily operations

If the large ball valve, etc., is opened when starting and ending operations, pay attention to the following and open the valve slowly.

- If the large bore size valve is opened suddenly, an excessive flow rate several-fold larger than set device specifications may flow and damage the internal structure.
- If the large bore size valve is opened suddenly to discharge any residual pressure from the air line at the end of daily operations, excessive amounts of flow may result as above and reverse flow could occur, damaging devices.
- Note that the differential pressure gauge can be easily damaged by the increase of pressure loss due to an excessive flow rate (proportional to the square of the flow rate), and reverse pressure caused by reverse flow.

Medium main line filter
AF2000

■ **Refining and pressure adjusting components/main line unit/main line filter**

Overview

Lower pressure loss, longer life and a more compact size have been realized by adopting new materials and new structure. This advanced energy-saving filter reduces operation costs.

Features

(1) Advanced energy-saving element
The new pleated structure provides a large filtration area. The capacity for catching impurities is increased and the operation costs are reduced (long life with low pressure loss). This has also made the element even more compact.

(2) Simple module connections for further space saving
The filters can be connected with the module kit, enabling space-saving installation. The reviewed connection structure has improved work efficiency.

(3) Easy element replacement
The element can be replaced without touching the dirty element surface.

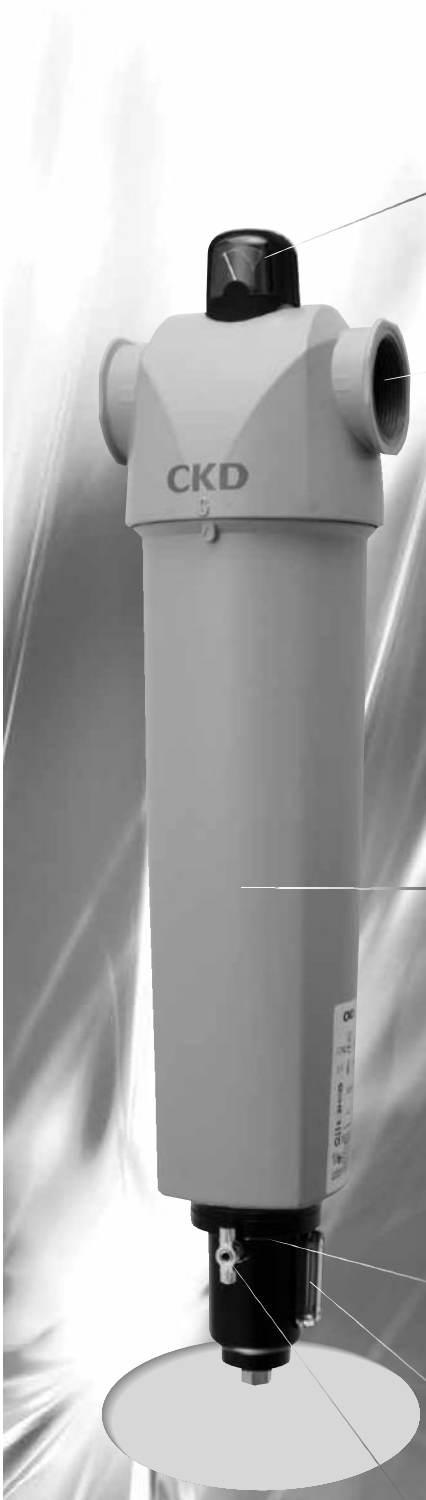
(4) Reliable drain discharger
The auto-drain, highly reliable with long service life, is provided as standard for the drain discharger.

(5) Incorporated differential pressure indicator
Differential pressure indicator provided as standard to easily control element service life (P/M type).

CONTENTS

Advanced energy-saving filter

Lower pressure loss, longer life and a more compact size have been realized by adopting new materials and new structure.
Medium main line filter AF2000 Series helps reduce operation costs.

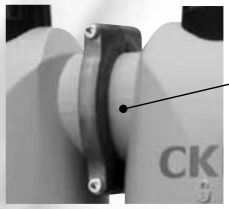


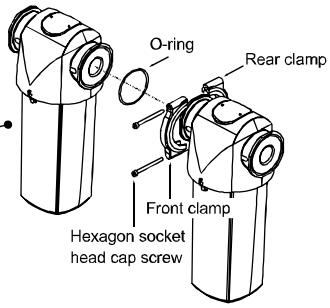
Differential pressure indicator

A differential pressure indicator required for checking the service life is provided as standard. (P/M types)

Module connections for further space saving

The filters can be connected with the module kit, enabling space-saving installation.
The reviewed filter connection structure has improved work efficiency.

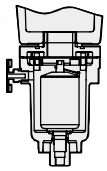




Easy element replacement

The element can be replaced without touching the dirty element surface.

Highly reliable automatic drain mounted as standard



Side gauge

The drain level can be visually confirmed.

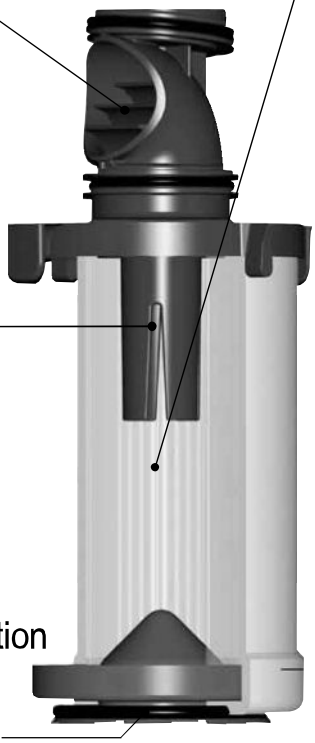
Shut-off valve

Residual air is released.

Internal filter structure

Efficiently separates air flow

The branched impeller blades efficiently guide the air flow into the element.



Equal air flow

The air flow is equally sent to the filter element by the air flow distributor.

Efficient air distribution

The conical air flow diffuser settles air flow disturbances and efficiently distributes the air flow.

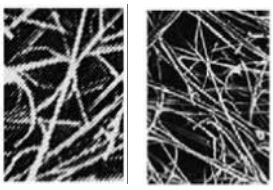
Minimizes pressure losses

The nano-fiber filter media * constantly separates oil and water, minimizing pressure losses.

· The filter media repels water and suppresses fluid absorption.

* Different density nano-fiber filter media

Media with different densities are used in stages to increase the filter service life.



New energy saving/ space saving structure

A pleated structure is used. With a large filtration area, the capacity for catching impurities is increased and the operation costs are reduced (long service life with low pressure loss).
This has also made the element even more compact.

AF2000 Series variation

Removing water drops Removal of oil content (oil mist) Removal of solids

Protects expensive pneumatic components

- Removal of particles 1 µm and over
- Secondary side oil concentration Removal of oil up to 0.6 mg/m³ (21°C)

PType

Highly efficient removal of oil contents (oil mist) and solids

For pneumatic pressure circuits which are susceptible to oil

- Removal of particles 0.01 µm and over
- Secondary side oil concentration Removal of oil up to 0.01 mg/m³ (21°C)

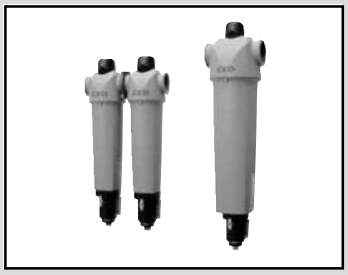
MType

Removal of oil vapor and deodorization

For pneumatic pressure circuits which are susceptible to odors

- Suction by activated carbon fibers
- Secondary side oil concentration Removes oil vapor and odors up to 0.003 mg/m³ (21°C)

XType



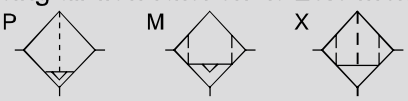
Main line filter

AF2000P/M/X Series

Ideal for solid particle removing, oil removing and deodorizing applications.

● Processing air flow rate: 3.7 to 25.8 m³/min (ANR) (when at 0.7 MPa)

JIS symbol P M X



RoHS CAD

Specifications

Descriptions		AF2004□-25	AF2007□-40	AF2010□-40	AF2013□-50	AF2020□-50	AF2026□-65
Processing air flow rate	m³/min(ANR)	3.7	6.6	9.6	13.2	19.8	25.8
Working fluid		Compressed air					
Working pressure	MPa	0.1 (≈15 psi, 1 bar) to 1.0 (≈150 psi, 10 bar)					
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)					
Port size	Rc	1	1 1/2		2		2 1/2
Weight X type is shown in ( )	kg	2.6(2.2)	3.0(2.6)	4.9(4.5)	5.6(5.25)	5.65(5.25)	11.1(10.7)
Differential pressure indicator		Standard (Excluding X type)					
Drain discharger		Integrated (NO: with exhaust when not pressurized. Excluding X type)					
Drain outlet bore size	Rc	1/8 (Excluding X type)					

□ indicates series name. 1 MPa = 10 bar

Descriptions		P type	M type	X type
Operating ambient temperature range	°C	5 (41°F) to 60 (140°F)		5 (41°F) to 30 (86°F)
Filtration rating	μm	1	0.01	Suction by activated carbon
Secondary side oil concentration	mg/m³	0.6	0.01	0.003
Initial pressure drop	MPa	0.007 (≈1 psi)	0.01 (≈1.5 psi)	0.02 (≈2.9 psi)
Regular pressure drop	MPa	0.014 (≈2 psi)	0.02 (≈2.9 psi)	-

*1: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7MPa.
*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 an NO. Air is purged with initial drainage until pressure reaches 0.1 MPa.
*5: The P/M type element must be replaced after one year or when the differential pressure indicator needle reaches the red range, whichever is faster.
*6: Replace the X type element after 650 hours (at 21°C) or when the deodorizing effect is lost.
*7: The X type has a ball valve (G1/2) at the discharge outlet.

How to order

AF2 004 P - 25

Ⓐ Flow rate classification
Ⓑ Element
Ⓒ Bore size

Code	Content
Ⓐ Flow rate classification	
004	3.7 m³/min(ANR)
007	6.6 m³/min(ANR)
010	9.6 m³/min(ANR)
013	13.2 m³/min(ANR)
020	19.8 m³/min(ANR)
026	25.8 m³/min(ANR)
Ⓑ Element	
P	P type (solid/oil removing filter)
M	M type (high-performance solid/oil removing filter)
X	X type (odor removing filter)
Ⓒ Bore size	
25	Rc1
40	Rc1 1/2
50	Rc2
65	Rc2 1/2

⚠ Note on model No. selection

The required performance may not be attained if using at a level less than the selected pressure. Always select the model No. with the working pressure.

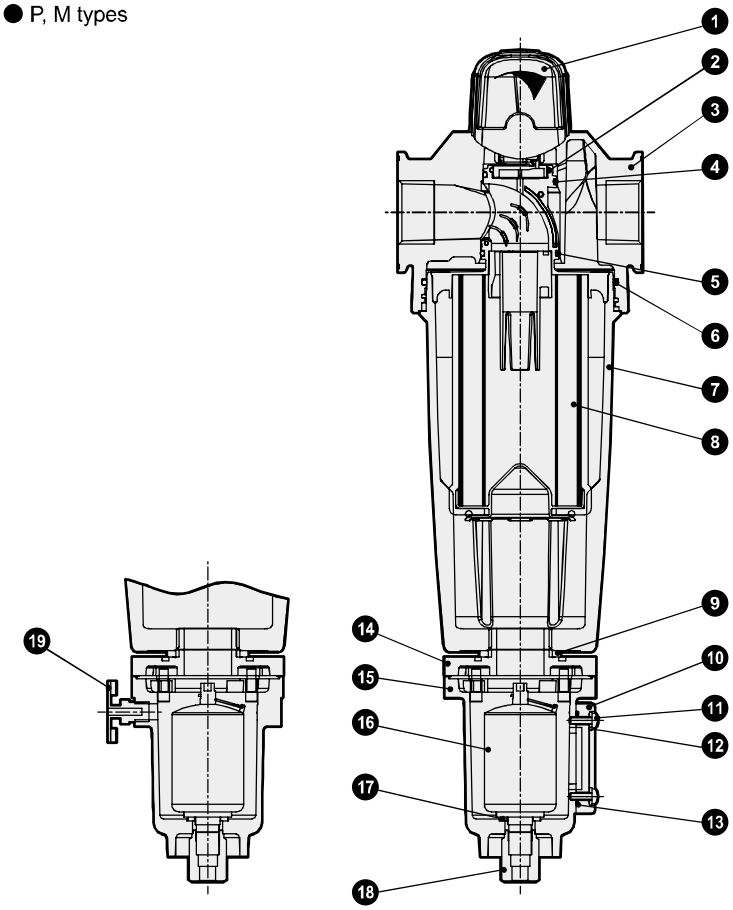
Flow rate compensation coefficient

Pressure (MPa)	Compensation coeff
0.1	0.38
0.2	0.53
0.3	0.65
0.4	0.76
0.5	0.85
0.6	0.93
0.7	1.0
0.8	1.07
0.9	1.13
1.0	1.18

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

Internal structure and parts list

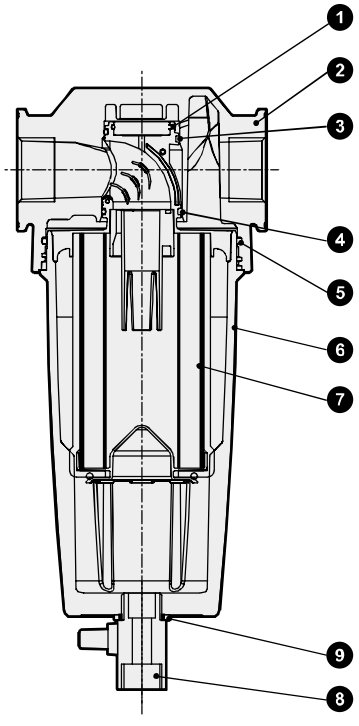
● P, M types



Parts list

No.	Part name	Material
1	Differential pressure indicator	
2	O-ring	NBR
3	Cover	Aluminum
4	O-ring	NBR
5	O-ring	NBR
6	O-ring	NBR
7	Bowl	Aluminum
8	Element	
9	Seal washer	Steel, NBR
10	Side gauge	Sulfone
11	Small machine screw	Steel
12	Washer	PA
13	Packing	NBR
14	Cap	Aluminum
15	Case	Aluminum
16	Auto-drain	
17	Packing	NBR
18	Adaptor nut	C3604
19	Valve	

● X type

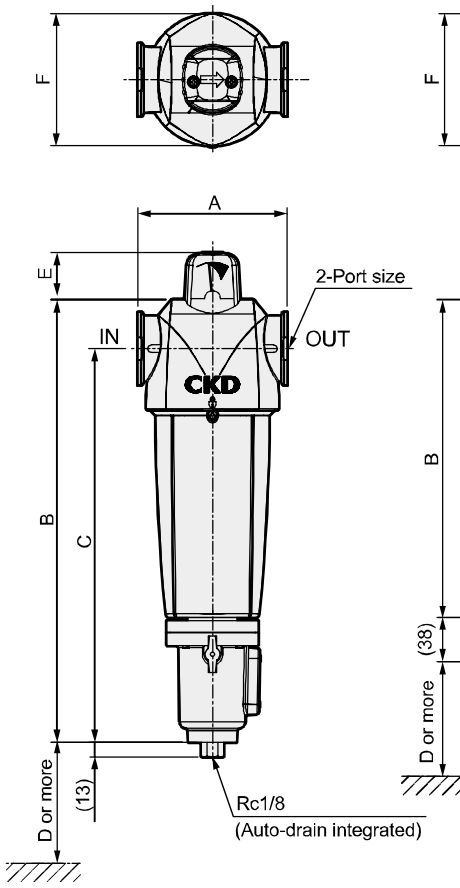


Parts list

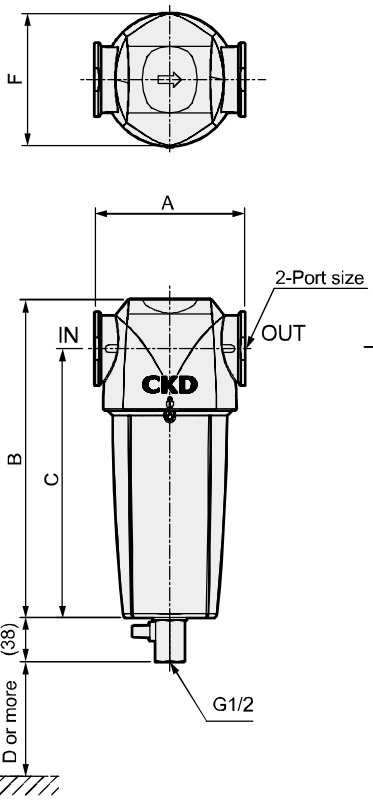
No.	Part name	Material
1	O-ring	NBR
2	Cover	Aluminum
3	O-ring	NBR
4	O-ring	NBR
5	O-ring	NBR
6	Bowl	Aluminum
7	Element	
8	Ball valve	
9	Seal washer	Steel, NBR

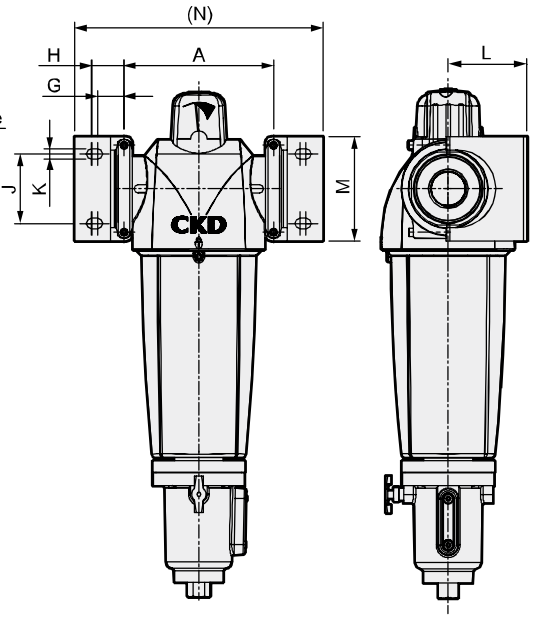
Dimensions CAD

● AF2004P/M to AF2026P/M



● AF2004X to AF2026X





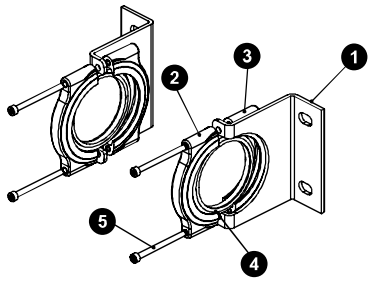
Model No.	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N
AF2004P/M-25	Rc1	129	383	340	70	43	114	23	28	60	9	68	90	214
AF2004X-25	Rc1	129	274	232	70	-	114	23	28	60	9	68	90	214
AF2007P/M-40	Rc1 1/2	129	473	430	70	43	114	23	28	60	9	68	90	214
AF2007X-40	Rc1 1/2	129	364	322	70	-	114	23	28	60	9	68	90	214
AF2010P/M-40	Rc1 1/2	170	541	491	100	46	155	32	39	84	11	92	120	291
AF2010X-40	Rc1 1/2	170	433	383	100	-	155	32	39	84	11	92	120	291
AF2013P/M-50	Rc2	170	633	583	100	46	155	32	39	84	11	92	120	291
AF2013X-50	Rc2	170	525	475	100	-	155	32	39	84	11	92	120	291
AF2020P/M-50	Rc2	170	633	583	100	46	155	32	39	84	11	92	120	291
AF2020X-50	Rc2	170	525	475	100	-	155	32	39	84	11	92	120	291
AF2026P/M-65	Rc2 1/2	205	750	690	120	49	180	35.5	42.5	100	11	135	150	332
AF2026X-65	Rc2 1/2	205	642	582	120	-	180	35.5	42.5	100	11	135	150	332

The X type does not have a differential pressure indicator.
The D dimension shows the min. dimension required to remove the element. Allow for the auto-drain piping dimensions when actually laying the pipe.

Configurations table

Bracket kit

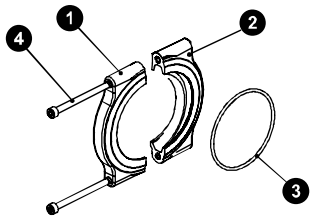
Model	Model No.
AF2004 to AF2007	AF2004-KD4-162775
AF2010 to AF2020	AF2010-KD4-162776
AF2026	AF2026-KD4-168281



No.	Part name	Quantity
1	Mounting bracket	2
2	Front clamp	2
3	Rear clamp	2
4	Mounting spacer	2
5	Hexagon socket head cap screw	4

Module kit

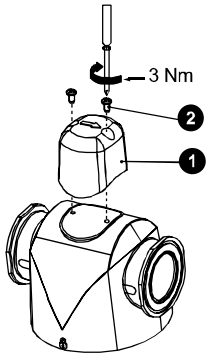
Model	Model No.
AF2004 to AF2007	AF2004-KD4-162773
AF2010 to AF2020	AF2010-KD4-162774
AF2026	AF2026-KD4-168280



No.	Part name	Quantity
1	Front clamp	1
2	Rear clamp	1
3	O-ring	1
4	Hexagon socket head cap screw	2

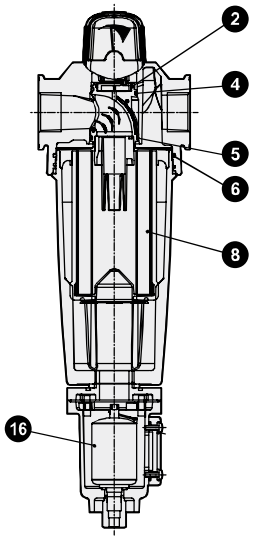
Differential pressure indicator

Model	Model No.
AF2004 to AF2026	AF2004-KD4-162778



No.	Part name	Quantity
1	Differential pressure indicator	1
2	Mounting screw	2

Repair parts list



Replacements / Model No.	O-ring ② ④ ⑤ ⑥	Auto-drain ⑯
AF2004*-25	AF2004-KD4-162779	AF2004-KFL-391722
AF2007*-40		
AF2010*-40	AF2010-KD4-162780	
AF2013*-50		
AF2020*-50		
AF2026*-65	AF2026-KD4-168282	

The P/M/X type name is indicated with *.
The O-ring kit consists of three O-rings for elements and one for the bowl.
The auto-drain kit consists of a float section, hexagon nut and packing.
The drain discharger cannot be mounted on the X type.

Element

Repair parts kit model No. / Model	P element	M element	X element
AF2004*-25	AF2004P-KD4-162758	AF2004M-KD4-162759	AF2004X-KD4-162760
AF2007*-40	AF2007P-KD4-162761	AF2007M-KD4-162762	AF2007X-KD4-162763
AF2010*-40	AF2010P-KD4-162764	AF2010M-KD4-162765	AF2010X-KD4-162766
AF2013*-50	AF2013P-KD4-162767	AF2013M-KD4-162768	AF2013X-KD4-162769
AF2020*-50	AF2020P-KD4-162770	AF2020M-KD4-162771	AF2020X-KD4-162772
AF2026*-65	AF2026P-KD4-168277	AF2026M-KD4-168278	AF2026X-KD4-168279

The P/M/X type name is indicated with *.
The element kit consists of O-rings (②④⑤⑥) and element (⑧).

Pneumatic components (F.R.L. unit (large bore size filter))

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for general precautions.

Series/Product-specific cautions: Medium main line filter AF2000 Series.

Manufacturer's Exemption of Liability

⚠ WARNING

■ The manufacturer cannot be held liable in the following cases:
- In the case where there are serious errors in the operator's use.
- Inappropriate modifications or repairs using nonstandard parts, made by the user.

Design/selection

⚠ WARNING

■ Do not use for applications other than compressed air.

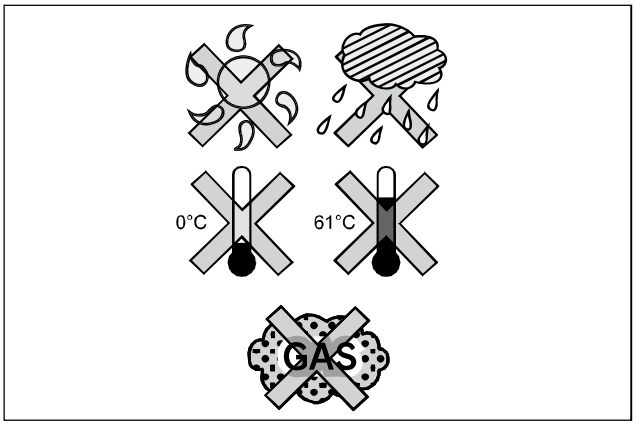
■ Do not use for caisson shields or medical devices such as breathing devices, or for direct air blow onto foodstuffs.
- There is a risk of personal injury.

■ Do not mount and use this device on transportation equipment such as vehicles or ships.
- The internal devices could be damaged by vibration, etc.

■ Avoid direct sunlight and rainwater.
The resin parts, etc., could deteriorate and break.

■ Do not use in locations with corrosive gases.

■ Use this product within the operating ambient temperature.



■ Do not use in locations at risk of freezing. The accumulated drainage could freeze and damage the product.

■ Do not use in hazardous locations (possibly explosive atmospheres, etc.).

■ We recommend keeping the inlet air temperature as low as possible. The oil removing rate will drop if the temperature is high.

■ Do not use this product in an ozone generating environment.

■ Avoid using this product where vibration and impact are present.

■ Do not use this product in areas containing dust, etc.

■ Do not use this product in an environment in which the compressed air contains the following types of gases.
- Sulfur dioxide, chlorine gas
- Aromatic hydrocarbon compounds (For example, benzene, toluene, phenol, cyclohexane, etc.)
- Chlorinated hydrocarbon compounds (For example, trichloroethylene, chloroform, etc.)
- Ketones (for example, acetone, etc.)
- Aldehydes (For example, formaldehyde or acetaldehyde, etc.)
- Amines (For example, ethylamine, methylamine, etc.)

■ Always set the air flow to within the working pressure range, and use treated air.
- Failure to observe this may prevent proper removal of water, dust and oil.

■ Install indoors.

Mounting, installation and adjustment

⚠ CAUTION

■ Do not step onto this main unit.

■ When piping, remove cutting oil and rust preventing agent, etc.

■ Secure enough space for maintenance and inspection.

■ Do not mount directly after a valve which opens/ closes suddenly. Do not install this filter in a system where a reverse flow could occur or where impact could be applied easily.

■ Flush the drain piping with air blow before mounting to the main body to remove any foreign matter inside.

■ Use a pipe with an inner diameter φ5.7 to 6.0 that is 5 m or less in length for the P or M type drain discharger piping. Do not use vertical piping.

■ As drainage is discharged with pressure, securely fix the piping at the drain port so that drainage does not splatter.

Mounting, installation and adjustment

- Mount the bowl vertically facing downward. Failure to do so could cause drainage discharge faults. Lay the drain pipe so that it is not pressurized. Laying several pipes together or attaching a check valve will create a pressurized state. Do not lay the pipes in this state.
- Ensure that the product's weight can be sufficiently withstood when installing. Fix the inlet and outlet piping to the floor or ceiling with a holder or supporter, etc.
- When connecting pipes, make sure that the front and back pipes are straight.
- Do not apply excessive force on the connected pipes. Excessive force could deform or damage the connection port threads or the fitting.
- Use a pipe with an inner diameter φ5.7 to 6.0 that is 5 m or less in length for the P or M type drain discharger piping. Do not use vertical piping. The drain outlet is processed with female threads. Use that section when piping. When connecting the pipe, fix the nut with a wrench, etc. Do not apply excessive force on the threads.

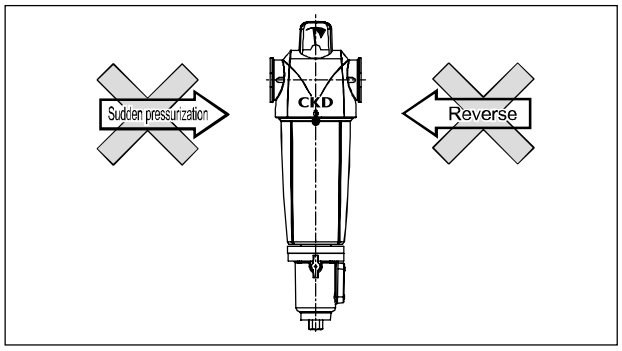
Use/maintenance

⚠ WARNING

- Before removing the bowl, stop the compressed air, completely discharge the pressure in the bowl and confirm that there is no residual pressure.

⚠ CAUTION

- Do not use reverse airflow. Do not pressurize suddenly. Otherwise, the original performance may not be attained and there will be a risk of damage.



- The drain discharger is an NO. The compatible compressor capacity is 0.75 kW or more (discharge flow rate 90 ℓ/min. or more).
- The service life of the air filter is one year or when the differential pressure indicator needle reaches the red range, whichever comes first. Replace the element with a new one at the end of its life. (Note that the X type must be replaced after 650 hours (at 21°C) or when the deodorizing effect is lost.)
- The drain discharger is air purged with the initially generated drainage until the pressure rises to 0.1 MPa.
- Release the air in the filter before servicing the drain discharger for a drain fault, etc. Wash the drain unit with water, and then blow out all moisture with an air gun.
- An air release valve is provided on the bottom of the filter, which can be used to release air.

● Chemical resistance of drain discharger plastic bowl

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate	Nylon
Inorganic compound	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, coating treatment solutions	×	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	×	○
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		×	○
Organic compound	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×	×
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	×	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×	○
	Petroleum components	Solvent, naphtha, gasoline		×	○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent	×	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	×	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×	×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base	×	×
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additive plasticizer for synthetic resin	×	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×	×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×	○
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	×	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×	○

○: Available ×: Not available

Large main line filter
AF3000 (regular)

■ Refining and pressure adjusting components/main line unit/main line filter

Overview

Simple system configuration is realized thanks to a unified design of filter vessels to achieve an easy layout design.

Features

(1) Incorporated element saving
Low pressure loss element is used to contribute to energy saving. Pressure loss is reduced by approx. 1/2 of conventional products.

(2) Differential pressure gauge provided as standard
The differential pressure gauge equipped as standard enables easy service life management for the element.

(3) Stand provided as standard
Easy pipe design and plumbing.

(4) Easy maintenance
Easy replacement of element by removing top of flange and rotating.

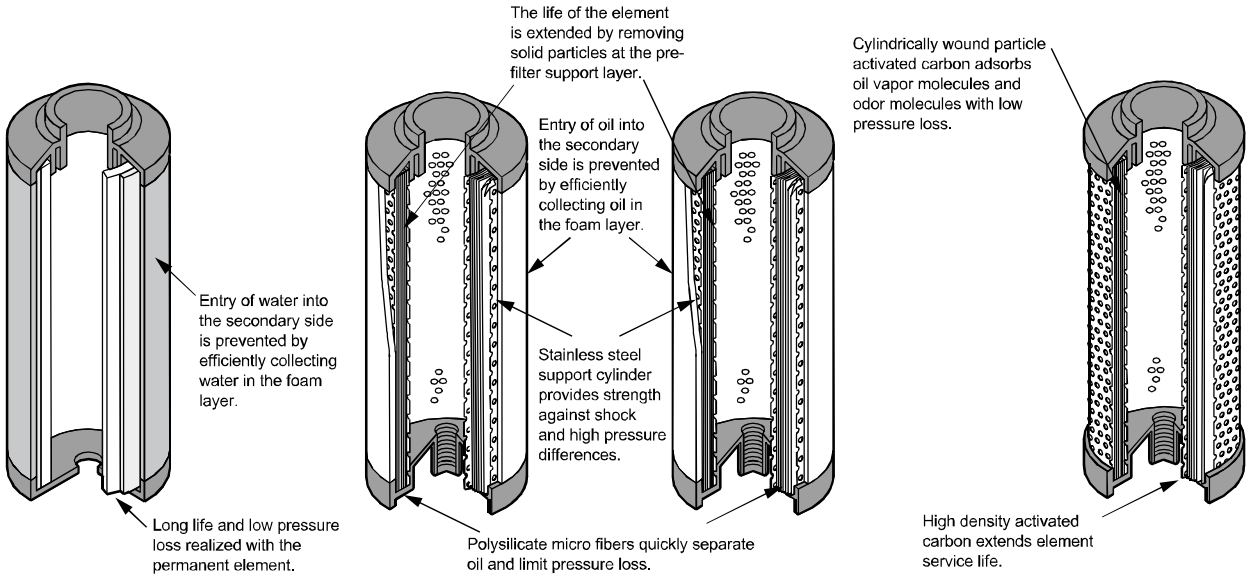
(5) Wide variation
max. 16 to 256 m^3/min. Wide application with 4 types and 40 models.

CONTENTS

Main line filter Energy saving and long life

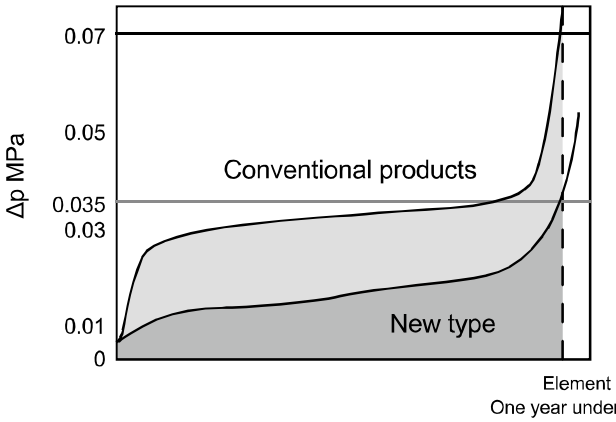
40 models in 4 series are available to cover all applications from 16 to 256 m^3/min. (ANR).

P SERIES	S SERIES	M SERIES	X SERIES
Pre-filter	Oil removing filter	High-performance oil removing filter	Activated carbon filter
Removal of particles 3 µm and over Water separation efficiency 95%	Removal of particles 0.3 µm and over Secondary oil content 0.5 mg/m^3 (at 21°C)	Removal of particles 0.01 µm and over Secondary oil content 0.01 mg/m^3 (at 21°C)	Suction by activated charcoal Secondary oil content 0.003 mg/m^3 (at 21°C)

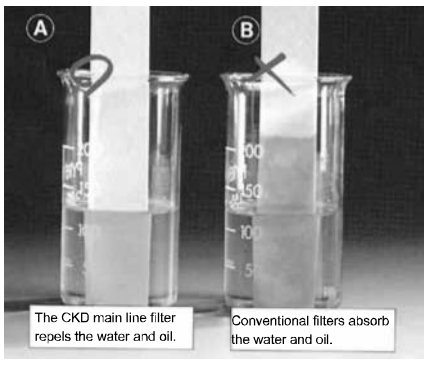


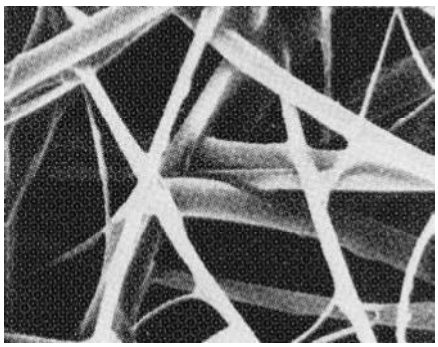
■ Long life/low pressure loss element

Element service life curve



- The pressure loss is half that of conventional products.
- The element is replaced when the pressure drops to 0.035 MPa.
- The element service life is one year when used under normal conditions.





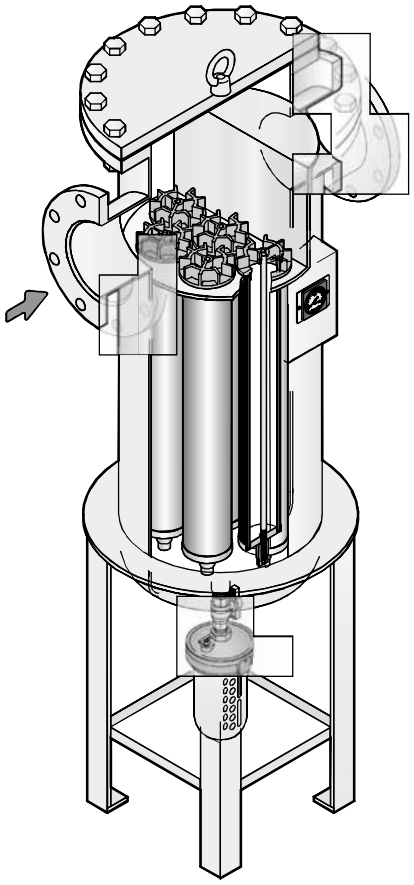
Ⓐ New filter

Borosilicate glass microfibers used in the filtration layer powerfully repel water and oil, allowing the pressure drop and operation costs to be minimized.

Ⓑ Conventional filter

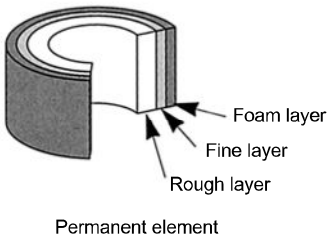
Conventional glass microfibers absorb water and oil, so the pressure easily drops, filtration performance decreases, and operation costs increase.

High 96% porosity inside the element fibers helps achieve low pressure loss and a long life



1. Lower operation costs.

CKD's original chemical fiber structure permanent element has been adopted for the 3 µm element. This structure does not clog easily, allowing less frequent element replacement. (P Series)



Permanent element

2. Contributes to energy saving.

The pressure loss has been reduced thanks to the permanent element. (P Series)

3. Easily replaceable element.

A screw method is adopted for element installation, so the element can now be replaced easily. Stainless steel is used for the screws, with no concerns for stiffness due to rust.

4. Easy daily inspection.

A differential pressure gauge is mounted on the front surface.
Improves visibility during daily inspection.
This differential pressure gauge is used as a reference for the element replacement interval.

5. Easy design of equipment.

The dimensions and bore sizes are the same within the same series, so if the flow rate is the same, the system is easily designed and installed.

6. Easy installation.

Installation legs have been prepared as standard.
This eliminates the need for extra equipment for installation. (Excluding AF3016)
The legs can be removed when not required.

7. Wide variation.

40 models in four series are available.
The ideal model can be selected based on the flow rate and quality of air.

AF3 016 P - 50
(A) (B) (C)

(A) Flow rate classification	
016	16 m³/min(ANR)
032	32 m³/min(ANR)
048	48 m³/min(ANR)
064	64 m³/min(ANR)
080	80 m³/min(ANR)
096	96 m³/min(ANR)
128	128 m³/min(ANR)
160	160 m³/min(ANR)
192	192 m³/min(ANR)
256	256 m³/min(ANR)

(B) Element	
P	P Series
S	S Series
M	M Series
X	X Series

(C) Bore size	
50	Flange 2B
80	Flange 3B
100	Flange 4B
150	Flange 6B
200	Flange 8B

Always read the safety precautions on pages 1688 to 1690 before use.

Main line filter

AF3000P Series

Appropriate for large pre-filter.

● Processing air flow rate: 16 to 256 m³/min (ANR)

JIS symbol

CAD

Specifications

Descriptions		AF3016 P-50	AF3032 P-80	AF3048 P-100	AF3064 P-100	AF3080 P-150	AF3096 P-150	AF3128 P-150	AF3160 P-200	AF3192 P-200	AF3256 P-200
Processing air flow rate m³/min(ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure MPa		0.07 (≈10 psi, 0.7 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure MPa		1.5 (≈220 psi, 15 bar)									
Ambient temperature °C		5 (41°F) to 60 (140°F)									
Filtration rating µm		3									
Pressure drop	Initial MPa	Within 0.005 (≈0.73 psi, 0.05 bar)									
	Normal MPa	0.005 (≈0.73 psi, 0.05 bar) to 0.02 (≈2.9 psi, 0.2 bar)									
	Element replacement MPa	0.07 (≈10 psi, 0.7 bar)									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange		2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg		45	95	98	130	160	190	250	260	300	350
Differential pressure gauge		Standard (model No.: GA5102)									
Drain discharger		Standard (model No.: 5100-4C)									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.005 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 — 016 — P — 50 — F

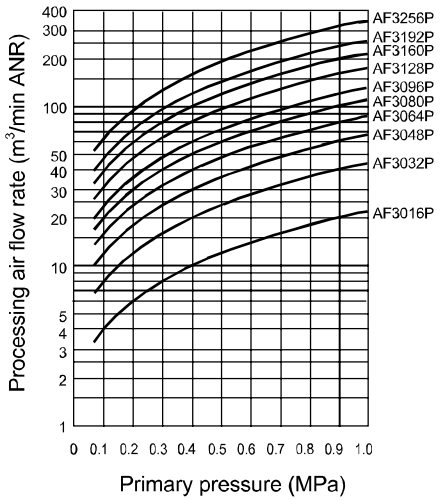
Ⓐ Flow rate classification
Ⓑ Bore size
Ⓒ Option *3

Code	Content
Ⓐ Flow rate classification	
016	16 m³/min(ANR)
032	32 m³/min(ANR)
048	48 m³/min(ANR)
064	64 m³/min(ANR)
080	80 m³/min(ANR)
096	96 m³/min(ANR)
128	128 m³/min(ANR)
160	160 m³/min(ANR)
192	192 m³/min(ANR)
256	256 m³/min(ANR)
Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	
Ⓒ Option	
Blank	None
F	Specified color paint
H	English language specifications
K	Companion flange attached
L	Foundation bolt/nut attached (*2)
L1	SS base bolt/nut attached (*2)
O	Outdoor
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Bore size/flow rate classification table

Ⓑ Bore size											
Flow rates		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

Flow characteristics



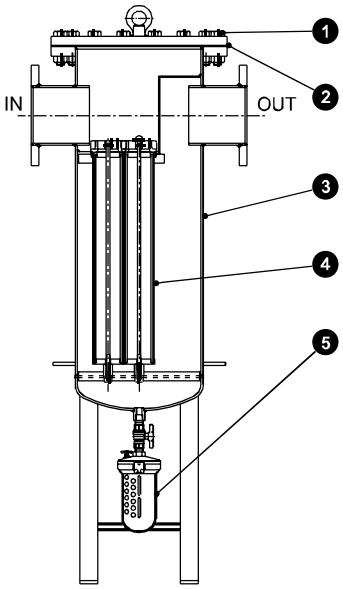
Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", air inlet is provided on the right port, while air outlet is provided on the left port.
*2: Available for AF3032P to AF3256P.
*3: When ordering several options, indicate the required options in alphabetical order.

Note on selection

1. Never use model numbers found to be below the point of intersection of the selection conditions.
2. When the point of intersection found according to selecting conditions and flow characteristics curves are on the same line, the service life may be shortened, so select a model that is one size larger.
3. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

Internal structure and parts list



Parts list * Repair parts

No.	Part name	Material
1	Upper flange	SS400
2	* Gasket	NBR
3	Body	SS400
4	* Element kit	PP, NBR, etc.
5	* Drain discharger	ZDC, PC, etc.

The drain discharger and stop valve are attached.

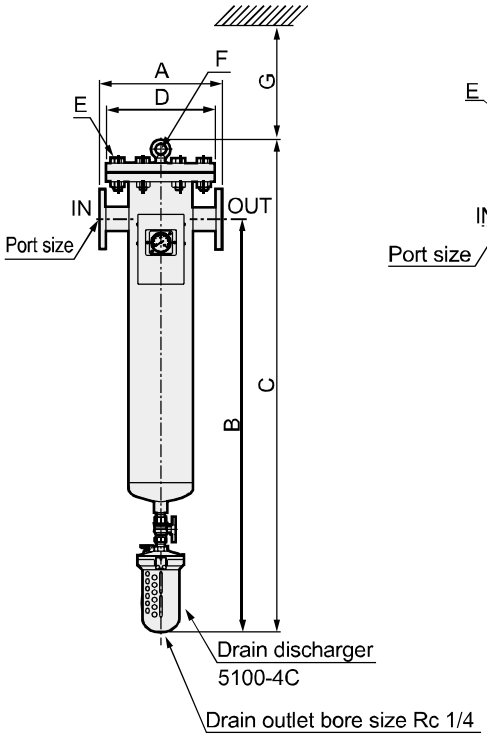
Repair parts model No.

Flow rates m^3/min(ANR)	② Gasket	④ Element kit	⑤ Drain discharger
16	AF3016P-GASKET	AF3016P-ELEMENT-KIT(1)	5100-4C
32	AF3032P-GASKET	AF3032P-ELEMENT-KIT(2)	
48	AF3048P-GASKET	AF3048P-ELEMENT-KIT(3)	
64	AF3064P-GASKET	AF3064P-ELEMENT-KIT(4)	
80	AF3080P-GASKET	AF3080P-ELEMENT-KIT(5)	
96	AF3096P-GASKET	AF3096P-ELEMENT-KIT(6)	
128	AF3128P-GASKET	AF3128P-ELEMENT-KIT(8)	
160	AF3160P-GASKET	AF3160P-ELEMENT-KIT(10)	
192	AF3192P-GASKET	AF3192P-ELEMENT-KIT(12)	
256	AF3256P-GASKET	AF3256P-ELEMENT-KIT(16)	

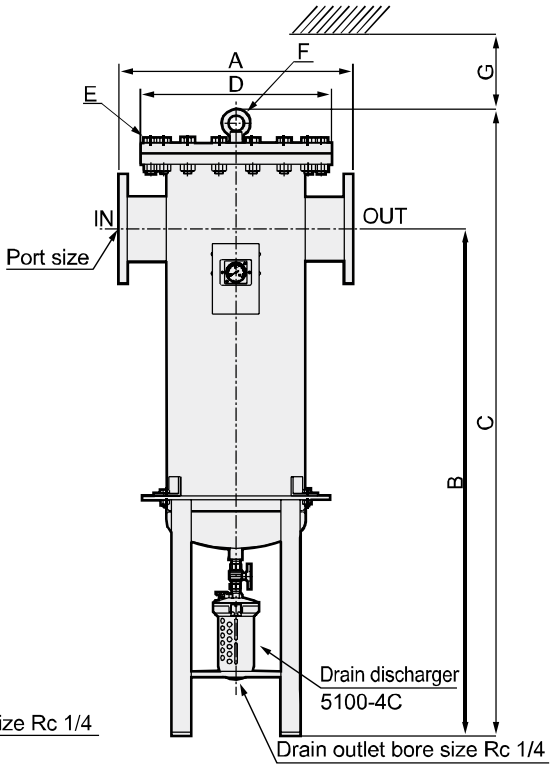
Element quantity is indicated in ( ).

Dimensions CAD

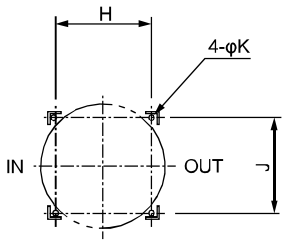
● AF3016P



● AF3032P to 3256P



● Installation legs foundation bolt hole dimension



Model No.	Port size	A	B	C	D	E	F	G
AF3016P-50	Flange 2B	315	1045	1250	280	8-M20×70	M12	600
AF3032P-80	Flange 3B	500	1255	1495	400	12-M22×80	M12	600
AF3048P-100	Flange 4B	500	1255	1495	400	12-M22×80	M12	600
AF3064P-100	Flange 4B	550	1270	1522	445	16-M22×80	M16	600
AF3080P-150	Flange 6B	600	1300	1606	490	16-M22×80	M20	600
AF3096P-150	Flange 6B	650	1320	1630	560	16-M24×90	M20	600
AF3128P-150	Flange 6B	700	1350	1693	620	20-M24×90	M20	600
AF3160P-200	Flange 8B	700	1350	1693	620	20-M24×90	M20	600
AF3192P-200	Flange 8B	750	1360	1709	675	20-M24×100	M20	600
AF3256P-200	Flange 8B	850	1400	1786	745	20-M30×110	M24	600

Model No.	H	J	K
AF3032P-80	210	210	φ15
AF3048P-100	210	210	φ15
AF3064P-100	250	250	φ15
AF3080P-150	280	280	φ15
AF3096P-150	320	320	φ15
AF3128P-150	350	350	φ15
AF3160P-200	350	350	φ15
AF3192P-200	400	400	φ15
AF3256P-200	450	450	φ15

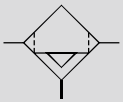
Micro alescer

AF3000S Series

Protect expensive pneumatic components

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol



CAD

Specifications

Descriptions	AF3016 S-50	AF3032 S-80	AF3048 S-100	AF3064 S-100	AF3080 S-150	AF3096 S-150	AF3128 S-150	AF3160 S-200	AF3192 S-200	AF3256 S-200
Processing air flow rate m³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 (≈10 psi, 0.7 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature °C	5 (41°F) to 60 (140°F)									
Filtration rating μm	0.3									
Secondary side oil concentration mg/m³	1.0 (inlet air 30°C (86°F))									
Pressure drop Initial MPa	Within 0.01 (≈1.5 psi, 0.1 bar)									
Pressure drop Normal MPa	0.01 (≈1.5 psi, 0.1 bar) to 0.03 (≈4.4 psi, 0.3 bar)									
Pressure drop Element replacement MPa	0.07 (≈10 psi, 0.7 bar)									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Standard (model No.: GA5102)									
Drain discharger	Standard (model No.: 5100-4C)									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.01 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 016 S - 50 - ○

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option

Code	Content
Ⓐ Flow rate classification	
016	16 m³/min(ANR)
032	32 m³/min(ANR)
048	48 m³/min(ANR)
064	64 m³/min(ANR)
080	80 m³/min(ANR)
096	96 m³/min(ANR)
128	128 m³/min(ANR)
160	160 m³/min(ANR)
192	192 m³/min(ANR)
256	256 m³/min(ANR)
Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	
Ⓒ Option	
Blank	None
F	Specified color paint
H	English language specifications
K	Companion flange attached
L	Foundation bolt/nut attached (*2)
L1	SS base bolt/nut attached (*2)
O	Outdoor
X1	IN/OUT reverse direction (*1)
Y2	Product photo

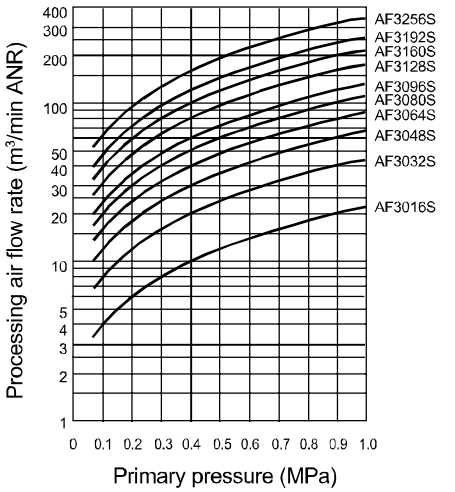
Bore size/flow rate classification table

Ⓑ Bore size / Flow rates		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

⚠ Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port while an air outlet on the right port. For "X1", air inlet is provided on the right port, while air outlet is provided on the left port.
*2: Available for AF3032S to AF3256S.

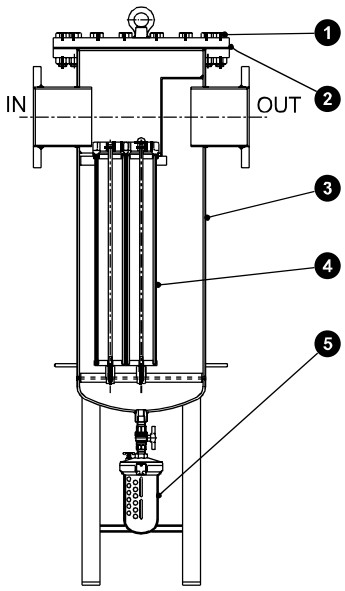
Flow characteristics



⚠ Note on selection

1. Never use model numbers found to be below the point of intersection of the selection conditions.
2. When the point of intersection found according to selecting conditions and flow characteristics curves are on the same line, the service life may be shortened, so select a model that is one size larger.
3. The oil removing ratio drops if the inlet air temperature is 30°C or more. Maintain the inlet air temperature at 30°C or less.
4. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

Internal structure and parts list



Parts list * Repair parts

No.	Part name	Material
1	Upper flange	SS400
2	* Gasket	NBR
3	Body	SS400
4	* Element kit	Filter paper, NBR, etc.
5	* Drain discharger	ZDC, PC, etc.

The drain discharger and stop valve are attached.

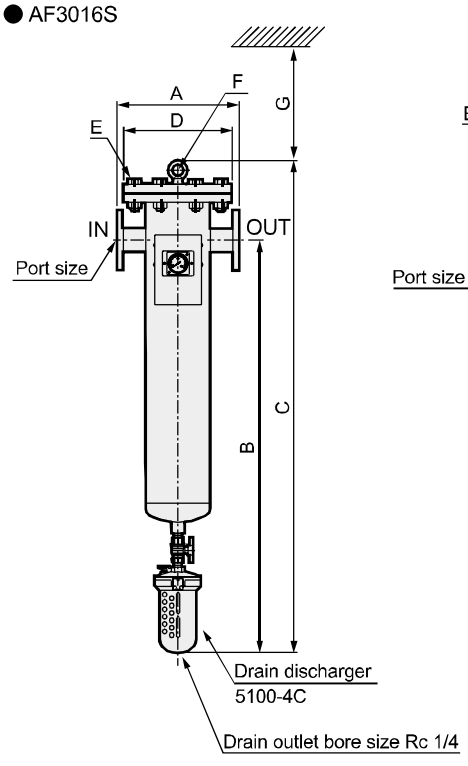
Repair parts model No.

Flow rate class m³/min(ANR)	❷ Gasket	❹ Element kit	❺ Drain discharger
16	AF3016P-GASKET	AF3016S-ELEMENT-KIT(1)	5100-4C
32	AF3032P-GASKET	AF3032S-ELEMENT-KIT(2)	
48	AF3048P-GASKET	AF3048S-ELEMENT-KIT(3)	
64	AF3064P-GASKET	AF3064S-ELEMENT-KIT(4)	
80	AF3080P-GASKET	AF3080S-ELEMENT-KIT(5)	
96	AF3096P-GASKET	AF3096S-ELEMENT-KIT(6)	
128	AF3128P-GASKET	AF3128S-ELEMENT-KIT(8)	
160	AF3160P-GASKET	AF3160S-ELEMENT-KIT(10)	
192	AF3192P-GASKET	AF3192S-ELEMENT-KIT(12)	
256	AF3256P-GASKET	AF3256S-ELEMENT-KIT(16)	

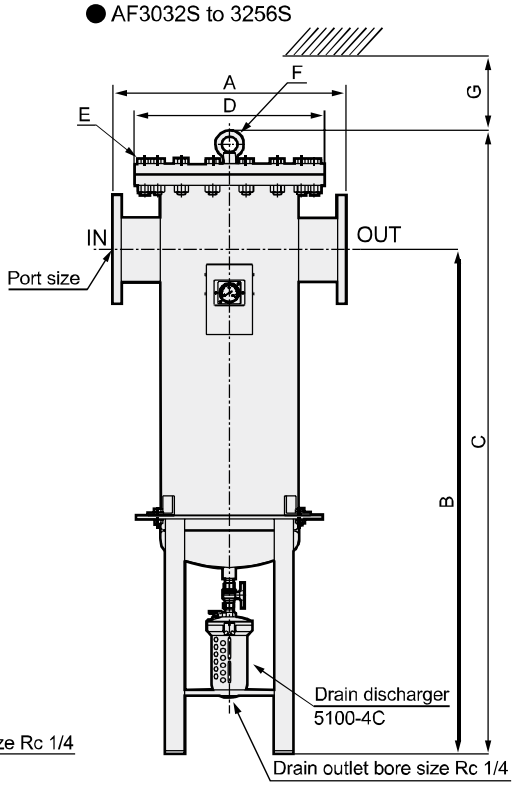
Element quantity is indicated in ( ).

Dimensions CAD

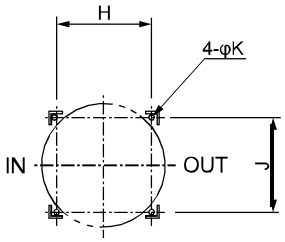
● AF3016S



● AF3032S to 3256S



● Installation legs foundation bolt hole dimension



Model No.	Port size	A	B	C	D	E	F	G
AF3016S-50	Flange 2B	315	1045	1250	280	8-M20×70	M12	600
AF3032S-80	Flange 3B	500	1255	1495	400	12-M22×80	M12	600
AF3048S-100	Flange 4B	500	1255	1495	400	12-M22×80	M12	600
AF3064S-100	Flange 4B	550	1270	1522	445	16-M22×80	M16	600
AF3080S-150	Flange 6B	600	1300	1606	490	16-M22×80	M20	600
AF3096S-150	Flange 6B	650	1320	1630	560	16-M24×90	M20	600
AF3128S-150	Flange 6B	700	1350	1693	620	20-M24×90	M20	600
AF3160S-200	Flange 8B	700	1350	1693	620	20-M24×90	M20	600
AF3192S-200	Flange 8B	750	1360	1709	675	20-M24×100	M20	600
AF3256S-200	Flange 8B	850	1400	1786	745	20-M30×110	M24	600

Model No.	H	J	K
AF3032S-80	210	210	φ15
AF3048S-100	210	210	φ15
AF3064S-100	250	250	φ15
AF3080S-150	280	280	φ15
AF3096S-150	320	320	φ15
AF3128S-150	350	350	φ15
AF3160S-200	350	350	φ15
AF3192S-200	400	400	φ15
AF3256S-200	450	450	φ15

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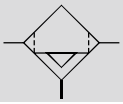
AF3000M Series

For pneumatic pressure circuits which are susceptible to oil

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol



CAD

Specifications

Descriptions		AF3016 M-50	AF3032 M-80	AF3048 M-100	AF3064 M-100	AF3080 M-150	AF3096 M-150	AF3128 M-150	AF3160 M-200	AF3192 M-200	AF3256 M-200
Processing air flow rate	m³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure	MPa	0.07 (≈10 psi, 0.7 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature	°C	5 (41°F) to 60 (140°F)									
Filtration rating	μm	0.01									
Secondary side oil concentration	mg/m³	0.1 (inlet air 30°C (86°F))									
Pressure drop: Initial	MPa	Within 0.01 (≈1.5 psi, 0.1 bar)									
Pressure drop: Normal	MPa	0.02 (≈2.9 psi, 0.2 bar) to 0.04 (≈5.8 psi, 0.4 bar)									
Pressure drop: Element replacement	MPa	0.07 (≈10 psi, 0.7 bar)									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange		2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight	kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge		Standard (model No.: GA5102)									
Drain discharger		Standard (model No.: 5100-4C)									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.01 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 — 016 — M — 50 — ( )

Ⓐ Flow rate classification

Code	Content
Ⓐ Flow rate classification	
016	16 m³/min(ANR)
032	32 m³/min(ANR)
048	48 m³/min(ANR)
064	64 m³/min(ANR)
080	80 m³/min(ANR)
096	96 m³/min(ANR)
128	128 m³/min(ANR)
160	160 m³/min(ANR)
192	192 m³/min(ANR)
256	256 m³/min(ANR)

Ⓑ Bore size

Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	

Ⓒ Option *3

Ⓒ Option	
Blank	None
F	Specified color paint
H	English language specifications
K	Companion flange attached
L	Foundation bolt/nut attached (*2)
L1	Stainless steel base bolt/nut incl (*2)
O	Outdoor
X1	IN/OUT reverse direction (*1)
Y2	Product photo

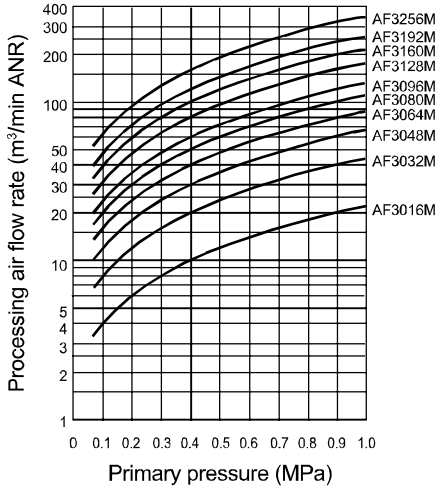
Bore size/flow rate classification table

Ⓑ Bore size											
Flow rates		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", air inlet is provided on the right port, while air outlet is provided on the left port.
*2: Available for AF3032M to AF3256M.
*3: When ordering several options, indicate the required options in alphabetical order.

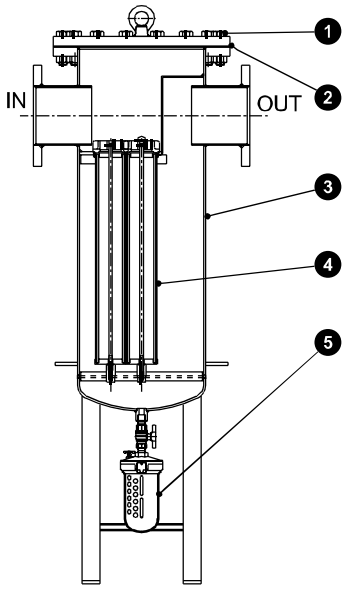
Flow characteristics



Note on selection

1. Never use model numbers found to be below the point of intersection of the selection conditions.
2. When the point of intersection found according to selecting conditions and flow characteristics curves are on the same line, the service life may be shortened, so select a model that is one size larger.
3. The oil removing ratio drops if the inlet air temperature is 30°C or more. Maintain the inlet air temperature at 30°C or less.
4. Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

Internal structure and parts list



Parts list * Repair parts

No.	Part name	Material
1	Upper flange	SS400
2	* Gasket	NBR
3	Body	SS400
4	* Element kit	Filter paper, NBR, etc.
5	* Drain discharger	ZDC, PC, etc.

The drain discharger and stop valve are attached.

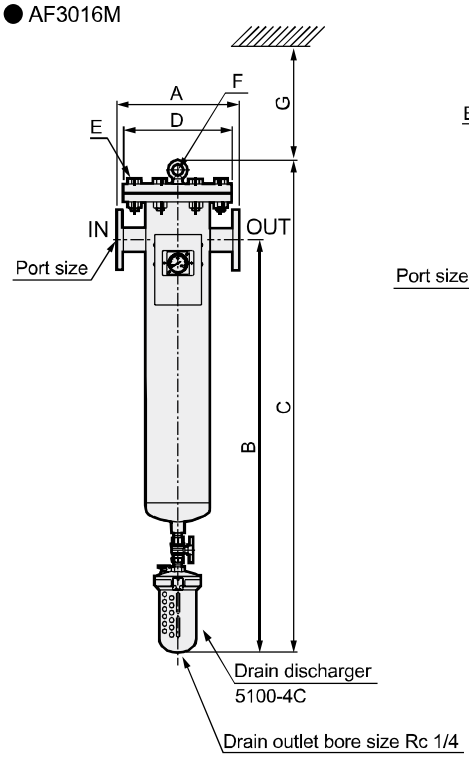
Repair parts model No.

Flow rates m³/min (ANR)	❷ Gasket	❹ Element kit	❺ Drain discharger
16	AF3016P-GASKET	AF3016M-ELEMENT-KIT(1)	5100-4C
32	AF3032P-GASKET	AF3032M-ELEMENT-KIT(2)	
48	AF3048P-GASKET	AF3048M-ELEMENT-KIT(3)	
64	AF3064P-GASKET	AF3064M-ELEMENT-KIT(4)	
80	AF3080P-GASKET	AF3080M-ELEMENT-KIT(5)	
96	AF3096P-GASKET	AF3096M-ELEMENT-KIT(6)	
128	AF3128P-GASKET	AF3128M-ELEMENT-KIT(8)	
160	AF3160P-GASKET	AF3160M-ELEMENT-KIT(10)	
192	AF3192P-GASKET	AF3192M-ELEMENT-KIT(12)	
256	AF3256P-GASKET	AF3256M-ELEMENT-KIT(16)	

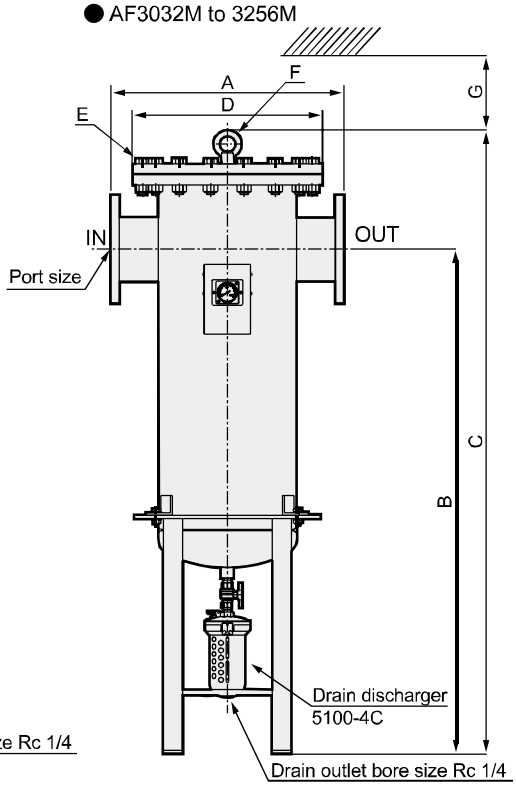
Element quantity is indicated in ( ).

Dimensions CAD

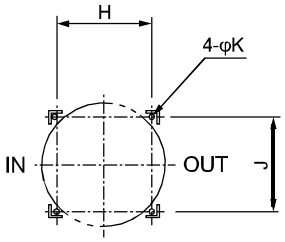
● AF3016M



● AF3032M to 3256M



● Installation legs foundation bolt hole dimension



Model No.	Port size	A	B	C	D	E	F	G
AF3016M-50	Flange 2B	315	1045	1250	280	8-M20×70	M12	600
AF3032M-80	Flange 3B	500	1255	1495	400	12-M22×80	M12	600
AF3048M-100	Flange 4B	500	1255	1495	400	12-M22×80	M12	600
AF3064M-100	Flange 4B	550	1270	1522	445	16-M22×80	M16	600
AF3080M-150	Flange 6B	600	1300	1606	490	16-M22×80	M20	600
AF3096M-150	Flange 6B	650	1320	1630	560	16-M24×90	M20	600
AF3128M-150	Flange 6B	700	1350	1693	620	20-M24×90	M20	600
AF3160M-200	Flange 8B	700	1350	1693	620	20-M24×90	M20	600
AF3192M-200	Flange 8B	750	1360	1709	675	20-M24×100	M20	600
AF3256M-200	Flange 8B	850	1400	1786	745	20-M30×110	M24	600

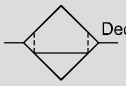
Model No.	H	J	K
AF3032M-80	210	210	φ15
AF3048M-100	210	210	φ15
AF3064M-100	250	250	φ15
AF3080M-150	280	280	φ15
AF3096M-150	320	320	φ15
AF3128M-150	350	350	φ15
AF3160M-200	350	350	φ15
AF3192M-200	400	400	φ15
AF3256M-200	450	450	φ15

Micro alescer

AF3000X Series

For pneumatic pressure circuits which are susceptible to odors

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol  Deodorization

CAD

Specifications

Descriptions	AF3016 X-50	AF3032 X-80	AF3048 X-100	AF3064 X-100	AF3080 X-150	AF3096 X-150	AF3128 X-150	AF3160 X-200	AF3192 X-200	AF3256 X-200
Processing air flow rate m³/min(ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid	Compressed air									
Working pressure MPa	0.07 (≈10 psi, 0.7 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature °C	5 (41°F) to 30 (86°F)									
Filtration method	Suction by activated carbon									
Secondary side oil concentration mg/m³	0.03 (inlet air 30°C (86°F))									
Pressure drop MPa	Within 0.01 (≈1.5 psi, 0.1 bar)									
Element quantity	1	2	3	4	5	6	8	10	12	16
Port size (*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight kg	45	95	98	130	160	190	250	260	300	350
Differential pressure gauge	Standard (model No.: GA5102)									
Drain discharger	None									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.01 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

How to order

AF3 | 016 | X | - | 50 | - | ○

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option

Code	Content
Ⓐ Flow rate classification	
016	16 m³/min(ANR)
032	32 m³/min(ANR)
048	48 m³/min(ANR)
064	64 m³/min(ANR)
080	80 m³/min(ANR)
096	96 m³/min(ANR)
128	128 m³/min(ANR)
160	160 m³/min(ANR)
192	192 m³/min(ANR)
256	256 m³/min(ANR)
Ⓑ Bore size	
Refer to the bore size/flow rate classification table on the left.	
Ⓒ Option	
Blank	None
F	Specified color paint
H	English language specifications
K	Companion flange attached
L	Foundation bolt/nut attached (*2)
L1	SS base bolt/nut attached (*2)
O	Outdoor
X1	IN/OUT reverse direction (*1)
Y2	Product photo

Bore size/flow rate classification table

Ⓑ Bore size		016	032	048	064	080	096	128	160	192	256
Flow rates											
50	Flange 2B	●									
80	Flange 3B		●								
100	Flange 4B			●	●						
150	Flange 6B					●	●	●			
200	Flange 8B								●	●	●

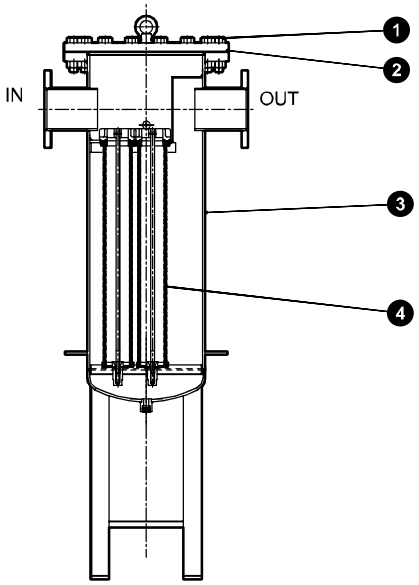
Flow characteristics

Flow characteristics are the same as AF3000M on page 1684.
Be sure to use the AF3000M as a pre-filter.

⚠ Precautions for model No. selection

*1: Viewed from the front, standard products have an air inlet on the left port and an air outlet on the right port. For "X1", air inlet is provided on the right port, while air outlet is provided on the left port.
*2: Available for AF3032X to AF3256X.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.

Internal structure and parts list



Parts list * Repair parts

No.	Part name	Material
1	Upper flange	SS400
2	* Gasket	NBR
3	Body	SS400
4	* Element kit	Activated carbon, NBR, etc.

Repair parts model No.

Flow rates m^3/min (ANR)	❷ Gasket	❹ Element kit
16	AF3016P-GASKET	AF3016X-ELEMENT-KIT(1)
32	AF3032P-GASKET	AF3032X-ELEMENT-KIT(2)
48	AF3048P-GASKET	AF3048X-ELEMENT-KIT(3)
64	AF3064P-GASKET	AF3064X-ELEMENT-KIT(4)
80	AF3080P-GASKET	AF3080X-ELEMENT-KIT(5)
96	AF3096P-GASKET	AF3096X-ELEMENT-KIT(6)
128	AF3128P-GASKET	AF3128X-ELEMENT-KIT(8)
160	AF3160P-GASKET	AF3160X-ELEMENT-KIT(10)
192	AF3192P-GASKET	AF3192X-ELEMENT-KIT(12)
256	AF3256P-GASKET	AF3256X-ELEMENT-KIT(16)

Element quantity is indicated in ( ).

Dimensions

Dimensions are the same as the AF3000M on page 1685. However, the drain discharger and stop valve are not attached.

● Chemical resistance of drain discharger plastic bowl

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate	Nylon
Inorganic compound	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, coating treatment solutions	×	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	×	○
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		×	○
Organic compound	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×	×
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	×	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×	○
	Petroleum components	Solvent, naphtha, gasoline		×	○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent	×	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	×	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×	×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base	×	×
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additive plasticizer for synthetic resin	×	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×	×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×	○
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	×	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×	○

○: Available ×: Not available

Medium main line filter
AF4000 (oil-free)

■ **Refining and pressure adjusting components/main line unit/air filter**

Overview

High performance main line filter with stainless steel housing for clean environments.
Ideal for oil-free air lines.

Features

(1) Differential pressure gauge mounting port provided
A differential pressure gauge (option) mounting port is provided on the top of the filter.

(2) Easy element replacement
A band method has been adopted for tightening the housing.
The element can be replaced without tools.

(3) Time management of element replacement
The replacement time is managed by time (approx. one year). The replacement timing is indicated by a blinking lamp.

(4) Mechanism preventing the dislocation of the housing
The mechanism prevents the housing from falling when the hand cover is removed when replacing the element, etc.

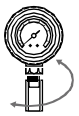
(5) Highly reliable drain discharger mounted
A highly reliable automatic drain is provided for the drain discharger.
Drainage can be discharged without wasteful air loss.

CONTENTS

Supporting oil-free air lines

The high-performance main line filter AF4000 Series with stainless steel housing supports clean environments.
This filter is perfect for oil-free air lines.

Differential gauge mounting port



A mounting port for the differential pressure gauge (option) is provided on the top of the filter.

Preventing accidents

With residual pressure warning function

A band cover is provided as a standard to prevent unintentional removal of the band during operation or when there is a residual pressure. When the band cover's fixing screw is loosened, a small amount of air is leaked to notify the operator.

Easy element replacement

A band method is used to tighten the housing. There's no need to use tools when replacing the element.

Time-controlled element replacement timing

The conventional differential pressure method supported fluid type oil mist for which it was difficult to determine the replacement timing. The replacement timing is now controlled by time (approx. one year). A lamp flashes to alert the operator when the replacement timing arrives.

Housing drop-prevention mechanism

A mechanism is provided to prevent the housing from dropping when the band cover is removed for maintenance, such as when replacing the element.
The housing can be removed and mounted with both hands.

Highly reliable drain separator

A highly reliable snap drain (DT Series) is mounted on the drain separator.
Discharge drain without wasteful air loss.

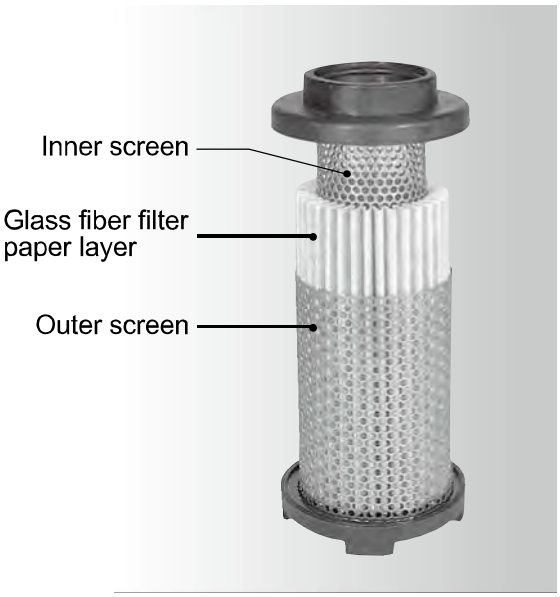
M type element structure

- Removes particles 0.01 µm or larger in size
- Outlet oil concentration 0.01 mg/m^3
- Normal pressure loss value is reduced

1. The waterproof and oil-proof glass fiber filter paper captures and condenses oil mist and reduced the pressure loss value.
2. The pleat structure ensures a wide filtration area.
3. Polyvinyl chloride resin has been eliminated in view of the global environment.

S type element structure

- Removes particles 1 µm or larger in size



1. The standard glass fiber filtration paper improves the catching performance and water resistance.
2. The pleat structure ensures a wide filtration area.
3. A stable catching performance is realized even if there are water drops in the air.

AF4000 Series System

Water drop removal Solid particle removal

For air dryer pre-filter

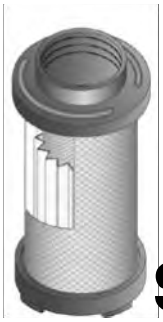
- Removes particles 5 µm or larger
- Water drop separation rate 99%

P Type

Filter Solid particle removal

Protect your expensive air compressor

- Removes particles 1 µm or larger



S Type

Highly efficient removal of oil mist Highly efficient removal of solids

Suitable for pneumatic pressure circuits susceptible to oil

- Removes particles 0.01 µm or larger
- Secondary oil concentration Removes oil up to 0.01 mg/m^3 (at 20˚C)

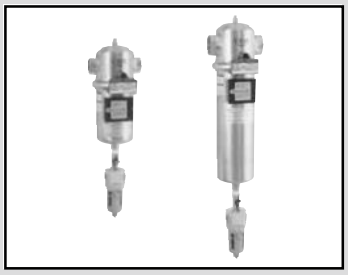
M Type

Oil vapor removal Odor removal

Suitable for pneumatic pressure circuits which are susceptible to odors

- Absorption with active carbon fibers
- Secondary oil concentration Removes vaporous oil mist and odors up to 0.003 mg/m^3 (at 20˚C)

X Type

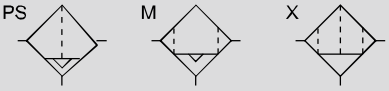


Medium main line stainless steel filter

AF4000P/S/M/X Series

Ideal for pre-filter, oil removal and deodorizing applications.

● Processing air flow rate: 3.7 to 18.8 m³/min (ANR) (at 0.7 MPa)

JIS symbol 

CAD

Specifications

Descriptions	AF4004□-25	AF4007□-40	AF4010□-40	AF4013□-50	AF4020□-50
Processing air flow rate m³/min(ANR)	3.7	6.2	10	13	18.8
Working fluid	Compressed air				
Working pressure MPa	0.1 (≈15 psi, 1 bar) to 1.0 (≈150 psi, 10 bar)				
Ambient temperature °C	5 (41°F) to 60 (140°F)				
Proof pressure MPa	1.5 (≈220 psi, 15 bar)				
Port size Rc	1	1 1/2		2	
Weight kg	3	3.3	3.7	4.3	6
Element life indicator	Standard only for M type				
Drain discharger	DT3000-15-W (Excluding X type)				
Drain outlet bore size	Directly connecting bore size φ5.7 to φ6 nylon tube (Excluding X type)				

□ indicates series name.

1 MPa = 10 bar, °F = 9/5 °C + 32

Descriptions			P type	S type	M type	X type
Performance	Processing air Conditions	Inlet air pressure MPa	0.7 (≈100 psi, 7 bar)			
		Inlet air temperature °C	32 (89.6°F)			
		Inlet air dew point °C	-	-	No water infiltration/droplet forming	Pressure dew point 10°C
		Inlet oil content mg/m³	-	-	3	0.01
	Filtration rating μm		5	1	0.01	Suction by activated carbon fibers
	Secondary side oil concentration mg/m³		-	-	0.01	0.003
	Water separation efficiency %		99	-	-	-
	Pressure drop	Initial MPa	0.005 (≈0.73 psi)	0.005 (≈0.73 psi)	0.01 (≈1.5 psi)	0.009 (≈1.3 psi)
	Element renew time	Pressure drop MPa	0.02 (≈3 psi)	0.07 (≈10 psi)	0.07 (≈10 psi)	-
		Duration of use	8000 hours or 1 year			

*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 20°C.
*4: The drain discharger is an NO. Air is purged with initial drainage until pressure reaches 0.1 MPa.
*5: The P/S/M type elements must be replaced when the pressure drops or the service life is reached, whichever comes first.
*6: Replace the X type element when the service life is reached or when the deodorizing effect is lost.
*7: P type is not available in AF4020.

How to order

AF4 | 004 | P | - | 25 | - | GA

Model No.

Ⓐ Flow rate classification

Code	Content
Ⓐ Flow rate classification	
004	3.7 m³/min(ANR)
007	6.2 m³/min(ANR)
010	10 m³/min(ANR)
013	13 m³/min(ANR)
020	18.8 m³/min (ANR) (S, M, or X only)

Ⓑ Element

Code	Content
Ⓑ Element	
P	P type (solid/water removing filter)
S	S type (solid removing filter)
M	M type (oil mist removing filter)
X	X type (deodorizing filter)

Ⓒ Bore size

Code	Content
Ⓒ Bore size	
25	Rc1
40	Rc1 1/2
50	Rc2

Ⓓ Attached product

Code	Content
Ⓓ Attached product	
GA	Differential pressure gauge (GA400-8-P02) enclosed
EL	Element life indicator attached

(An element life indicator is mounted on the M type as standard.)

⚠ Note on model No. selection

The required performance may not be attained if using at a level less than the selected pressure. Always select the model No. with the working pressure.

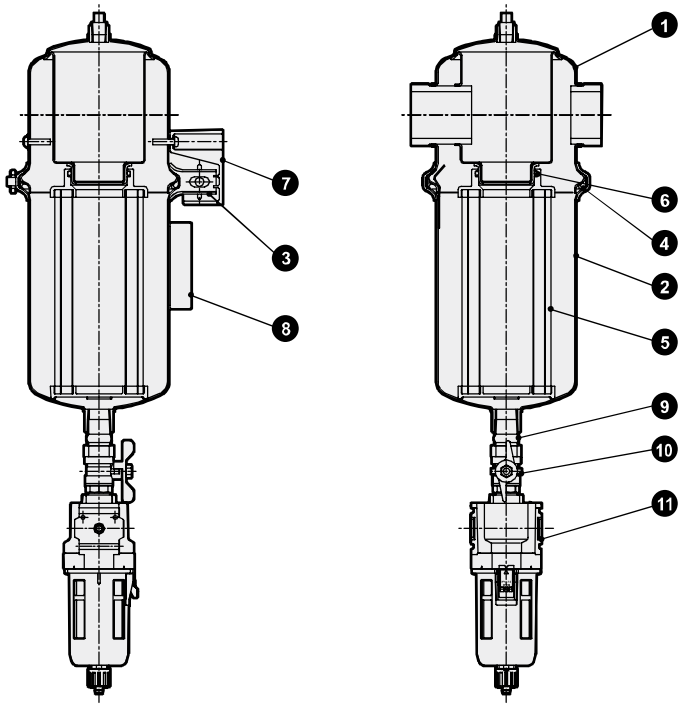
Flow rate compensation coefficient

Pressure (MPa)	Auxiliary coefficient
0.2	0.36
0.3	0.5
0.4	0.62
0.5	0.75
0.6	0.88
0.7	1.0
0.8	1.13
0.9	1.25
1.0	1.38

If the inlet pressure is not 0.7 MPa, multiply the coefficient above with the processing air flow rate.

Internal structure and parts list

● P, S, M types

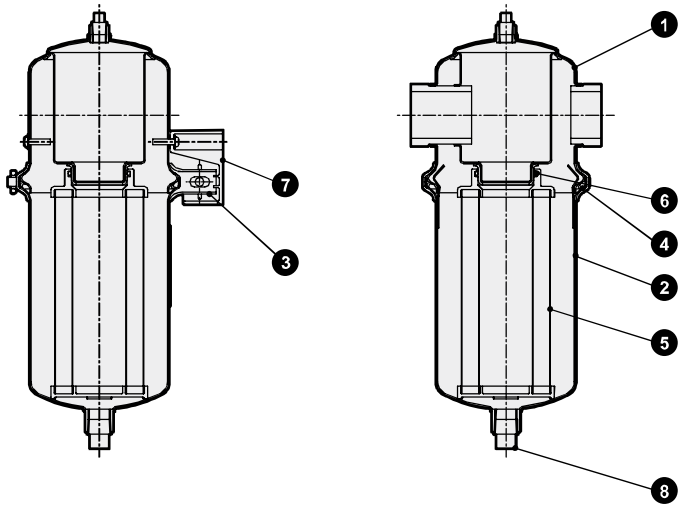


Parts list

No.	Part name	Material
1	Cover	SUS304
2	Bowl	SUS304
3	Band	SUS304
4	O-ring	NBR
5	Element	
6	O-ring	NBR
7	Band cover	Polyamide
8	Element life indicator	
9	Nipple	SUS304
10	Ball valve	C3771, PTFE, SUS, etc.
11	Drain discharger	DT3000-15-W

Drain discharger and ball valve are attached.
The element life indicator is mounted only on the M type.

● X type

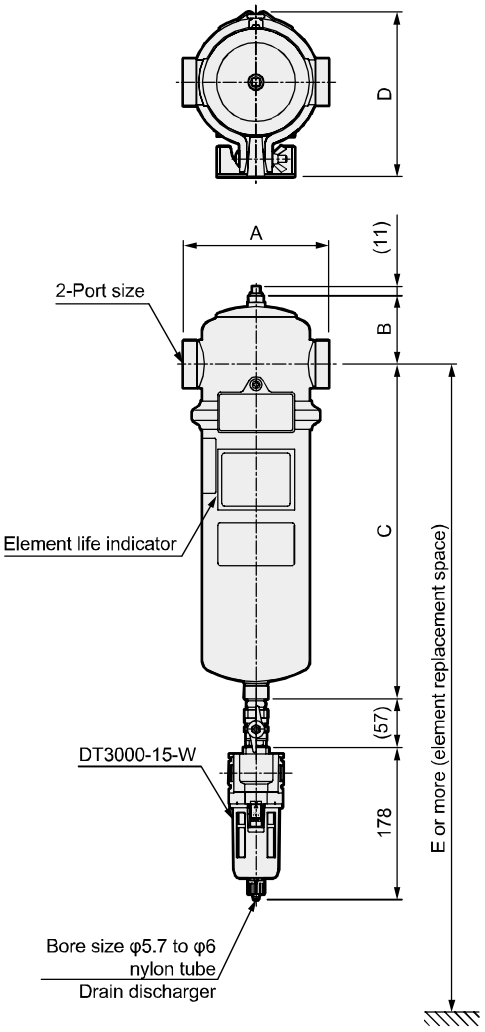


Parts list

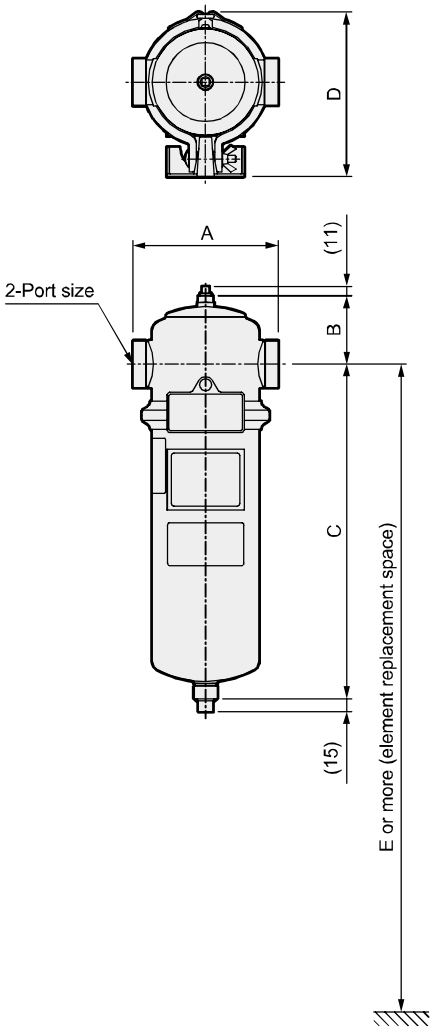
No.	Part name	Material
1	Cover	SUS304
2	Bowl	SUS304
3	Band	SUS304
4	O-ring	NBR
5	Element	
6	O-ring	NBR
7	Band cover	Polyamide
8	Plug	SUS304

Dimensions CAD

● AF4004P/S/M to AF4020S/M



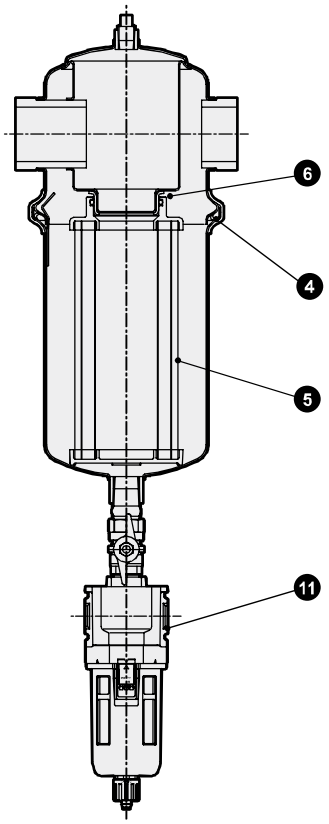
● AF4004X to AF4020X



Model No.	Port size	A	B	C	D	E
AF4004P/S/M/X-25	Rc1	160	72.5	209	192.7	570
AF4007P/S/M/X-40	Rc1 1/2	170	80	283.5	192.7	730
AF4010P/S/M/X-40	Rc1 1/2	170	80	391.5	192.7	940
AF4013P/S/M/X-50	Rc2	173	86.5	478	192.7	1100
AF4020S/M/X-50	Rc2	173	86.5	635	192.7	1420

The element life indicator is mounted only on the M type.
E dimensions indicate the maintenance space.
Drain discharger and ball valve are attached.

Repair parts list



Repair parts list

Repair parts kit No. / Model	O-ring ④	Drain discharger ⑪
AF4004*-25	AF4004P-QFL-391648	DT3000-15-W
AF4007*-40		
AF4010*-40		
AF4013*-50		
AF4020*-50		

The P/S/M/X Series name is indicated with *.
The drain discharger cannot be mounted on the X Series.

Element

Repair parts kit No. / Model	P type element	S type element	M type element	X type element
AF4004*-25	AF4004P-KFL-391451	AF4004S-KFL-391461	AF4004M-KFL-391471	AF4004X-KFL-391481
AF4007*-40	AF4007P-KFL-391452	AF4007S-KFL-391462	AF4007M-KFL-391472	AF4007X-KFL-391482
AF4010*-40	AF4010P-KFL-391453	AF4010S-KFL-391463	AF4010M-KFL-391473	AF4010X-KFL-391483
AF4013*-50	AF4013P-KFL-391454	AF4013S-KFL-391464	AF4013M-KFL-391474	AF4013X-KFL-391484
AF4020*-50	-	AF4020S-KFL-391465	AF4020M-KFL-391475	AF4020X-KFL-391485

The P/S/M/X Series name is indicated with *.
The element kit consists of an O-ring ⑥ and element ⑤.
The O-ring ⑥, element ⑤ and battery kit applies only for the M type element.

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for general precautions.

Series/Product-specific cautions: Medium main line filter AF4000 Series

Manufacturer's Exemption of Liability

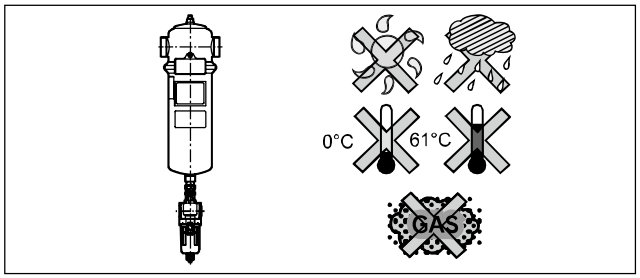
⚠ WARNING

- The manufacturer cannot be held liable in the following cases:
  - In the case where there are serious errors in the operator's use.
  - Inappropriate modifications or repairs using nonstandard parts, made by the 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.
  - There is a risk of personal injury.
- Do not mount and use this device on transportation equipment such as vehicles or ships.
  - The internal devices could be damaged by vibration, etc.
- Avoid direct sunlight and rainwater. The resin parts, etc., could deteriorate and break.
- Do not use in locations with corrosive gases.
- Use this product within the operating ambient temperature.
- Do not use in locations at risk of freezing. The accumulated drainage could freeze and damage the product.
- Do not use in hazardous locations (possibly explosive atmospheres, etc.).
- We recommend keeping the inlet air temperature as low as possible. The oil removing rate will drop if the temperature is high.
- Do not use this product in an ozone generating environment.
- Avoid using this product where vibration and impact are present.
- Do not use this product in areas containing dust, etc.
- Do not use this product in an environment in which the compressed air contains the following types of gases.
  - Sulfur dioxide/chlorine gas
  - Aromatic hydrocarbon compounds
    (For example, benzene, toluene, phenol, cyclohexane, etc.)
  - Chlorinated hydrocarbon compounds
    (For example, trichloroethylene, chloroform, etc.)
  - Ketones (for example, acetone, etc.)
  - Aldehydes
    (For example, formaldehyde or acetaldehyde, etc.)
  - Amines (For example, ethylamine, methylamine, etc.)
- Always set the air flow to within the working pressure range, and use treated air.
  - Failure to observe this may prevent proper removal of water, dust and oil.
- Install indoors.



Mounting, installation and adjustment

⚠ CAUTION

- Do not step onto the body.
- When piping, remove cutting oil and rust preventing agent, etc.
- Secure enough space for maintenance and inspection.
- Do not mount directly after a valve which opens/closes suddenly. Do not install this filter in a system where a reverse flow could occur or where impact could be applied easily.
- Flush the drain piping with air blow before mounting to the main body to remove any foreign matter inside.
- Use a pipe with an inner diameter φ5.7 to 6.0 that is 5 m or less in length for the P, S or M type drain discharger piping. Do not use vertical piping.
- As drainage is discharged with pressure, securely fix the piping at the drain port so that drainage does not splatter.
- When mounting a differential pressure gauge on the P, S or M type, check the high pressure side and low pressure side ports, and mount properly.
- Mount the bowl vertically facing downward. Failure to do so could cause drainage discharge faults. Lay the drain pipe so that it is not pressurized. Laying several pipes together or attaching a check valve will create a pressurized state. Do not lay the pipes in this state.
- Ensure that the product's weight can be sufficiently withstood when installing. Fix the inlet and outlet piping to the floor or ceiling with a holder or supporter, etc.
- When connecting pipes, make sure that the front and back pipes are straight.
- Do not apply excessive force on the connected pipes. Excessive force could deform or damage the connection port threads or the fitting.

Use/maintenance

⚠ WARNING

■ Confirm that no pressure is applied before removing the band.

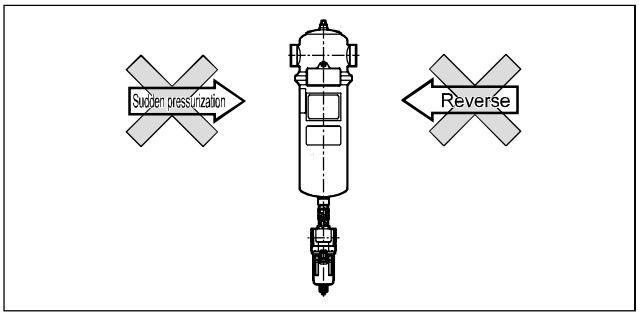
⚠ CAUTION

■ Do not use reverse airflow.
Do not pressurize suddenly.
Otherwise, original performance may not be attained. There is a risk of damage.

■ The drain discharger is an NO. The compatible compressor capacity is 0.75 kW or more (discharge flow rate 90 ℓ/min. or more).

■ The air filter service life is reached when the pressure drops, or after 8000 hours or one year of use. Replace the element with a new one at the end of its life. When using an element life indicator, replace the indicator battery with a new one when replacing the element.
(Replace the X type element when the service life is reached, or when the deodorizing effect is lost.)

■ The M type is equipped with an element life indicator as a standard, so the element's service life can be seen at a glance.



■ The drain discharger is air purged with the initially generated drainage until the pressure rises to 0.1 MPa.

■ Close the stop valve and release the air in the drain discharger bowl before servicing the drain discharger for a drain fault, etc. Wash the drain unit with water, and then blow out all moisture with an air gun.

■ Use a household neutral detergent to wash the bowl, and then rinse with water.

■ The drain discharger bowl is made of polycarbonate. Avoid using the following chemicals or using the product in an atmosphere containing these chemicals.

● Chemical resistance of drain discharger plastic bowl

○: Available ×: Not available

Types of chemicals	Categories of chemicals	Main products of chemicals	General applications	Polycarbonate	Nylon
Inorganic compound	Acids	Hydrochloric acid, sulfuric acid, fluorine, phosphoric acid, chromic acid, etc.	Acid washing of metals, acidic degreasing solutions, coating treatment solutions	×	×
	Alkalines	Caustic soda, caustic potash, calcium hydroxide, aqueous ammonia, sodium carbonate, etc.	Alkaline degreasing solution for metals	×	○
	Inorganic salts	Sodium sulfide, potassium nitrate, potassium bichromate, sodium sulfate, etc.		×	○
Organic compound	Aromatic hydrocarbons	Benzene, toluene, xylene, ethyl benzene, styrene, etc.	Contained in paint thinner (benzene, toluene, and xylene)	×	×
	Chlorinated aliphatic hydrocarbons	Methyl chloride, ethylene chloride, methylene chloride, acetylene chloride, chloroform, trichlene, perchlene, carbon tetrachloride	Organic solvent-based washing solution for metals (trichlene, perchlene, carbon tetrachloride, etc.)	×	○
	Chlorinated aromatic hydrocarbons	Chlorobenzene, dichlorobenzene, benzene hexachloride (B/H/C), etc.	Agricultural chemicals	×	○
	Petroleum components	Solvent, naphtha, gasoline		×	○
	Alcohols	Methyl alcohol, ethyl alcohol, cyclohexanol, benzyl alcohol	Used as antifreezing agent	×	×
	Phenol	Carbolic acid, cresol, naphthol, etc.	Disinfectant solution	×	×
	Ethers	Methyl ether, methyl ethyl ether, ethyl ether	Additive of brake oil	×	○
	Ketones	Acetone, methyl ethyl ketone, cyclohexanone, acetophenone, etc.		×	×
	Carboxylic acids	Formic acid, acetic acid, butyl acid, acrylic acid, oxalic acid, phthalic acid, etc.	Dyes/oxalic acid for aluminum processing, phthalic acid for paint base	×	×
	Phosphate ester	Dimethyl phthalate (DMP), diethyl phthalate (DEP), dibutyl phthalate (DBP), dioctyl phthalate (DOP)	Lubricant, synthetic coolant, rust preventing agent additive plasticizer for synthetic resin	×	○
	Oxyacids	Glycol acid, lactic acid, malic acid, citric acid, tartaric acid		×	×
	Nitro compounds	Nitromethane, nitroethane, nitroethylene, nitrobenzene, etc.		×	○
	Amines	Methylamine, dimethylamine, ethylamine, aniline, acetanilide, etc.	Additive of brake oil	×	×
	Nitriles	Acetonitrile, acrylonitrile, benzonitrile, acetoisonitrile, etc.	Raw material for nitrile rubber	×	○

Large main line filter
AF5000 (oil-free)

■ **Refining and pressure adjusting components/main line unit/main line filter**

Overview

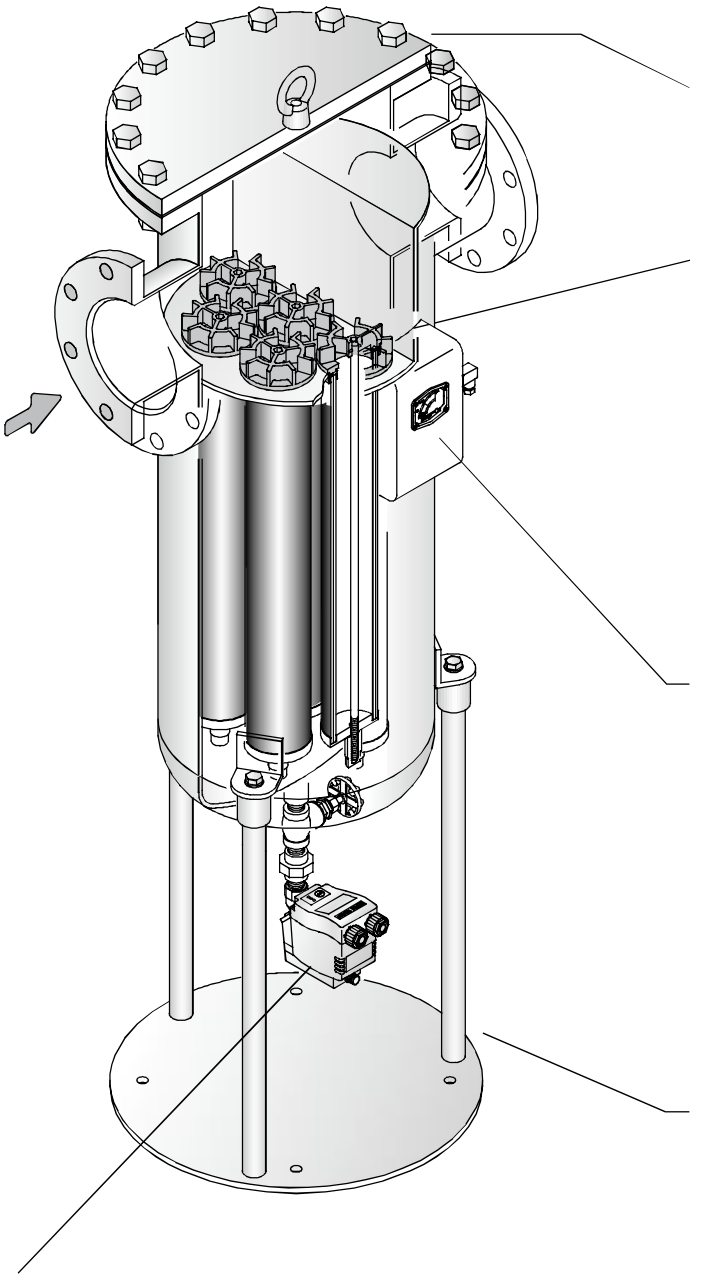
For oil-free compressor, a stainless steel vessel is used to eliminate concerns about rust, and to supply perfectly clean high quality air.

Features

(1) SUS vessel provided
For oil-free, SUS304 is used for all models.
(2) Incorporated energy saving element
(3) Unique drainage system
Forcible discharge method, while new auto-drain with air loss zero system is used.
(4) Remote control possible
Element replacement information is issued by differential pressure switch outputting alarm signal.
(5) Simple element replacement
Remove the top flange, and just turn the screw on the element.

CONTENTS

Providing total oil-free specifications from refrigeration air dryer to filter by incorporating a stainless steel vessel



■ Stainless steel vessel integrated in all models (SUS304)

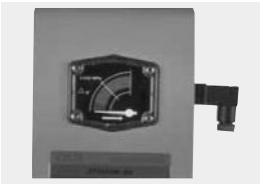
Truly clean air is supplied without rust forming. Lightweight (10 to 20% (CKD comparison))

■ Easily replaceable element

A screw method is used for element installation, so the element is replaced by removing the upper flange.
Stainless steel is also used for the screws, with no concern for stiffness due to rust.

■ Remote control possible

An indicator with a differential pressure switch is standard, installed on the front.
The element replacement interval is confirmed beforehand.
An alarm signal is output from the differential pressure switch, providing an accurate reading and enabling remote control.

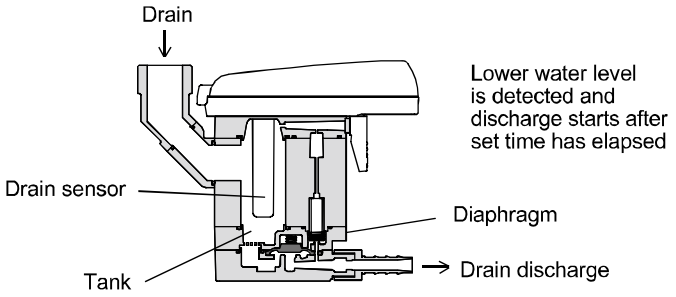


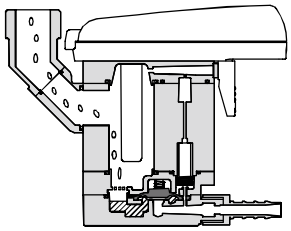
■ Easy installation

Installation legs have been prepared as standard.
Piping work is easier. (Excluding AF5016)
The legs are removed when not required.

■ Drain discharger with no air loss prevents wasted air consumption (Provided as standard on P and S types)

The highly reliable drain lower end sensor and solenoid valve have been integrated in this new energy-saving drain discharger. While air is discharged with the drainage when using the float or disc drain discharger, this product detects lower water levels during drainage discharge, so air is not wasted and discharged when discharging the drainage. An alarm signal is output, enabling remote control. (200 VAC power supply is required)



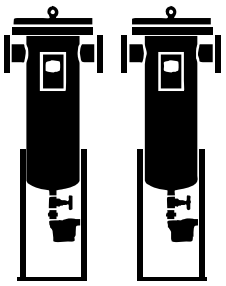


■ Wide variation

40 models in four types are available.
The ideal model can be selected based on the flow rate and quality of air.

AF5016P-50

Flow rate classification		Element		Bore size	
016	16 m³/min(ANR)	P	P type	50	Flange 2B
032	32 m³/min(ANR)	S	S type	80	Flange 3B
048	48 m³/min(ANR)	M	M type	100	Flange 4B
064	64 m³/min(ANR)	X	X type	150	Flange 6B
080	80 m³/min(ANR)			200	Flange 8B
096	96 m³/min(ANR)				
128	128 m³/min(ANR)				
160	160 m³/min(ANR)				
192	192 m³/min(ANR)				
256	256 m³/min(ANR)				



■ Easy design of equipment

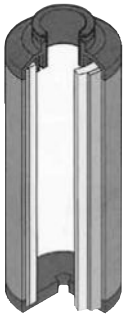
The dimensions and bore sizes are the same for each series with the same flow rate, so the system is easily designed and installed.
Types can be changed only by replacing the element.

P Type
Main line filter

(Pre-filter)

For air dryer pre-filter

- Contaminants 3 µm and over are removed
- Water separation efficiency 95%



CKD's original chemical fiber structure permanent element has been adopted for the 3 µm element.
This structure reduces clogging and realizes long service life and low pressure loss.

S Type
Oil mist filter

(Oil removing filter)

Protect expensive pneumatic components

- Contaminants 0.3 µm and over are removed
- Oil content up to a concentration of 0.5 mg/m³ (at 21°C) is removed from the oil content on the secondary side

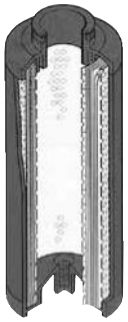
Polysilicate micro fibers quickly separate oil and limit pressure loss.
96% of high porosity in the element fibers realizes long life.

M Type
Oil mist filter

(High-performance oil removing filter)

For pneumatic pressure circuits which are susceptible to oil

- Contaminants 0.01 µm and over are removed
- Oil content up to a concentration of 0.01 mg/m³ (at 21°C) is removed from the oil content on the secondary side



X Type
Oil mist filter

(Activated carbon filter)

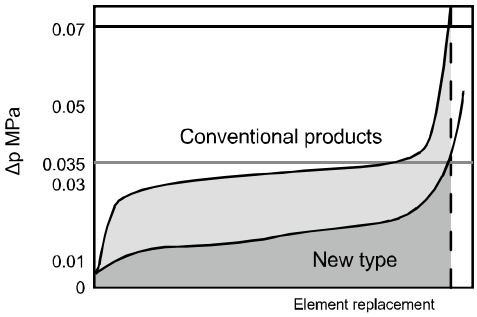
For pneumatic pressure circuits which are susceptible to odors

- Suction by activated carbon
- Vaporized oil content up to a concentration of 0.003 mg/m³ (at 21°C) and odors are removed from the oil content on the secondary side

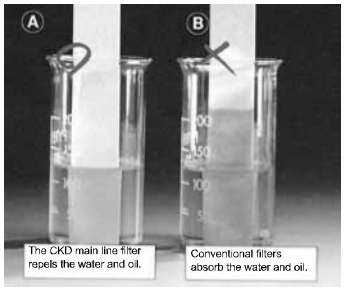
Cylindrically wound particle activated carbon adsorbs oil vapor molecules and odor molecules with a low pressure loss.
High density activated carbon extends element service life.

■ Long life/low pressure loss element

Element service life curve



- The pressure loss is half that of conventional products.
- The element is replaced when the pressure drops to 0.035 MPa.
- The element service life is one year when used under normal conditions.

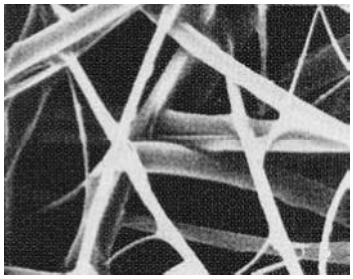


Ⓐ New filter

Borosilicate glass microfibers used in the filtration layer powerfully repel water and oil, allowing the pressure drop and operation costs to be minimized.

Ⓑ Conventional filter

Conventional glass microfibers absorb water and oil, so the pressure easily drops, filtration performance decreases, and operation costs increase.



High 96% porosity inside the element fibers helps achieve low pressure loss and a long life

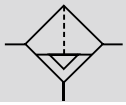
Main line filter

AF5000P Series

For air dryer pre-filter

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Descriptions			AF5016P-50	AF5032P-80	AF5048P-100	AF5064P-100	AF5080P-150	AF5096P-150	AF5128P-150	AF5160P-200	AF5192P-200	AF5256P-200
Processing air flow rate	(*2, *3) m³/min (ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid			Compressed air									
Working pressure		MPa	0.08 (≈12 psi, 0.8 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure		MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature		°C	5 (41°F) to 60 (140°F)									
Filtration rating		µm	3									
Pressure drop	Initial	MPa	Within 0.005 (≈0.73 psi, 0.05 bar)									
	Normal	MPa	0.01 (≈1.5 psi, 0.1 bar)									
	Element replacement	MPa	0.035 (≈5.1 psi, 0.35 bar)									
Element quantity			1	2	3	4	5	6	8	10	12	16
Port size	(*1) Flange		2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight		kg	38	76	78	107	140	167	223	232	269	330
Differential pressure switch												
Operating pressure differential		MPa	0.04 (≈5.8 psi, 0.4 bar)±0.01 (≈1.5 psi, 0.1 bar)									
Contact			1 pole a contact									
Max. contact current		A	0.5									
Max. contact voltage		VDC	200									
Max. contact capacitance		W	10									
Max. contact resistance (including reed switch)		mΩ	300									
Drain discharger (model No.: DBV1003)												
Drain outlet port size			(*4) G 1/4 or φ8 to 10 mm hose fitting									
Power supply			Single phase 200 VAC 50/60 Hz									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.005 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.
*4: R 1/4 connection is possible with G 1/4.

Flow rate compensation coefficient

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

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coeff	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

How to order

AF5 016 P -50-X1

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option *1 *2 *3 *5

Code	Content
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	-	-	-	-	-	-	-	-	-
80	Flange 3B	-	●	-	-	-	-	-	-	-	-
100	Flange 4B	-	-	●	●	-	-	-	-	-	-
150	Flange 6B	-	-	-	-	●	●	●	-	-	-
200	Flange 8B	-	-	-	-	-	-	-	●	●	●

Ⓒ Option	
Blank	Standard products
D	Drain discharger 5100-4C (*1)
E	Without drain discharger
K	Companion flange attached
H	English language specifications
H2	SUS nameplate
L	Foundation bolt/nut attached (SS400) (*2)
L1	Foundation bolt/nut attached (SUS304) (*2)
X1	IN/OUT reverse direction (*3)
Y2	Product photo

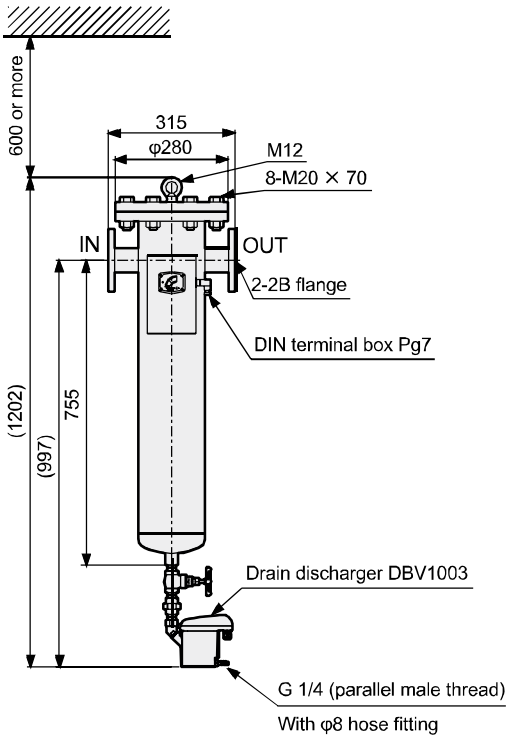
⚠ Precautions for model No. selection

*1: "D" drain discharger 5100-4C is recommended for working environments where electric wiring is not possible.
*2: "L" and "L1" are applicable to AF5032P to AF5256P.
*3: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*4: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*5: When ordering several options, indicate the required options in alphabetical order.

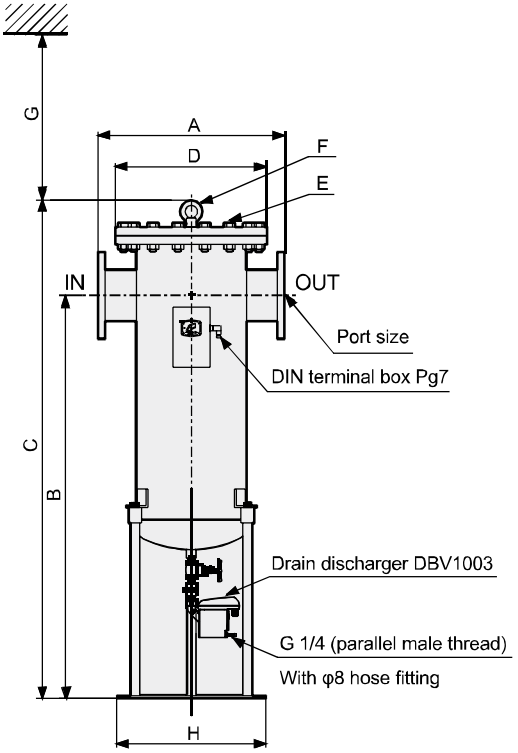
[Example of model No.]
AF5016P-50-X1
Model: Main line filter AF5000P Series
Ⓐ Flow rate ..... 16 m³/min (ANR)
Ⓑ Bore size ..... Flange 2B
Ⓒ Option ..... IN/OUT reverse direction

Dimensions

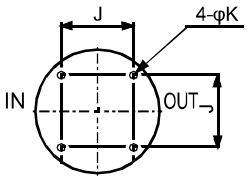
● AF5016P



● AF5032P to AF5256P

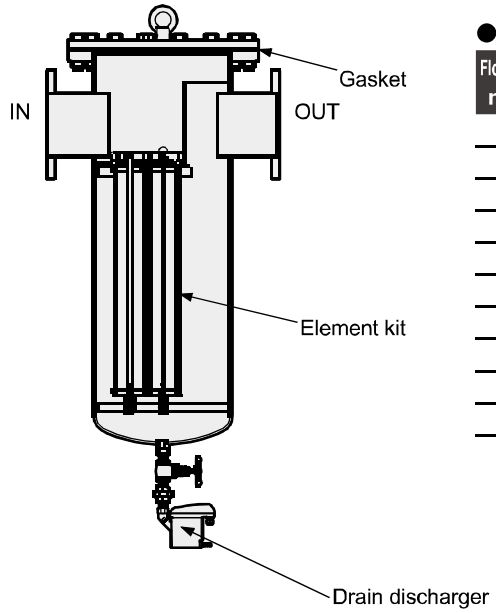


● Foundation bolt hole dimension



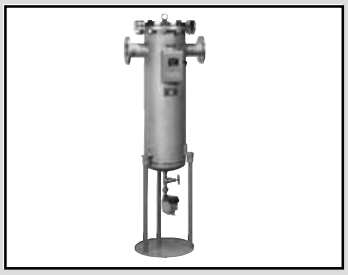
Model No.	Port size	A	B	C	D	E	F	G	H	J	K
AF5032P-80	Flange 3B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5048P-100	Flange 4B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5064P-100	Flange 4B	550	1270	1522	φ445	16-M22×80	M16	600	φ440	250	φ15
AF5080P-150	Flange 6B	600	1300	1606	φ490	16-M22×80	M20	600	φ480	280	φ15
AF5096P-150	Flange 6B	650	1320	1630	φ560	16-M24×90	M20	600	φ540	320	φ15
AF5128P-150	Flange 6B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5160P-200	Flange 8B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5192P-200	Flange 8B	750	1360	1709	φ675	20-M24×100	M20	600	φ670	400	φ15
AF5256P-200	Flange 8B	850	1400	1786	φ745	20-M30×110	M24	600	φ730	450	φ15

Repair parts list



● Ordering method

Flow rate classification m³/min(ANR)	Gasket	Element kit	Drain discharger
16	AF5016P-GASKET	AF5016P-ELEMENT-KIT	AF-DBV1003-15-AC200V
32	AF5032P-GASKET	AF5032P-ELEMENT-KIT	
48	AF5048P-GASKET	AF5048P-ELEMENT-KIT	
64	AF5064P-GASKET	AF5064P-ELEMENT-KIT	
80	AF5080P-GASKET	AF5080P-ELEMENT-KIT	
96	AF5096P-GASKET	AF5096P-ELEMENT-KIT	
128	AF5128P-GASKET	AF5128P-ELEMENT-KIT	
160	AF5160P-GASKET	AF5160P-ELEMENT-KIT	
192	AF5192P-GASKET	AF5192P-ELEMENT-KIT	
256	AF5256P-GASKET	AF5256P-ELEMENT-KIT	



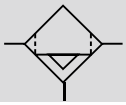
Micro alescer

AF5000S Series

Protect expensive pneumatic components

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Descriptions			AF5016S-50	AF5032S-80	AF5048S-100	AF5064S-100	AF5080S-150	AF5096S-150	AF5128S-150	AF5160S-200	AF5192S-200	AF5256S-200
Processing air flow rate	(*2, *3) m³/min (ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid			Compressed air									
Working pressure		MPa	0.08 (≈12 psi, 0.8 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure		MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature		°C	5 (41°F) to 60 (140°F)									
Filtration rating		μm	0.3									
Secondary side oil concentration		mg/m³	0.5 (at inlet air 21°C (69.8°F) or less)									
Pressure drop	Initial	MPa	0.007 (≈1 psi, 0.07 bar)									
	Normal	MPa	0.014 (≈2 psi, 0.14 bar)									
	Element replacement	MPa	0.035 (≈5.1 psi, 0.35 bar)									
Element quantity			1	2	3	4	5	6	8	10	12	16
Port size		(*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight		kg	38	76	78	107	140	167	223	232	269	330
Differential pressure switch												
Operating pressure differential		MPa	0.04 (≈5.8 psi, 0.4 bar)±0.01 (≈1.5 psi, 0.1 bar)									
Contact			1 pole a contact									
Max. contact current		A	0.5									
Max. contact voltage		VDC	200									
Max. contact capacitance		W	10									
Max. contact resistance (including reed switch)		mΩ	300									
Drain discharger (model No.: DBV1003)												
Drain outlet port size			(*4) G 1/4 or φ8 to 10 mm hose fitting									
Power supply			Single phase 200 VAC 50/60 Hz									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.007 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.
*4: R 1/4 connection is possible with G 1/4.

Flow rate compensation coefficient

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

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coeff	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

How to order

AF5 016 S - 50 - X1

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option *1 *2 *3 *5

Code	Content
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	-	-	-	-	-	-	-	-	-
80	Flange 3B	-	●	-	-	-	-	-	-	-	-
100	Flange 4B	-	-	●	●	-	-	-	-	-	-
150	Flange 6B	-	-	-	-	●	●	●	-	-	-
200	Flange 8B	-	-	-	-	-	-	-	●	●	●

Ⓒ Option	
Blank	Standard products
D	Drain discharger 5100-4C (*1)
E	Without drain discharger
K	Companion flange attached
H	English language specifications
H2	SUS nameplate
L	Foundation bolt/nut attached (SS400) (*2)
L1	Foundation bolt/nut attached (SUS304) (*2)
X1	IN/OUT reverse direction (*3)
Y2	Product photo

⚠ Precautions for model No. selection

*1: "D" drain discharger 5100-4C is recommended for working environments where electric wiring is not possible.
*2: "L" and "L1" are applicable to AF5032S to AF5256S.
*3: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*4: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*5: When ordering several options, indicate the required options in alphabetical order.

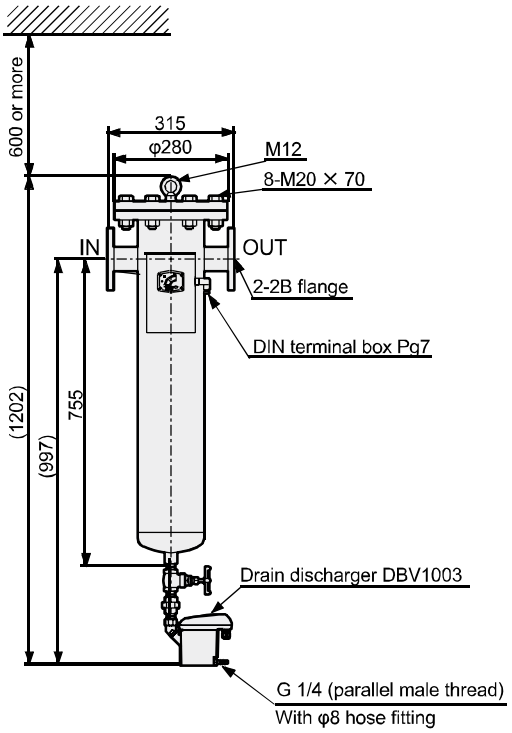
[Example of model No.]

AF5016S-50-X1

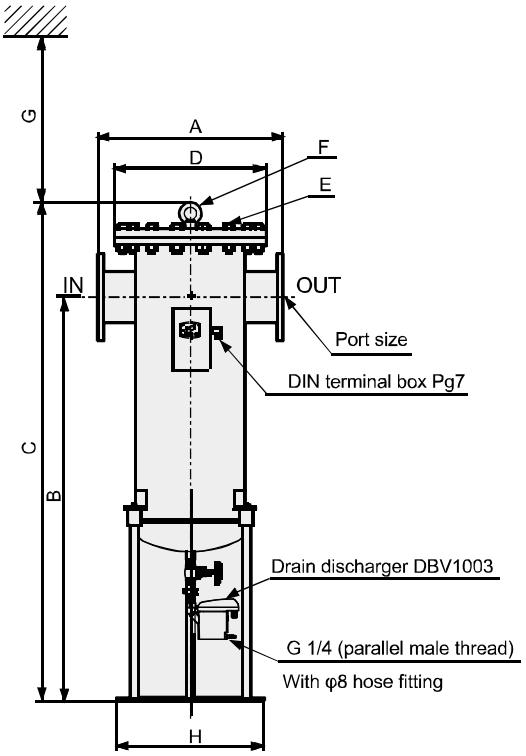
Model: Main line filter AF5000S Series
Ⓐ Flow rate ..... 16 m³/min (ANR)
Ⓑ Bore size ..... Flange 2B
Ⓒ Option ..... IN/OUT reverse direction

Dimensions

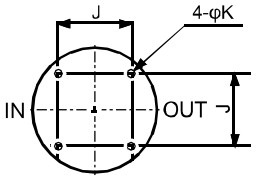
● AF5016S



● AF5032S to AF5256S

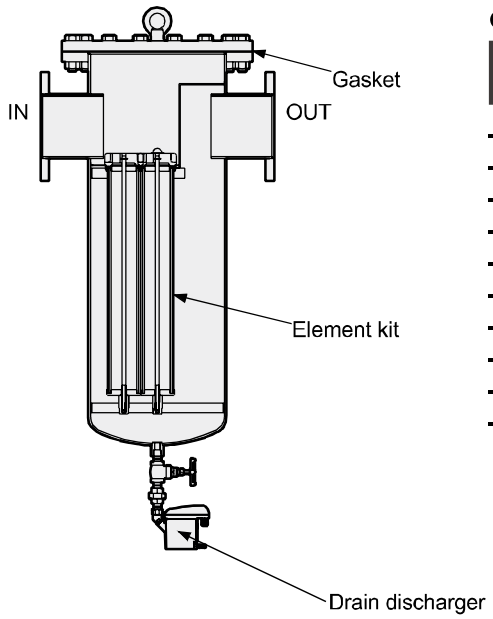


● Foundation bolt hole dimension



Model No.	Port size	A	B	C	D	E	F	G	H	J	K
AF5032S-80	Flange 3B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5048S-100	Flange 4B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5064S-100	Flange 4B	550	1270	1522	φ445	16-M22×80	M16	600	φ440	250	φ15
AF5080S-150	Flange 6B	600	1300	1606	φ490	16-M22×80	M20	600	φ480	280	φ15
AF5096S-150	Flange 6B	650	1320	1630	φ560	16-M24×90	M20	600	φ540	320	φ15
AF5128S-150	Flange 6B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5160S-200	Flange 8B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5192S-200	Flange 8B	750	1360	1709	φ675	20-M24×100	M20	600	φ670	400	φ15
AF5256S-200	Flange 8B	850	1400	1786	φ745	20-M30×110	M24	600	φ730	450	φ15

Repair parts list



● Ordering method

Flow rate classification m³/min(ANR)	Gasket	Element kit	Drain discharger
16	AF5016P-GASKET	AF5016S-ELEMENT-KIT	AF-DBV1003-15-AC200V
32	AF5032P-GASKET	AF5032S-ELEMENT-KIT	
48	AF5048P-GASKET	AF5048S-ELEMENT-KIT	
64	AF5064P-GASKET	AF5064S-ELEMENT-KIT	
80	AF5080P-GASKET	AF5080S-ELEMENT-KIT	
96	AF5096P-GASKET	AF5096S-ELEMENT-KIT	
128	AF5128P-GASKET	AF5128S-ELEMENT-KIT	
160	AF5160P-GASKET	AF5160S-ELEMENT-KIT	
192	AF5192P-GASKET	AF5192S-ELEMENT-KIT	
256	AF5256P-GASKET	AF5256S-ELEMENT-KIT	

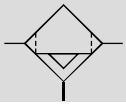
Micro alescer

AF5000M Series

For pneumatic pressure circuits which are susceptible to oil

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol



CAD

Specifications

Model No. / Descriptions			AF5016M-50	AF5032M-80	AF5048M-100	AF5064M-100	AF5080M-150	AF5096M-150	AF5128M-150	AF5160M-200	AF5192M-200	AF5256M-200
Processing air flow rate	(*2, *3) m³/min (ANR)		16	32	48	64	80	96	128	160	192	256
Working fluid			Compressed air									
Working pressure		MPa	0.08 (≈12 psi, 0.8 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure		MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature		°C	5 (41°F) to 60 (140°F)									
Filtration rating		μm	0.01									
Secondary side oil concentration		mg/m³	0.01 (at inlet air 21°C (69.8°F) or less)									
Pressure drop	Initial	MPa	0.01 (≈1.5 psi, 0.1 bar)									
	Normal	MPa	0.02 (≈2.9 psi, 0.2 bar)									
	Element replacement	MPa	0.035 (≈5.1 psi, 0.35 bar)									
Element quantity			1	2	3	4	5	6	8	10	12	16
Port size		(*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight		kg	38	76	78	107	140	167	223	232	269	330
Differential pressure switch												
Operating pressure differential		MPa	0.04 (≈5.8 psi, 0.4 bar)±0.01 (≈1.5 psi, 0.1 bar)									
Contact			1 pole a contact									
Max. contact current		A	0.5									
Max. contact voltage		VDC	200									
Max. contact capacitance		W	10									
Max. contact resistance (including reed switch)		mΩ	300									
Drain discharger (model No.: 5100-4C)												
Drain outlet port size			Rc 1/4									

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.01 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

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

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coeff	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

How to order

AF5 016 M - 50 - X1

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option *1 *2 *4

Code	Content
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	-	-	-	-	-	-	-	-	-
80	Flange 3B	-	●	-	-	-	-	-	-	-	-
100	Flange 4B	-	-	●	●	-	-	-	-	-	-
150	Flange 6B	-	-	-	-	●	●	●	-	-	-
200	Flange 8B	-	-	-	-	-	-	-	●	●	●

Ⓒ Option	
Blank	Standard products
E	Without drain discharger
K	Companion flange attached
H	English language specifications
H2	SUS nameplate
L	Foundation bolt/nut attached (SS400) (*1)
L1	Foundation bolt/nut attached (SUS304) (*1)
X1	IN/OUT reverse direction (*3)
Y2	Product photo

⚠ Precautions for model No. selection

*1: "L" and "L1" are applicable to AF5032M to AF5256M.
*2: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.

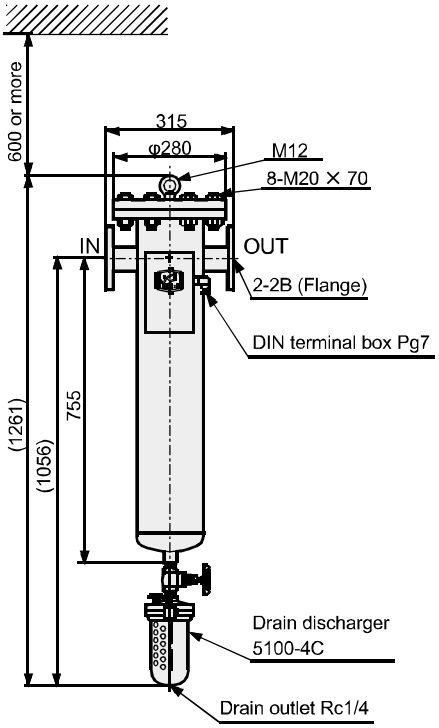
[Example of model No.]

AF5016M-50-X1

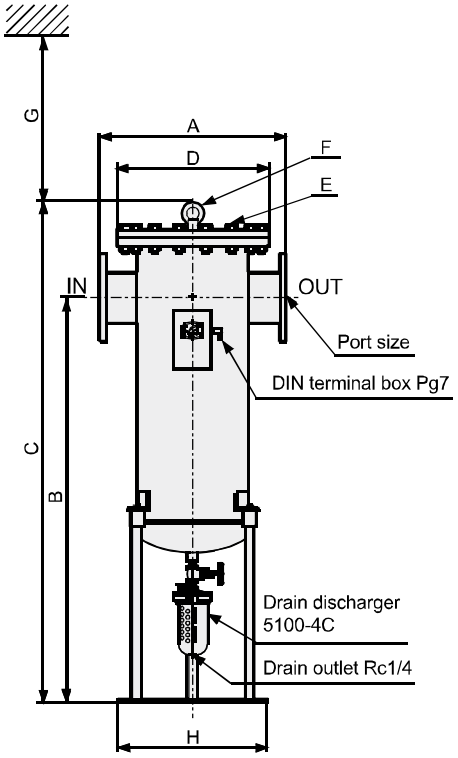
Model: Main line filter AF5000M Series
Ⓐ Flow rate ..... 16 m³/min (ANR)
Ⓑ Bore size ..... Flange 2B
Ⓒ Option ..... IN/OUT reverse direction

Dimensions

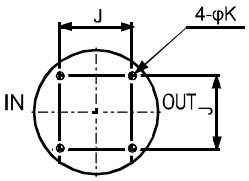
● AF5016M



● AF5032M to AF5256M

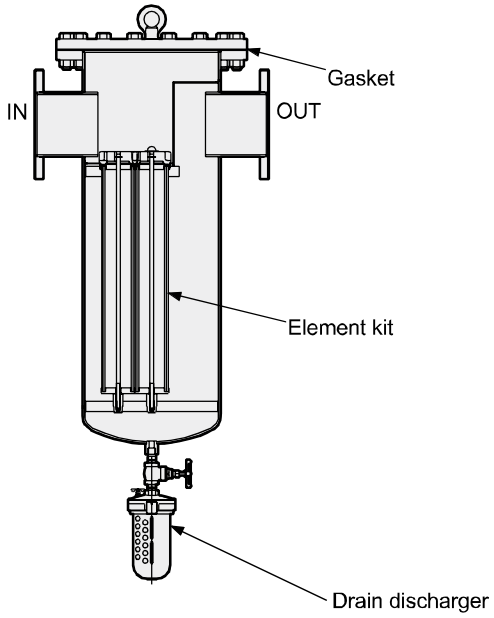


● Foundation bolt hole dimension



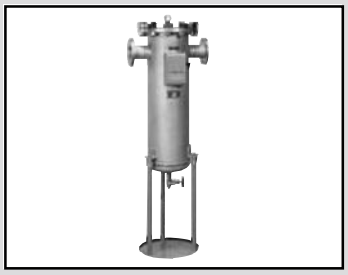
Model No.	Port size	A	B	C	D	E	F	G	H	J	K
AF5032M-80	Flange 3B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5048M-100	Flange 4B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5064M-100	Flange 4B	550	1270	1522	φ445	16-M22×80	M16	600	φ440	250	φ15
AF5080M-150	Flange 6B	600	1300	1606	φ490	16-M22×80	M20	600	φ480	280	φ15
AF5096M-150	Flange 6B	650	1320	1630	φ560	16-M24×90	M20	600	φ540	320	φ15
AF5128M-150	Flange 6B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5160M-200	Flange 8B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5192M-200	Flange 8B	750	1360	1709	φ675	20-M24×100	M20	600	φ670	400	φ15
AF5256M-200	Flange 8B	850	1400	1786	φ745	20-M30×110	M24	600	φ730	450	φ15

Repair parts list



● Ordering method

Flow rate classification m³/min(ANR)	Gasket	Element kit	Drain discharger
16	AF5016P-GASKET	AF5016M-ELEMENT-KIT	5100-4C
32	AF5032P-GASKET	AF5032M-ELEMENT-KIT	
48	AF5048P-GASKET	AF5048M-ELEMENT-KIT	
64	AF5064P-GASKET	AF5064M-ELEMENT-KIT	
80	AF5080P-GASKET	AF5080M-ELEMENT-KIT	
96	AF5096P-GASKET	AF5096M-ELEMENT-KIT	
128	AF5128P-GASKET	AF5128M-ELEMENT-KIT	
160	AF5160P-GASKET	AF5160M-ELEMENT-KIT	
192	AF5192P-GASKET	AF5192M-ELEMENT-KIT	
256	AF5256P-GASKET	AF5256M-ELEMENT-KIT	

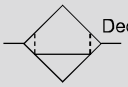


Micro alescer

AF5000X Series

For pneumatic pressure circuits which are susceptible to odors

● Flow rate range: 16 to 256 m³/min (ANR)

JIS symbol  Deodorization

CAD

Specifications

Model No. / Descriptions		AF5016X-50	AF5032X-80	AF5048X-100	AF5064X-100	AF5080X-150	AF5096X-150	AF5128X-150	AF5160X-200	AF5192X-200	AF5256X-200
Processing air flow rate	(*2, *3) m³/min (ANR)	16	32	48	64	80	96	128	160	192	256
Working fluid		Compressed air									
Working pressure	MPa	0.08 (≈12 psi, 0.8 bar) to 1.0 (≈150 psi, 10 bar)									
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)									
Ambient temperature	°C	5 (41°F) to 30 (86°F)									
Filtration method		Suction by activated carbon									
Secondary side oil concentration	mg/m³	0.003 (at inlet air 21°C (69.8°F) or less)									
Initial pressure drop	MPa	Within 0.007 (≈1 psi, 0.07 bar)									
Element quantity		1	2	3	4	5	6	8	10	12	16
Port size	(*1) Flange	2B	3B	4B	4B	6B	6B	6B	8B	8B	8B
Weight	kg	38	76	78	107	140	167	223	232	269	330

*1: Flange is 10K flange.
*2: Processing air flow rate is the atmospheric pressure conversion value where the inlet pressure is 0.7 MPa and initial pressure drop is 0.007 MPa.
*3: ANR indicates conditions of 20°C atmospheric pressure and relative humidity 65%.

Flow rate compensation coefficient

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

Pressure (MPa)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Compensation coeff	0.38	0.53	0.65	0.76	0.85	0.93	1.0	1.07	1.13	1.2

How to order

AF5 016 X -50-X1

Ⓐ Flow rate classification

Ⓑ Bore size

Ⓒ Option *1 *2 *4

Code	Content
Ⓐ Flow rate classification m³/min (ANR)	
016	16
032	32
048	48
064	64
080	80
096	96
128	128
160	160
192	192
256	256

Ⓑ Bore size

Flow rate classification		016	032	048	064	080	096	128	160	192	256
50	Flange 2B	●	-	-	-	-	-	-	-	-	-
80	Flange 3B	-	●	-	-	-	-	-	-	-	-
100	Flange 4B	-	-	●	●	-	-	-	-	-	-
150	Flange 6B	-	-	-	-	●	●	●	-	-	-
200	Flange 8B	-	-	-	-	-	-	-	●	●	●

Ⓒ Option	
Blank	Standard products
K	Companion flange attached
H	English language specifications
H2	SUS nameplate
L	Foundation bolt/nut attached (SS400) (*1)
L1	Foundation bolt/nut attached (SUS304) (*1)
X1	IN/OUT reverse direction (*2)
Y2	Product photo

⚠ Precautions for model No. selection

*1: "L" and "L1" are applicable to AF5032X to AF5256X.
*2: Viewed from the front, a standard product has an air inlet on the left port, while an air outlet on the right port. For "X1", an air inlet is provided on the right port, while an air outlet is provided on the left port.
*3: Unit performance may not be attained if used at less than the selected pressure. Always select the model No. for the working pressure.
*4: When ordering several options, indicate the required options in alphabetical order.

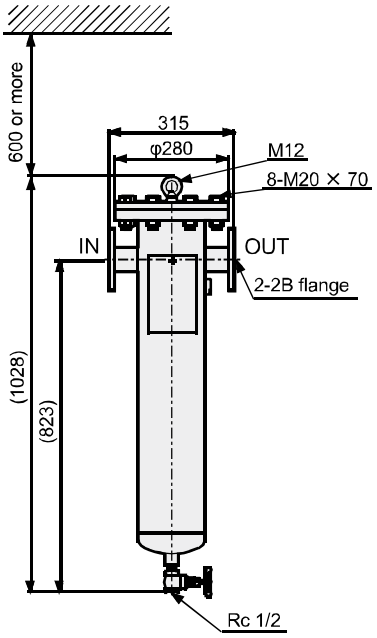
[Example of model No.]

AF5016X-50-X1

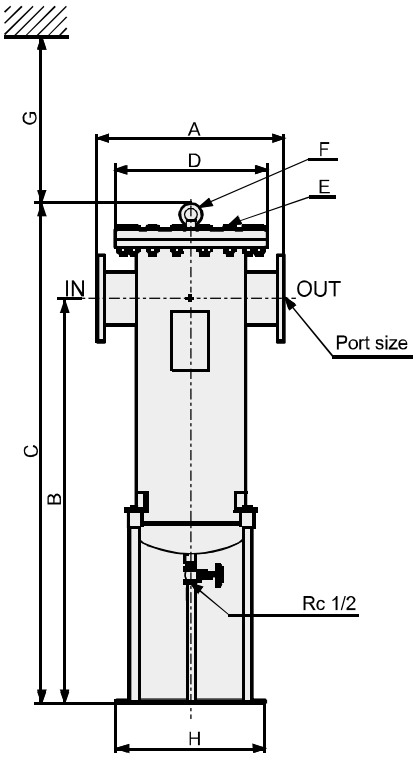
Model: Main line filter AF5000X Series
Ⓐ Flow rate ..... 16 m³/min (ANR)
Ⓑ Bore size ..... Flange 2B
Ⓒ Option ..... IN/OUT reverse direction

Dimensions

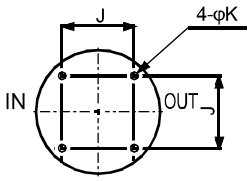
● AF5016X



● AF5032X to AF5256X

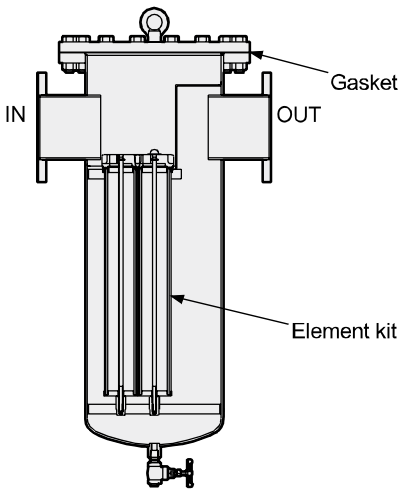


● Foundation bolt hole dimension



Model No.	Port size	A	B	C	D	E	F	G	H	J	K
AF5032X-80	Flange 3B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5048X-100	Flange 4B	500	1255	1495	φ400	12-M22×80	M12	600	φ380	210	φ15
AF5064X-100	Flange 4B	550	1270	1522	φ445	16-M22×80	M16	600	φ440	250	φ15
AF5080X-150	Flange 6B	600	1300	1606	φ490	16-M22×80	M20	600	φ480	280	φ15
AF5096X-150	Flange 6B	650	1320	1630	φ560	16-M24×90	M20	600	φ540	320	φ15
AF5128X-150	Flange 6B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5160X-200	Flange 8B	700	1350	1693	φ620	20-M24×90	M20	600	φ610	350	φ15
AF5192X-200	Flange 8B	750	1360	1709	φ675	20-M24×100	M20	600	φ670	400	φ15
AF5256X-200	Flange 8B	850	1400	1786	φ745	20-M30×110	M24	600	φ730	450	φ15

Repair parts list



● Ordering method

Flow rate classification m³/min(ANR)	Gasket	Element kit
16	AF5016P-GASKET	AF5016X-ELEMENT-KIT
32	AF5032P-GASKET	AF5032X-ELEMENT-KIT
48	AF5048P-GASKET	AF5048X-ELEMENT-KIT
64	AF5064P-GASKET	AF5064X-ELEMENT-KIT
80	AF5080P-GASKET	AF5080X-ELEMENT-KIT
96	AF5096P-GASKET	AF5096X-ELEMENT-KIT
128	AF5128P-GASKET	AF5128X-ELEMENT-KIT
160	AF5160P-GASKET	AF5160X-ELEMENT-KIT
192	AF5192P-GASKET	AF5192X-ELEMENT-KIT
256	AF5256P-GASKET	AF5256X-ELEMENT-KIT

*1: Drain discharger
AF5000X: none

Main line component (F.R.L. unit (large bore size filter))

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for general precautions.

Product-specific cautions: Large main line filter AF5000 Series

Manufacturer's Exemption of Liability

⚠ WARNING

■ The manufacturer cannot be held liable in the following cases:
- In the case where there are serious errors in the operator's use.
- Inappropriate modifications or repairs using nonstandard parts, made by the user.

Design/selection

⚠ WARNING

■ Do not use for applications other than compressed air.

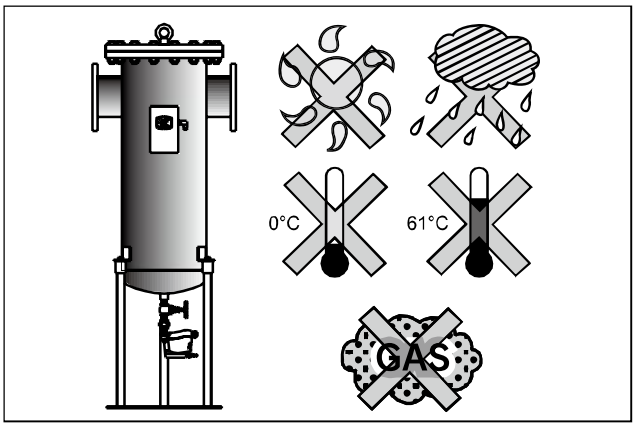
■ Do not use for caisson shields or medical devices such as breathing devices, or for direct air blow onto foodstuffs.
- There is a risk of personal injury.

■ Do not mount and use this device on transportation equipment such as vehicles or ships.
- The internal devices could be damaged by vibration, etc.

■ Avoid direct sunlight and rainwater.
The resin parts, etc., could deteriorate and break.

■ Do not use in locations with corrosive gases.

■ Use this product within the operating ambient temperature.



■ Do not use in locations at risk of freezing. The accumulated drainage could freeze and damage the product.

■ Do not use in hazardous locations (possibly explosive atmospheres, etc.).

■ We recommend keeping the inlet air temperature as low as possible. The oil removing rate will drop if the temperature is high.

■ Do not use this product in an ozone generating environment.

■ Avoid using this product where vibration and impact are present.

■ Do not use this product in areas containing dust, etc.

■ Do not use this product in an environment in which the compressed air contains the following types of gases.
- Sulfur dioxide, chlorine gas
- Aromatic hydrocarbon compounds
  (For example, benzene, toluene, phenol, cyclohexane, etc.)
- Chlorinated hydrocarbon compounds
  (For example, trichloroethylene, chloroform, etc.)
- Ketones (for example, acetone, etc.)
- Aldehydes
  (For example, formaldehyde or acetaldehyde, etc.)
- Amines (For example, ethylamine, methylamine, etc.)

■ Always set the air flow to within the working pressure range, and use treated air.
- Failure to observe this may prevent proper removal of water, dust and oil.

■ Install indoors.

Mounting, installation and adjustment

⚠ CAUTION

■ "Class 2 pressure vessel" of the "Safety regulation of boiler and pressure vessel" of Occupational Safety Sanitation Act applies to model No. AF5032 to 5256.

■ Model numbers AF5032 to AF5256 have a Class 2 pressure vessel pressure proof certificate. This certificate must be kept safely while using this device. (Applications to the Labor Standards Supervision Office are not required in Japan.)

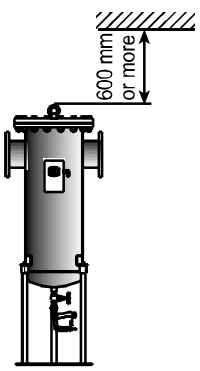
■ This device may only be used in Japan.
(Contact CKD regarding use overseas.)

■ Install this device on a stable, flat surface not subject to vibration.

■ Do not step onto the body.

■ When piping, remove cutting oil and rust preventing agent, etc.

■ Secure enough space for maintenance and inspection.

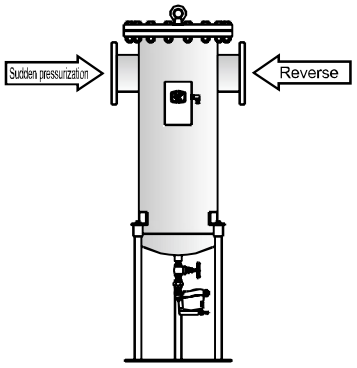


- The element and differential pressure indicator could be damaged if air flows through suddenly. When installing valves, etc., before and after this product, do not operate the valves suddenly. Do not install this filter in a system where a reverse flow could occur or where impact could be applied easily.
- Flush the drain piping with air blow before mounting to the main body to remove any foreign matter inside.
- Connect a tube pipe, etc., to the drain outlet.
- As drainage is discharged with pressure, securely fix the piping at the drain port so that drainage does not splatter.
- If the drain outlet piping slopes upward, the min. working pressure will increase by 0.01 MPa per 1 m. Please be careful. Make sure that the rising piping does not exceed 5 m.
- Mount the bowl vertically facing downward. Failure to do so could cause drainage discharge faults. Lay the drain pipe so that it is not pressurized. Laying several pipes together or attaching a check valve will create a pressurized state. Do not lay the pipes in this state.

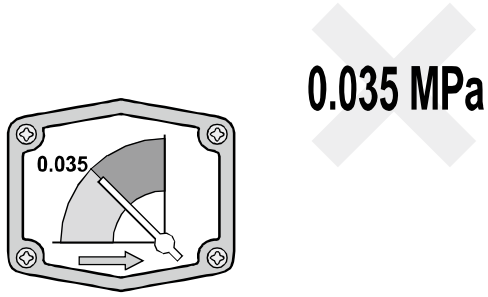
Use/maintenance

⚠ CAUTION

- A differential pressure indicator is provided as standard. Use this to judge element life.
- Do not use reverse airflow. Do not pressurize suddenly. Otherwise, original performance may not be attained.



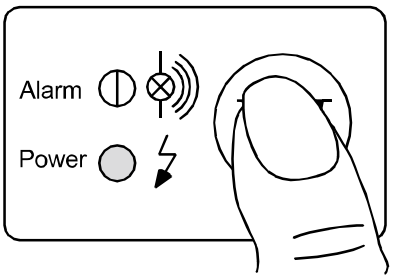
- The air filter life is spent when the pressure drops to 0.035 MPa or after one year of use, whichever comes first. Change all elements when the service life is reached. X type cannot control service life due to the differential pressure. Therefore, replace the filter after 1000 hours of use or when the deodorizing effect is lost.



- Release the air in the bowl before inspecting the auto-drain for improper discharge, etc. Wash the drain unit with water, and then blow out all moisture with an air gun.
- Use a household neutral detergent to wash the bowl, and then rinse with water.

[Drain discharger: DBV1003]

- Use the product within a range of ±10% of the rated voltage 200 VAC.
- Use within the working pressure range.
- The drain outlet closes when the power is OFF, so drainage will not be discharged. Drainage will be discharged only when power is ON, so leave the power ON at all times during use.
- Check whether the power indicator lamp is ON.
- Check whether the alarm indicator lamp is OFF.
- Press the TEST button, and confirm that drainage is discharged. Note that the alarm mode is entered if the button is held down for more than a minute. (Alarm is output)



- Maintenance and repairs must always be done in an unpressurized state with the power turned OFF.
- Use only genuine repair parts.