

ADSORBING FILTERS, DRYERS, CLEAN AIR PACKAGES

OIL REMOVAL ADSORBING FILTERS



The adsorbing filters are designed to remove vapors from the air line that cannot be removed by a coalescing filter. They produce air that is virtually free of oil and hydrocarbons as required by industries such as food processing, electronics, and instrumentation.

The filter cartridges contain activated carbon to adsorb hydrocarbon vapors and odors from alcohols, esters, and ketones. An optional extended bowl includes a higher capacity adsorbing cartridge which allows as much as 50 percent greater air flow.

Series **BFC70-E9** adsorbing filters have aluminum bowls and are offered with 1/4, 3/8, or 1/2 ports. Series **FC350-E9** and the **FC380-E9** units have either polycarbonate plastic or aluminum bowls. The **FC350-E9** are offered with 1/4, 3/8, or 1/2 ports. The **FC380-E9** are offered with 3/8, 1/2, or 3/4 ports.

An adsorbing filter should always be preceded by a particulate filter and a coalescing filter. Such an assembly is one of Master Pneumatic's Clean Air Packages which will provide air with no more oil than 10 mg/m³ or 0.008 ppm.

CLEAN AIR PACKAGES



In critical applications when vapor impurities are a potential problem, the installation of a Clean Air Package provides the solution. Ultra clean air is provided by using the particulate filters as the first line of defense against gross contaminants found in all air lines. Elements remove

solid particles larger than 5 micron, while automatic drains eliminate liquid water and oil emulsions that collect in the sump area. The particulate filter serves as a pre-filter to extend the life of the more costly coalescing element used for the next stage of filtration.

The coalescing filter element will further clean the air of residual oil mists, aerosols, and minute particles, larger than 0.3 micron. A standard differential pressure gauge warns when the pressure drop exceeds 8 to 10 psi, indicating that the coalescing element should be changed.

Finally, the adsorber filter will provide air, virtually free of oil and most hydrocarbons. It effectively eliminates odors from freons, alcohols, esters, ketones, and up to 99% of most hydrocarbons.

Clean Air Packages are available with port sizes ranging from 1/4 to 1.

MP-FILENCO DRYER/FILTERS

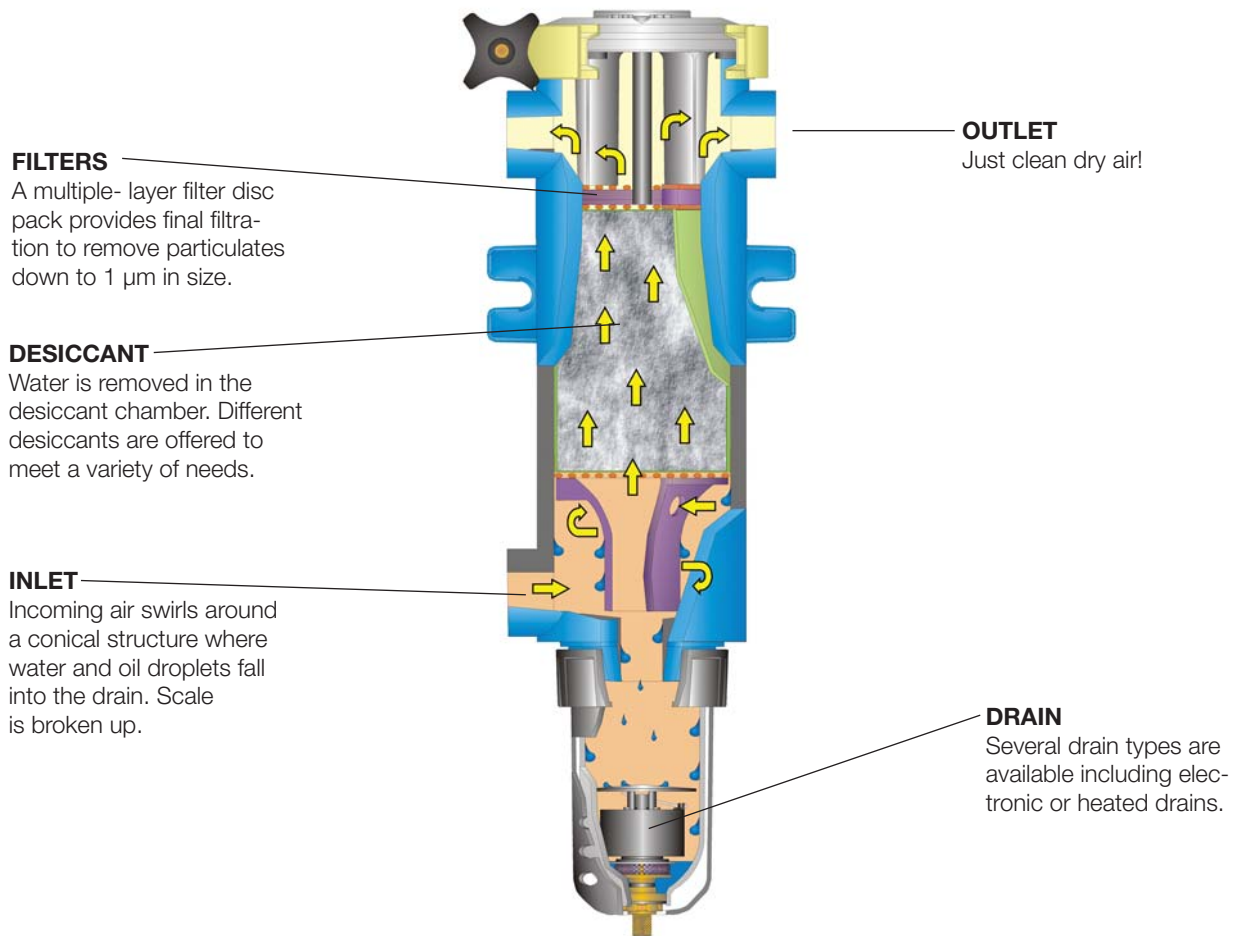


Many compressed air systems require point-of-use cleaning and drying of the air to supplement a central system. Dryer/filters do this extremely well because of their triple-action cleaning process and their ability to substantially reduce pressure dew points.

Available desiccants for these units include clay, clay with activated carbon, and molecular sieves for as much as 80° dew point suppression.

Automatic drains are strongly recommended, although there are a variety of options offered — from simple manual drains to the Warrior electronic drain.

MP-FILENCO DRYER CROSS SECTION



GUIDE to ADSORBING FILTERS, DRYERS and CLEAN AIR PACKAGES

Product	Port Sizes							Pages
	1/4	3/8	1/2	3/4	1	1-1/2	2	
ADSORBING FILTERS								
BFC70-E9	X	X	X					106-107
FC350-E9	X	X	X					108-109
FC380-E9		X	X	X				110-111
CLEAN AIR PACKAGES								
Guardsman II	X	X	X					112-113
Series 350	X	X	X					114-115
Series 380		X	X	X				116-117
High-flow BFD FCD100				X	X			118-119
350-4SA447 (2 Drop)			X					112-113
380-4SA446 (4 Drop)			X					114-115
MP-FILENCO DRYER/FILTERS								
Series 25	X							120-121
Series 36		X						122-123
Series 38			X					122-123
Series 418					X			124-125
Series 625						X		126-127
Series 832							X	126-127

GUARDSMAN II Clean Air Package



Model Shown: BMFDFCDFC70-4E9

These assemblies consist of three filters: a general purpose filter, a coalescing filter, and an adsorbing filter. The general purpose filter removes gross contaminants, while the coalescing filter removes oil mists, aerosols, and minute particles. Finally, the adsorbing filter virtually eliminates odors from Freons, alcohols, esters, ketones, and up to 99% of most hydrocarbons.

SPECIFICATIONS

Ambient/Media Temperature:

Manual & auto drains: 40° to 175°F (4° to 79°C).

Float drains: 40° to 150°F (4° to 66°C).

Body: Zinc.

Bowls: 6-Ounce (180-ml) capacity aluminum. Clear nylon sight glass on general purpose and coalescing filters. Bowls are rotatable for easy readability. Optional 10-ounce (300-ml) extended aluminum bowls have higher flow elements for coalescing and adsorbing filters.

Bowl Ring: Nylon.

Filter Bowl Drains:

Internal automatic drains for general purpose and coalescing filters; manual drain for adsorbing filter.

Filter Elements: General purpose: 5- μ m-rated polyethylene; optional 5- μ m sintered bronze.

Coalescing: 0.3- μ m-rated borosilicate glass fiber; optional 0.01- μ m-rated element.

Adsorbing: Activated carbon with urethane seals.

Fluid Media: Compressed air.

Inlet Pressure:

Minimum: 15 psig (1 bar).

Maximum: 200 psig (14 bar).

BMFDFCDFC70-E9 Models Port Sizes: 1/4, 3/8, 1/2

- ◆ Modular or inline mounting.
- ◆ 5- μ m-rated polyethylene general purpose filter element.
- ◆ 0.3- μ m-rated coalescing filter element; optional 0.01- μ m element.
- ◆ Metal bowls. Clear nylon sight glass on general purpose and coalescing filters. Bowls rotatable for easy readability.
- ◆ Optional extended bowls include higher capacity filter elements for coalescing and adsorbing filters.
- ◆ Internal automatic filter drain for general purpose and coalescing filters. Manual drain for adsorbing filter.
- ◆ Differential pressure gauge on coalescing filter to indicate when filter element needs changing.
- ◆ NPTF port threads; optional BSPP threads.

AIR FLOW and CONSTRUCTION DATA

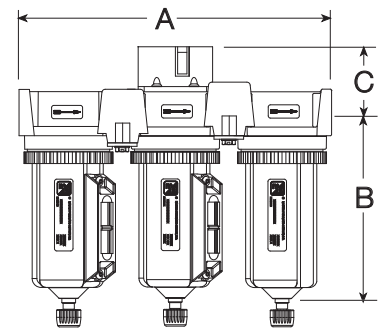
See Flow Charts and Specifications for
individual assembly components
on preceding pages.

DIMENSIONS inches (mm)

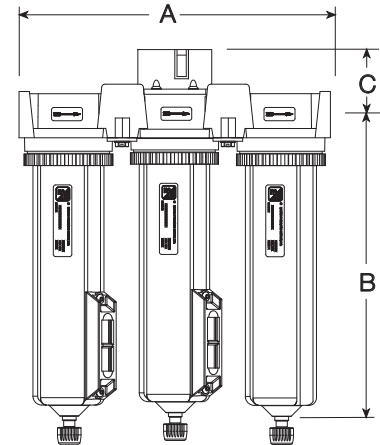
Bowl	A	B	C	Depth	Weight lb (kg)
Standard	8.4 (213)	6.5 (165)	1.8 (45)	2.4 (60)	5.00 (2.27)
Extended	8.4 (213)	9.5 (241)	1.8 (45)	2.4 (60)	5.25 (2.39)

REPLACEMENT FILTER ELEMENT KITS

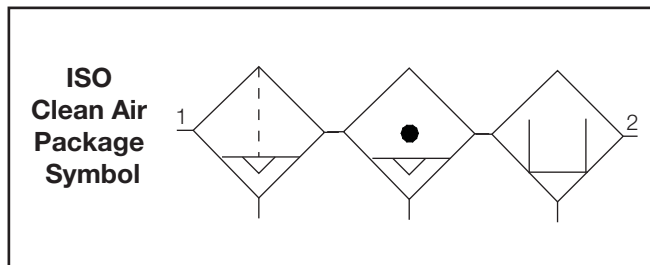
Element	Model Usage	Kit Number
5-µm Plastic (Std)	General purpose filter	A60F-03PE5
5-µm Bronze	General purpose filter	KA60F-03E5
0.3-µm (Std) Coalescing	Standard bowl Extended bowl	A60F-29 A60F-32
0.01-µm Coalescing	Standard bowl Extended bowl	A60F-29E8 A60F-32E8
Adsorbing	Standard bowl Extended bowl	A60F-29E9 A60F-32E9



Standard
Bowls



Extended
Bowls



ORDERING INFORMATION

If product number exceeds 15 characters consult factory for new number:

BMFDFCDFC 70 - 2 Y E9 W

BOWL SIZE

Standard 6-ounce bowls 70
Extended 10-ounce bowls..... 70H

PORT SIZE

1/4 NPTF..... 2
3/8 NPTF..... 3
1/2 NPTF..... 4

PORT TYPE

NPTF threads Leave Blank
BSPP threads W

OPTIONS

None Leave Blank
5-µm sintered bronze general
purpose filter element E5
0.01-µm coalescing filter E8
element

SERIES 350 Modular Clean Air Package

BAG1D0A6A93 Models Port Sizes: 1/4, 3/8, 1/2



Model Shown: BAG1D0A6A93

The general purpose filter in this assembly removes gross contaminants, while the coalescing filter removes oil mists, aerosols, and minute particles. Finally, the adsorbing filter effectively eliminates odors from Freons, alcohols, esters, ketones, and up to 99% of most hydrocarbons.

SPECIFICATIONS

Ambient/Media Temperature

Plastic Bowl, all drain types: 40° to 125°F (4° to 52°C).
Metal Bowl, manual & auto drains: 40° to 175°F (4° to 79°C).
Metal Bowl, float drains: 40° to 150°F (4° to 66°C).

Body: Die-cast zinc.

Bowl: 5.1-Ounce (151-ml) capacity polycarbonate plastic with nylon shatterguard; optional 6.0 ounce (177-ml) aluminum bowl with clear nylon sight glass. *(For coalescing and adsorber filter only)* optional 10-ounce (300-ml) extended aluminum bowl with clear nylon sight glass and higher flow filter element.

Bowl Drain

filter and coalescing filter: Internal float drain; by removing the adjustment knob, a 3/16" (5mm) flexible tube can be connected to drain effluents. Optional manual drain.

Adsorber filter: Manual drain only.

Cap Color: Yellow, optional red, blue and grey.

Differential Pressure Gauge: Cannot be added in the field.

Elements:

Filter: 5-µm-rated polyethylene.

Coalescing: 0.3-µm-rated borosilicate-glass-fiber; optional 0.01-µm-rated element (reduces flow by 20%).

Adsorbing: Activated carbon with urethane seals.

Fluid Media: Compressed air.

Inlet Pressure:

Plastic bowl & manual drain: 0-150 psig (0-10 bar).

Plastic bowl & Float drain: 30-150 psig (2-10 bar).

Metal bowl & manual drain: 0-250 psig (0-17 bar).

Metal bowl & Float drain: 30-200 psig (2-14 bar).

Seals: Nitrile

GENERAL

- ◆ Modular or inline mounting.
- ◆ Color caps available for visual management systems. (Blue, red, yellow and grey). Consult factory for custom colors.
- ◆ Front mounted modular clamping design with encapsulated screws.
- ◆ Compatible with modular 380 series of products.
- ◆ **NPTF** port threads; optional **BSPP** threads.
- ◆ Polycarbonate plastic bowl with shatterguard. Optional metal bowl.
- ◆ Inlet pressure rated at 250 psig (17 bar) with metal bowls up to 175° F. (79° C).
- ◆ This configuration in conjunction with a carbon monoxide monitor, can allow end users to achieve "grade D" breathing air as defined by the compressed gas association commodity specification: G-7.1 (www.cganat.com). Does not remove carbon monoxide or convert CO to CO₂, or remove other toxic gases.

FILTER INFORMATION

- ◆ Designed to remove particulate material to 5 micron from the airstream to protect downstream equipment.
- ◆ Optional bronze 5-µm-rated, 20-µm-rated, and 40-µm-rated. 5-µm-rated Polyethylene filter elements are standard.
- ◆ Superior removal of free water up to 98% efficiency
- ◆ Removal of effluents via manual or automatic float drains.

COALESCING FILTER

- ◆ Designed to remove particulate material 99.98% of free oils and solid contaminants 0.3 microns and larger.
- ◆ Optional 0.01-µm-rated element.
- ◆ Removal of effluents via manual or automatic drains.
- ◆ Coalescent elements are absolute rated.
- ◆ Optional differential pressure gauge to indicate when filter element needs changing.

ADSORBING FILTER

- ◆ Designed to remove oil vapor that cannot be removed by a coalescent filter. Also removes odors and tastes.
- ◆ Filter cartridge contains activated carbon.

AIR FLOW and CONSTRUCTION DATA

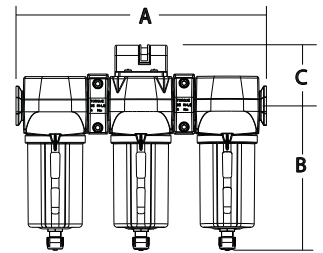
See Flow Charts and Specifications for individual assembly components on preceding pages.

DIMENSIONS inches (mm)

Bowl	A	B †	C	Depth	Weight lb (kg)
Std plastic	9.58 (243.3)	5.54 (140.7)	2.38 (59.3)	2.51 (63.8)	4.3 (2.0)
Std metal	9.58 (243.3)	6.42 (163.1)	2.38 (59.3)	2.76 (70.1)	4.6 (2.1)
Ext metal	9.58 (243.3)	9.51 (241.6)	2.38 (59.3)	2.76 (70.1)	4.9 (2.2)

† Bowl (standard) removal clearance: add 3.1 (79)

† Bowl (extended) removal clearance: add 6.1 (155)



Standard Plastic Bowls

REPLACEMENT ELEMENT KITS

Filter Elements:

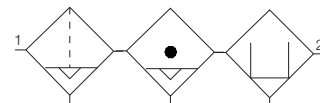
5-µm Polyethylene (Std element)	A60F-03PE5
40-µm Bronze	A60F-03E3
5-µm Bronze	A60F-03E5
20-µm Bronze	A60F-03E4

Coalescing Elements:

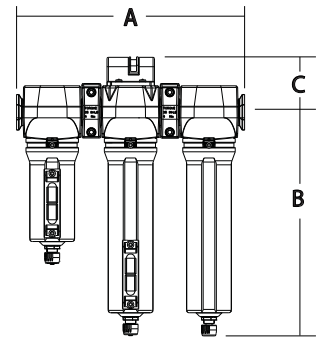
0.3 µm Standard for plastic bowl	A60F-23
0.3 µm Standard for metal bowl	A60F-29
0.3 µm Extended for metal bowl	A60F-32
0.01 µm Standard for plastic bowl	A60F-23E8
0.01 µm Standard for metal bowl	A60F-29E8
0.01 µm Extended metal bowl	A60F-32E8

Adsorbing Elements:

Standard (Std element)	A60F-29E9
Extended	A60F-32E9



ISO Clean Air Package Symbol



Extended Metal Bowls

ORDERING INFORMATION

Change the letters in the sample model number below to specify the Clean Air Package you want.

B A G1 D 0A 6 A 9 3

CAP COLOR

Yellow (standard) B

Red C

Blue D

Grey A

BOWL TYPE

All plastic standard bowls A

All metal standard bowls B

All metal standard bowl filter, extended D

metal bowls on coalescing and adsorber.

COALESCING AND ADSORBER FILTERS

FC350 and FC350-E9 D

FC350-E8 and FC350-E9 E

DRAIN TYPE

Manual drain on all bowls 0

Plastic Bowl only: Float drain on filter and coalescing, manual 6

drain on adsorber (plastic stem).

Plastic Bowl only: Float drain on filter, manual drain on 7

coalescing and adsorber (plastic stem).

Metal Bowl only: Float drain on filter and coalescing, manual 8

drain on adsorber.

Metal Bowl only: Float drain on filter, manual drain on 9

coalescing and adsorber.

PORT SIZE

1/4 NPTF 2

3/8 NPTF 3

1/2 NPTF 4

1/4 BSPP B

3/8 BSPP C

1/2 BSPP D

DIFFERENTIAL PRESSURE GAUGE

No gauge 0

Gauge on filter and coalescing filter 7

Gauge on Coalescing filter 9

EXTERNAL PORTS, MOUNTING BRACKETS

No mounting bracket A

Mounting bracket J

Female external ports with K

mounting brackets

Full-Size SERIES 380 Modular Clean Air Package



Model Shown: AAM1D0A1J9D

The general purpose filter in this assembly removes gross contaminants, while the coalescing filter removes oil mists, aerosols, and minute particles. Finally, the adsorbing filter effectively eliminates odors from Freons, alcohols, esters, ketones, and up to 99% of most hydrocarbons.

SPECIFICATIONS

Ambient/Media Temperature:

Plastic Bowl, all drain types: 40° to 125°F (4° to 52°C).

Metal Bowl, manual & auto drains: 40° to 175°F (4° to 79°C).

Metal Bowl, float drains: 40° to 150°F (4° to 66°C).

Bowls: 9-Ounce (270-ml) capacity polycarbonate plastic bowls with steel shatterguards. Optional aluminum bowls; clear nylon sight glass on general purpose and coalescing units. Optional 15-ounce (450-ml) extended aluminum bowls with higher flow elements for coalescing and adsorbing filters.

Cap Color: Grey. Yellow, red, blue optional.

Filter Drains: Internal automatic drains for general purpose and coalescing filters; manual drain for adsorbing filter.

Filter Elements:

General Purpose: 5-µm-rated polyethylene.

Coalescing: 0.3-µm-rated borosilicate glass-fiber; optional 0.01-µm-rated element.

Adsorbing: Activated carbon with urethane seals.

Fluid Media: Compressed air.

Inlet Pressure:

15 psig (1 bar) minimum with automatic drain.

Plastic bowls: 150 psig (10 bar) maximum.

Metal bowls: 200 psig (14 bar) maximum.

AAM1D0A1A9 Models Port Sizes: 3/8, 1/2, 3/4

- ◆ General purpose filter (FD380) with 5-µm-rated polyethylene filter element.
- ◆ Coalescing filter with 0.3-µm-rated coalescing element; optional 0.01-µm element.
- ◆ Adsorbing filter with activated carbon element.
- ◆ Modular or inline mounting.
- ◆ Polycarbonate plastic bowls with steel shatterguards; optional metal bowls.
- ◆ Optional extended metal bowls for coalescing and adsorbing filters include higher flow filter elements.
- ◆ Internal automatic drains for general purpose and coalescing filters. Manual drain for adsorbing filter.
- ◆ Differential pressure gauge on coalescing filter to indicate when element needs changing.
- ◆ NPTF port threads; optional BSPP threads.

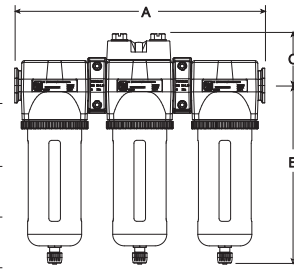
AIR FLOW and CONSTRUCTION DATA

See Flow Charts and Specifications for individual assembly components on preceding pages.

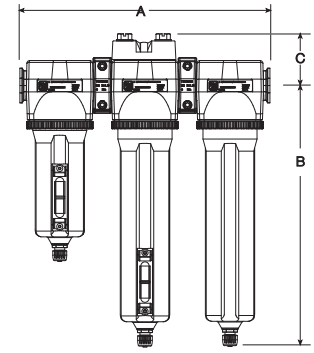
DIMENSIONS inches (mm)

Bowls	A	B †	C	Depth	Weight lb (kg)
Standard	10.9 (276)	7.7 (195)	2.2 (55)	2.9 (73)	6.63 (3.01)
Extended	10.9 (276)	11.2 (284)	2.2 (55)	2.9 (73)	7.00 (3.18)

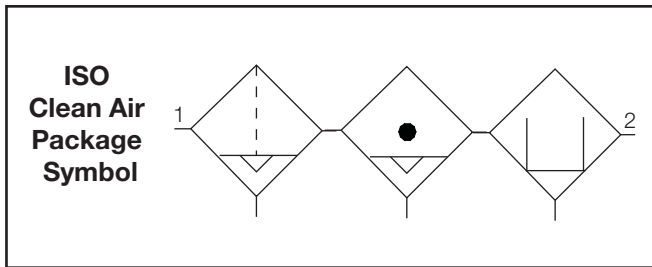
† Bowl removal clearance: add 3.4 (86) for 9-ounce bowl;
6.1 (155) for extended bowl.



Standard
Plastic Bowls



Extended
Metal Bowls



REPLACEMENT FILTER ELEMENT KITS

Element Type	Kit Number
General Purpose	
5-µm (Std element)	A115-106PE5
Coalescing:	
0.3 µm Standard bowl (Std element)	A115-117
0.3 µm Extended bowl.....	A115-118
0.01 µm Standard bowl	A115-117E8
0.01 µm Extended bowl	A115-118E8
Adsorbing:	
Standard bowl (Std cartridge)	A115-117E9
Extended bowl.....	A115-118E9

ORDERING INFORMATION

Change the letters in the sample model number below to specify the Clean Air Package you want.

		A A M 1 D 0 A 1 A 9 6		
CAP COLOR			PORT SIZE	
Grey A			3/8 NPTF	3
Yellow..... B			1/2 NPTF	4
Red C			3/4 NPTF	6
Blue D			3/8 BSPP	C
			1/2 BSPP	D
			3/4 BSPP	E
BOWL TYPE			DIFFERENTIAL PRESSURE GAUGES: For additional gauge options see page 291.	
9-Ounce plastic	A		No gauge on coalescing filter.....	0
9-Ounce metal	B		Small gauge (K103-151) on	9
Metal: 9-ounce general purpose ...	D		coalescing filter (standard)	
filter; 15-ounce coalescing			Large gauge (106-35) on	A
and adsorbing filters			coalescing filter	
COALESCING FILTER ELEMENT			PORTS & MOUNTING BRACKETS	
0.3-µm element (Std)	D		No end ports or brackets.....	A
0.01-µm element	E		Mounting brackets only	J
			Female end ports with	K
DRAIN TYPES			mounting brackets	
Manual drain for general purpose ...	0			
and coalescing filters				
Internal automatic drain for	1			
general purpose and				
coalescing filters				

HIGH-FLOW VANGUARD Clean Air Package

BDFDCD100-E8 Models Port Sizes: 3/4, 1



Model Shown: BDFDCD100-8E8

These assemblies consist of two filters: a general purpose filter, and a coalescing filter. The general purpose filter removes gross contaminants, while the coalescing filter removes oil mists, aerosols, and minute particles.

SPECIFICATIONS

Ambient/Media Temperature:

Manual & auto drains: 40° to 175°F (4° to 79°C).

Float drains: 40° to 150°F (4° to 66°C).

Body: Aluminum.

Bowls: 16-Ounce (480-ml) capacity aluminum. Clear nylon sight glass on general purpose and coalescing filters. Bowls are rotatable for easy readability.

Bowl Ring: Aluminum.

Filter Bowl Drains:

Internal automatic drains for general purpose and coalescing filters.

Filter Elements: General purpose: 5- μ m-rated polyethylene; optional 5- μ m sintered bronze. Coalescing: 0.3- μ m-rated borosilicate glass fiber; optional 0.01- μ m-rated element.

Fluid Media: Compressed air.

Inlet Pressure:

Minimum: 15 psig (1 bar).

Maximum: 200 psig (14 bar).

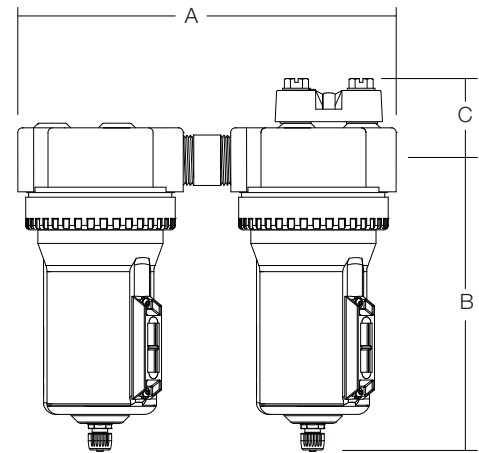
- ◆ Inline mounting.
- ◆ 5- μ m-rated polyethylene general purpose filter element.
- ◆ 0.3- μ m-rated coalescing filter element; optional 0.01- μ m element.
- ◆ Metal bowls. Clear nylon sight glass on general purpose and coalescing filters. Bowls rotatable for easy readability.
- ◆ Internal automatic filter drain for general purpose and coalescing filters.
- ◆ Differential pressure gauge on coalescing filter to indicate when filter element needs changing.
- ◆ NPTF port threads; optional BSPP threads.

AIR FLOW and CONSTRUCTION DATA

See Flow Charts and Specifications for individual assembly components on preceding pages.

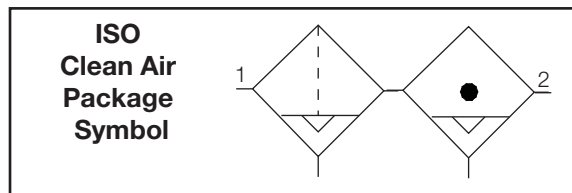
DIMENSIONS inches (mm)

A	B	C	Depth	Weight lb (kg)
10 (255)	7.8 (199)	2.3 (58)	4.2 (106)	5.00 (2.27)



REPLACEMENT FILTER ELEMENT KITS

Element	Model Usage	Kit Number
5-µm Plastic (Std)	General purpose filter	KA109-3PE
5-µm Bronze	General purpose filter	KA109-03E5
0.3-µm (Std)	Coalescing filter	A109-106
0.01-µm	Coalescing filter	A109-106E8



ORDERING INFORMATION

If product number exceeds 15 characters consult factory for new number:

B **FD** **FCD** **100** **S** - **6** **E5** **E8** **W**

FILTER BOWL DRAIN

- Internal automatic drain..... FD
- Manual drain F
- Internal float drain (**brass stem**) F6A

COALESCING FILTER BOWL DRAIN

- Internal automatic drain..... FCD
- Manual drain FC
- Internal float drain (**brass stem**) FC6A

DIFFERENTIAL PRESSURE GAUGE

- No gauge Leave Blank
- (Add **NG** option after **COALESCING FILTER ELEMENT TYPE**.)
- Large differential pressure gauge ... Leave Blank
- Small differential pressure gauge ... S
- Large differential pressure gauge ... E
- with normally open reed switch.
- Large differential pressure gauge ... E2
- with normally closed reed switch.

PORT TYPE

- NPTF Leave Blank
- BSPP W

COALESCING ELEMENT TYPE

- 0.3-µm element Leave Blank
- 0.01-µm element E8

FILTER ELEMENT TYPE

- 5 micron bronze E5
- element.
- 5 micron polyethylene .. Leave Blank
- element.

PORT SIZE

- 3/4 NPTF 6
- 1 NPTF 8

DIFFERENTIAL PRESSURE GAUGES



Small Slide Gauge
K103-151



Large Dual Face Gauge
106-35



Large Dual Face Gauge
with Reed Switch
106-35E (Normally Open)
106-35EC (Normally Closed)