

# Antibacterial Filter/ Odor Removal Filter/ Bacteria Removal Filter

US FDA / Japan Food Sanitation Act compliant materials\*1

NSF-H1 grade grease

Antibacterial coating\*2

Designed for hygiene management in accordance with HACCP and other standards

Contributes to the FSSC22000 certification acquisition

Antibacterial Filter

Antibacterial activation value: **4 or higher**\*3

Odor Removal Filter

Oil concentration on the outlet side: **0.003 mg/m<sup>3</sup>** or less

Bacteria Removal Filter

Bacteria capture performance: **LRV ≥ 9**\*4

\*1 Parts in contact with fluid: Resin/Rubber \*2 Body, Body cover, and Bowl guard \*3 Lasting antibacterial performance due to the antibacterial agent in the filter (fibers)  
\*4 LRV (Log Reduction Value): A mathematical representation of the bacteria capture performance of the filter element



Antibacterial Filter  
HF2-BFA Series  
Nominal filtration rating: 5 μm

Antibacterial Filter  
HF2-BFB Series  
Nominal filtration rating: 0.1 μm

Odor Removal Filter  
HF2-BFC Series

Bacteria Removal Filter  
HF2-BFD Series  
Nominal filtration rating: 0.01 μm

Max. flow capacity: **800 L/min (ANR)**


(Size 40)

Operating temperature range: **-5 to 60°C**

(Excludes Bacteria Removal Filters)

**HF2-BF**  **Series**

## Variations

Series	Model	Port size	Nominal filtration rating [ $\mu\text{m}$ ]	Rated flow [L/min (ANR)]
<b>Antibacterial Filter</b> <b>HF2-BFA Series</b> pp. 5, 6 	<b>HF2-BFA30</b>	1/4, 3/8	5	400
	<b>HF2-BFA40</b>	1/4, 3/8, 1/2		800
<b>Antibacterial Filter</b> <b>HF2-BFB Series</b> pp. 5, 7 	<b>HF2-BFB30</b>	1/4, 3/8	0.1	400
	<b>HF2-BFB40</b>	1/4, 3/8, 1/2		800
<b>Odor Removal Filter</b> <b>HF2-BFC Series</b> pp. 5, 8 	<b>HF2-BFC30</b>	1/4, 3/8	—	400
	<b>HF2-BFC40</b>	1/4, 3/8, 1/2		800
<b>Bacteria Removal Filter</b> <b>HF2-BFD Series</b> pp. 5, 9 	<b>HF2-BFD30</b>	1/4, 3/8	0.01	400
	<b>HF2-BFD40</b>	1/4, 3/8, 1/2		800

## HF2-BAC Series Modular Combination Series Configuration

### HF2-BAC30A to HF2-BAC40A Series p. 13

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm)



	Port size		
	1/4	3/8	1/2
Size 30	●	●	
Size 40	●	●	●

### HF2-BAC30B to HF2-BAC40B Series p. 14

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Bacteria Removal Filter (0.01 μm)



	Port size		
	1/4	3/8	1/2
Size 30	●	●	
Size 40	●	●	●

### HF2-BAC30C to HF2-BAC40C Series p. 15

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Odor Removal Filter



	Port size		
	1/4	3/8	1/2
Size 30	●	●	
Size 40	●	●	●

### HF2-BAC30D to HF2-BAC40D Series p. 16

Antibacterial Filter (5 μm) + Antibacterial Filter (0.1 μm) + Odor Removal Filter + Bacteria Removal Filter (0.01 μm)



	Port size		
	1/4	3/8	1/2
Size 30	●	●	
Size 40	●	●	●

### Antibacterial Spacer HF2-BY00 Series

p. 19



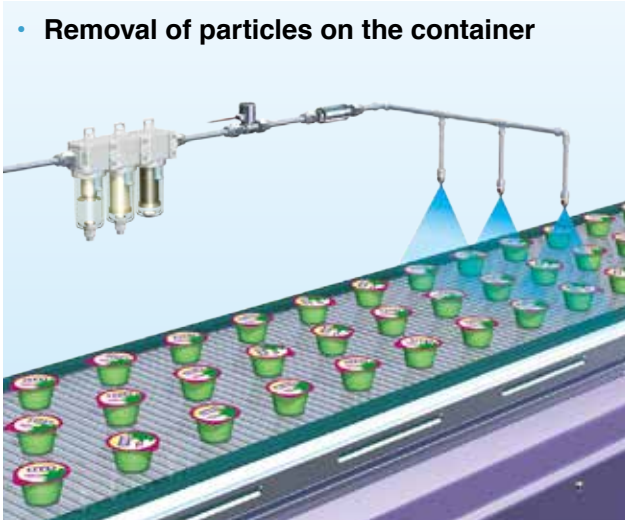
### Antibacterial Spacer with Bracket HF2-BY00T Series

p. 19

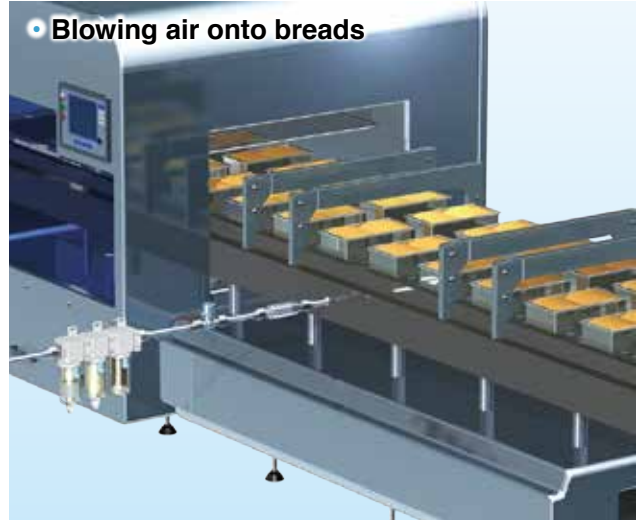


## Application Examples

- Removal of particles on the container



- Blowing air onto breads



- Dental equipment



## Related Product

### Bacteria Removal Filter **SFDA Series**

Hollow Fiber Element

Bacteria capture performance **LRV  $\geq 9$** <sup>\*1</sup>

- Uses the US FDA / Japan Food Sanitation Act compliant materials<sup>\*2</sup>
- Grease-free
- Nominal filtration rating: 0.01  $\mu\text{m}$  (Filtering efficiency: 99.99%)
- In-line type

<sup>\*1</sup> LRV (Log Reduction Value): A mathematical representation of the bacteria capture performance of the filter element  
<sup>\*2</sup> Parts in contact with fluid: Resin/Rubber



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**Modular Connection Type**

## Antibacterial Filter/ Odor Removal Filter/ Bacteria Removal Filter HF2-BF □ Series



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**HF2-BFA Series**

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**Antibacterial Filter**  
**HF2-BFB Series**

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**Odor Removal Filter**  
**HF2-BFC Series**

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**Bacteria Removal Filter**  
**HF2-BFD Series**

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**Air Combination**

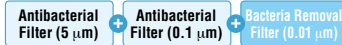


**HF2-BAC30A to HF2-BAC40A**

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**Air Combination**

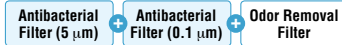


**HF2-BAC30B to HF2-BAC40B**

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**Air Combination**



**HF2-BAC30C to HF2-BAC40C**

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**Air Combination**



**HF2-BAC30D to HF2-BAC40D**

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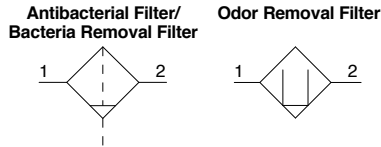
Antibacterial Filter

Odor Removal Filter

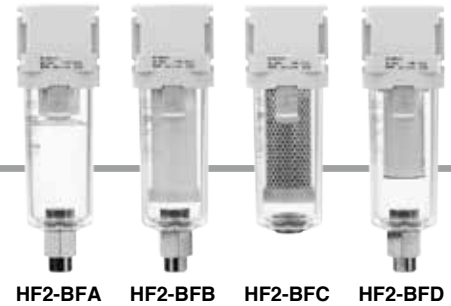
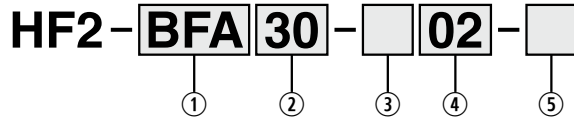
Bacteria Removal Filter

# HF2-BF□30 to 40

## Symbol



## How to Order



		Symbol	Description	② Body size		
				30	40	
①	Filter type	Antibacterial filter	<b>BFA</b>	Nominal filtration rating: 5 μm (Antibacterial activation value of 4 or above)	●	●
			<b>BFB</b>	Nominal filtration rating: 0.1 μm (Antibacterial activation value of 4 or above)	●	●
		Odor removal filter	<b>BFC</b>	Odor removal filter	●	●
		Bacteria removal filter	<b>BFD</b>	Nominal filtration rating: 0.01 μm (Bacteria capture performance LRV ≥ 9)	●	●
+						
③	Pipe thread type*1	<b>Nil</b>	Rc	●	●	
		<b>N</b>	NPT	●	●	
		<b>F</b>	G	●	●	
+						
④	Port size	<b>02</b>	1/4	●	●	
		<b>03</b>	3/8	●	●	
		<b>04</b>	1/2	—	●	
+						
⑤	Semi-standard	Flow direction	<b>Nil</b>	Flow direction: Left to right	●	●
			<b>R</b>	Flow direction: Right to left	●	●

\*1 The drain ports are Rc1/8 (③ thread type: Rc thread), NPT1/8 female thread (③ thread type: N), and G1/8 female thread (③ thread type: G).  
 \* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

# HF2-BF □ 30 to 40



## Antibacterial Filter HF2-BFA Series

### Standard Specifications

Model		HF2-BFA30	HF2-BFA40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		-5 to 60°C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		5 μm (90% filtered particle size)	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.27 kg	0.45 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa and when combined with a bacteria removal filter (HF2-BFD30/40).

\*3 Based on SMC's measurement conditions

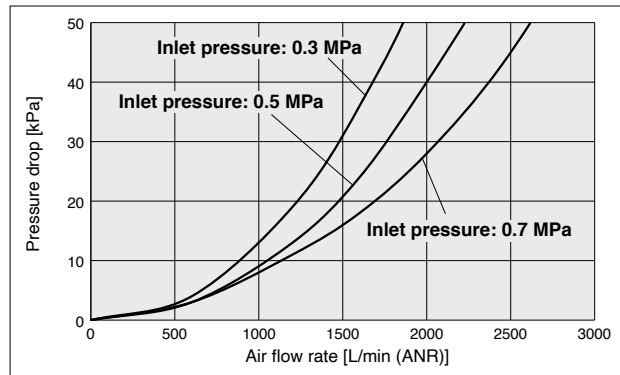
\*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

\* Refer to the chemical data on page 20 for chemical resistance of the bowl.

### Flow Rate Characteristics

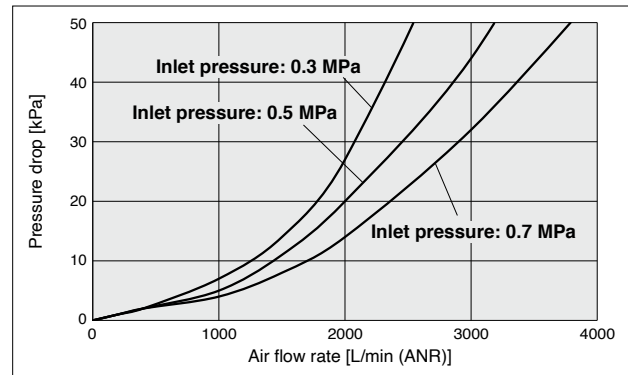
HF2-BFA30

Rc3/8



HF2-BFA40

Rc1/2



# HF2-BF 30 to 40



## Antibacterial Filter HF2-BFB Series

### Standard Specifications

Model		HF2-BFB30	HF2-BFB40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		-5 to 60°C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.1 μm (99% filtered particle size)	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.27 kg	0.46 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa and when combined with a bacteria removal filter (HF2-BFD30/40).

\*3 Based on SMC's measurement conditions

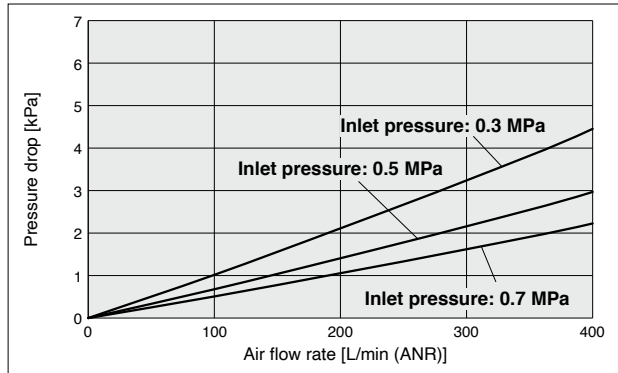
\*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

\* Refer to the chemical data on page 20 for chemical resistance of the bowl.

### Flow Rate Characteristics

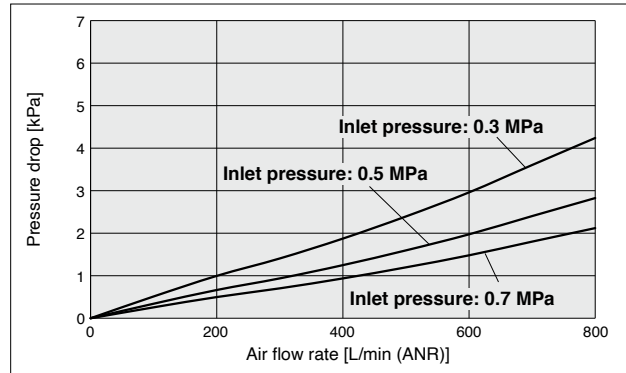
HF2-BFB30

Rc3/8



HF2-BFB40

Rc1/2





# HF2-BF □ 30 to 40



## Odor Removal Filter HF2-BFC Series

### Standard Specifications

Model		HF2-BFC30	HF2-BFC40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		-5 to 60°C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Deodorization performance (Oil concentration on the outlet side)		0.003 mg/m <sup>3</sup> or less	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating), Stainless steel	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.20 kg	0.41 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa and when combined with an antibacterial filter (HF2-BFB30/40) or bacteria removal filter (BFD30/40).

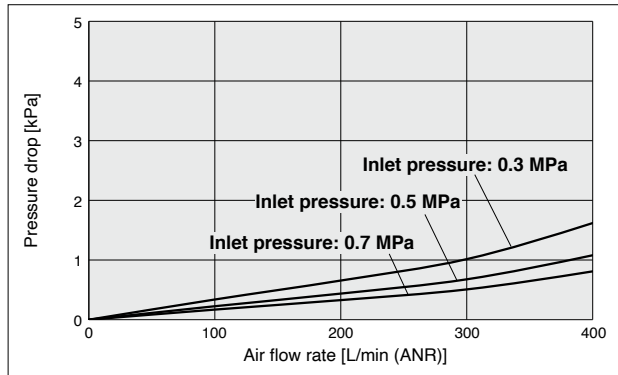
\*3 Based on SMC's measurement conditions

\* Refer to the chemical data on page 20 for chemical resistance of the bowl.

### Flow Rate Characteristics

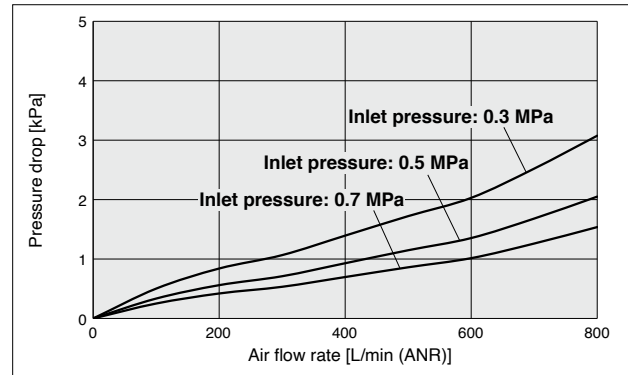
HF2-BFC30

Rc3/8



HF2-BFC40

Rc1/2



# HF2-BF □ 30 to 40



## Bacteria Removal Filter HF2-BFD Series

### Standard Specifications

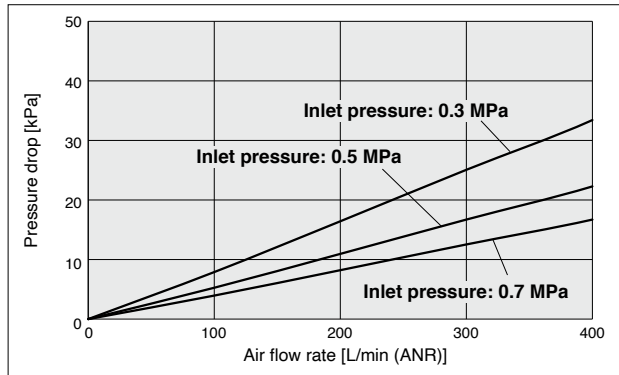
Model		HF2-BFD30	HF2-BFD40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Compressed air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		5 to 45°C (41 to 113°F)	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.01 μm (99.99% filtered particle size)	
Bacteria removal performance (Bacteria capture performance)		LRV ≥ 9*4	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.28 kg	0.46 kg

- \*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)
- \*2 This value is achieved when the inlet pressure is 0.7 MPa.
- \*3 Based on SMC's measurement conditions
- \*4 This data is achieved from the evaluation of the filter media in accordance with JIS K 3835.
- \* Refer to the chemical data on page 20 for chemical resistance of the bowl.

### Flow Rate Characteristics

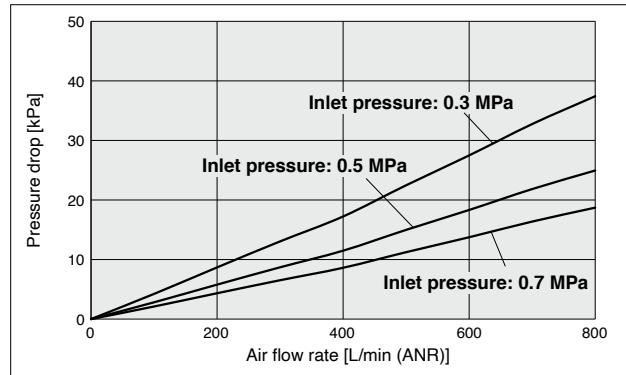
HF2-BFD30

Rc3/8



HF2-BFD40

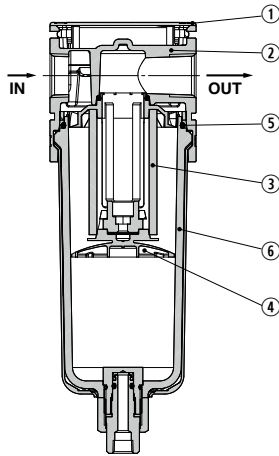
Rc1/2



# HF2-BF □ 30 to 40

## Construction

HF2-BFA30 to 40



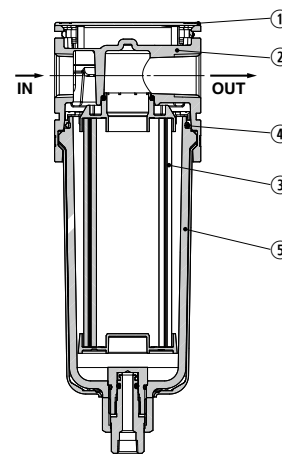
### Component Parts

No.	Description	Material
1	Body cover	Resin (Antibacterial specification)
2	Body	Aluminum die-cast (Antibacterial coating)
4	Baffle	Resin (US FDA / Japan Food Sanitation Act compliant materials)
5	Bowl seal	Fluororubber (US FDA compliant material)
6	Bowl assembly	Resin (US FDA / Japan Food Sanitation Act compliant materials) Resin (Antibacterial specification)

### Replacement Parts

No.	Description	Part no.	
		30	40
3	Filter element	BFA30P-060S	BFA40P-060S

HF2-BFB30 to 40



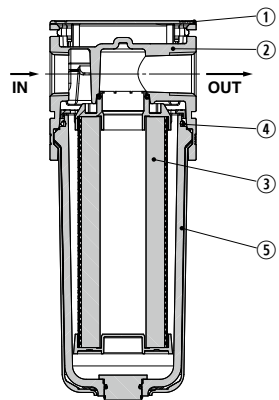
### Component Parts

No.	Description	Material
1	Body cover	Resin (Antibacterial specification)
2	Body	Aluminum die-cast (Antibacterial coating)
4	Bowl seal	Fluororubber (US FDA compliant material)
5	Bowl assembly	Resin (US FDA / Japan Food Sanitation Act compliant materials) Resin (Antibacterial specification)

### Replacement Parts

No.	Description	Part no.	
		30	40
3	Filter element	BFB-EL30	BFB-EL40

HF2-BFC30 to 40



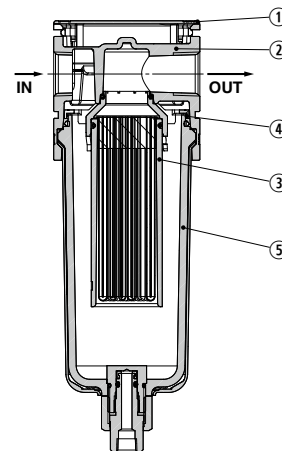
### Component Parts

No.	Description	Material
1	Body cover	Resin (Antibacterial specification)
2	Body	Aluminum die-cast (Antibacterial coating)
4	Bowl seal	Fluororubber (US FDA compliant material)
5	Bowl assembly	Resin (US FDA / Japan Food Sanitation Act compliant materials) Resin (Antibacterial specification)

### Replacement Parts

No.	Description	Part no.	
		30	40
3	Filter element	BFC-EL30	BFC-EL40

HF2-BFD30 to 40



### Component Parts

No.	Description	Material
1	Body cover	Resin (Antibacterial specification)
2	Body	Aluminum die-cast (Antibacterial coating)
4	Bowl seal	Fluororubber (US FDA compliant material)
5	Bowl assembly	Resin (US FDA / Japan Food Sanitation Act compliant materials) Resin (Antibacterial specification)

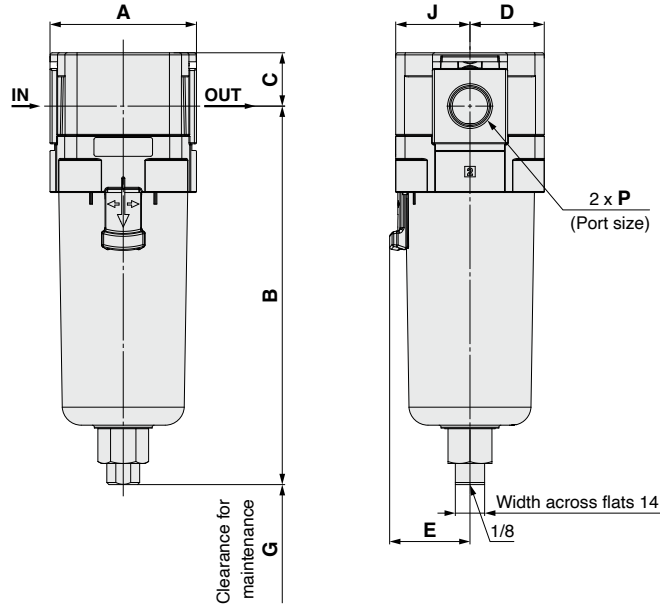
### Replacement Parts

No.	Description	Part no.	
		30	40
3	Filter element	BFD-EL30	BFD-EL40

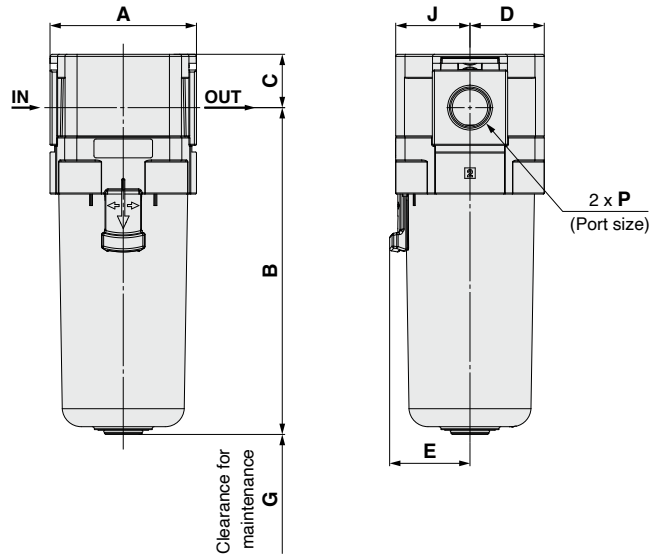
# HF2-BF □ 30 to 40

## Dimensions

HF2-BFA30/40, HF2-BFB30/40, HF2-BFD30/40



HF2-BFC30/40



Model	P	A	B	C	D	E	G	J
HF2-BFA30	1/4, 3/8	53	151.1	21.5	26.5	30	35	26.5
HF2-BFB30	1/4, 3/8	53	151.1	21.5	26.5	30	35	26.5
HF2-BFC30	1/4, 3/8	53	126.4	21.5	26.5	30	35	26.5
HF2-BFD30	1/4, 3/8	53	151.1	21.5	26.5	30	35	26.5
HF2-BFA40	1/4, 3/8, 1/2	70	180.9	25.5	35.5	38.4	40	35.5
HF2-BFB40	1/4, 3/8, 1/2	70	180.9	25.5	35.5	38.4	40	35.5
HF2-BFC40	1/4, 3/8, 1/2	70	156.2	25.5	35.5	38.4	40	35.5
HF2-BFD40	1/4, 3/8, 1/2	70	180.9	25.5	35.5	38.4	40	35.5

### UNIT CONVERSIONS

	unit	conversion	result
length	m	x 3.28	ft
	mm	x 0.04	in
mass	g	x 0.04	oz
volume	cm <sup>3</sup>	÷ 16.387	in <sup>3</sup>
	L	x 61.024	in <sup>3</sup>
speed	mm/s	÷ 25.4	in/s
pressure	MPa	x 145	psi
	kPa	÷ 6.895	psi
temperature	°C	x1.8 then add 32	°F
torque	N·m	x 0.738	ft·lb
force	N	÷ 4.448	lbf
flow	L/min	÷ 28.317	cfm

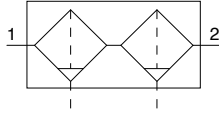
# Air Combination

Antibacterial Filter (5 μm)

Antibacterial Filter (0.1 μm)

## HF2-BAC30A to HF2-BAC40A

Symbol



### How to Order

HF2-BAC **30** A - **02** -

①                      ②                      ③                      ④



	Symbol	Description	① Body size		
			30	40	
+					
② Pipe thread type*1	Nil	Rc	●	●	
	N	NPT	●	●	
	F	G	●	●	
+					
③ Port size	02	1/4	●	●	
	03	3/8	●	●	
	04	1/2	—	●	
+					
④ Semi-standard	Flow direction	Nil	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●

\*1 The drain ports are Rc1/8 (② thread type: Rc thread), NPT1/8 female thread (② thread type: N), and G1/8 female thread (② thread type: G).  
 \* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

### Standard Specifications

Model		HF2-BAC30A	HF2-BAC40A
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		-5 to 60°C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.1 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.60 kg	1.02 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa.

\*3 Based on SMC's measurement conditions

\*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

# Air Combination

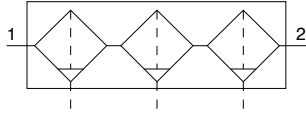
Antibacterial Filter (5 μm)

Antibacterial Filter (0.1 μm)

Bacteria Removal Filter (0.01 μm)

# HF2-BAC30B to HF2-BAC40B

## Symbol



## How to Order

HF2-BAC **30** B - **02** -

① ② ③ ④



	Symbol	Description	① Body size		
			30	40	
	+				
② Pipe thread type*1	Nil	Rc	●	●	
	N	NPT	●	●	
	F	G	●	●	
	+				
③ Port size	02	1/4	●	●	
	03	3/8	●	●	
	04	1/2	—	●	
	+				
④ Semi-standard	Flow direction	Nil	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●

\*1 The drain ports are Rc1/8 (② thread type: Rc thread), NPT1/8 female thread (② thread type: N), and G1/8 female thread (② thread type: G).  
 \* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

## Standard Specifications

Model		HF2-BAC30B	HF2-BAC40B
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Bacteria removal filter [HF2-BFD]	HF2-BFD30	HF2-BFD40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		5 to 45°C (41 to 113°F)	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.01 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Bacteria removal performance (Bacteria capture performance)*5		LRV ≥ 9	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating)	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant material)	
	Rubber parts	Fluororubber (US FDA compliant materials)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.94 kg	1.63 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)  
 \*2 This value is achieved when the inlet pressure is 0.7 MPa.  
 \*3 Based on SMC's measurement conditions  
 \*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.  
 \*5 This data is achieved from the evaluation of the filter media in accordance with JIS K 3835.

# Air Combination

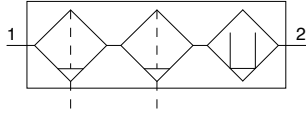
Antibacterial Filter (5 μm)

+ Antibacterial Filter (0.1 μm)

+ Odor Removal Filter

# HF2-BAC30C to HF2-BAC40C

Symbol



## How to Order

HF2-BAC 30 C -   02 -  

1    
 2    
 3    
 4



		Symbol	Description	①		
				Body size		
				30	40	
		+				
②	Pipe thread type*1	Nil	Rc	●	●	
		N	NPT	●	●	
		F	G	●	●	
		+				
③	Port size	02	1/4	●	●	
		03	3/8	●	●	
		04	1/2	—	●	
		+				
④	Semi-standard	Flow direction	Nil	Flow direction: Left to right	●	●
			R	Flow direction: Right to left	●	●

\*1 The drain ports are Rc1/8 (② thread type: Rc thread), NPT1/8 female thread (② thread type: N), and G1/8 female thread (② thread type: G).  
 \* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

## Standard Specifications

Model		HF2-BAC30C	HF2-BAC40C
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Odor removal filter [HF2-BFC]	HF2-BFC30	HF2-BFC40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		-5 to 60°C (23 to 140°F) No freezing	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.1 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Deodorization performance (Oil concentration on the outlet side)*3		0.003 mg/m <sup>3</sup> or less	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating), Stainless steel	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		0.89 kg	1.57 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa.

\*3 Based on SMC's measurement conditions

\*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.



# Air Combination

Antibacterial Filter (5 μm)

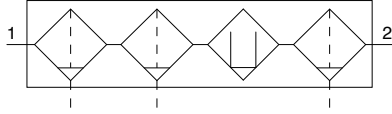
Antibacterial Filter (0.1 μm)

Odor Removal Filter

Bacteria Removal Filter (0.01 μm)

# HF2-BAC30D to HF2-BAC40D

Symbol



## How to Order



HF2-BAC **30** D - **02** -

①      ②      ③      ④

	Symbol	Description	① Body size		
			30	40	
	+				
② Pipe thread type*1	Nil	Rc	●	●	
	N	NPT	●	●	
	F	G	●	●	
	+				
③ Port size	02	1/4	●	●	
	03	3/8	●	●	
	04	1/2	—	●	
	+				
④ Semi-standard	Flow direction	Nil	Flow direction: Left to right	●	●
		R	Flow direction: Right to left	●	●

\*1 The drain ports are Rc1/8 (② thread type: Rc thread), NPT1/8 female thread (② thread type: N), and G1/8 female thread (② thread type: G).

\* Pressure and temperature are represented in the following units. Pressure: MPa (psi), Temperature: °C (°F)

## Standard Specifications

Model		HF2-BAC30D	HF2-BAC40D
Component	Antibacterial filter [HF2-BFA]	HF2-BFA30	HF2-BFA40
	Antibacterial filter [HF2-BFB]	HF2-BFB30	HF2-BFB40
	Odor removal filter [HF2-BFC]	HF2-BFC30	HF2-BFC40
	Bacteria removal filter [HF2-BFD]	HF2-BFD30	HF2-BFD40
Port size		1/4, 3/8	1/4, 3/8, 1/2
Fluid		Air, Nitrogen, Carbon dioxide (Gas)	
Ambient and fluid temperatures		5 to 45°C (41 to 113°F)	
Proof pressure		1.5 MPa (225 psi)	
Max. operating pressure*1		1.0 MPa (150 psi)	
Rated flow*2		400 L/min (ANR)	800 L/min (ANR)
Nominal filtration rating*3		0.01 μm	
Antibacterial performance (Antibacterial activation value)*4		4 or higher	
Deodorization performance (Oil concentration on the outlet side)*3		0.003 mg/m <sup>3</sup> or less	
Bacteria removal performance (Bacteria capture performance)*5		LRV ≥ 9	
Materials of parts in contact with fluid	Metal parts	Aluminum alloy, Brass (Electroless nickel plating), Stainless steel	
	Bowl	Nylon (US FDA / Japan Food Sanitation Act compliant materials)	
	Rubber parts	Fluororubber (US FDA compliant material)	
	Lubricant	NSF-H1 grade	
Bowl guard		Nylon (Antibacterial specification)	
Weight		1.23 kg	2.18 kg

\*1 For Nitrogen and Carbon dioxide (Gas): 0.99 MPa (145 psi)

\*2 This value is achieved when the inlet pressure is 0.7 MPa.

\*3 Based on SMC's measurement conditions

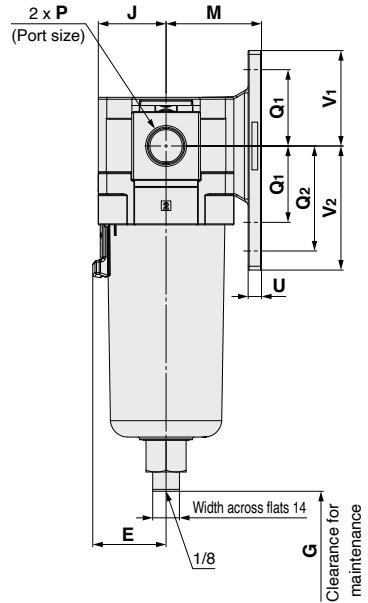
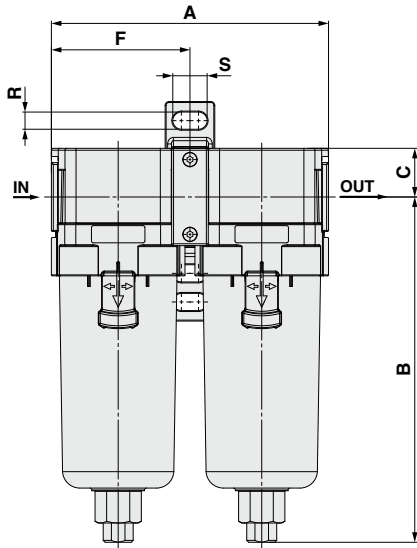
\*4 This data is achieved from the evaluation of the filter media (fiber) in accordance with JIS L 1902.

\*5 This data is achieved from the evaluation of the filter media in accordance with JIS K 3835.

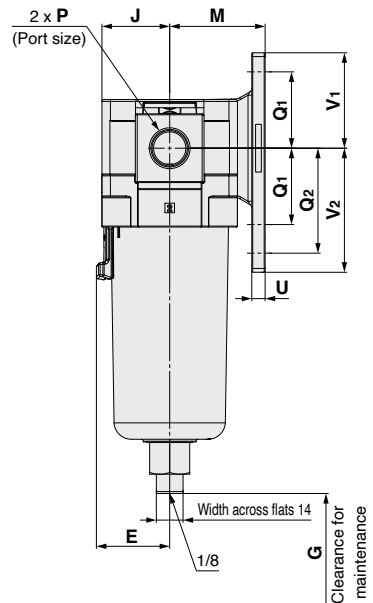
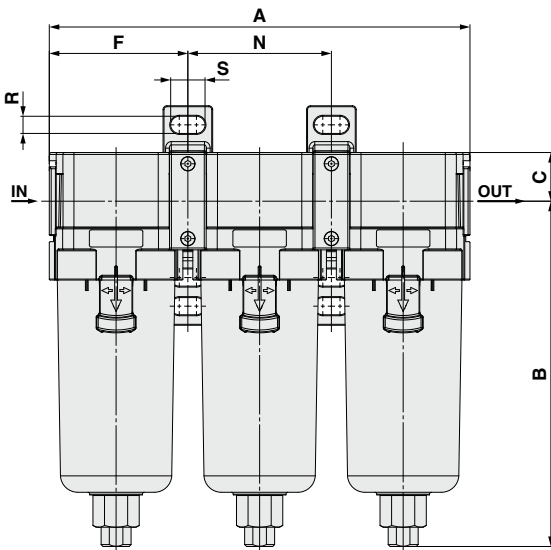
# HF2-BAC30□ to 40□

## Dimensions

### BAC30A to BAC40A



### BAC30B to BAC40B

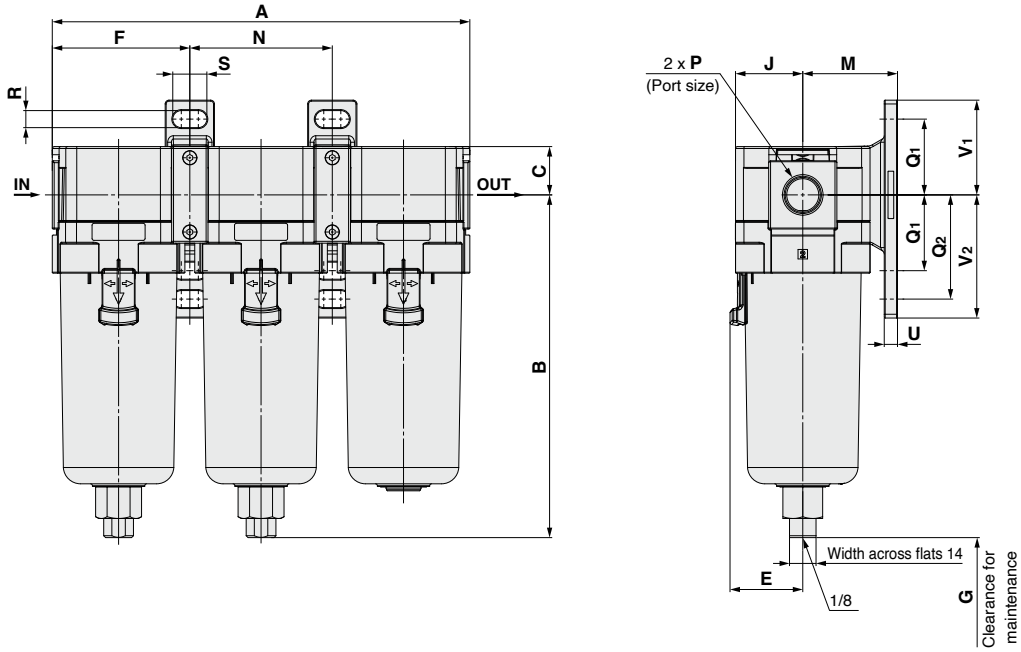


Model	Standard specifications												Bracket mount					
	P	A	B	C	E	F	G	J	M	N	Q <sub>1</sub>	Q <sub>2</sub>	R	S	U	V <sub>1</sub>	V <sub>2</sub>	
HF2-BAC30A	1/4, 3/8	110.2	151.1	21.5	30	55.1	35	26.5	41	—	35	—	7	14	6	42.5	42.5	
HF2-BAC30B	1/4, 3/8	167.4	151.1	21.5	30	55.1	35	26.5	41	57.2	35	—	7	14	6	42.5	42.5	
HF2-BAC40A	1/4, 3/8, 1/2	145.2	180.9	25.5	38.4	72.6	40	35.5	50	—	40	55	9	18	7	50	65	
HF2-BAC40B	1/4, 3/8, 1/2	220.4	180.9	25.5	38.4	72.6	40	35.5	50	75.2	40	55	9	18	7	50	65	

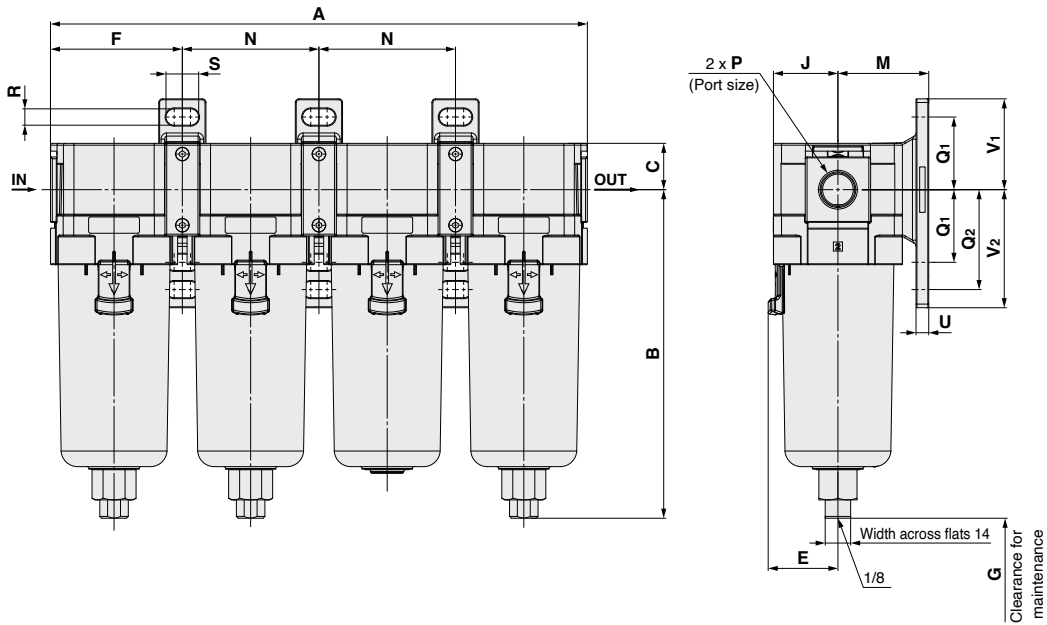
# Air Combination **HF2-BAC30** to **40**

## Dimensions

### BAC30C to BAC40C



### BAC30D to BAC40D



Model	Standard specifications																
									Bracket mount								
	P	A	B	C	E	F	G	J	M	N	Q <sub>1</sub>	Q <sub>2</sub>	R	S	U	V <sub>1</sub>	V <sub>2</sub>
HF2-BAC30C	1/4, 3/8	167.4	151.1	21.5	30	55.1	35	26.5	41	57.2	35	—	7	14	6	42.5	42.5
HF2-BAC30D	1/4, 3/8	224.6	151.1	21.5	30	55.1	35	26.5	41	57.2	35	—	7	14	6	42.5	42.5
HF2-BAC40C	1/4, 3/8, 1/2	220.4	180.9	25.5	38.4	72.6	40	35.5	50	75.2	40	55	9	18	7	50	65
HF2-BAC40D	1/4, 3/8, 1/2	295.6	180.9	25.5	38.4	72.6	40	35.5	50	75.2	40	55	9	18	7	50	65

# HF2-BAC Series

## Accessories

### (Antibacterial Spacer / Antibacterial Spacer with Bracket)

#### Antibacterial Spacer / Antibacterial Spacer with Bracket

HF2-BY 300   

①      ②

	Symbol	Description	①	
			Body size [Applicable BAC size]	
			300 [HF2-BAC30]	400 [HF2-BAC40]
②	Bracket	Nil	Spacer	●
		T	Spacer with bracket	●

Antibacterial spacer  
(HF2-BY□00)



Antibacterial spacer with bracket  
(HF2-BY□00T)

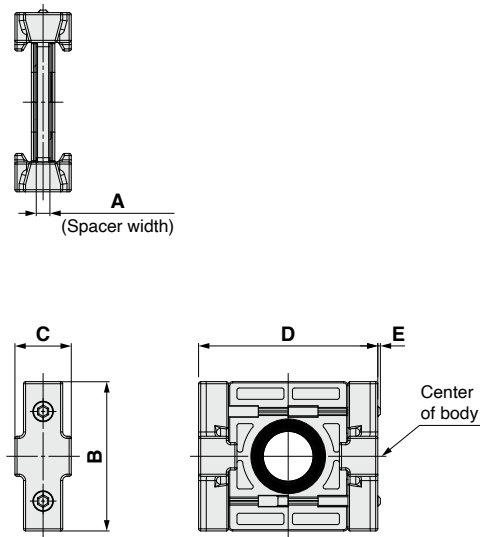


#### Standard Specifications

<b>Fluid</b>	Air, Nitrogen, Carbon dioxide (Gas)
<b>Ambient and fluid temperatures</b>	-5 to 60°C (No freezing)
<b>Proof pressure</b>	1.5 MPa
<b>Max. operating pressure</b>	1.0 MPa

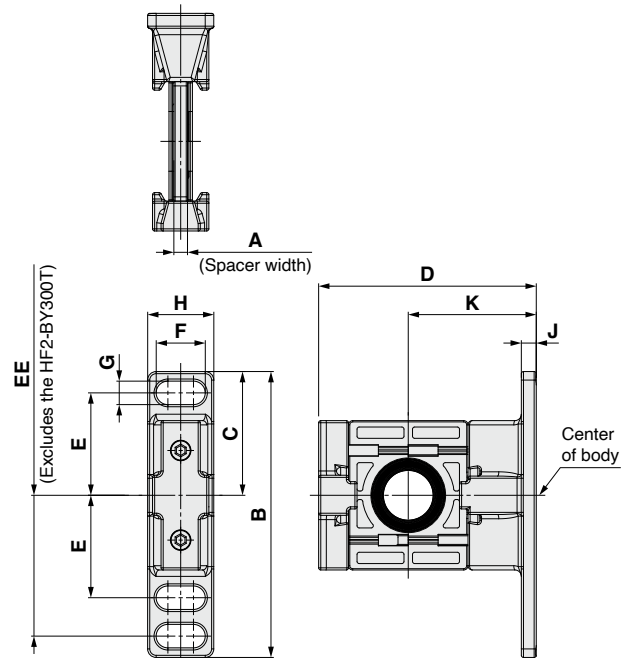
#### Dimensions

##### Antibacterial spacer



Part no.	A	B	C	D	E	Applicable size
HF2-BY300	4.2	43	16.2	53	—	HF2-BAC30
HF2-BY400	5.2	51	19.2	71	—	HF2-BAC40

##### Antibacterial spacer with bracket



Part no.	A	B	C	D	E	EE	F	G	H	J	K	Applicable size
HF2-BY300T	4.2	85	42.5	67.5	35	—	14	7	20	6	41	HF2-BAC30
HF2-BY400T	5.2	115	50	85.5	40	55	18	9	26	7	50	HF2-BAC40



# HF2-BF Series

## Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For air preparation equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

### Design

#### Warning

**1. Resin is used for some of the external parts such as the bowl (Material: Nylon).**

Organic solvents including thinner, acetone, alcohol, and ethylene chloride; chemicals including sulfuric acid, nitric acid, and hydrochloric acid; cutting oil, synthetic oil, ester-based compressor oil, alkali, kerosene, gasoline, and thread lock adhesive are harmful. Do not use the product where these are present.

**Effects of organic solvents and chemicals on the equipment. Shown below is the chemical data of substances which cause degradation for reference.**

Type	Chemical name	Application examples	Material
			Nylon
Acid	Hydrochloric acid Sulfuric acid Phosphoric acid Acetic acid Chromic acid	Acid washing liquid for metals	×
Alkaline	Sodium hydroxide (Caustic soda) Potash Calcium hydroxide (Slack lime) Ammonia water Sodium carbonate	Degreasing of metals Industrial salts Water-soluble cutting oil	○
Inorganic salts	Sodium sulfide Potassium nitrate Sodium sulfate	—	△
Chlorine solvents	Carbon tetrachloride Chloroform Ethylene chloride Methylene chloride	Cleansing liquid for metals Printing ink Dilution	△
Aromatic series	Benzene Toluene Paint thinner	Coatings Dry cleaning	△
Ketone	Acetone Methyl ethyl ketone Cyclohexane	Photographic film Dry cleaning Textile industries	×
Alcohol	Ethyl alcohol IPA Methyl alcohol	Antifreeze Adhesives	×
Oil	Gasoline Kerosene	—	○
Ester	Phthalic acid dimethyl Phthalic acid diethyl	Synthetic oil Anti-rust additives	○
Ether	Methyl ether Ethyl ether	Brake oil additives	○
Amino	Methyl amino	Cutting oil Brake oil additives Rubber accelerator	×
Others	Thread-locking fluid Seawater Leak tester	—	△

○: Essentially safe △: Some effects may occur. ×: Effects will occur.

**2. Applications in which the difference between the inlet and outlet pressure exceeds 0.1 MPa must be avoided. Failure to do so may result in element breakage.**

**3. For air blow applications, prevent airborne particles from the operating environment from entering into the compressed air stream. Foreign matter may adhere to workpieces during air blow as a result.**

**4. If air equipment is installed on the outlet side of the product, particles may be generated from the equipment and thus the required cleanliness may not be obtained. Please consider installing air equipment on the inlet side of the product.**

### Design

#### Warning

**5. Generally, the following pollutant particles are contained in compressed air.**

[Pollutant particle substances contained in compressed air]

- Moisture (drainage)
- Dust and particles which are in the surrounding air
- Deteriorated oil which is discharged from the compressor
- Solid foreign matter such as rust and/or oil in the piping

1) The HF2-BF series is not compatible with compressed air which contains fluids such as water and/or oil.

2) Install a dryer (IDF, IDG, or ID series), line filter (AFF-D series), mist separator (AM series), micro mist separator (AMD series), super mist separator (AME series), odor removal filter (AMF series), or activated carbon filter (AMK series), etc., for the source of the air for the HF2-BF series.

3) Use a compressed air purity class for the inlet side of the HF2-BF series of a grade that satisfies ISO 8573-1:2010 [1:4:1].

**6. Using a flow rate which exceeds the product specifications could result in a differential pressure which exceeds what the product can resist.**

Use the product within its specifications. Also, be sure to replace the product when needed, taking into consideration that the differential pressure of the filter will increase over time.

### Selection

#### Warning

**1. Do not select a model which exceeds the specification ranges, and be sure to carefully consider the purpose of use, required specifications, and operating conditions, such as fluid, pressure, flow rate, nominal filtration rating, and environment.**

**2. The HF2-BF series is not certified under the Japan High Pressure Gas Safety Act, so for fluids other than air, its max. operating pressure will be 0.99 MPa (gauge pressure).**

**3. The HF2-BF series is provided for use in manufacturing industries. Please contact us beforehand if the product will be used in applications such as caisson shields, breathing, food (other than for air blow), and/or medical treatment that affects the human body directly or indirectly.**

**4. The antibacterial effect of the HF2-BFA and HF2-BFB series is only achieved when the bacteria come in contact with the element surface. If the fiber surface is covered with drain or any other substance, this effect cannot occur. The antibacterial activation value is obtained through the antibacterial performance test method and is based on the antibacterial effect (JIS L 1902) of the fiber product.**

**5. The HF2-BFC series adsorbs the oil vapor contained in compressed air and removes the odor derived from it, but it does not remove all odor.**

**6. The HF2-BFD series removes and reduces bacteria contained in the compressed air. Bacteria removal refers to the effect of reducing bacteria. It does not mean that all bacteria are eliminated. The product does not eliminate viruses. LRV (Log Reduction Value) is a mathematical representation that was obtained from a test (evaluation based on JIS K 3835) using test bacteria (Brevundimonas diminuta).**



# HF2-BF Series

## Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For air preparation equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

### Selection

#### ⚠ Warning

- The HF2-BF series does not adhere to the sanitation control procedures required for use in food or medical industries.  
The line that manufactures parts used in the HF2-BF series also uses other materials. In rare cases, some of these materials can be found as a residue.
- Do not use compressed air that includes ozone since it may damage the product or cause a malfunction.

### Mounting

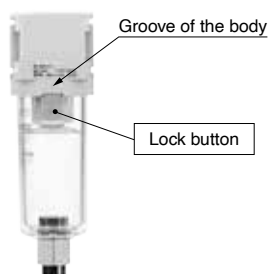
#### ⚠ Warning

- Connect the product according to the “1” (IN) and “2” (OUT) indications or the arrows for air direction. Incorrect connection may result in a malfunction.
- Install with adequate space for maintenance beneath the product. Refer to the dimensions of each part for the necessary amount of space.
- Install vertically so that the drain outlet turns downward.
- Flush the piping line before using the product for the first time and after it has been replaced. Also, if piping, etc., is to be connected, flush (air blow) before using this product for the first time and after the element has been replaced in order to reduce the effects of the dust generated from the connection, etc. Flushing the line is also required to eliminate contamination resulting from the installation of piping lines. Therefore, be sure to flush the line before running the system. Make sure all mounting parts are secure before use.

### Piping

#### ⚠ Caution

- When installing the bowl of the HF2-BF series, install it so that the lock button lines up to the groove of the front (or the back) of the body. Failure to do so may cause the bowl to fall off or break.



### Piping

#### ⚠ Caution

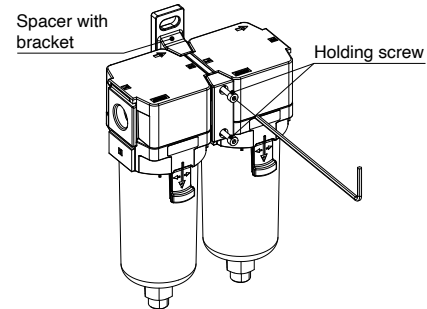
- Tighten the 2 holding screws on the spacer with bracket or spacer evenly.

Tighten them to the recommended tightening torque. Insufficient tightening torque may result in loosening or sealing failure. Excessive tightening torque may damage the thread, etc.

#### Recommended Torque

Unit: N·m

Applicable model	HF2-BFA30 HF2-BFB30 HF2-BFC30 HF2-BFD30	HF2-BFA40 HF2-BFB40 HF2-BFC40 HF2-BFD40
Spacer with bracket part number	HF2-BY300T	HF2-BY400T
Spacer part number	HF2-BY300	HF2-BY400
Torque	1.2 ±0.05	1.2 ±0.05



#### ⚠ Warning

- Piping load and moment

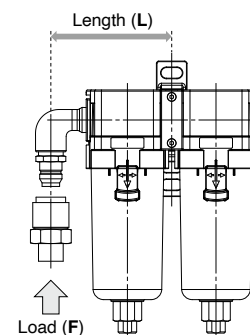
Avoid any torsional or bending moments other than those caused by the equipment's own weight as failure to do so may result in damage. Support external piping separately. If moment application is unavoidable during operation, the moment should be lower than the max. moment shown below.

Piping materials without flexibility, such as steel tube piping, are prone to being affected by excess moment loads or vibrations from the piping side. Use flexible tubing in between to avoid such effects.

Unit: N·m

Applicable model	HF2-BFA30 HF2-BFB30 HF2-BFC30 HF2-BFD30	HF2-BFA40 HF2-BFB40 HF2-BFC40 HF2-BFD40
Max. moment (M)	16	19.5

$$\text{Max. moment (M)} = \text{Length (L)} \times \text{Load (F)}$$





## HF2-BF□ Series

# Specific Product Precautions 3

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For air preparation equipment precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website.

### Piping

#### Warning

2. **Connect piping/fittings using the recommended torque while holding the female thread side tightly.**

Insufficient tightening torque can result in loose piping or sealing failure. Over tightening may break the thread. If the female side is not held while tightening, excessive force will be applied to the bracket directly, resulting in breakage.

#### Recommended Tightening Torque

Unit: N·m

Connection thread	1/8	1/4	3/8	1/2
Torque	7 to 9	12 to 14	22 to 24	28 to 30

3. **When an SMC One-touch fitting is used, refer to the Operation Manual for the One-touch fitting.**

### Maintenance

#### Warning

1. **Perform maintenance and inspection according to the procedures indicated in the Operation Manual. If handled improperly, malfunction or damage of machinery and equipment may occur.**
2. **When removing the product, exhaust the air and ensure the air is released to atmosphere before removing it.**
3. **Replace the element according to the replacement timing explained below. Failure to do so may result in element breakage.**
  - a. **HF2-BFA, HF2-BFB, HF2-BFD**  
Within 1 year from the start of use or prior to a product pressure drop (difference in outlet pressure in relation to the inlet pressure) of 0.1 MPa
  - b. **HF2-BFC (Odor removal filter)**  
1 year from the start of use or before the service life reaches 2000 hours (The replacement timing of the element varies depending on the operating conditions. Even before the above replacement timing is reached, if an oil smell is emitted from the outlet, replace the element periodically thereafter.)

### Operating Environment

#### Warning

1. **Do not operate under the conditions listed below due to a risk of malfunction.**

In locations containing corrosive gases, organic solvents, and chemical solutions, or in locations in which these elements are likely to adhere to the equipment

In locations in which sea water, water, or water steam could come in contact with the equipment

In locations that are exposed to direct sunlight (Shield the equipment from sunlight to prevent its resin material from ultraviolet ray degradation or overheating.)

In locations that have a heat source and poor ventilation (Shield the equipment from heat sources to protect it from softening degradation due to radiated heat.)

In locations that are exposed to shocks and vibrations


In locations with high humidity or large amounts of dust


2. **When the product is used for blowing, use caution to prevent the workpiece from being damaged by entrained air from the surrounding area.**


If compressed air is used for air blow, compressed air blowing out from the blow nozzle may entrain foreign matter (solid particles and liquid particles) floating in the ambient air, blowing it against the workpieces and causing adhesion. Therefore, sufficient precautions must be taken about the ambient environment.

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1, and other safety regulations.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger:** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

\*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots – Safety.  
etc.

### Warning

#### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

#### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

### Caution

#### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.  
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.  
If anything is unclear, contact your nearest sales branch.

### Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

#### Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)  
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.  
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

##### \*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.  
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.


#### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

### Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

 **Safety Instructions** Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.



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All reasonable efforts to ensure the accuracy of the information detailed in this catalog were made at the time of publishing. However, SMC can in no way warrant the information herein contained as specifications are subject to change without notice.

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