

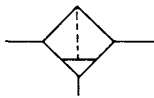
Air Filter

AF10 to AF60

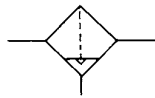


JIS Symbol

Air Filter



Air Filter with Auto Drain



How to Order

AF **30** - **03** **BD** - **2R** - **2R**

① ② ③ ④ ⑤

Made to Order

(Refer to page 334 through to 336 for details.)

- Option/Semi-standard: Select one each for a to f.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AF30-03BD-2R

	Symbol	Description	① Body size							
			10	20	30	40	50	60		
② Thread type	Nil	Metric thread (M5)	●	—	—	—	—	—		
	N <small>Note 1)</small>	Rc	—	●	●	●	●	●		
	F <small>Note 2)</small>	NPT	—	●	●	●	●	●		
		G	—	●	●	●	●	●		
③ Port size	+									
	M5	M5	●	—	—	—	—	—		
	01	1/8	—	●	—	—	—	—		
	02	1/4	—	●	●	—	—	—		
	03	3/8	—	—	●	●	—	—		
	04	1/2	—	—	—	●	—	—		
	06	3/4	—	—	—	●	●	—		
10	1	—	—	—	—	●	●			
④ Option	+									
	a	Mounting	Nil	Without mounting option	●	●	●	●	●	●
	B <small>Note 3)</small>	With bracket	—	●	●	●	●	●	●	
	+									
b	Float type auto drain	Nil	Without auto drain	●	●	●	●	●	●	
C	Float type auto drain (N.C.)	●	●	●	●	●	●	●		
D	Float type auto drain (N.O.)	—	—	●	●	●	●	●		
⑤ Semi-standard	+									
	c	Bowl <small>Note 4)</small>	Nil	Polycarbonate bowl	●	●	●	●	●	●
			2	Metal bowl	●	●	●	●	●	●
			6	Nylon bowl	●	●	●	●	●	●
			8	Metal bowl with level gauge	—	—	●	●	●	●
			C	With bowl guard	—	●	—	—	—	—
			6C	Nylon bowl with bowl guard	—	●	—	—	—	—
	+									
	d	Drain port <small>Note 5)</small>	Nil	With drain cock	●	●	●	●	●	●
			J <small>Note 6)</small>	Drain guide 1/8	—	●	—	—	—	—
			W <small>Note 7)</small>	Drain cock with barb fitting: For ø6 x ø4 nylon tube	—	—	●	●	●	●
	+									
e	Flow direction	Nil	Flow direction: Left to right	●	●	●	●	●	●	
		R	Flow direction: Right to left	●	●	●	●	●	●	
+										
f	Pressure unit	Nil	Name plate and caution plate for bowl in imperial units: MPa	●	●	●	●	●	●	
		Z <small>Note 8)</small>	Name plate and caution plate for bowl in imperial units: psi, °F	○ <small>Note 9)</small>	○ <small>Note 9)</small>	○ <small>Note 9)</small>	○ <small>Note 9)</small>	○ <small>Note 9)</small>	○ <small>Note 9)</small>	

Note 1) Drain guide is NPT1/8 (applicable to the AF20) and NPT1/4 (applicable to the AF30 to AF60). The auto drain port comes with ø3/8" one-touch fitting (applicable to the AF30 to AF60).

Note 2) Drain guide is G1/8 (applicable to the AF20) and G1/4 (applicable to the AF30 to AF60).

Note 3) A bracket is not assembled and supplied loose at the time of shipment. Including 2 mounting screws

Note 4) Refer to Chemical Data on page 287 when selecting a case material.

Note 5) Float type auto drain: The combination of C and D is not possible.

Note 6) Without a valve function

Note 7) Metal bowl: The combination of 2 and 8 is not possible.

Note 8) For thread type: M5 and NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Note 9) ○: For thread type: M5 and NPT only

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Air Filter Series AF10 to AF60

Standard Specifications

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	M5 x 0.8	1/8, 1/4	1/4, 3/8	1/4, 3/8, 1/2	3/4	3/4, 1	1
Fluid	Air						
Ambient and fluid temperature	-5 to 60°C (with no freezing)						
Proof pressure	1.5 MPa						
Maximum operating pressure	1.0 MPa						
Nominal filtration rating	5 µm						
Drain capacity (cm ³)	2.5	8	25	45			
Bowl material	Polycarbonate						
Bowl guard	—	Semi-standard	Standard				
Mass (kg)	0.06	0.18	0.22	0.45	0.49	0.99	1.05

Options/Part No.

Optional specifications		Model						
		AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Bracket assembly ^{Note 1)}		—	AF20P-050AS	AF30P-050AS	AF40P-050AS	AF40P-070AS	AF50P-050AS	AF50P-050AS
Float type auto drain ^{Note 2) Note 3)}	N.C.	AD17	AD27	AD37	AD47			
	N.O.	—	—	AD38	AD48			

Semi-standard/Bowl Assembly Part No.

Semi-standard specifications						Model						
Bowl material	^{Note 2) Note 3)} Float type auto drain		^{Note 3)} With drain guide	With barb fitting	With bowl guard	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
	N.C.	N.O.										
Polycarbonate	—	—	—	—	●	—	C2SF-C	—	—			
	●	—	—	—	●	—	AD27-C	—	—			
	—	—	●	—	—	—	C2SF-J	C3SF-J	C4SF-J			
	—	—	—	●	—	—	—	C3SF-W	C4SF-W			
	—	—	●	—	●	—	C2SF-CJ	—	—			
Nylon	—	—	—	—	—	C1SF-6	C2SF-6	C3SF-6	C4SF-6			
	—	—	—	—	●	—	C2SF-6C	—	—			
	●	—	—	—	—	AD17-6	AD27-6	AD37-6	AD47-6			
	—	●	—	—	—	—	—	AD38-6	AD48-6			
	●	—	—	—	●	—	AD27-6C	—	—			
	—	—	●	—	—	—	C2SF-6J	C3SF-6J	C4SF-6J			
	—	—	—	●	—	—	—	C3SF-6W	C4SF-6W			
Metal	—	—	—	—	—	C1SF-2	C2SF-2	C3SF-2	C4SF-2			
	●	—	—	—	—	AD17-2	AD27-2	AD37-2	AD47-2			
	—	●	—	—	—	—	—	AD38-2	AD48-2			
	—	—	●	—	—	—	C2SF-2J	C3SF-2J	C4SF-2J			
	—	—	—	●	—	—	—	—	—			
Metal bowl with level gauge	—	—	—	—	—	—	—	C3LF-8	C4LF-8			
	●	—	—	—	—	—	—	AD37-8	AD47-8			
	—	●	—	—	—	—	—	AD38-8	AD48-8			
	—	—	●	—	—	—	—	C3LF-8J	C4LF-8J			

Note 1) Assembly of a bracket and 2 mounting screws

Note 2) Minimum operating pressure: N.O. type—0.1 MPa; N.C. type—0.1 MPa (AD17/27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.

Note 3) Please consult with SMC for details on drain piping to fit NPT or G port sizes.

Note) • Bowl O-ring is included for the AF20 to AF60.

• Bowl assembly for the AF30 to AF60 models comes with a bowl guard (steel band material). (except when the bowl material is metal)

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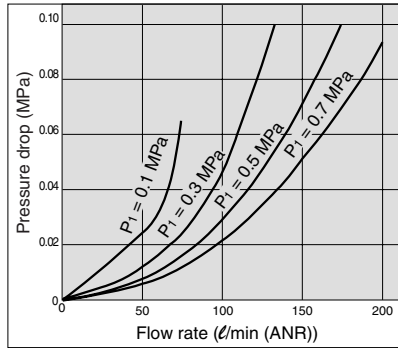
AF800

AF900

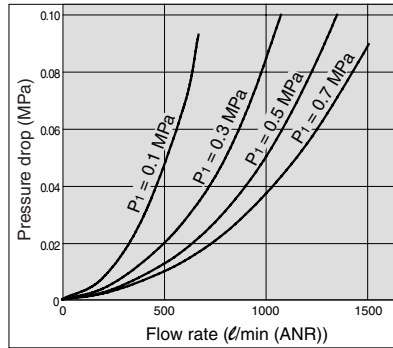
Series AF10 to AF60

Flow Characteristics (Representative values)

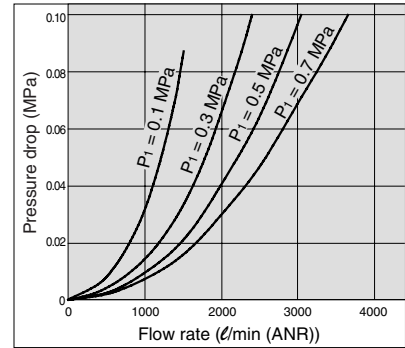
AF10 M5



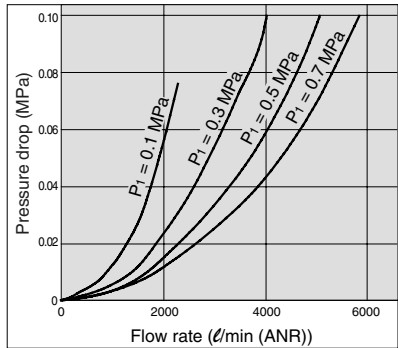
AF20 Rc1/4



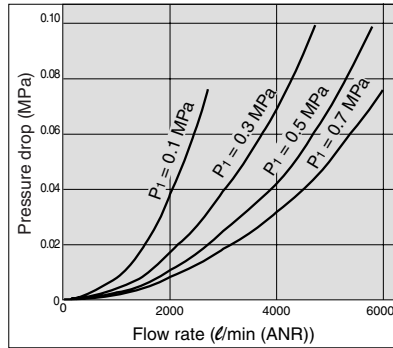
AF30 Rc3/8



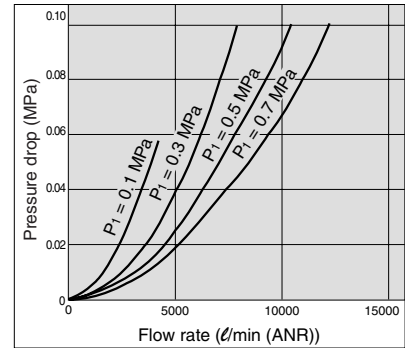
AF40 Rc1/2



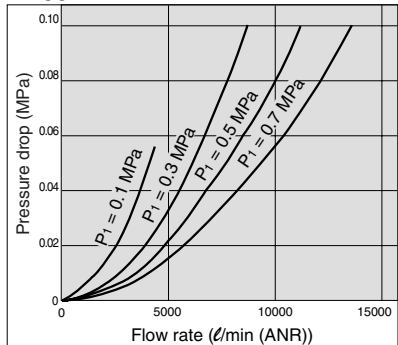
AF40-06 Rc3/4



AF50 Rc1



AF60 Rc1



⚠ Specific Product Precautions

- Be sure to read before handling.
- Refer to front matters 42 and 43 for Safety Instructions and pages 287 to 291 for F.R.L. Precautions.

Mounting and Adjustment

⚠ Warning

1. Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

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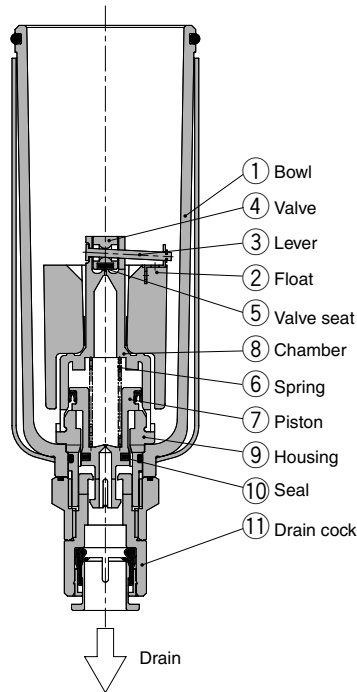
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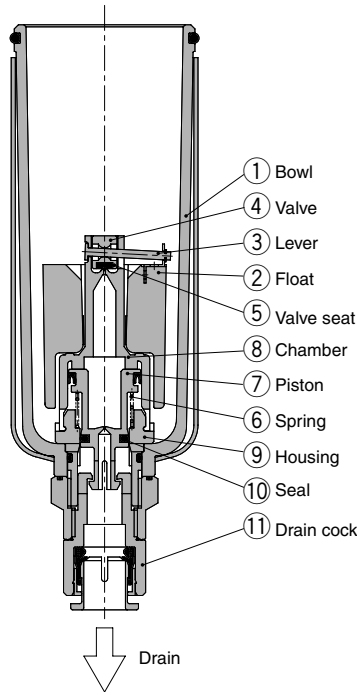
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Working Principle: Float Type Auto Drain

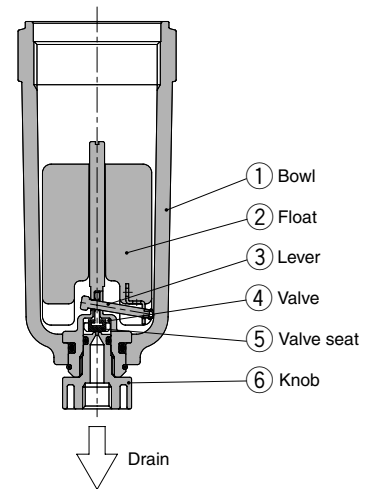
N.O. type: AD38, AD48



N.C. type: AD37, AD47



Compact auto drain
N.C. type: AD17, AD27



• When pressure inside the bowl is released:

When pressure is released from the bowl ①, piston ⑦ is lowered by spring ⑥. The sealing action of seal ⑩ is interrupted, and the outside air flows inside the bowl ① through housing hole ⑨ and drain cock ⑪. Therefore, if there is an accumulation of condensate in the bowl ①, it will drain out through the drain cock.

• When pressure is applied inside the bowl:

When pressure exceeds 0.1 MPa, the force of piston ⑦ surpasses the force of spring ⑥, and the piston goes up. This pushes seal ⑩ up so that it creates a seal, and the inside of the bowl ①, is shut off from the outside air. If there is no accumulation of condensate in the bowl ① at this time, float ② will be pulled down by its own weight, causing valve ④, which is connected to lever ③, to seal valve seat ⑤.

• When there is an accumulation of condensate in the bowl:

Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat ⑤. This allows the pressure inside the bowl ① to enter the chamber ⑧. The result is that the combined pressure inside chamber ⑧ and the force of the spring ⑥ lowers the piston ⑦. This causes the sealing action of seal ⑩ to be interrupted, and the accumulated condensate in the bowl ① drains out through the drain cock ⑪. Turning drain cock ⑪ manually counterclockwise lowers piston ⑦, which pushes open the seal created by seal ⑩, thus allowing the condensate to drain out.

• When pressure inside the bowl is released:

Even when pressure inside the bowl ① is released, spring ⑥ keeps piston ⑦ in its upward position. This keeps the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air. Therefore, even if there is an accumulation of condensate in the bowl ①, it will not drain out.

• When pressure is applied inside the bowl:

Even when pressure is applied inside the bowl ①, the combined force of spring ⑥ and the pressure inside the bowl ① keeps piston ⑦ in its upward position. This maintains the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air. If there is no accumulation of condensate in the bowl ① at this time float ② will be pulled down by its own weight, causing valve ④, which is connected to lever ③, to seal valve seat ⑤.

• When there is an accumulation of condensate in the bowl:

Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat ⑤. Pressure passes from the bowl ① to chamber ⑧. The result is that the pressure inside chamber ⑧ surpasses the force of the spring ⑥ and pushes piston ⑦ downwards. This causes the sealing action of seal ⑩ to be interrupted and the accumulated condensate in the bowl ① drains out through the drain cock ⑪. Turning drain cock ⑪ manually counterclockwise lowers piston ⑦, which pushes open the seal created by seal ⑩, thus allowing the condensate to drain out.

• When pressure inside the bowl is released:

Even when pressure inside the bowl ① is released, the weight of the float ② causes valve ④, which is connected to lever ③, to seal valve seat ⑤. As a result, the inside of the bowl ① is shut off from the outside air. Therefore, even if there is an accumulation of condensate in the bowl ①, it will not drain out.

• When pressure is applied inside the bowl:

Even when pressure is applied inside the bowl ①, the weight of the float ② and the differential pressure that is applied to valve ④ cause valve ④ to seal valve seat ⑤, and the outside air is shut off from the inside of the bowl ①.

• When the drain is accumulated in the bowl:

Float ② rises due to its own buoyancy and the seal at valve seat ⑤ is interrupted. The condensate inside the bowl ① drains out through the knob ⑥. Turning knob ⑥ manually counterclockwise lowers it and causes the sealing action of valve seat ⑤ to be interrupted, which allows the condensate to drain out.

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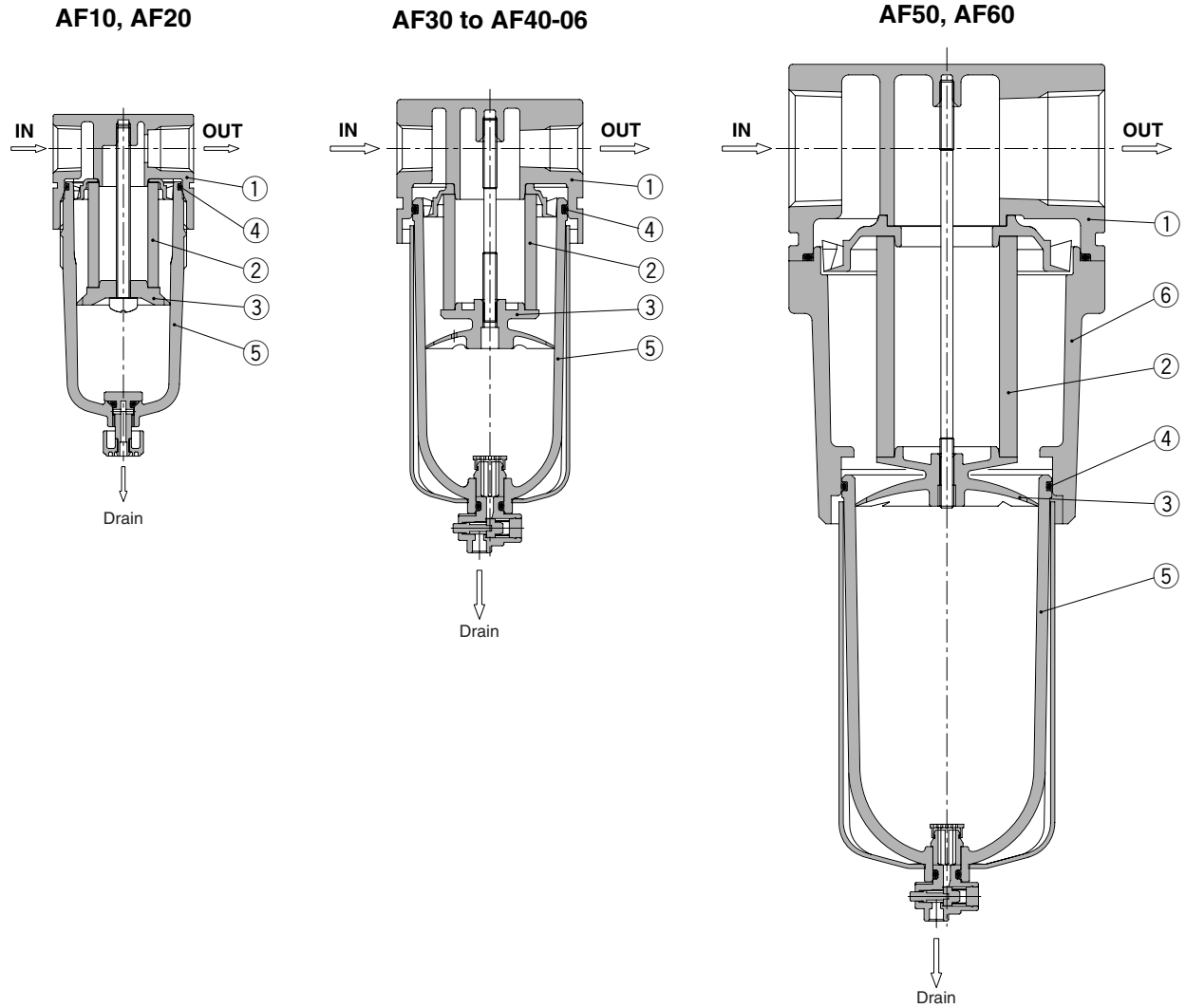
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Series AF10 to AF60

Construction



Component Parts

No.	Description	Material	Model	Color
1	Body	Zinc die-cast	AF10, AF20	Platinum silver
		Aluminum die-cast	AF30 to AF60	
6	Housing	Aluminum die-cast	AF50, AF60	Platinum silver

Replacement Parts

No.	Description	Material	Part no.						
			AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
2	Filter element	Non-woven fabric	AF10P-060S	AF20P-060S	AF30P-060S	AF40P-060S		AF50P-060S	AF60P-060S
3	Baffle	PBT	AF10P-040S ^{Note 1)}	AF20P-040S	AF30P-040S	AF40P-040S		AF50P-040S	AF60P-040S
4	Bowl O-ring	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S			
5	Bowl assembly ^{Note 2)}	Polycarbonate	C1SF	C2SF	C3SF ^{Note 3)}	C4SF ^{Note 3)}			

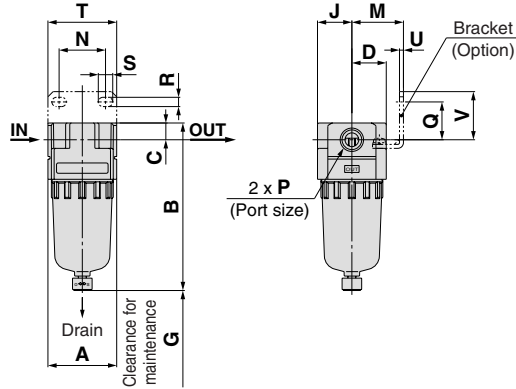
Note 1) The material of the baffle for the AF10 (AF10P-040S) only is polyacetal.

Note 2) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.

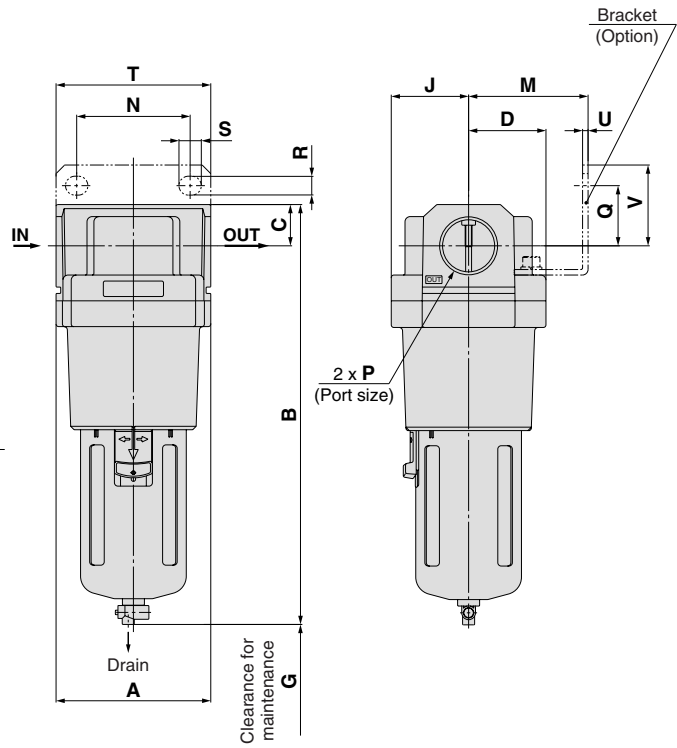
Note 3) Bowl assembly for the AF30 to AF60 models comes with a bowl guard (steel band material).

Dimensions

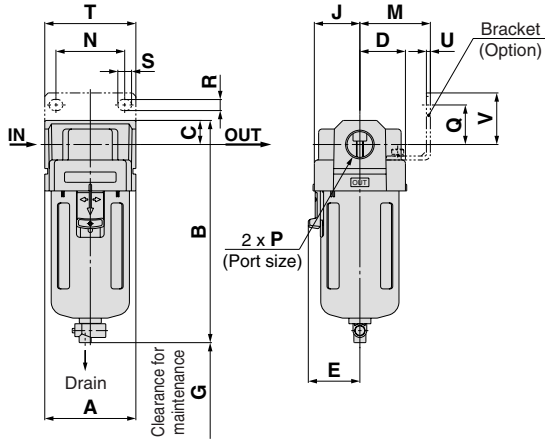
AF10, AF20



AF50, AF60



AF30 to AF40-06



Applicable model Optional/Semi-standard specifications	AF10/20		AF20	AF30 to AF60				
	With auto drain (N.C.)	Metal bowl	With drain guide	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Dimensions	B M5 x 0.8	B	B 1/8 Width across flats 14	B N.O.: Black N.C.: Gray ø10 one-touch fitting	B	B	B 1/4 Width across flats 17	B Barb fitting Applicable tubing: T0604

Model	Standard specifications							Optional specifications									
								Bracket mount						With auto drain			
	P	A	B	C	D	E	G	J	M	N	Q	R	S	T	U	V	B
AF10	M5 x 0.8	25	67	7	12.5	—	25	12.5	—	—	—	—	—	—	—	—	85
AF20	1/8, 1/4	40	97	10	20	—	40	20	30	27	22	5.4	8.4	40	2.3	28	115
AF30	1/4, 3/8	53	129	14	26.5	30	50	26.5	41	40	23	6.5	8	53	2.3	30	170
AF40	1/4, 3/8, 1/2	70	165	18	35	38	75	35	50	54	26	8.5	10.5	70	2.3	35	204
AF40-06	3/4	75	169	20	35	38	75	35	50	54	25	8.5	10.5	70	2.3	34	208
AF50	3/4, 1	90	245	24	45	—	20	45	70	66	35	11	13	90	3.2	47	284
AF60	1	95	258	24	47.5	—	20	47.5	70	66	35	11	13	90	3.2	47	297

Model	Semi-standard specifications			
	With barb fitting	With drain guide	Metal bowl	Metal bowl with level gauge
	B	B	B	B
AF10	—	—	66	—
AF20	—	101	97	—
AF30	137	136	142	162
AF40	173	172	178	198
AF40-06	177	176	182	202
AF50	253	252	258	278
AF60	266	265	271	291

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