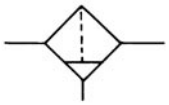
Modular Type
Air Filters
Series AF

	Model	Port size	Filtration (μm)	Options
Air Filter Series AF  **Page 29 through to 37**	**AF10**	M5	5	Bracket Float type auto drain
	AF20	1/8, 1/4		
	AF30	1/4, 3/8		
	AF40	1/4, 3/8, 1/2		
	AF40-06	3/4		
	AF50	3/4, 1		
	AF60	1		
Mist Separator Series AFM  **Page 39 through to 45**	**AFM20**	1/8, 1/4	0.3	Bracket Float type auto drain
	AFM30	1/4, 3/8		
	AFM40	1/4, 3/8, 1/2		
	AFM40-06	3/4		
Micro Mist Separator Series AFD  **Page 39 through to 45**	**AFD20**	1/8, 1/4	0.01	Bracket Float type auto drain
	AFD30	1/4, 3/8		
	AFD40	1/4, 3/8, 1/2		
	AFD40-06	3/4		

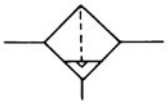
Air Filter
AF10 to AF60

JIS Symbol

Air Filter



Air Filter with Auto Drain



AF20

AF40

How to Order

AF **30** – ❶ **03** **BD** – ❹ – ❺

❶ ❷ ❸ ❹ ❺

Made to Order

(Refer to page 35 through to 37 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 ascending alphanumeric order.

Example) AF30-03BD-2R

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

Note 1) Drain guide is NPT1/8 (applicable to the AF20) and NPT1/4 (applicable to the AF30 and AF60). The auto drain port comes with a 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) Float type auto drain: The combination between C or D is not available with the drain port option.

Note 5) Without a valve function

Note 6) Metal bowl: The combination of 2 and 8 cannot be selected with W.

Note 7) 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 8) ○: For thread type: M5 and NPT only.

Standard Specifications

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port size	M5	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 (cm³)	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			

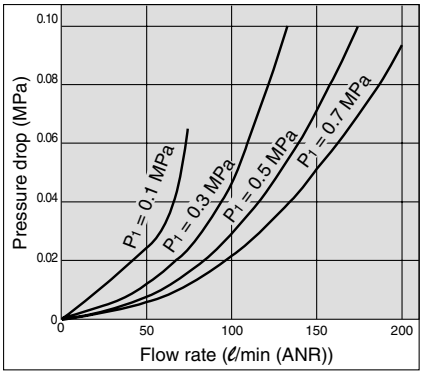
Semi-standard/Bowl Assembly Part No.

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			
	—	—	●	—	●	—	C2SF-6CJ	—	—			
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			

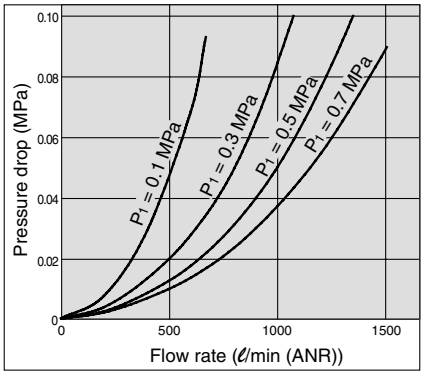
Note 1) Assembly of a bracket and 2 mounting screws
Note 2) Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD17/27) and 0.15 MPa (AD37/47). Please contact SMC for psi and °F unit specifications.
Note 3) Please consult SMC for details on drain piping to fit NPT or G port sizes.
Note) • 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)

Flow Characteristics (Representative values)

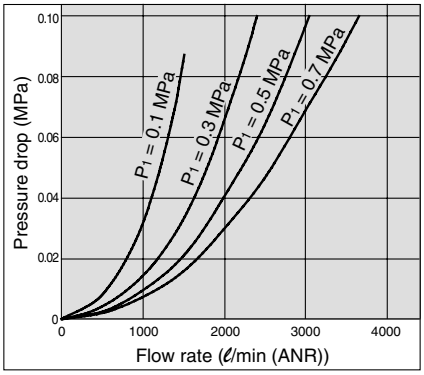
AF10 M5



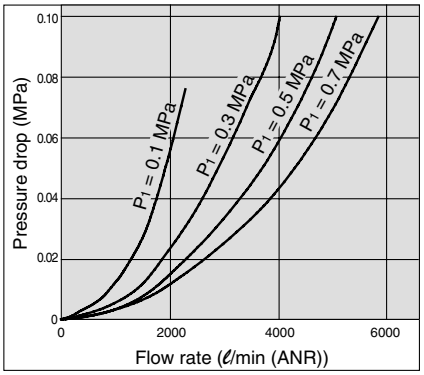
AF20 Rc1/4



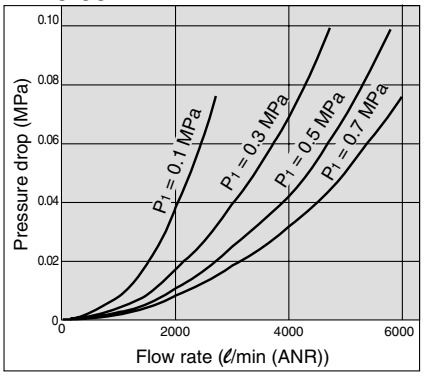
AF30 Rc3/8



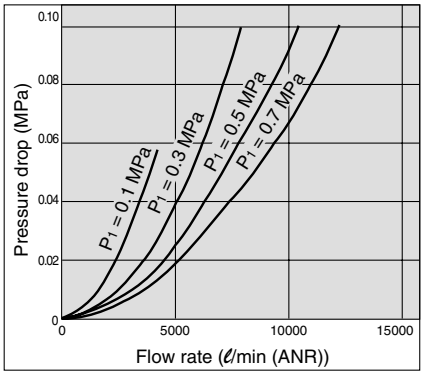
AF40 Rc1/2



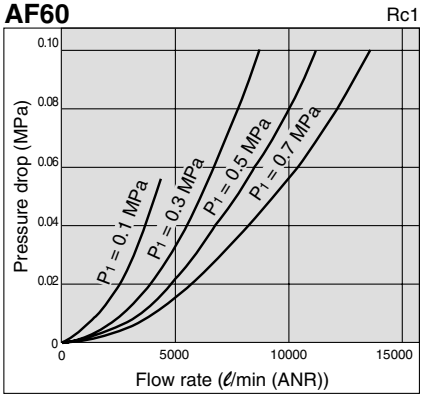
AF40-06 Rc3/4



AF50 Rc1



AF60 Rc1



⚠ Specific Product Precautions

Be sure to read this before handling. Refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A) for Safety Instructions and F.R.L. Units Precautions.

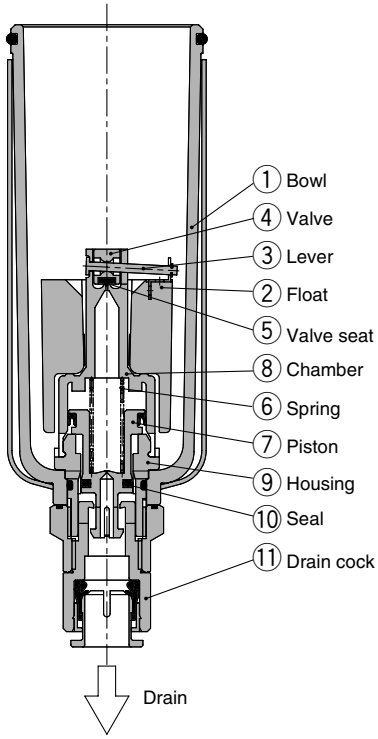
Mounting and Adjustment

⚠ 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.

Working Principle: Float Type Auto Drain

N.O. type: AD38, AD48



- **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.

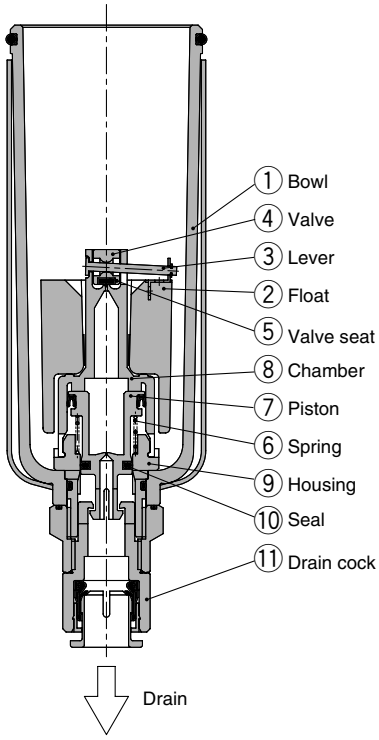
- **When pressure is applied inside the bowl:**

  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.

N.C. type: AD37, AD47



- **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.

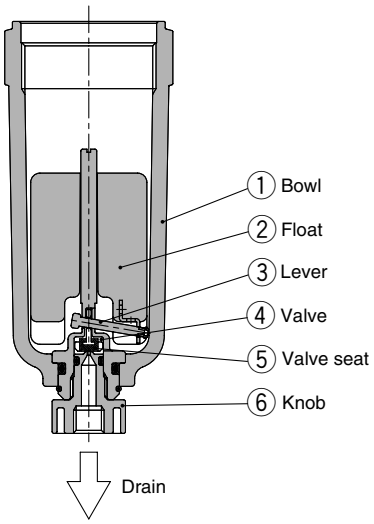
- **When pressure is applied inside the bowl:**

  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 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.

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



- **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:**

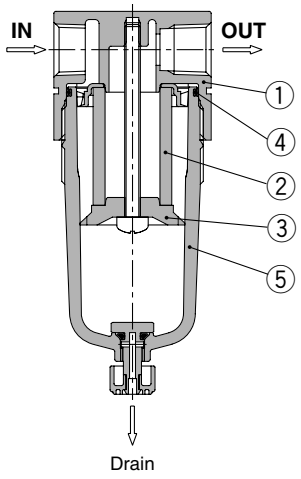
  Even when pressure is applied inside the bowl ①, the weight of the float ② and the differential pressure that is applied to valve ④ cause valve ④ to seal valve seat ⑤, and the outside air is shut off from the inside of the bowl ①.

- **When there is an accumulation of condensate in the bowl:**

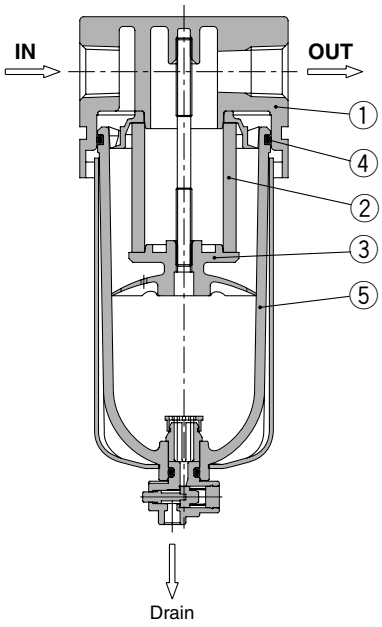
  Float ② rises due to its own buoyancy and the seal at valve seat ⑤ is interrupted.
  The condensate inside the bowl ① drains out through the knob ⑥.
  Turning knob ⑥ manually counterclockwise lowers it and causes the sealing action of valve seat ⑤ to be interrupted, which allows the condensate to drain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

Construction

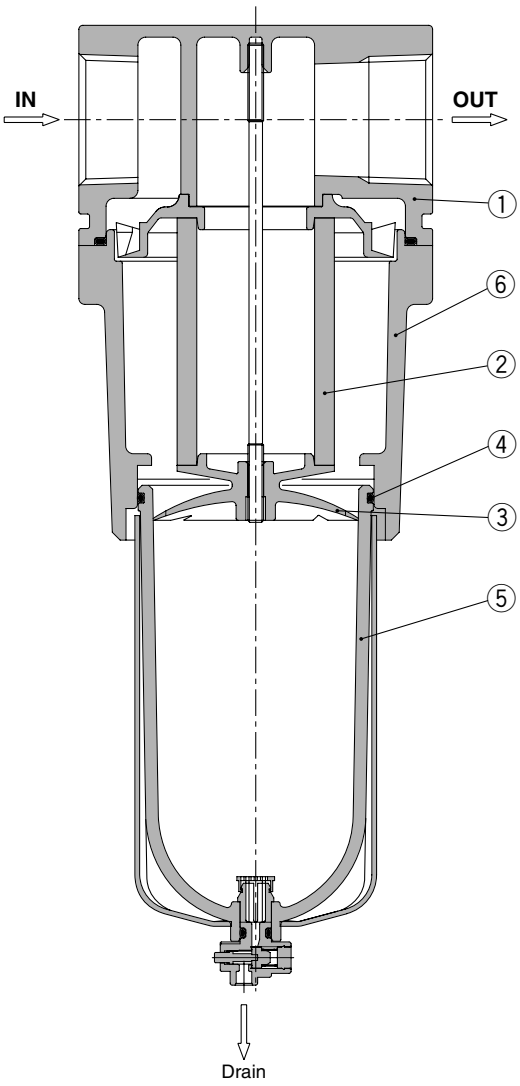
AF10, AF20



AF30 to AF40-06



AF50, AF60



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

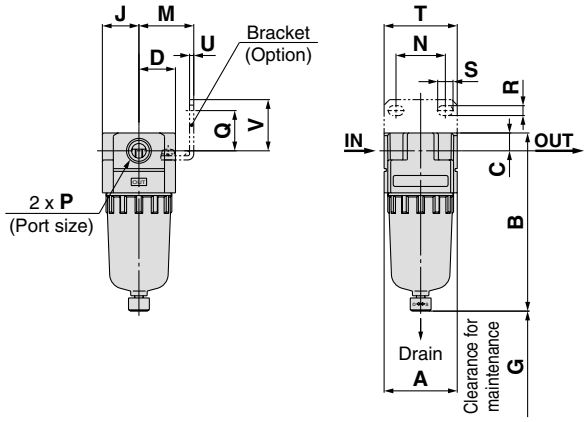
Replacement Parts

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)			

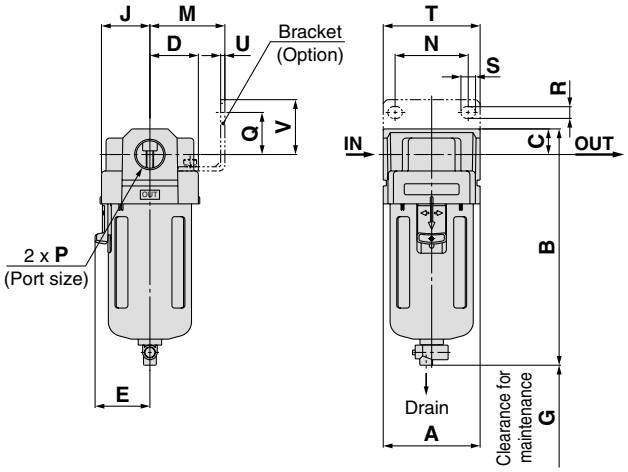
Note 1) The material of the baffle for the AF10 (AF10P-040S) only is polyacetal.
Note 2) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.
Note 3) Bowl assembly for the AF30 to AF60 models comes with a bowl guard (steel band material).

Dimensions

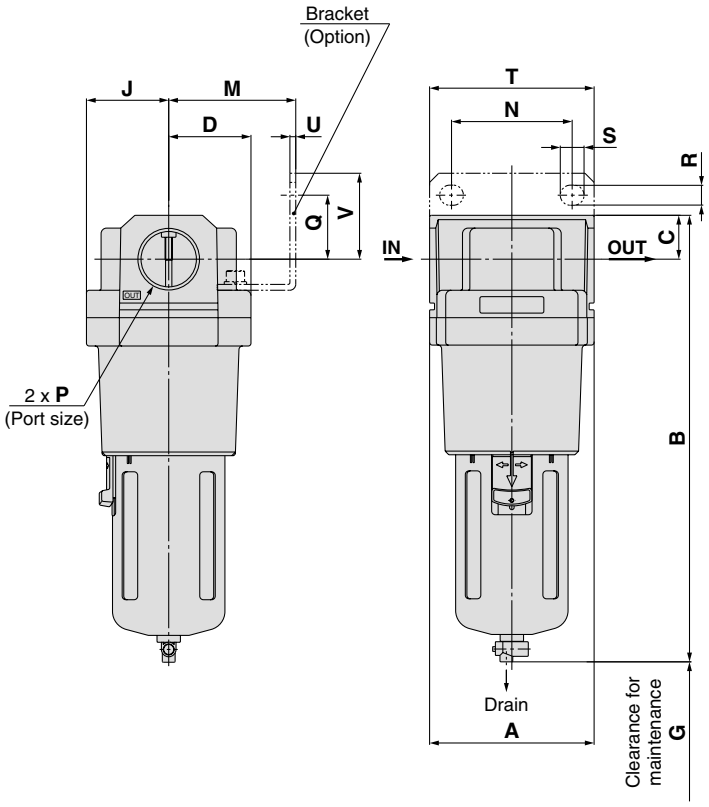
AF10, AF20

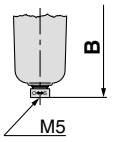
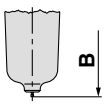
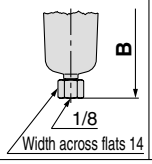
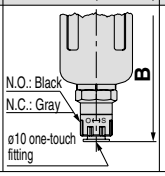
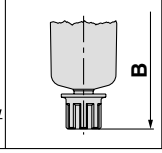
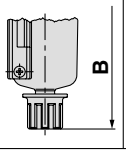
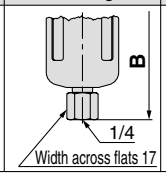
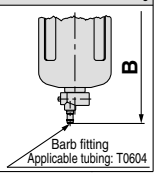


AF30 to AF40-06



AF50, AF60



Applicable model	AF10/20		AF20	AF30 to AF60				
Optional/Semi-standard specifications	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								

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	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