Air Filter
AF10 to 60

How to Order

AF 30 – F 03 BD – 2R

- AF: Air filter
- 30: Body size
- F: Thread type
- 03: Port size
- BD: Accessories
- 2R: Optional specifications

Body size

10	20	30	40	50	60

Thread type

Nil	Metric thread (M5)
	Rc
N Note 1)	NPT
F Note 2)	G

Port size

Symbol	Port size	Body size					
		10	20	30	40	50	60
M5	M5	●	—	—	—	—	—
01	1/8	—	●	—	—	—	—
02	1/4	—	●	●	●	—	—
03	3/8	—	—	●	●	—	—
04	1/2	—	—	—	●	—	—
06	3/4	—	—	—	●	●	—
10	1	—	—	—	—	●	●

Note 1) Drain guide is NPT1/4 (applicable to AF30 to 60), and the exhaust port for auto drain comes with ø3/8" One-touch fitting (applicable to AF30 to 60).

Note 2) Drain guide is G1/4 (applicable to AF30 to 60).

Accessories

Symbol	Description	Applicable model
Nil	—	—
B Note 3)	With bracket	AF20 to 60
C	Float type Note 4) auto drain (N.C.)	AF10 to 60
D	Float type Note 4) auto drain (N.O.)	AF30 to 60

Note 3) Bracket is not assembled and is supplied loose at the time of shipment.

Note 4) Applicable tube O.D for auto drain connection should be ø3/8" in case NPT thread port is chosen.

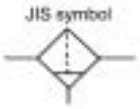
Optional specifications

Symbol	Description	Applicable model
2	Metal bowl	AF10 to 60
6	Nylon bowl	AF10 to 60
8	Metal bowl with level gauge	AF30 to 60
C	With bowl guard	AF20
J Note 5)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF10 to 60
W	Drain cock with barb fitting: ø6 x ø4 nylon tubing	AF30 to 60
Z Note 6)	Name plate and caution plate for bowl in imperial units (PSI, °F)	AF10 to 60

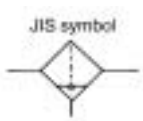
∗ When more than one specification is required, indicate in ascending alphanumeric order.

Note 5) Without a valve function.

Note 6) This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)



With auto drain



Made to Order

Page 28

Accessory/Optional specification combinations

◎: Combination available ○: Varies depending on the model △: Available only with NPT thread ▒: Combination not available

Accessory/Optional specifications \ Combination		Symbol	Accessory			Optional specification								Applicable filter		
			B	C	D	2	6	8	C	J	R	W	Z	AF10	AF20	AF30 to 60
Accessories	**With bracket**	**B**	▒	◎	○	◎	◎	○	○	○	◎	○	△	▒	◎	◎
	Float type auto drain (N.C.)	**C**	○	▒	▒	◎	◎	○	○	▒	◎	▒	△	◎	◎	◎
	Float type auto drain (N.O.)	**D**	◎	▒	▒	◎	◎	◎	▒	▒	◎	▒	△	▒	▒	◎
Optional specifications	**Metal bowl**	**–2**	○	◎	○	▒	▒	▒	▒	○	◎	▒	△	◎	◎	◎
	Nylon bowl	**–6**	○	◎	○	▒	▒	▒	○	○	◎	○	△	◎	◎	◎
	Metal bowl with level gauge	**–8**	◎	◎	◎	▒	▒	▒	▒	◎	◎	▒	△	▒	▒	◎
	With bowl guard	**–C**	◎	◎	▒	▒	◎	▒	▒	▒	◎	▒	△	▒	◎	▒
	Drain guide 1/4	**–J**	◎	▒	▒	◎	◎	◎	▒	▒	◎	▒	△	▒	▒	◎
	Flow direction: Right to left	**–R**	○	◎	○	◎	◎	○	○	○	▒	○	△	◎	◎	◎
	Drain cock with barb fitting: ø6 x ø4 nylon tubing	**–W**	◎	▒	▒	▒	◎	▒	▒	▒	◎	▒	△	▒	▒	◎
	Name plate and caution plate for bowl in imperial units (PSI, °F)	**–Z**	△	△	△	△	△	△	△	△	△	△	▒	△	△	△

Standard specifications

Model	AF10	AF20	AF30	AF40	AF40-06	AF50	AF60
Port sizes	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						
Proof pressure	1.5MPa						
Maximum operating pressure	1.0MPa						
Ambient and fluid temperature	–5 to 60°C (with no freezing)						
Nominal filtration rating	5μm						
Bowl material	Polycarbonate						
Bowl guard	—	Option	Standard				
Drain capacity (cm³)	2.5	8	25	45	45	45	45
Weight (kg)	0.06	0.18	0.22	0.45	0.49	0.99	1.05

Accessory part no.

Accessory \ Applicable 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)	**N.O.**	—	—	AD38 / AD38N Note 3)	AD48 / AD48N Note 3)	AD48 / AD48N Note 3)	AD48 / AD48N Note 3)	AD48 / AD48N Note 3)
	N.C.	AD17	AD27	AD37 / AD37N Note 3)	AD47 / AD47N Note 3)	AD47 / AD47N Note 3)	AD47 / AD47N Note 3)	AD47 / AD47N Note 3)

Note 1) Assembly includes a bracket and 2 mounting screws.

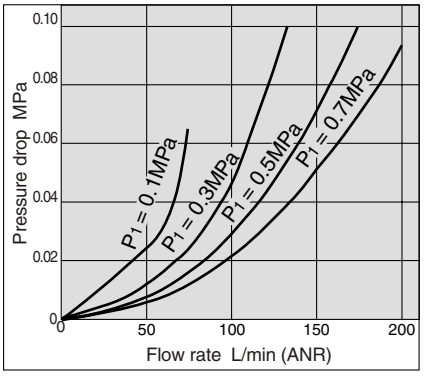
Note 2) Minimum operating pressure: N.O. type–0.1MPa; N.C. type–0.1MPa (AD17/27) and 0.15MPa (AD37/47).

Note 3) When "N" is specified in the end of part number of auto drain, applicable tube O.D should be ø3/8".

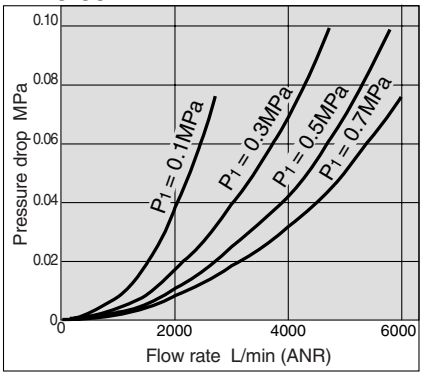
SMC

Flow Characteristics (Representative values)

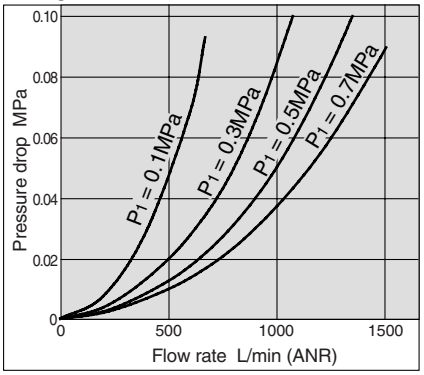
AF10 M5



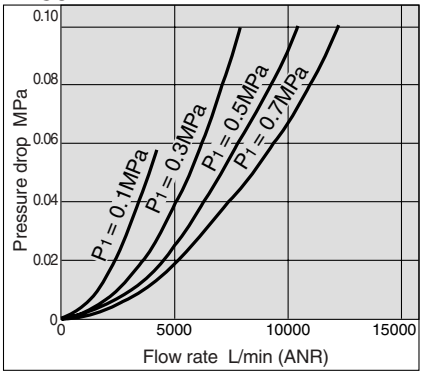
AF40-06 Rc 3/4



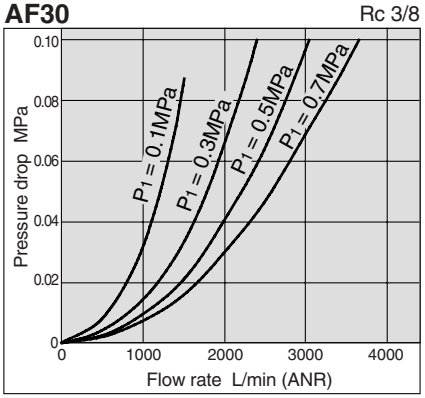
AF20 Rc 1/4



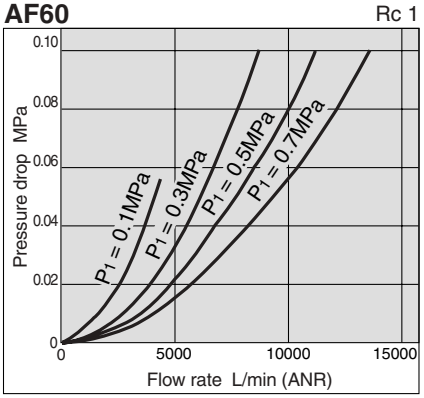
AF50 Rc 1



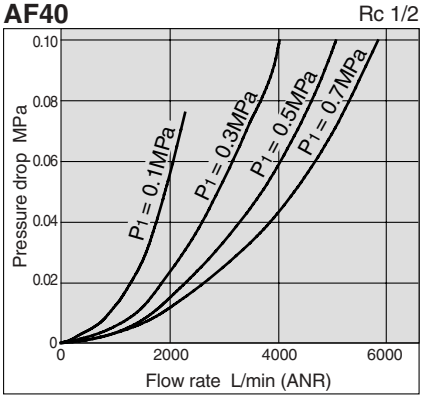
AF30 Rc 3/8



AF60 Rc 1



AF40 Rc 1/2



⚠ Specific Product Precautions

Be sure to read before handling.
Refer to pages 75 through 78 for safety instructions and F.R.L. unit precautions.

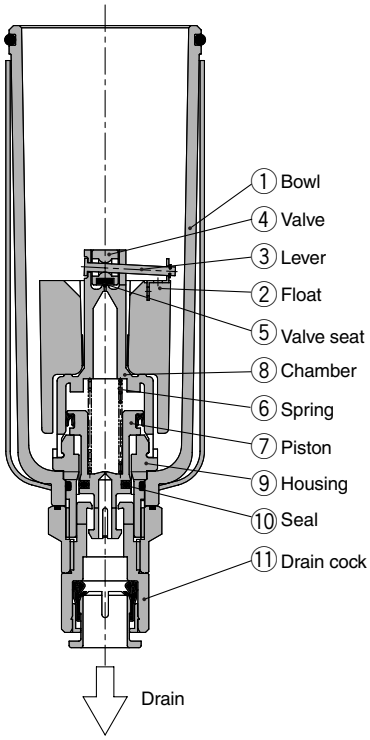
Maintenance

⚠Warning

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

Operation Principle: Float Type Auto Drain

N.O. type: AD38, 48



- **When the 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 the pressure exceeds 0.1MPa, the force of piston ⑦ surpasses the force of spring ⑥, and the piston goes up.

  This pushes seal ⑩ up so that the 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:**

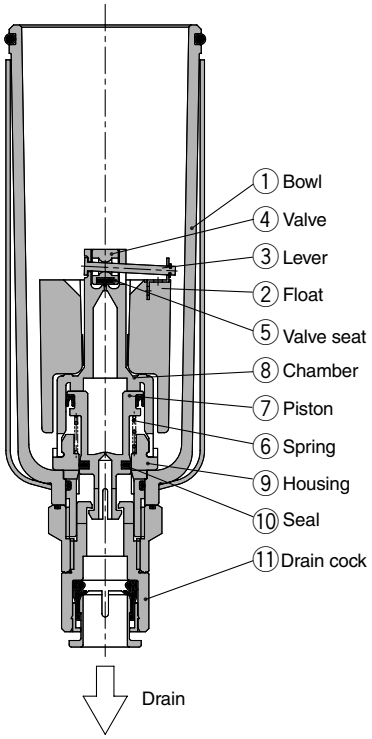
  Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat, ⑤.

  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, lower 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, 47



- **When the 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 shutting the outside air from inside the bowl ①.

  Therefore, even if there should be some condensate accumulation inside 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 shutting the outside air from inside the bowl ①.

  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:**

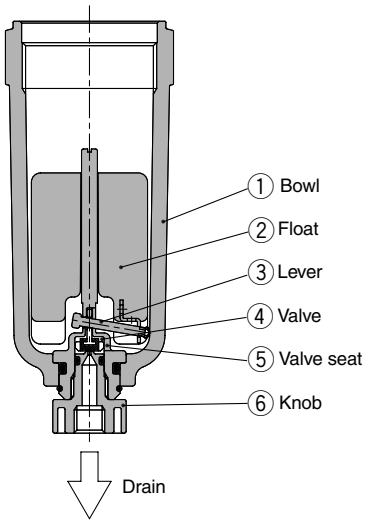
  Float ② rises due to its own buoyancy and pushes open the seal created by the valve seat ⑤. Pressure passes from the bowl to chamber ⑧.

  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, 27



- **When the 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:**

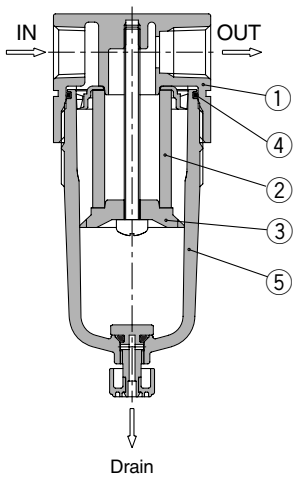
  Float ② rises due to its own buoyancy and the seal at valve seat ⑤ is interrupted.

  The condensate inside the bowl ① drains out through the knob, ⑥.

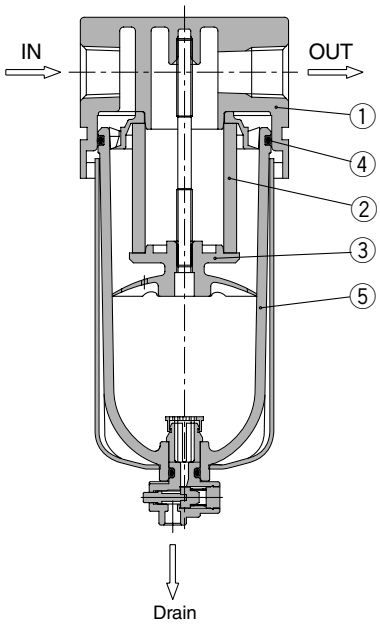
  Turning knob ⑥ manually counterclockwise lowers it and causes the sealing action of valve seat ⑤ to be interrupted, thus allowing the condensate to drain out.

Construction

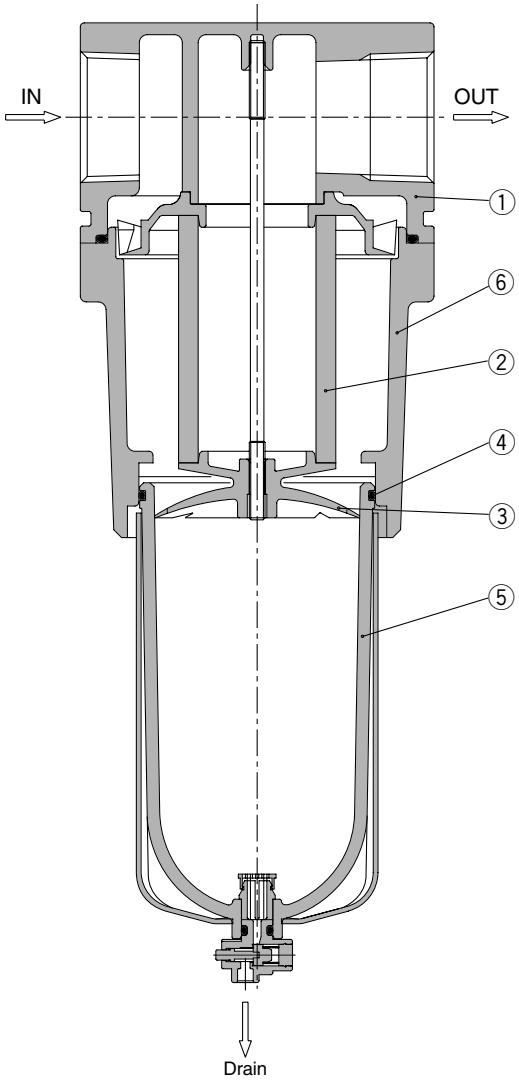
AF10, 20



AF30, 40



AF50, 60



Parts list

No.	Description	Material			Color
		AF10, 20	**AF30, 40, 40-06**	**AF50, 60**	
1	**Body**	Zinc die-cast	Aluminum die-cast		Platinum silver
6	**Housing**	—		Aluminum die-cast	Platinum silver

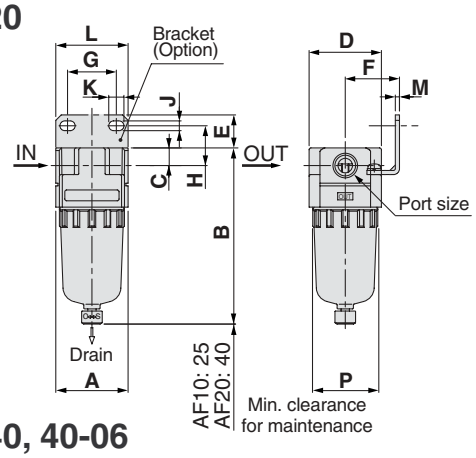
Air filter replacement parts

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	AF40P-060S	AF50P-060S	AF60P-060S
3	**Baffle**	PBT	AF10P-040S Note 1)	AF20P-040S	AF30P-040S	AF40P-040S	AF40P-040S	AF50P-040S	AF60P-040S
4	**Bowl O-ring**	NBR	C1SFP-260S	C2SFP-260S	C3SFP-260S	C4SFP-260S	C4SFP-260S	C4SFP-260S	C4SFP-260S
5	**Bowl assembly** Note 2)	PC	C1SF	C2SF	C3SF Note 3)	C4SF Note 3)	C4SF Note 3)	C4SF Note 3)	C4SF Note 3)

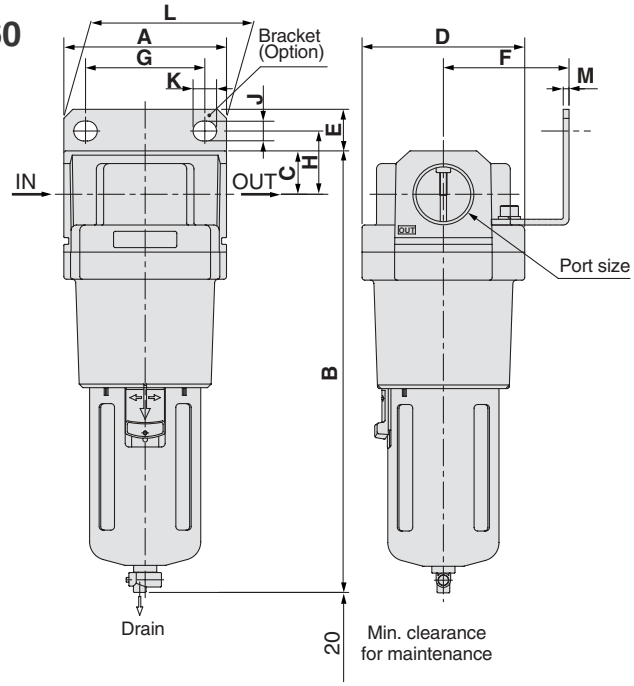
Note 1) The material of the baffle for AF10 (AF10P-040S) only is POM.
Note 2) Contact SMC regarding the bowl assembly supply for PSI and °F unit specifications.
Note 3) Bowl assembly for AF30 to 60 models comes with a bowl guard (steel band material).

Dimensions

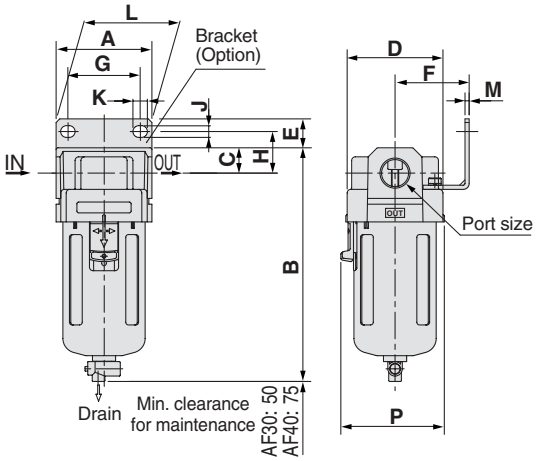
AF10, 20

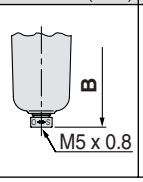
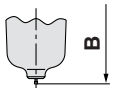
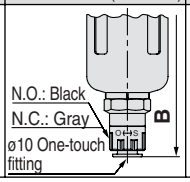
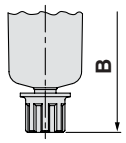
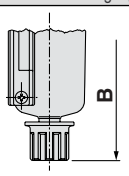
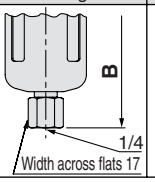
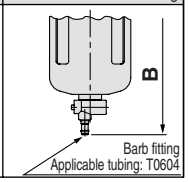


AF50, 60



AF30, 40, 40-06



Applicable model	AF10, AF20		AF30, AF40, AF40-06, AF50, AF60				
	With auto drain (N.C.)	Metal bowl	With auto drain (N.O./N.C.)	Metal bowl	Metal bowl with level gauge	With drain guide	Drain cock with barb fitting
Optional specifications							

Model	Port size	Standard specification					Accessory specification								
							Bracket mounting size								With auto drain
		A	B	C	D	P	E	F	G	H	J	K	L	M	B
AF10	M5 x 0.8	25	67	7	25	28	—	—	—	—	—	—	—	—	85
AF20	1/8, 1/4	40	97	10	40	—	18	30	27	22	5.4	8.4	40	2.3	115
AF30	1/4, 3/8	53	129	14	53	57	16	41	40	23	6.5	8	53	2.3	170
AF40	1/4, 3/8, 1/2	70	165	18	70	73	17	50	54	26	8.5	10.5	70	2.3	204
AF40-06	3/4	75	169	20	70	73	14	50	54	25	8.5	10.5	70	2.3	208
AF50	3/4, 1	90	245	24	90	—	23	70	66	35	11	13	90	3.2	284
AF60	1	95	258	24	95	—	23	70	66	35	11	13	90	3.2	297

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

Air Filter *AF20 to 60*
Made to Order Specifications

Made to Order

Contact SMC for detailed dimensions, specifications, and lead times.

① Special Temperature Environment

Special materials are used in the manufacturing of seals and resin parts to allow them to withstand various temperature conditions in cold or tropical (hot) climates.

Specifications

Part no.		–X430	–X440
Environment		Low temperature	High temperature
Ambient temperature		–30 to 60°C	–5 to 80°C
Fluid temperature		–5 to 60°C (with no freezing)	
Material	**Rubber parts**	Special NBR	FPM
	Main parts	Metal (Aluminum die-cast)	

Applicable models

Model	AF30	AF40	AF40-06	AF50	AF60
Port sizes	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1

How to Order

AF 30 – F 03 B – 2 R – X430

Air filter

Body size

30	40	50	60

Thread type

Nil	Rc
N Note 2)	NPT
F Note 3)	G

Note 1) Drain guide is NPT1/4 (applicable to AC30 to 60)

Note 2) Drain guide is G1/4 (applicable to AF30 to 60).

Port size

Symbol	Port size	Body size 30	40	50	60
02	1/4	●	●	—	—
03	3/8	●	●	—	—
04	1/2	●	●	—	—
06	3/4	—	●	●	—
10	1	—	—	●	●

For high/low temperature

X430	Low temperature
X440	High temperature

Optional specifications

Symbol	Description	Applicable model
J Note 5)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF30 to 60
Z Note 6)	Name plate and caution plate for bowl in imperial units (PSI, °F)	AF30 to 60

∗ When more than one specification is required, indicate in ascending alphanumeric order.

Note 5) Without a valve function.

Note 6) For thread type NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Bowl

Symbol	Description	Applicable model
2 Note 4)	Metal bowl	AF30 to 60

Note 4) Only Metal Bowl available.

Option

Symbol	Description	Applicable model
Nil	—	—
B Note 3)	With bracket	AF30 to 60

Note 3) Bracket is not assembled and is supplied loose at the time of shipment.

② High Pressure

Strong materials are used in the manufacturing of air filters intended for high pressure operation.

Specifications

Part no.	–X425
Proof pressure	3.0MPa
Maximum operating pressure	2.0MPa
Ambient and fluid temperature	–5 to 60°C (with no freezing)

Applicable models

Model	AF20	AF30	AF40	AF40-06	AF50	AF60
Port sizes	1/8 1/4	1/4 3/8	1/4 3/8 1/2	3/4	3/4 1	1

How to Order

AF 30 – F 03 B – 2 R – X425

Air filter

Body size

20	30	40	50	60

Thread type

Nil	Rc
N Note 1)	NPT
F Note 2)	G

Note 1) Drain guide is NPT1/4 (applicable to AF30 to 60)

Note 2) Drain guide is G1/4 (applicable to AF30 to 60).

Port size

Symbol	Port size	Body size 20	30	40	50	60
01	1/8	●	—	—	—	—
02	1/4	●	●	●	—	—
03	3/8	—	●	●	—	—
04	1/2	—	—	●	—	—
06	3/4	—	—	●	●	—
10	1	—	—	—	●	●

For high pressure

Optional specifications

Symbol	Description	Applicable model
J Note 5)	Drain guide 1/4	AF30 to 60
R	Flow direction: Right to left	AF20 to 60
Z Note 6)	Name plate and caution plate for bowl in imperial units (PSI, °F)	AF20 to 60

∗ When more than one specification is required, indicate in ascending alphanumeric order.

Note 5) Without a valve function.

Note 6) For thread type NPT. This product is for overseas use only according to the new Measurement Law. (The SI unit type is provided for use in Japan.)

Bowl

Symbol	Description	Applicable model
2 Note 4)	Metal bowl	AF20 to 60
8 Note 3)	Metal bowl with level gauge	AF30 to 60

Note 4) Only metal bowl or metal bowl with level gauge available.

Option

Symbol	Description	Applicable model
Nil	—	—
B Note 3)	With bracket	AF20 to 60

Note 3) Bracket is not assembled and is supplied loose at the time of shipment.

Note) Contact SMC regarding the detailed dimensions and optional availability.