

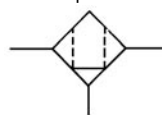
Mist Separator

AFM20 to AFM40

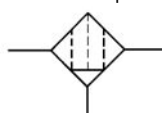
Micro Mist Separator

AFD20 to AFD40

JIS Symbol
Mist Separator



Micro Mist Separator



AFM20, AFD20 AFM40, AFD40

• Series AFM Nominal filtration rating: 0.3 μm

• Series AFD Nominal filtration rating: 0.01 μm

How to Order

AFM 30 - 03 BD - -

AFD 30 - 03 BD - -

① ② ③ ④ ⑤

- 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) AFM30-03BD-2R

• Made to Order
(Refer to pages 44 and 45 for details.)

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

Note 1) Drain guide is NPT1/8 (applicable to the AFM20, AFD20) and NPT1/4 (applicable to the AFM30/40, AFD30/40).

The auto drain port comes with a ø3/8" one-touch fitting (applicable to the AFM30/40, AFD30/40).

Note 2) Drain guide is G1/8 (applicable to the AFM20, AFD20) and G1/4 (applicable to the AFM30/40, AFD30/40).

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: 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: NPT only

Mist Separator *Series AFM20 to AFM40*

Micro Mist Separator *Series AFD20 to AFD40*

Standard Specifications

| Model | | AFM20 AFD20 | AFM30 AFD30 | AFM40 AFD40 | AFM40-06 AFD40-06 |
|---|-------------------|--|----------------|----------------|----------------------|
| Port size | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| Fluid | | Air | | | |
| Ambient and fluid temperature | | −5 to 60°C (with no freezing) | | | |
| Proof pressure | | 1.5 MPa | | | |
| Maximum operating pressure | | 1.0 MPa | | | |
| Minimum operating pressure | | 0.05 MPa | | | |
| Nominal filtration rating | AFM20 to AFM40-06 | 0.3 μm (99.9% filtered particle size) | | | |
| | AFD20 to AFD40-06 | 0.01 μm (99.9% filtered particle size) | | | |
| Outlet side oil mist concentration | AFM20 to AFM40-06 | Max. 1.0 mg/m ³ (ANR) (≈ 0.8 ppm) ^{Note 2)} ^{Note 3)} | | | |
| | AFD20 to AFD40-06 | Max. 0.1 mg/m ³ (ANR) (Before saturated with oil 0.001 mg/m ³ (ANR) or less ≈ 0.008 ppm) ^{Note 2)} ^{Note 3)} | | | |
| Rated flow (ℓ/min (ANR)) ^{Note 1)} | AFM20 to AFM40-06 | 200 | 450 | 1100 | |
| | AFD20 to AFD40-06 | 120 | 240 | 600 | |
| Drain capacity (cm ³) | | 8 | 25 | 45 | |
| Bowl material | | Polycarbonate | | | |
| Bowl guard | | Semi-standard | Standard | | |
| Mass (kg) | | 0.18 | 0.22 | 0.44 | 0.49 |

Note 1) Conditions: Inlet pressure: 0.7 MPa; The rated flow varies depending on the inlet pressure. Keep the air flow within the rated flow to prevent an outflow of lubricant to the outlet side.

Note 2) When the compressor oil mist discharge concentration is 30 mg/m³ (ANR).

Note 3) Bowl O-ring and other O-rings are slightly lubricated.

Options/Part No.

| Optional specifications | | Model | | | |
|--|------|----------------|----------------|----------------|----------------------|
| | | AFM20 AFD20 | AFM30 AFD30 | AFM40 AFD40 | AFM40-06 AFD40-06 |
| Bracket assembly ^{Note 1)} | | AF20P-050AS | AF30P-050AS | AF40P-050AS | AF40P-070AS |
| Float type auto drain ^{Note 2) Note 3)} | N.C. | 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 | AFM20 AFD20 | AFM30 AFD30 | AFM40 AFD40 |
| | N.C. | N.O. | | | | | | |
| Polycarbonate | — | — | — | — | ● | C2SF-C | — | — |
| | ● | — | — | — | ● | AD27-C | — | — |
| | — | — | ● | — | — | C2SF-J | C3SF-J | C4SF-J |
| | — | — | — | ● | — | — | C3SF-W | C4SF-W |
| | — | — | ● | — | ● | C2SF-CJ | — | — |
| Nylon | — | — | — | — | — | C2SF-6 | C3SF-6 | C4SF-6 |
| | — | — | — | — | ● | C2SF-6C | — | — |
| | ● | — | — | — | — | 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 | — | — | — | — | — | C2SF-2 | C3SF-2 | C4SF-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 (AD27) and 0.15 MPa (AD37/47).

Please consult SMC separately for psi and °F unit display specifications.

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

Note) ● Bowl O-ring is included.

• Bowl assembly for the AFM30 to AFM40-06 models and AFD30 to AFD40-06 models comes with a bowl guard (steel band material). (except when the bowl material is metal)

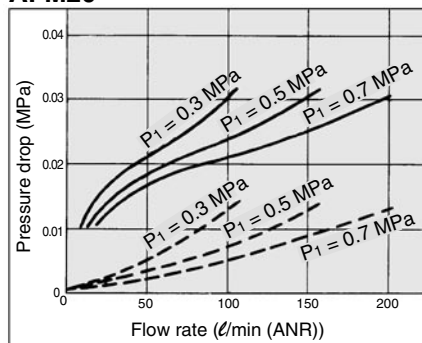
Series AFM20 to AFM40

Series AFD20 to AFD40

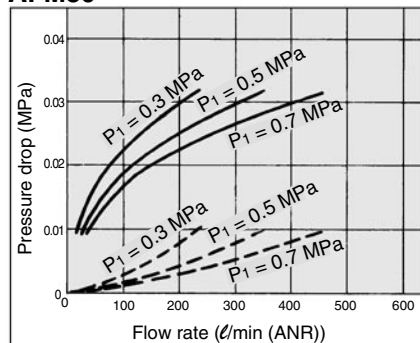
Flow Characteristics (Representative values)

— : When saturated with oil
- - - : Initial state

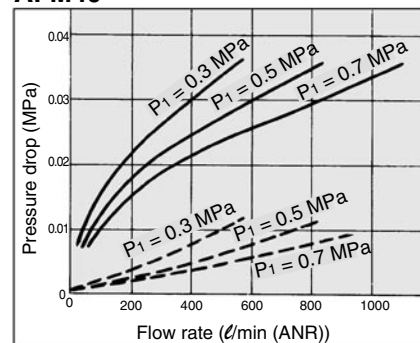
AFM20



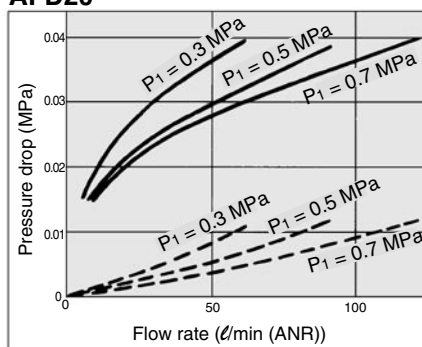
AFM30



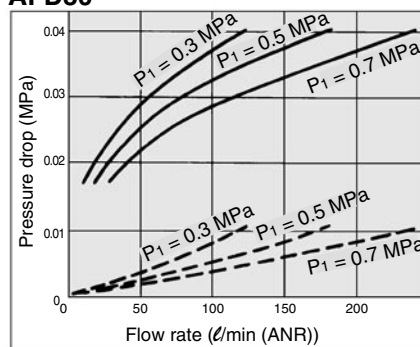
AFM40



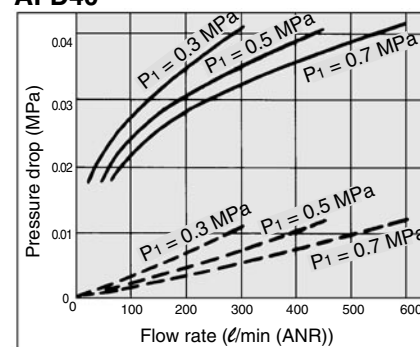
AFD20



AFD30



AFD40



⚠ 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.

Air Supply

⚠ Caution

1. Install an air filter (AF series) as a pre-filter on the inlet side of the mist separator to prevent premature clogging.
2. Install a mist separator (AFM series) as a pre-filter on the inlet side of the micro mist separator to prevent premature clogging.
3. Do not install on the inlet side of the dryer as this can cause premature clogging of the element.

Maintenance

⚠ 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.

Design

⚠ Caution

1. Design the system so that the mist separator is installed in a pulsation-free location. The difference between internal and external pressure inside the element should be kept within 0.1 MPa, as exceeding this value could cause damage.

Selection

⚠ Caution

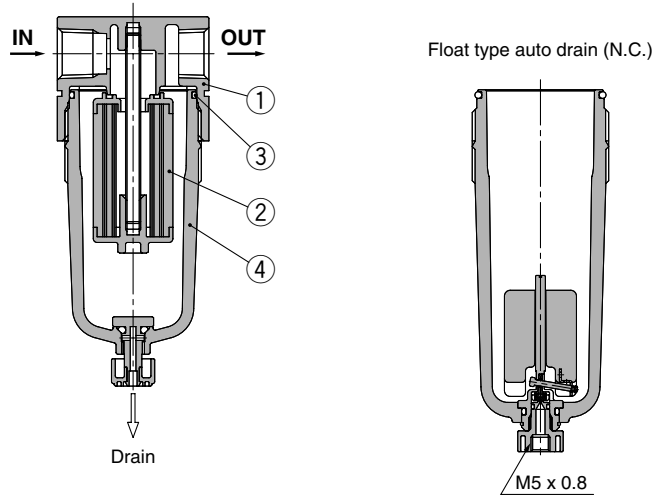
1. Do not allow air flow that exceeds the rated flow. If the air flow is allowed outside the range of the rated flow even momentarily, drainage and lubricant may splash at the outlet side or cause damage to the component.
2. Do not use in a low pressure application (such as a blower). F.R.L. unit has its own minimum operating pressure depending on the equipment and is designed specifically to function with compressed air. If used below the minimum operating pressure, a loss of performance and malfunction can occur. Please contact SMC if an application under such conditions cannot be avoided.

Mist Separator *Series AFM20 to AFM40*

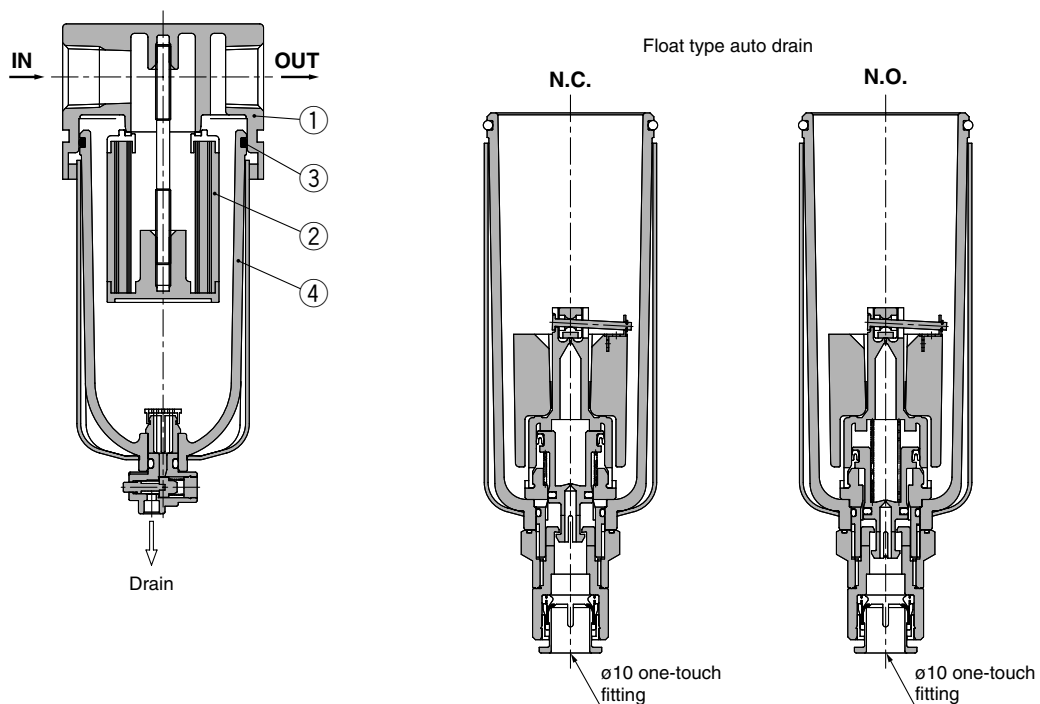
Micro Mist Separator *Series AFD20 to AFD40*

Construction

AFM20 AFD20



AFM30 to AFM40-06 AFD30 to AFD40-06



Component Parts

| No. | Description | Material | Model | Colour |
|-----|-------------|-------------------|--------------------------------------|-----------------|
| 1 | Body | Zinc die-cast | AFM20, AFD20 | Platinum silver |
| | | Aluminum die-cast | AFM30 to AFM40-06, AFD30 to AFD40-06 | |

Replacement Parts

| No. | Description | | Material | Part no. | | | |
|-----|--------------------------------------|-------------|---------------|----------------|-----------------------------|-----------------------------|----------------------|
| | | | | AFM20 AFD20 | AFM30 AFD30 | AFM40 AFD40 | AFM40-06 AFD40-06 |
| 2 | Element assembly | AFM20 to 40 | — | AFM20P-060AS | AFM30P-060AS | AFM40P-060AS | |
| | | AFD20 to 40 | — | AFD20P-060AS | AFD30P-060AS | AFD40P-060AS | |
| 3 | Bowl O-ring | | NBR | C2SFP-260S | C3SFP-260S | C4SFP-260S | |
| 4 | Bowl assembly <small>Note 1)</small> | | Polycarbonate | C2SF | C3SF <small>Note 2)</small> | C4SF <small>Note 2)</small> | |

Note 1) Bowl O-ring is included. Please contact SMC regarding the bowl assembly supply for psi and °F unit specifications.

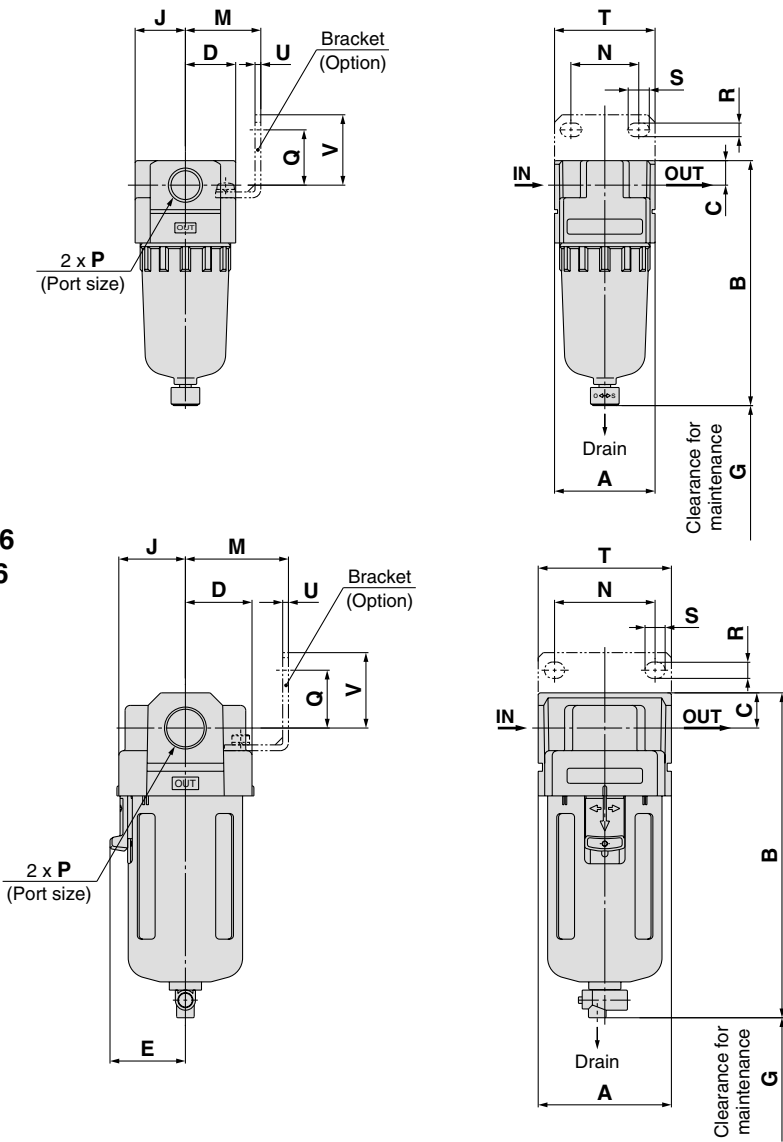
Note 2) Bowl assembly for the AFM30 to AFM40-06 models and the AFD30 to AFD40-06 models comes with a bowl guard (steel band material).

Series AFM20 to AFM40









Series AFD20 to AFD40

Dimensions

AFM20
AFD20



AFM30 to AFM40-06
AFD30 to AFD40-06

| Applicable model | AFM20, AFD20 | | | AFM30 to AFM40-06, AFD30 to AFD40-06 | | | | |
|---------------------------------------|--|--|--|---|---|--|--|--|
| 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 |  B M5 |  B |  B 1/8 Width across flats 14 |  B N.O.: Black N.C.: Gray 10 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 |
| AFM20/AFD20 | 1/8, 1/4 | 40 | 97 | 10 | 20 | — | 40 | 20 | 30 | 27 | 22 | 5.4 | 8.4 | 40 | 2.3 | 28 | 115 |
| AFM30/AFD30 | 1/4, 3/8 | 53 | 129 | 14 | 26.5 | 30 | 50 | 26.5 | 41 | 40 | 23 | 6.5 | 8 | 53 | 2.3 | 30 | 170 |
| AFM40/AFD40 | 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 |
| AFM40-06/AFD40-06 | 3/4 | 75 | 169 | 20 | 35 | 38 | 75 | 35 | 50 | 54 | 25 | 8.5 | 10.5 | 70 | 2.3 | 34 | 208 |

| Model | Semi-standard specifications | | | |
|-------------------|------------------------------|------------------|------------|-----------------------------|
| | With barb fitting | With drain guide | Metal bowl | Metal bowl with level gauge |
| AFM20/AFD20 | — | 101 | 97 | — |
| AFM30/AFD30 | 137 | 136 | 142 | 162 |
| AFM40/AFD40 | 173 | 172 | 178 | 198 |
| AFM40-06/AFD40-06 | 177 | 176 | 182 | 202 |

Mist Separator *AFM20 to AFM40* Micro Mist Separator *AFD20 to AFD40* Made to Order



Please contact SMC for detailed dimensions, specifications, and lead times.

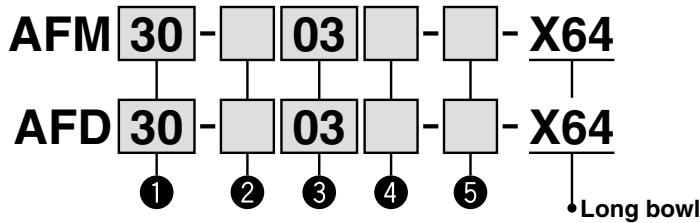
① Long Bowl

Drain capacity is greater than that of standard models.

Applicable Model/Drain Capacity

| Model | AFM20, AFD20 | AFM30, AFD30 | AFM40, AFD40 | AFM40-06, AFD40-06 |
|----------------------|--------------|--------------|---------------|--------------------|
| Port size | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| Drain capacity (cm³) | 19 | 43 | 88 | |

Note) Please consult SMC for dimensions.



- Semi-standard: Select one each for **a** to **d**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in ascending alphanumeric order.
Example) AFM30-03B-2R-X64

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

Note 1) Drain guide is NPT1/8 (applicable to the AFM20, AFD20) and NPT1/4 (applicable to the AFM30/40, AFD30/40).

Note 2) Drain guide is G1/8 (applicable to the AFM20, AFD20) and G1/4 (applicable to the AFM30/40, AFD30/40).

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

Note 4) Without a valve function

Note 5) Metal bowl: The combination with 2 cannot be selected with W.

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.)

Note 7) ○: For thread type: NPT only

Mist Separator *AFM30 to AFM40* Micro Mist Separator *AFD30 to AFD40* Made to Order



Please contact SMC for detailed dimensions, specifications, and lead times.

② With Element Service Indicator

Clogging status of elements can be checked visually.

Applicable Model

| Model | AFM30, AFD30 | AFM40, AFD40 | AFM40-06, AFD40-06 |
|-----------|--------------|---------------|--------------------|
| Port size | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |

AFM **30** - **03** - **X2141**
AFD **30** - **03** - **X2141**

① ② ③ ④ ⑤

• With element service indicator

A special body type is required to mount the clogging checker. It cannot be mounted on a standard body.

- 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-X2141

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

Note 1) Drain guide is NPT1/4. The auto drain port comes with a ø3/8" one-touch fitting.

Note 2) Drain guide is G1/4.

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

Includes 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: 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: NPT only