# Modular F.R.L. Units

RoHS

# Modular Design with Uniform Body Style

## Better visibility & environmental resistance

2-layer construction

**The bowl is covered with a transparent bowl guard!**

＊ Body sizes 30 and larger

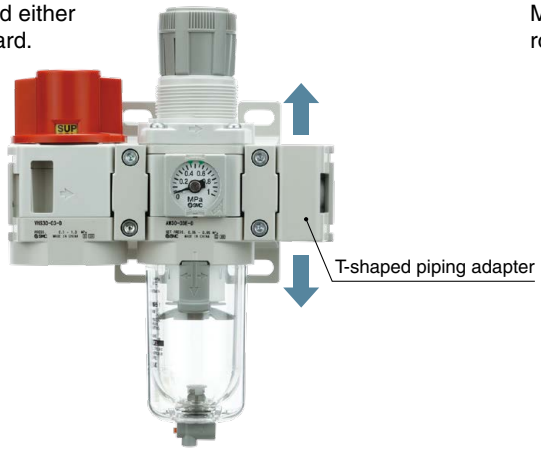
- The inside is visible from 360°.
- The bowl is completely protected from the environment, allowing for improved safety.

**Inner bowl**
Material: Polycarbonate

**Transparent bowl guard**
Material: Polycarbonate

## New Attachment variations have been added. p. 6-1

Air can be released either upward or downward.




Modular connection with the product rotated 90 degrees is possible.


**AC Series**

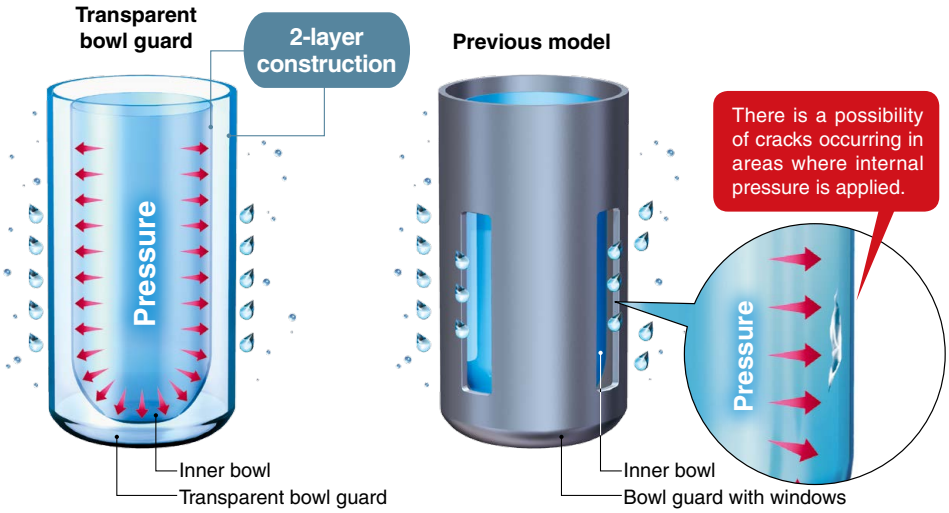
SMC

CAT.ES40-69C Ⓐ

# Transparent bowl guard


## Better environmental resistance: The transparent bowl guard protects the inner bowl!

The bowl guard with windows has been replaced with a polycarbonate transparent bowl guard. Now, even if the environment changes and the bowl is exposed to corrosive chemical or oil splash, the foreign matter will not come into direct contact with the pressurized bowl. This can reduce the risk of bowl breakage.



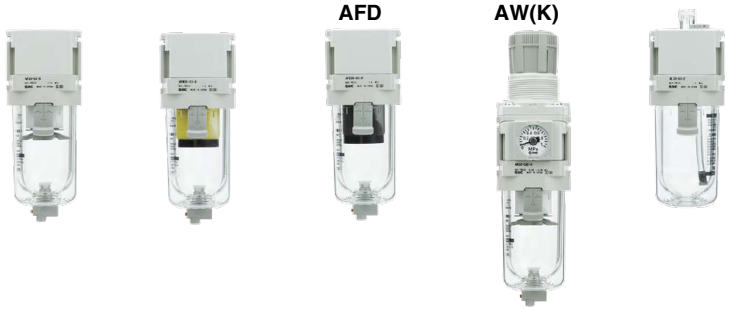

## Better visibility: 360°

The transparent bowl guard allows for easy checking of the condensate level inside the filter bowl and the remaining oil amount in the lubricator from any direction.

### Applicable model

＊ Body sizes 30 and larger

| Air Filter **AF** | Mist Separator **AFM** | Micro Mist Separator **AFD** | Filter Regulator **AW(K)** | Lubricator **AL** |
|---|---|---|---|---|



# No tools are required.

Easier replacement of the element

＊ AF20-D to AF40-D only


## Selection of pressure gauges


Square embedded type pressure gauge


Round type pressure gauge


Digital pressure switch

### Open/close type gauge cover

❶ Open the gauge cover.

Open the gauge cover in the direction of the arrow with your fingertips.

❷ Adjust the indicator to a specified position.

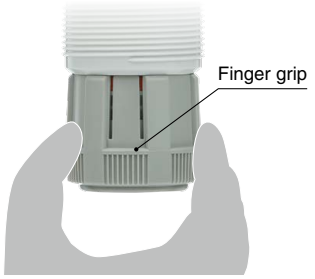
Adjust the indicator using a flat blade screwdriver.

❸ Close the gauge cover.

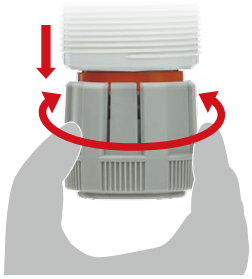
Close the gauge cover in the direction of the arrow and push it in until it clicks in place.

## Easy to handle

Easy to hold when unlocked




Locked



Pressure regulation while unlocked

## Mounting (Single unit)

· The mounting pitch for panel mounting is interchangeable between the AR20(K)-D to AR40(K)-06-D and the AR(K)-B series and between the AW20(K)-D to AW40(K)-06-D and the AW(K)-B series. The brackets and set nuts are the same for both existing and new products.

| Series | Body size | | | | | Details |
|---|---|---|---|---|---|---|
| | 20 | 30 | 40 | 50 | 60 | |
| AF | | | | | | p. 61 |
| AFM<br>AFD | | | | | | p. 71 |
| AR(K) | | | | | | p. 79 |
| AW(K) | | | | | | p. 98 |
| AL | | | | | | p. 89 |

# Series Configuration

## AC20 to AC60 Series

p. 9

Air Filter + Regulator + Lubricator

**AF** **AR** **AL**

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## AC20A to AC60A Series

p. 17

Filter Regulator + Lubricator

**AW** **AL**

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## AC20B to AC60B Series

p. 23

Air Filter + Regulator

**AF** **AR**

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## AC20C to AC40C Series

p. 31

Air Filter + Mist Separator + Regulator

**AF** **AFM** **AR**

| | Port size | | | | |
|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 |
| Size 20 | ● | ● | | | |
| Size 30 | | ● | ● | | |
| Size 40 | | ● | ● | ● | |
| Size 40-06 | | | | | ● |

## AC20D to AC40D Series

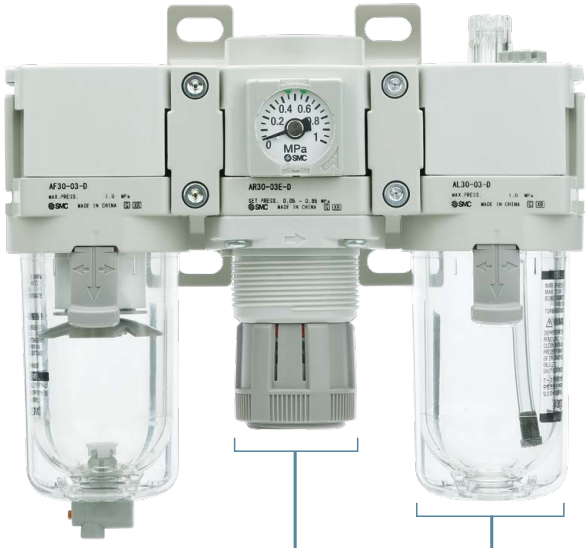
p. 39

Filter Regulator + Mist Separator

**AW** **AFM**

| | Port size | | | | |
|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 |
| Size 20 | ● | ● | | | |
| Size 30 | | ● | ● | | |
| Size 40 | | ● | ● | ● | |
| Size 40-06 | | | | | ● |

# Table of Modular F.R.L. Unit Combinations for AC Assembly



## Air Filter
AF Series

p. 59

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## Mist Separator
## Micro Mist Separator
AFM/AFD Series

p. 69

| | Port size | | | | |
|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 |
| Size 20 | ● | ● | | | |
| Size 30 | | ● | ● | | |
| Size 40 | | ● | ● | ● | |
| Size 40-06 | | | | | |
| Size 50 | | | | | ● |
| Size 60 | | | | | |

## Regulator
AR Series

p. 76

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## Regulator with Backflow Function
AR□K Series

p. 76

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## Filter Regulator
AW Series

p. 94

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## Filter Regulator with Backflow Function
AW□K Series

p. 94

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

## New Spacer p. 48

**Interchangeable with the existing model**

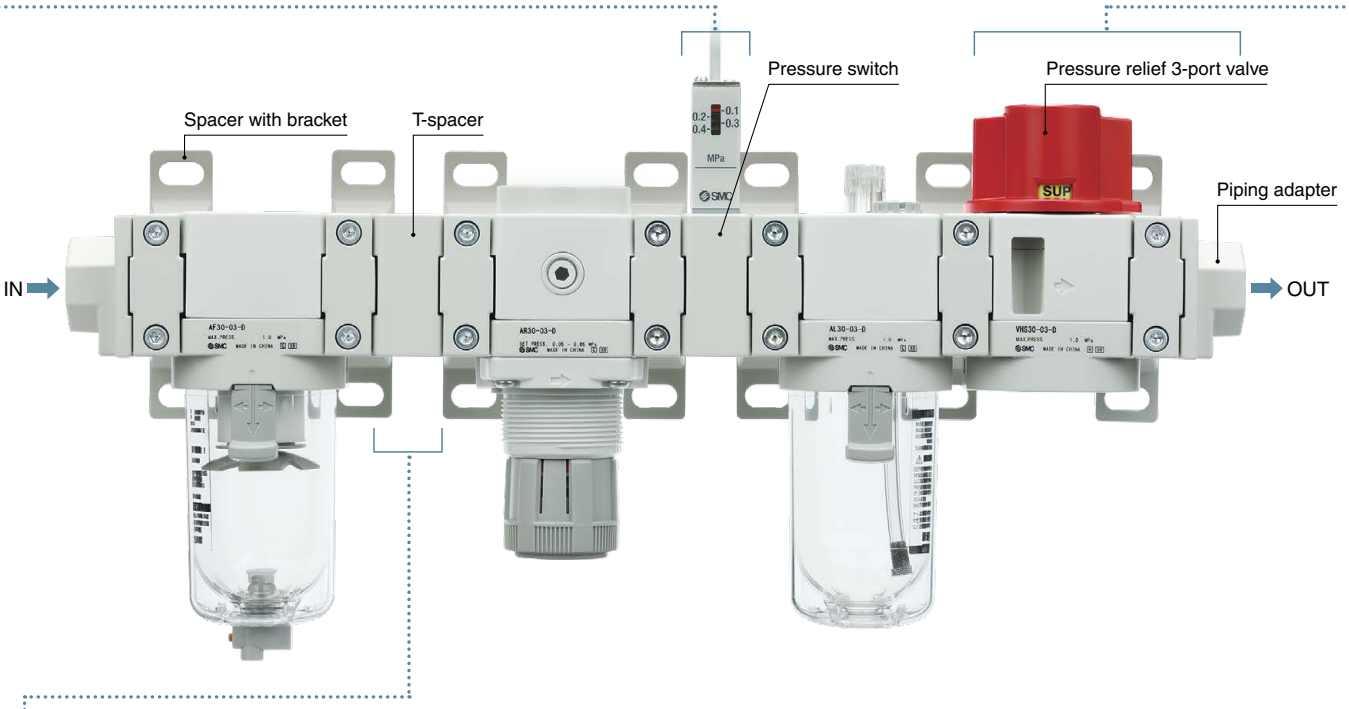
- The new spacer can be connected to the existing AF-A, AR-B, AL-A, and AW-B series.

## Lubricator
AL Series

p. 87

| | Port size | | | | | |
|---|---|---|---|---|---|---|
| | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 |
| Size 20 | ● | ● | | | | |
| Size 30 | | ● | ● | | | |
| Size 40 | | ● | ● | ● | | |
| Size 40-06 | | | | | ● | |
| Size 50 | | | | | ● | ● |
| Size 60 | | | | | | ● |

# Attachment List




## Spacers

| T-Spacer<br>Y□10 Series | Cross Spacer<br>Y□4 Series | Spacer<br>Y□□ Series | Spacer with Bracket<br>Y□□T Series |
|---|---|---|---|
| Piping in 2 directions is possible (upward or downward).<br>p. 52 | Piping in all 4 directions is possible.<br>p. 53 | p. 48 | p. 48 |
|  <br>Slim type*1 |  <br>Front and back port selectable type*1 |  |  |

*1 The mounting pitch is interchangeable with the existing attachment.

## Pressure Switches

A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.

| Pressure Switch with T-Spacer<br>IS10T Series | Pressure Switch with L-Shaped Piping Adapter<br>IS10L Series | Pressure Switch<br>IS10M Series | Pressure Switch with Piping Adapter<br>IS10E Series |
|---|---|---|---|
| The OUT side piping can be branched downward.<br>p. 55 | OUT side piping: Downward<br>p. 56 | p. 54 | A piping adapter allows for the installation/removal of the component without removing the piping.<br>p. 57 |
|  |  |  <br>Slim type*1 |  |

*1 The mounting pitch is interchangeable with the existing attachment.

## Piping Adapters

### Piping Adapter
**E□00 Series**

A piping adapter allows for the installation/removal of the component without removing the piping.

p. 50

### L-Shaped Piping Adapter
**E□00L Series**

Upward or downward piping is possible on the inlet side and the outlet side of F.R.L. units.

p. 51

### New T-Shaped Piping Adapter
**E□00T Series**

p. 51-1

### New Turn Adapter
**E□10T Series**

Allows for modular connection with the product rotated 90 degrees

p. 57-1

### New Size Conversion Adapter
**E□10R Series**

Allows for modular connection with products 1 body size larger or smaller

p. 57-1

## Pressure Relief 3-Port Valve

### Pressure Relief 3-Port Valve
**VHS Series**

By using a pressure relief 3-port valve, pressure left in the line can be easily exhausted.

p. 49

# Space-saving design and reduced piping labor

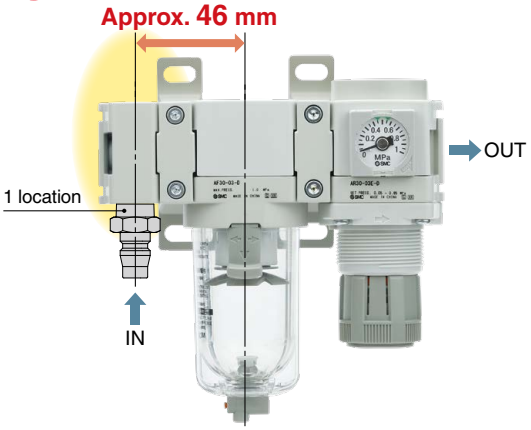
## Space-saving

**Max. 16.4%*1 reduction**

**Approx. 46 mm ← Approx. 55 mm**

*1 For size 30

New When using an L-shaped piping adapter

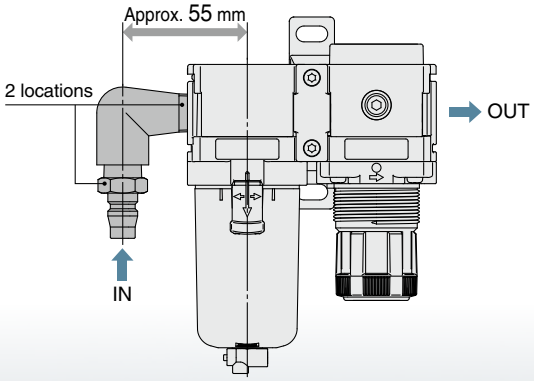



## Reduced piping labor

**Number of screw-in connections**

**1 location ← 2 locations**

When using a street elbow*1 *1 Commercially available

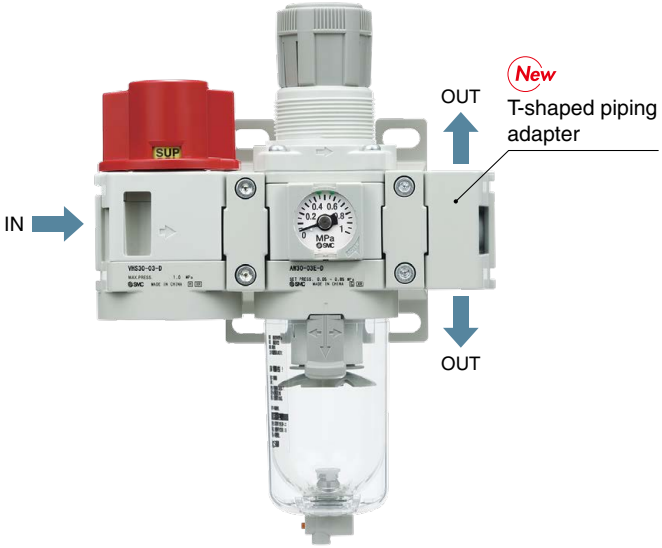


# Improved piping design flexibility

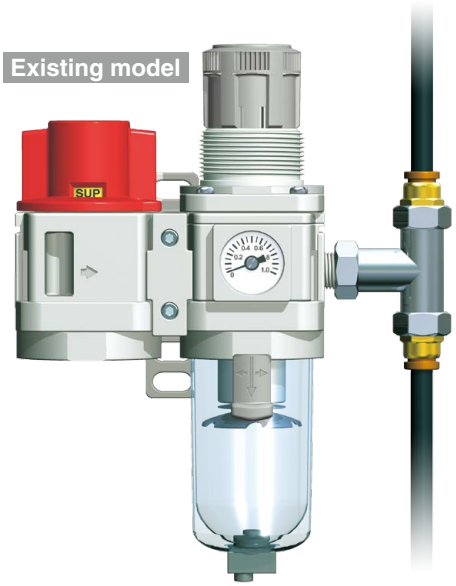
## T-shaped Piping Adapter

Air can be released either upward or downward. p. 51-1

* Size: 20 to 60




Existing model

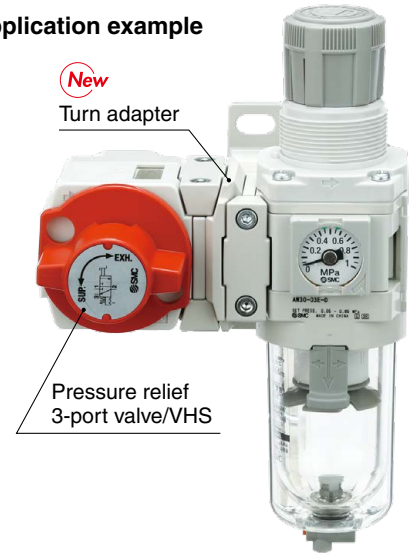


## Turn Adapter

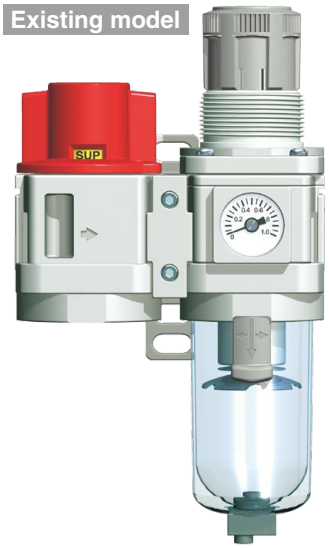
Modular connection with the product rotated 90 degrees is possible. p. 57-1

* Size: 20 to 40

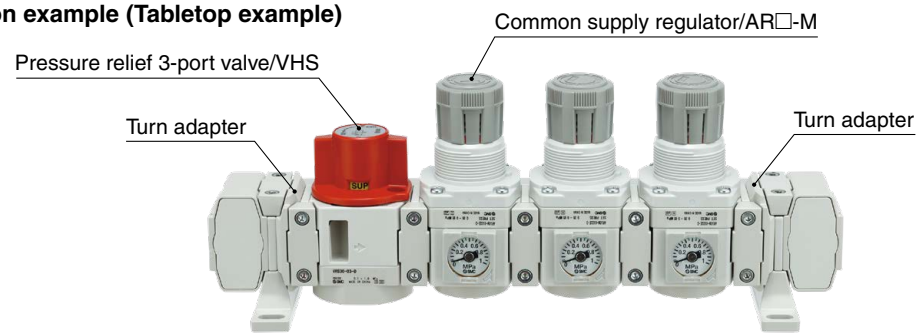
**Application example**




Existing model



**Application example (Tabletop example)**



# Size conversion is possible Flow capacity UP Extended maintenance cycle

## Size Conversion Adapter

Modular connection with products 1 size larger (or 1 size smaller) is possible. p. 57-1

Convertible sizes
Size 20 ⟷ Size 30
Size 30 ⟷ Size 40

● Example of connection with an air preparation filter 1 size larger

New **When using the size conversion adapter**
**1500 L/min (ANR)**∗1

AR30 + AFF**40** + AM**40** + AMD**40**

Size UP

**Existing model**
**750 L/min (ANR)**∗1

AR30 + AFF**30** + AM**30** + AMD**30**


∗1 When at the max. flow capacity

# Simple Specials System

A system designed to respond quickly and easily to your special ordering needs

Simple Specials System

## Short lead times

This system enables us to respond to your special needs (additional machining, accessory assembly, or the designing of a modular unit) and deliver your personalized products as quickly as standard products.

## Repeat orders

Once we receive a simple special part number from one of your previous orders, we will process the order, manufacture the product, and deliver it to you as quickly as possible.

Please contact your local sales representative for more details.

# Examples of Simple Specials

## Combination example ❶

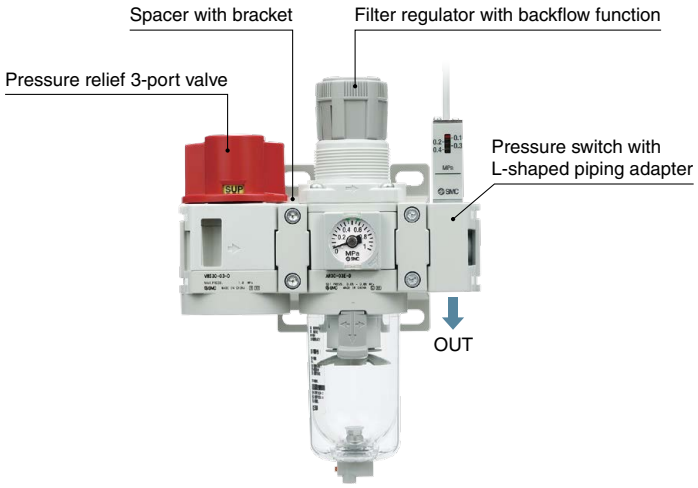
＊ Please contact your local sales representative for ordering procedures.

Pressure relief 3-port valve
VHS30-03-D ····· 1 pc.

Spacer with bracket
Y300T-D ····· 2 pcs.

Filter regulator with backflow function
AW30K-03E-D ····· 1 pc.

Pressure switch with
L-shaped piping adapter
IS10L-30-03-D ····· 1 pc.



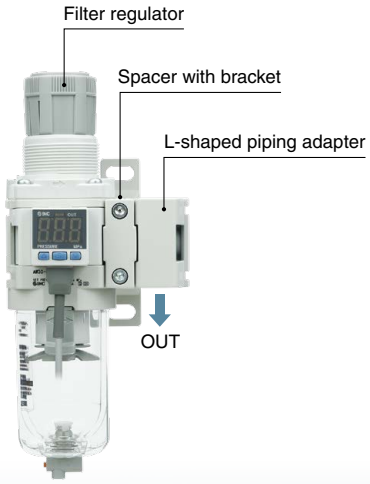

## Combination example ❷

＊ Please contact your local sales representative for ordering procedures.

Filter regulator
AW30-03E1-D ····· 1 pc.

Spacer with bracket
Y300T-D ····· 1 pc.

L-shaped piping adapter
E300L-03-D ····· 1 pc.



## Combination example ③

＊ Please contact your local sales representative for ordering procedures.

L-shaped piping adapter
E300L-03-D ····· 1 pc.

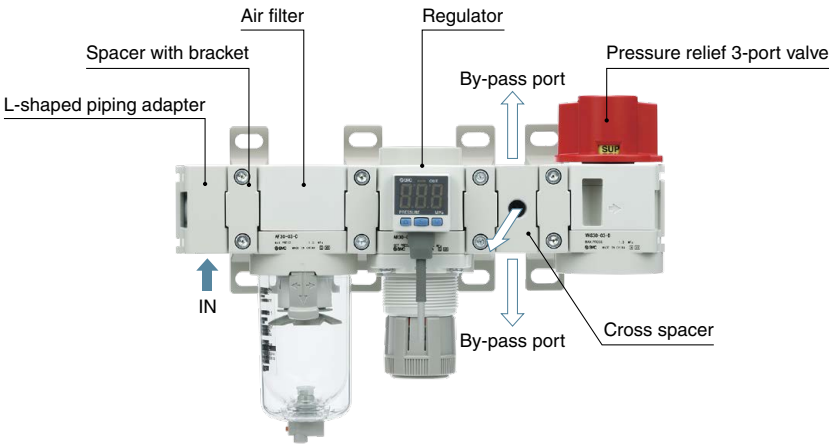
Spacer with bracket
Y300T-D ····· 4 pcs.

Air filter
AF30-03-D ····· 1 pc.

Regulator
AR30-03E1-D ····· 1 pc.

Cross spacer
Y34-03-D ····· 1 pc.

Pressure relief 3-port valve
VHS30-03-D ····· 1 pc.




## Combination example ④

＊ Please contact your local sales representative for ordering procedures.

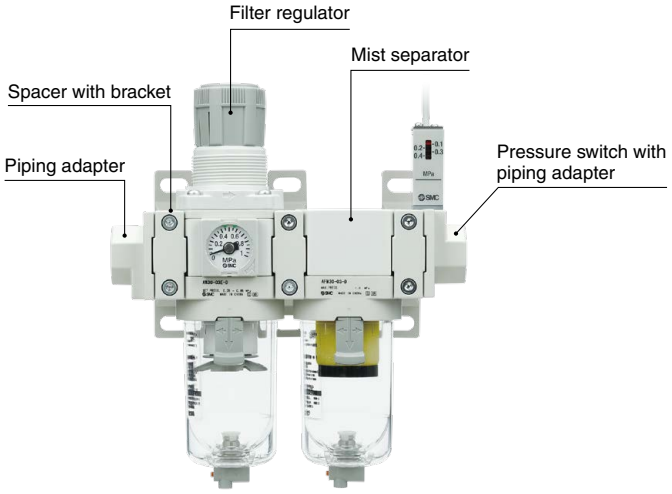
Piping adapter
E300-03-D ····· 1 pc.

Spacer with bracket
Y300T-D ····· 3 pcs.

Filter regulator
AW30-03E-D ····· 1 pc.

Mist separator
AFM30-03-D ····· 1 pc.

Pressure switch with piping adapter
IS10E-30-03-D ····· 1 pc.




## Combination example ⑤

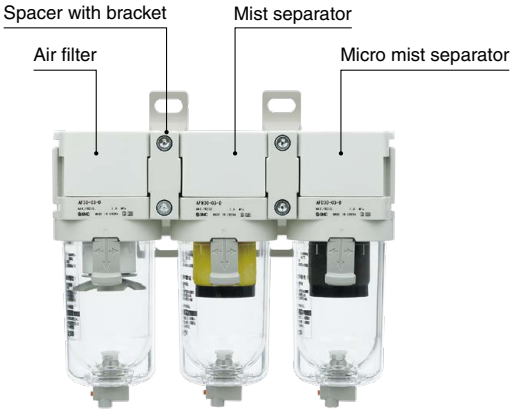
＊ Please contact your local sales representative for ordering procedures.

Air filter
AF30-03-D ····· 1 pc.

Spacer with bracket
Y300T-D ····· 2 pcs.

Mist separator
AFM30-03-D ····· 1 pc.

Micro mist separator
AFD30-03-D ····· 1 pc.

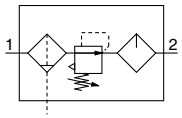


Air Combination

# Air Filter + Regulator + Lubricator

# AC20-D to AC60-D

Symbol

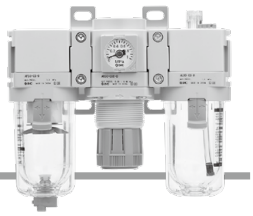



## How to Order

**AC 30 – ❶ ❷ 03 ❸ DE ❹ – ❺ – ❻ – D**

· Option/Semi-standard: Select one each for **a** to **j**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AC30-F03DE1-16NR-D

| | | | | Symbol | Description | ❶ Body size | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 20 | 30 | 40 | 50 | 60 |
| ❷ | Pipe thread type | | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | | **N**[*1] | NPT | ● | ● | ● | ● | ● |
| | | | | **F**[*2] | G | ● | ● | ● | ● | ● |
| | | | | + | | | | | | |
| ❸ | Port size | | | **01** | 1/8 | ● | — | — | — | — |
| | | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | | **04** | 1/2 | — | — | ● | — | — |
| | | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | | **10** | 1 | — | — | — | ● | ● |
| | | | | + | | | | | | |
| ❹ | Option[*3] | **a** | Float type auto drain | **Nil** | Without auto drain | ● | ● | ● | ● | ● |
| | | | | **C**[*4] | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● | ● | ● |
| | | | | **D**[*5] | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● | ● | ● |
| | | | | + | | | | | | |
| | | **b** | Pressure gauge[*6] | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● |
| | | | Digital pressure switch | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | | + | | | | | | |
| ❺ | Attachment | **c** | Pressure relief 3-port valve | **Nil** | Without attachment | ● | ● | ● | ● | ● |
| | | | | **V** | Mounting position: AF + AR + AL + **V** | ● | ● | ● | ● | — |
| | | | | + | | | | | | |
| ❻ | Semi-standard | **d** | Set pressure[*7] | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● | ● | ● |
| | | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● | ● | ● |
| | | | | + | | | | | | |
| | | **e** | Bowl[*8] | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | | | **8** | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | | | **C** | With bowl guard | ● | —[*9] | —[*9] | —[*9] | —[*9] |
| | | | | **6C** | With bowl guard (Nylon bowl) | ● | —[*10] | —[*10] | —[*10] | —[*10] |
| | | | | + | | | | | | |
| | | **f** | Air filter drain port[*11] | **Nil** | With drain cock | ● | ● | ● | ● | ● |
| | | | | **J**[*12] | Drain guide 1/8 | ● | — | — | — | — |
| | | | | | Drain guide 1/4 | — | ● | ● | ● | ● |
| | | | | **W**[*13] | Drain cock with barb fitting (for ø6 x ø4 nylon tube) | — | ● | ● | ● | ● |
| | | | | + | | | | | | |
| | | **g** | Lubricator lubricant exhaust port | **Nil** | Without drain cock | ● | ● | ● | ● | ● |
| | | | | **3**[*14] | Lubricator with drain cock | ● | ● | ● | ● | ● |



AC30-D

| | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|
| ❻ Semi-standard | h Exhaust mechanism | Nil | Relieving type | ● | ● | ● | ● | ● |
| | | N | Non-relieving type | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | i Flow direction | Nil | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | R | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | j Unit | Nil | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | Z∗15 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗17 | ○∗17 | ○∗17 | ○∗17 | ○∗17 |
| | | ZA∗16 | Digital pressure switch: With unit selection function | △∗18 | △∗18 | △∗18 | △∗18 | △∗18 |

∗1 Drain guide is NPT1/8 (applicable to the AC20-D) and NPT1/4 (applicable to the AC30-D to AC60-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30-D to AC60-D).
∗2 Drain guide is G1/8 (applicable to the AC20-D) and G1/4 (applicable to the AC30-D to AC60-D).
∗3 Options G and M are not assembled and supplied loose at the time of shipment.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗7 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗8 Refer to chemical data on pages 68 and 93 for chemical resistance of the bowl.
∗9 A bowl guard is provided as standard equipment (polycarbonate).
∗10 A bowl guard is provided as standard equipment (nylon).
∗11 The combination of float type auto drain C and D is not available.
∗12 Without a valve function
∗13 The combination of metal bowl 2 and 8 is not available.
∗14 When choosing with W: Air filter drain port, the drain cock of a lubricator will be with barb fittings.
∗15 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special.
The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗16 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
∗17 ○: For the pipe thread type: NPT only
∗18 △: Select with options: E1, E2, E3, E4.

## Standard Specifications

| Model | | | AC20-D | AC30-D | AC40-D | AC40-06-D | AC50-D | AC60-D |
|---|---|---|---|---|---|---|---|---|
| Component | Air Filter | [AF] | AF20-D | AF30-D | AF40-D | AF40-06-D | AF50-D | AF60-D |
| | Regulator | [AR] | AR20-D | AR30-D | AR40-D | AR40-06-D | AR50-D | AR60-D |
| | Lubricator | [AL] | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
| Port size | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| Pressure gauge port size∗1 | | [AR] | 1/8 | | | | | |
| Fluid | | | Air | | | | | |
| Ambient and fluid temperatures∗2 | | | –5 to 60°C (No freezing) | | | | | |
| Proof pressure | | | 1.5 MPa | | | | | |
| Max. operating pressure | | | 1.0 MPa | | | | | |
| Auto drain minimum operating pressure | N.C. | [AF] | 0.1 MPa | 0.15 MPa | | | | |
| | N.O. | [AF] | — | 0.1 MPa | | | | |
| Set pressure range | | [AR] | 0.05 to 0.85 MPa | | | | | |
| Nominal filtration rating∗3 | | [AF] | 5 μm | | | | | |
| Compressed air purity class∗4 | | | ISO 8573-1:2010 [ 6 : 4 : – ]∗5 | | | | | |
| Drain capacity | | [AF] | 8 cm³ | 25 cm³ | 45 cm³ | | | |
| Min. dripping flow rate∗6 | | [AL] | 15 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR) | 50 L/min (ANR) | 190 L/min (ANR) | 220 L/min (ANR) |
| Oil capacity | | [AL] | 25 cm³ | 55 cm³ | 135 cm³ | | | |
| Recommended lubricant | | [AL] | Class 1 turbine oil (ISO VG32) | | | | | |
| Bowl material | | [AF/AL] | Polycarbonate | | | | | |
| Bowl guard | | [AF/AL] | Semi-standard (Steel) | Standard (Polycarbonate) | | | | |
| Construction | | [AR] | Relieving type | | | | | |
| Weight | | | 0.38 kg | 0.75 kg | 1.42 kg | 1.55 kg | 3.34 kg | 3.60 kg |

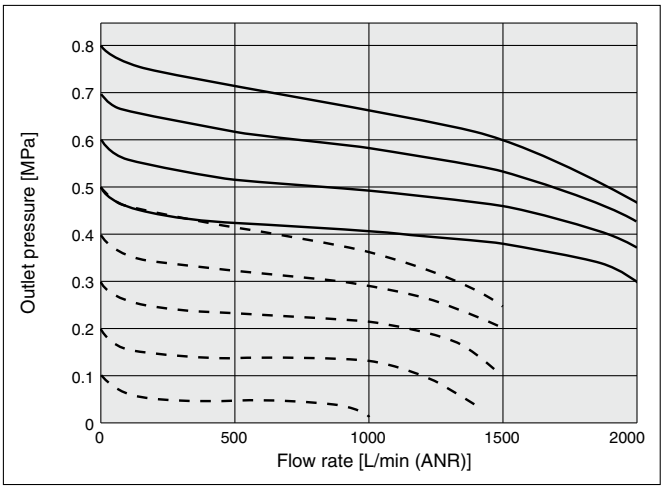
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗5 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].
∗6 · The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open.
· For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

## Flow Rate Characteristics (Representative values)

Inlet pressure: 1.0 MPa
Inlet pressure: 0.7 MPa

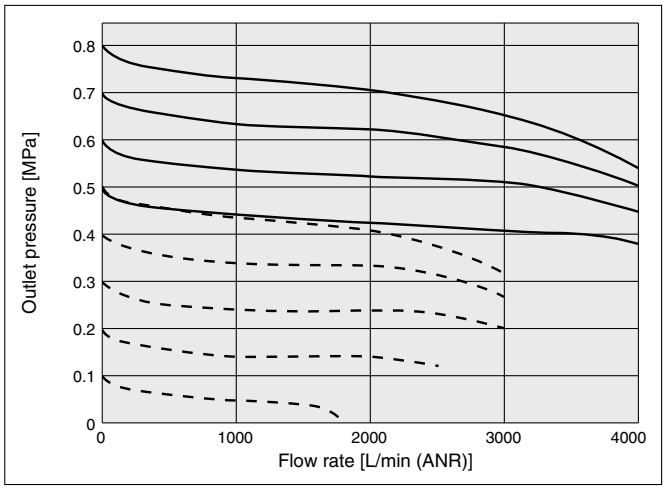
### AC20-D

Rc1/4



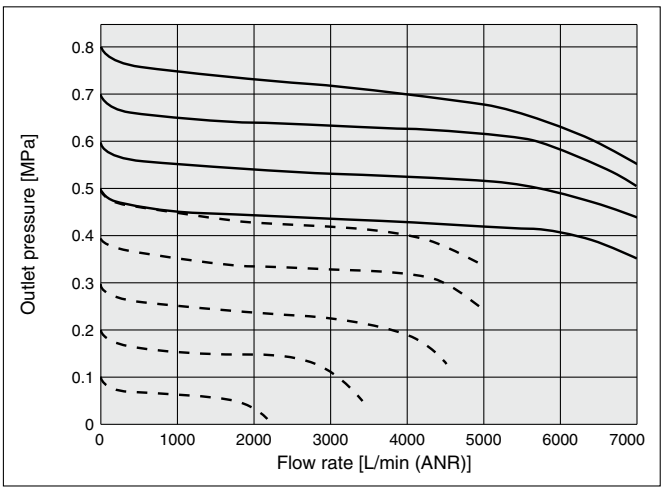

### AC30-D

Rc3/8



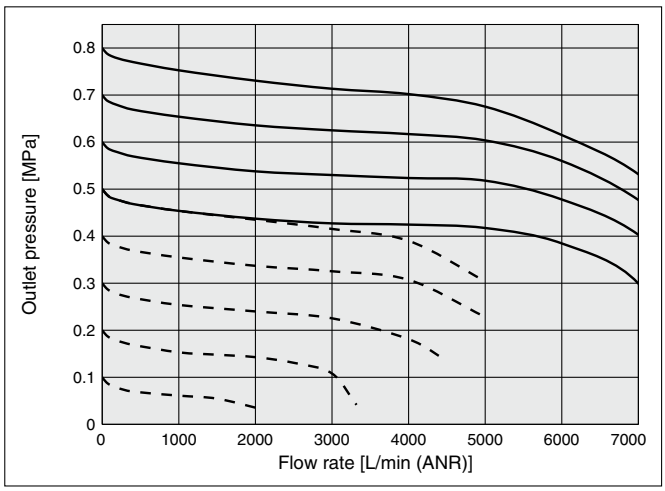

### AC40-D

Rc1/2



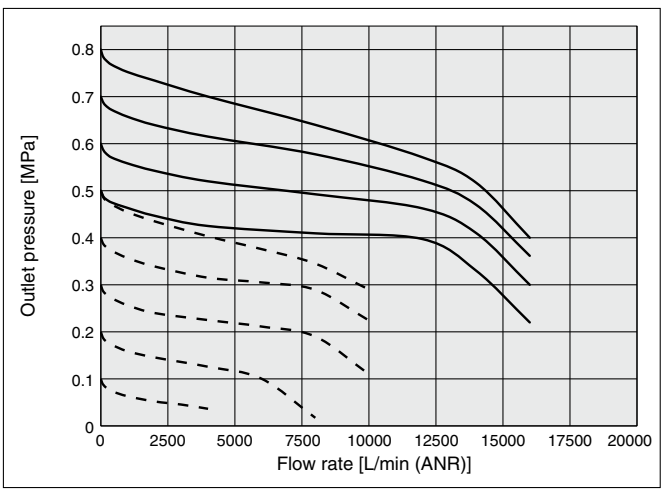

### AC40-06-D

Rc3/4



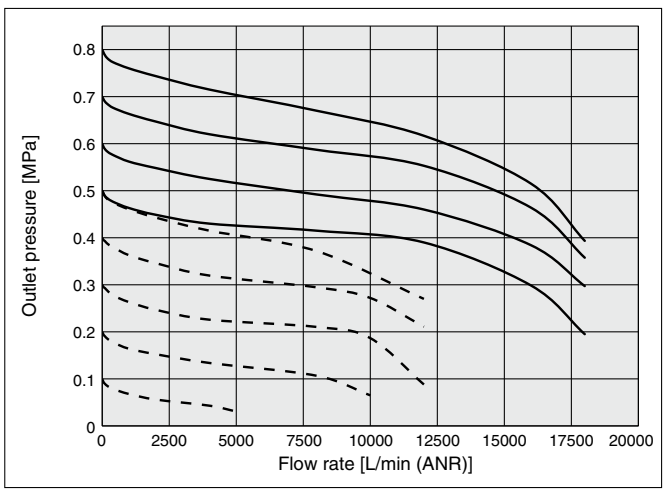

### AC50-D

Rc1




### AC60-D

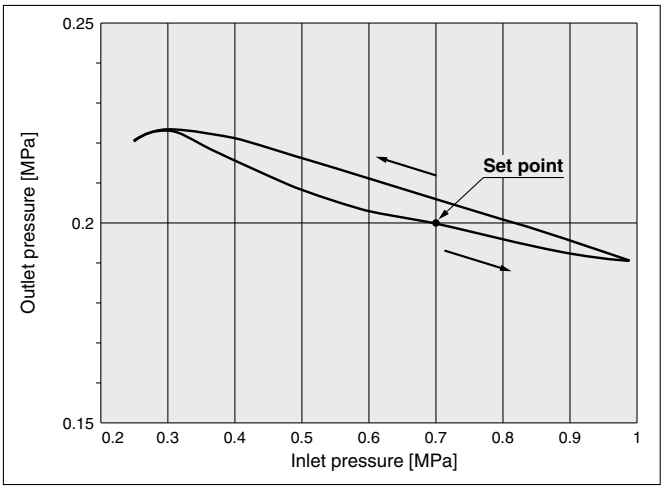
Rc1



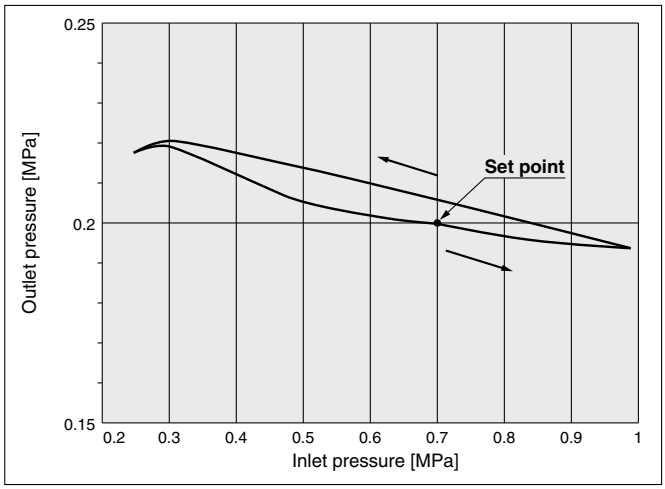
## Pressure Characteristics (Representative values)

Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)

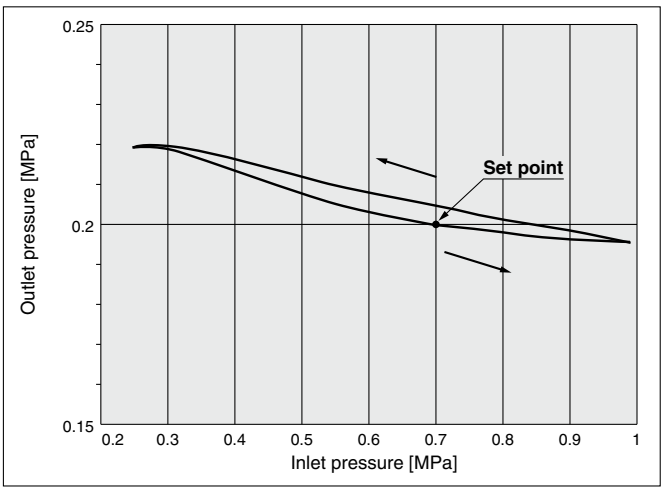
### AC20-D



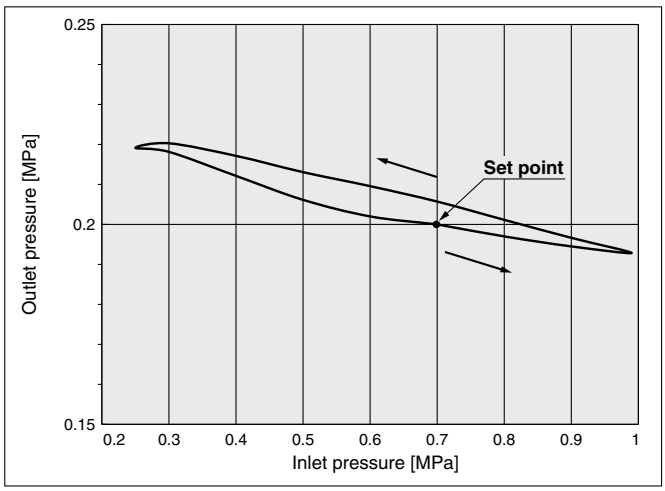

### AC30-D



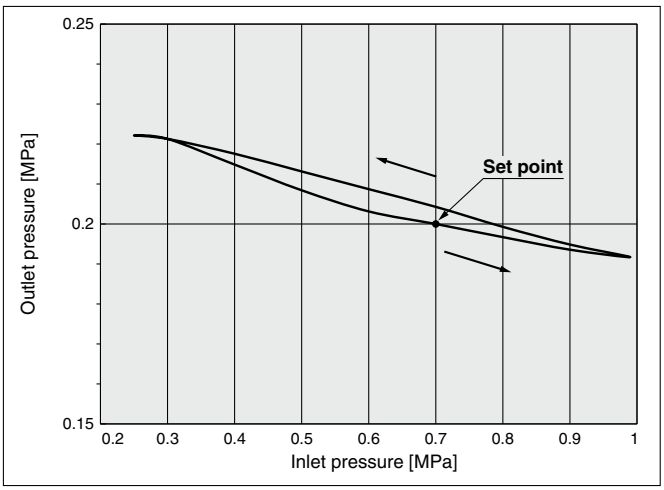

### AC40-D



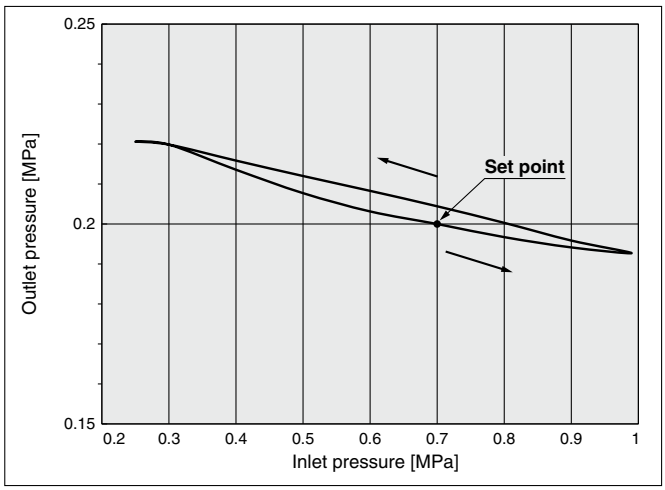

### AC40-06-D




### AC50-D

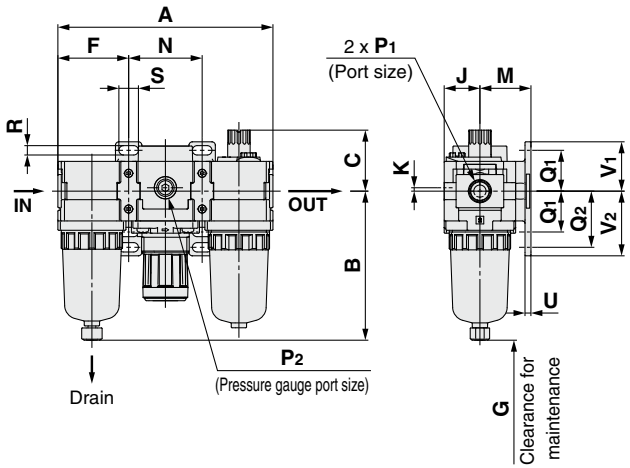



### AC60-D

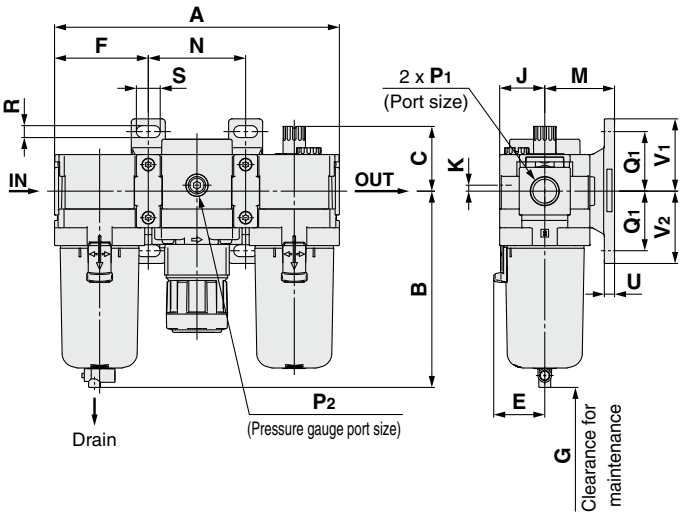


## Dimensions

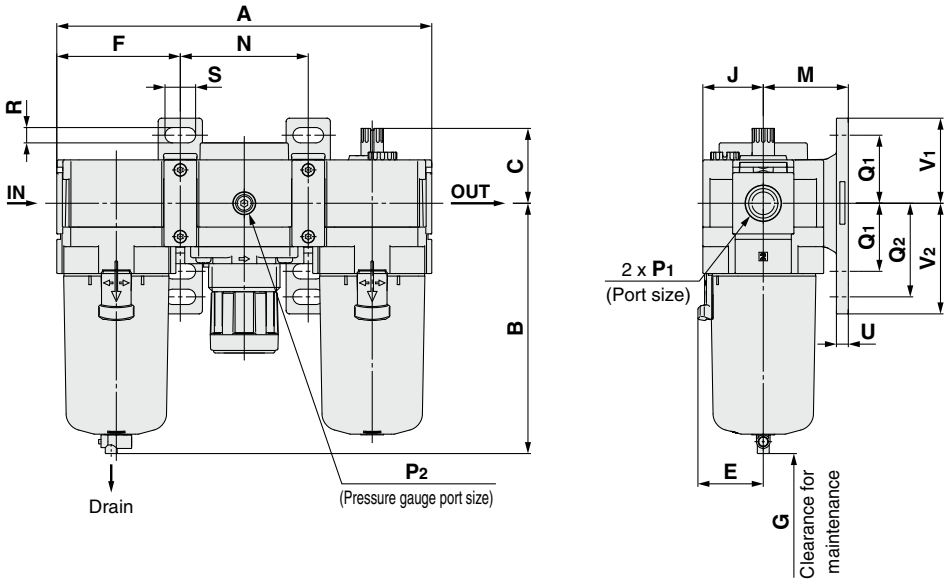
### AC20-D



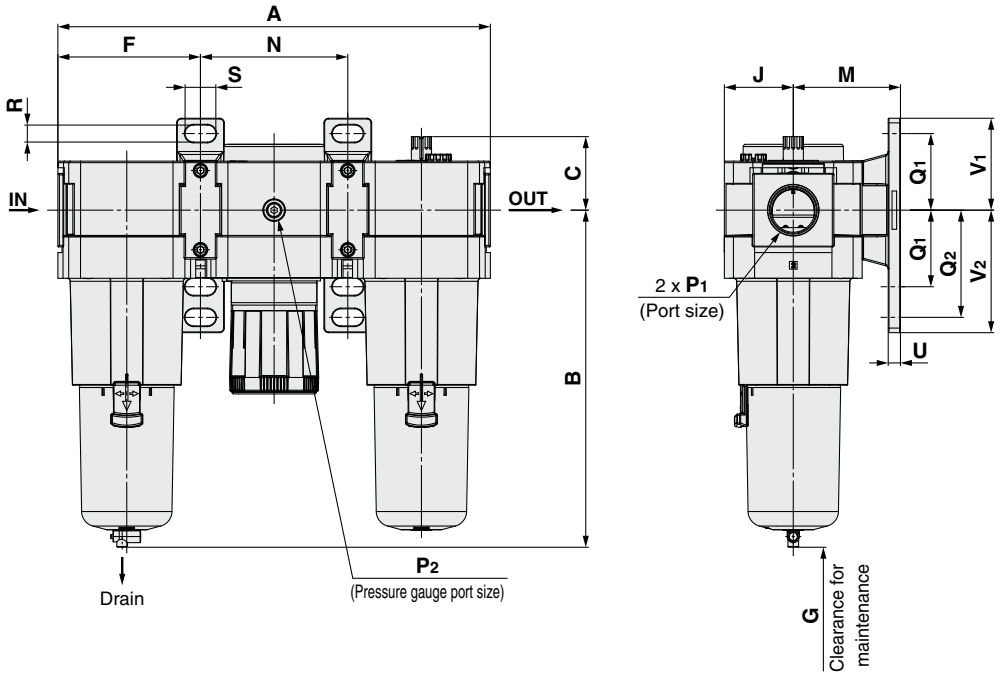

### AC30-D

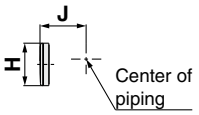
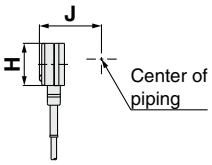
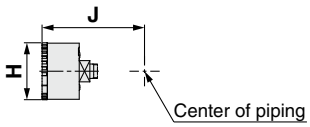


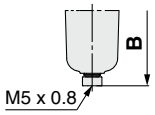
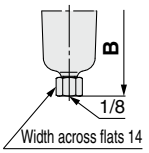
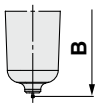
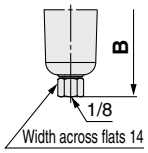
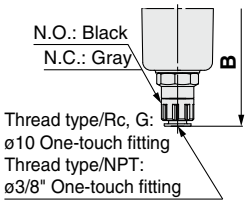
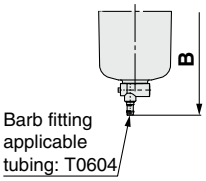
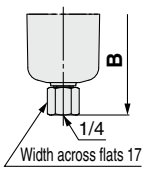
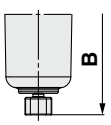
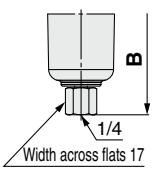
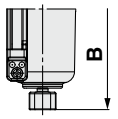
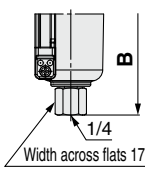

### AC40-D to AC40-06-D




### AC50-D to AC60-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20-D to AC60-D** |  |  |  | |

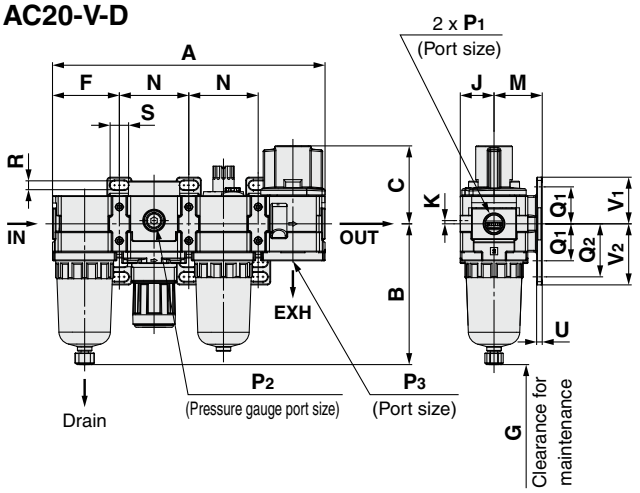
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20-D** |  | |  |  |  | | |
| **AC30-D to AC60-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20-D** | 1/8, 1/4 | 1/8 | 126.4 | 87.6 | 35.9 | — | 41.6 | 60 | 21 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30-D** | 1/4, 3/8 | 1/8 | 167.4 | 115.4 | 38.1 | 30 | 55.1 | 80 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40-D** | 1/4, 3/8, 1/2 | 1/8 | 220.4 | 147.1 | 44 | 38.4 | 72.6 | 110 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40-06-D** | 3/4 | 1/8 | 235.4 | 149.1 | 44 | 38.4 | 77.6 | 110 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50-D** | 3/4, 1 | 1/8 | 282.4 | 220.1 | 48 | — | 93.1 | 110 | 45 | — | 70 | 96.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |
| **AC60-D** | 1 | 1/8 | 297.4 | 234.1 | 48 | — | 98.1 | 110 | 45 | — | 70 | 101.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

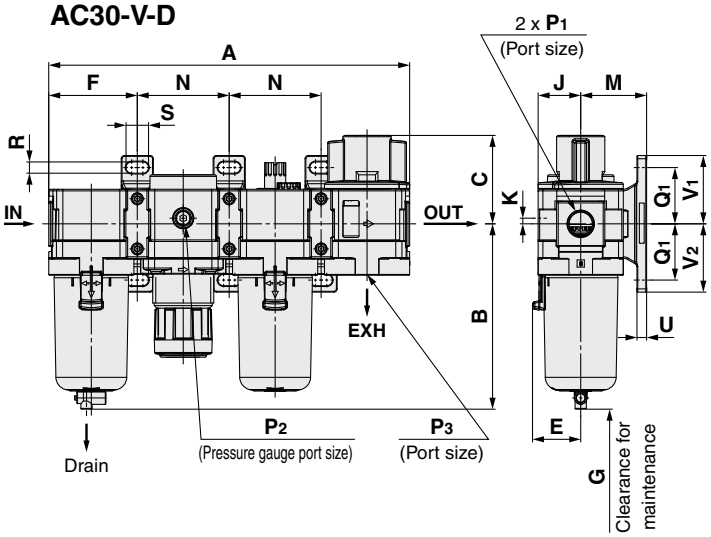
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40-06-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 259.9 | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 |
| **AC60-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

## Dimensions: With Pressure Relief 3-Port Valve (V)

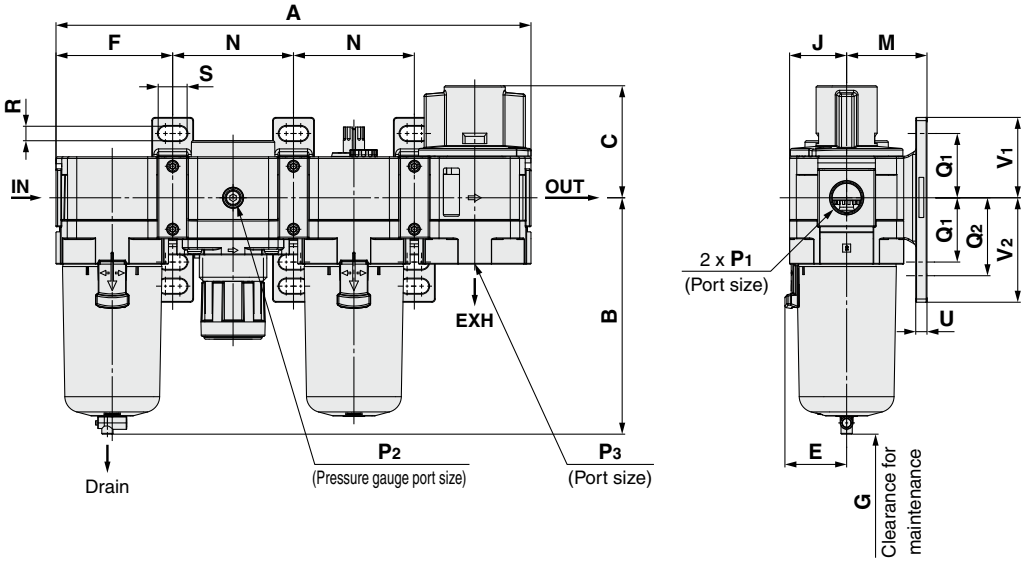
### AC20-V-D



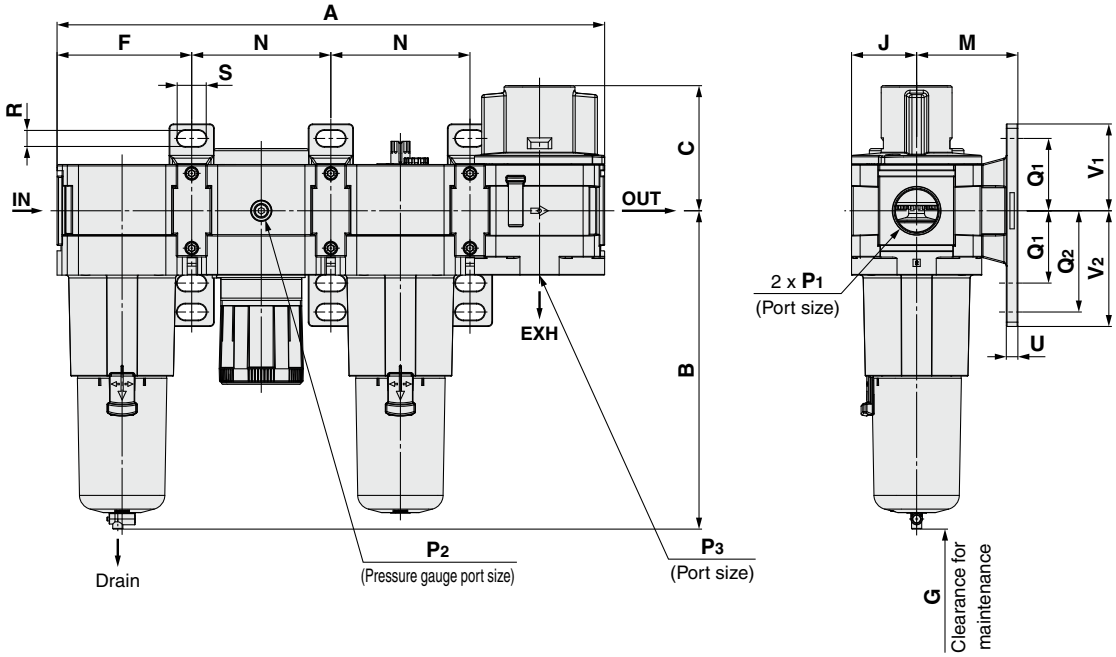

### AC30-V-D

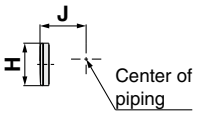
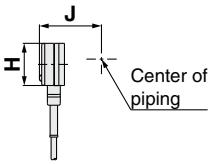
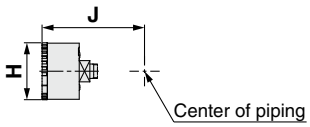


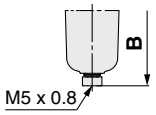
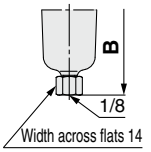
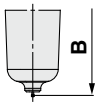
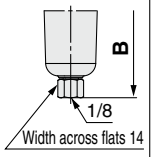
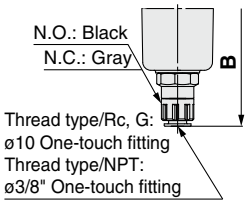
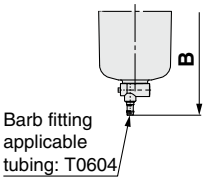
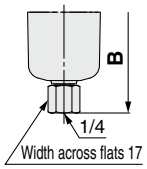
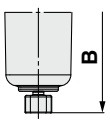
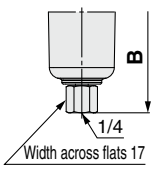
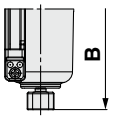
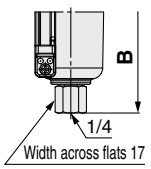

### AC40-V-D to AC40-06-V-D




### AC50-V-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20-V-D to AC50-V-D** |  |  |  | |

| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20-V-D** |  | |  |  |  | | |
| **AC30-V-D to AC50-V-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | Bracket mount | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20-V-D** | 1/8, 1/4 | 1/8 | 1/8 | 169.6 | 87.6 | 48.5 | — | 41.6 | 60 | 21 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30-V-D** | 1/4, 3/8 | 1/8 | 1/4 | 224.6 | 115.4 | 55 | 30 | 55.1 | 80 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40-V-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 295.6 | 147.1 | 69.7 | 38.4 | 72.6 | 110 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40-06-V-D** | 3/4 | 1/8 | 1/2 | 315.6 | 149.1 | 71.7 | 38.4 | 77.6 | 110 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50-V-D** | 3/4, 1 | 1/8 | 1/2 | 378.6 | 220.1 | 86.5 | — | 93.1 | 110 | 45 | — | 70 | 96.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

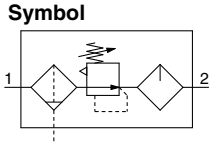
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20-V-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30-V-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40-06-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50-V-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 259.9 | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 |

Air Combination

# Filter Regulator + Lubricator

# AC20A-D to AC60A-D

Symbol




## How to Order

**AC 30 A – ❷ 03 DE – ❺ – ❻ – D**

❶ ❷ ❸ ❹ ❺ ❻

· Option/Semi-standard: Select one each for **a** to **j**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AC30A-F03DE1-16NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N***1 | NPT | ● | ● | ● | ● | ● |
| | | | **F***2 | G | ● | ● | ● | ● | ● |
| + | | | | | | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| + | | | | | | | | | |
| ❹ Option*3 | **a** | Float type auto drain | **Nil** | Without auto drain | ● | ● | ● | ● | ● |
| | | | **C***4 | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● | ● | ● |
| | | | **D***5 | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● | ● | ● |
| + | | | | | | | | | |
| | **b** | Pressure gauge*6 | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● |
| | | Digital pressure switch | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| + | | | | | | | | | |
| ❺ Attachment | **c** | Pressure relief 3-port valve | **Nil** | Without attachment | ● | ● | ● | ● | ● |
| | | | **V** | Mounting position: AW + AL + **V** | ● | ● | ● | ● | — |
| + | | | | | | | | | |
| ❻ Semi-standard | **d** | Set pressure*7 | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● | ● | ● |
| + | | | | | | | | | |
| | **e** | Bowl*8 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —*9 | —*9 | —*9 | —*9 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —*10 | —*10 | —*10 | —*10 |
| + | | | | | | | | | |
| | **f** | Filter regulator drain port*11 | **Nil** | With drain cock | ● | ● | ● | ● | ● |
| | | | **J***12 | Drain guide 1/8 | ● | — | — | — | — |
| | | | | Drain guide 1/4 | — | ● | ● | ● | ● |
| | | | **W***13 | Drain cock with barb fitting (for ø6 x ø4 nylon tube) | — | ● | ● | ● | ● |
| + | | | | | | | | | |
| | **g** | Lubricator lubricant exhaust port | **Nil** | Without drain cock | ● | ● | ● | ● | ● |
| | | | **3***14 | Lubricator with drain cock | ● | ● | ● | ● | ● |
| + | | | | | | | | | |
| | **h** | Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● | ● | ● |

AC30A-D

| | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|
| ❻ Semi-standard | i Flow direction | Nil | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | R | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | j Unit | Nil | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | Z∗15 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗17 | ○∗17 | ○∗17 | ○∗17 | ○∗17 |
| | | ZA∗16 | Digital pressure switch: With unit selection function | △∗18 | △∗18 | △∗18 | △∗18 | △∗18 |

∗1 Drain guide is NPT1/8 (applicable to the AC20A-D) and NPT1/4 (applicable to the AC30A-D to AC60A-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30A-D to AC60A-D).
∗2 Drain guide is G1/8 (applicable to the AC20A-D) and G1/4 (applicable to the AC30A-D to AC60A-D).
∗3 Options G and M are not assembled and supplied loose at the time of shipment.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗7 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗8 Refer to chemical data on pages 93 and 109 for chemical resistance of the bowl.
∗9 A bowl guard is provided as standard equipment (polycarbonate).
∗10 A bowl guard is provided as standard equipment (nylon).
∗11 The combination of float type auto drain C and D is not available.
∗12 Without a valve function
∗13 The combination of metal bowl 2 and 8 is not available.
∗14 When choosing with W: Filter regulator drain port, the drain cock of a lubricator will be with barb fittings.
∗15 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special.
The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗16 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
∗17 ○: For the pipe thread type: NPT only
∗18 △: Select with options: E1, E2, E3, E4.

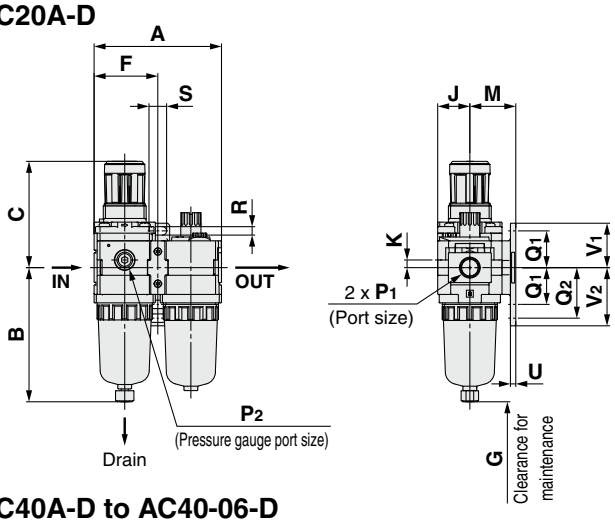
## Standard Specifications

| Model | | | AC20A-D | AC30A-D | AC40A-D | AC40A-06-D | AC50A-D | AC60A-D |
|---|---|---|---|---|---|---|---|---|
| Component | Filter Regulator | [AW] | AW20-D | AW30-D | AW40-D | AW40-06-D | AW60-D | AW60-D |
| | Lubricator | [AL] | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
| Port size | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| Pressure gauge port size∗1 | | [AW] | 1/8 | | | | | |
| Fluid | | | Air | | | | | |
| Ambient and fluid temperatures∗2 | | | –5 to 60°C (No freezing) | | | | | |
| Proof pressure | | | 1.5 MPa | | | | | |
| Max. operating pressure | | | 1.0 MPa | | | | | |
| Auto drain minimum operating pressure | N.C. | [AW] | 0.1 MPa | 0.15 MPa | | | | |
| | N.O. | [AW] | — | 0.1 MPa | | | | |
| Set pressure range | | [AW] | 0.05 to 0.85 MPa | | | | | |
| Nominal filtration rating∗3 | | [AW] | 5 μm | | | | | |
| Compressed air purity class∗4 | | | ISO 8573-1:2010 [ 6 : 4 : – ]∗5 | | | | | |
| Drain capacity | | [AW] | 8 cm³ | 25 cm³ | 45 cm³ | | | |
| Min. dripping flow rate∗6 | | [AL] | 15 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR) | 50 L/min (ANR) | 190 L/min (ANR) | 220 L/min (ANR) |
| Oil capacity | | [AL] | 25 cm³ | 55 cm³ | 135 cm³ | | | |
| Recommended lubricant | | [AL] | Class 1 turbine oil (ISO VG32) | | | | | |
| Bowl material | | [AW/AL] | Polycarbonate | | | | | |
| Bowl guard | | [AW/AL] | Semi-standard (Steel) | Standard (Polycarbonate) | | | | |
| Construction | | [AW] | Relieving type | | | | | |
| Weight | | | 0.31 kg | 0.58 kg | 1.12 kg | 1.22 kg | 2.90 kg | 2.97 kg |

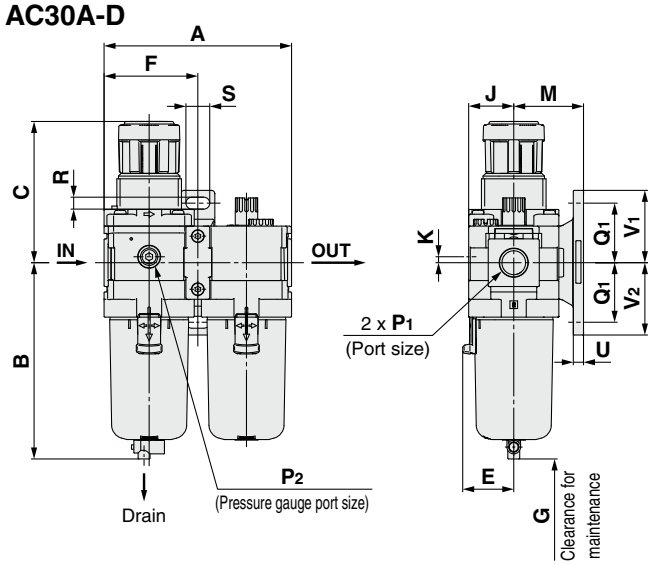
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗5 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].
∗6 · The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open.
· For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

## Dimensions

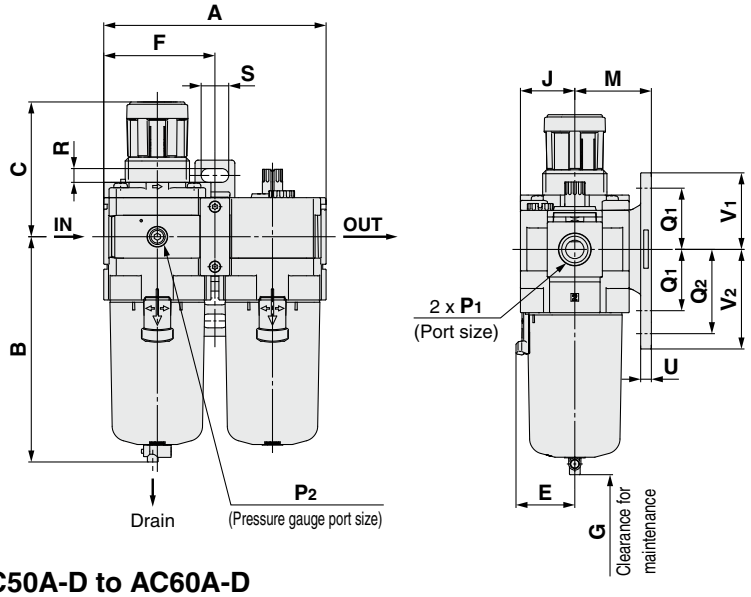
### AC20A-D



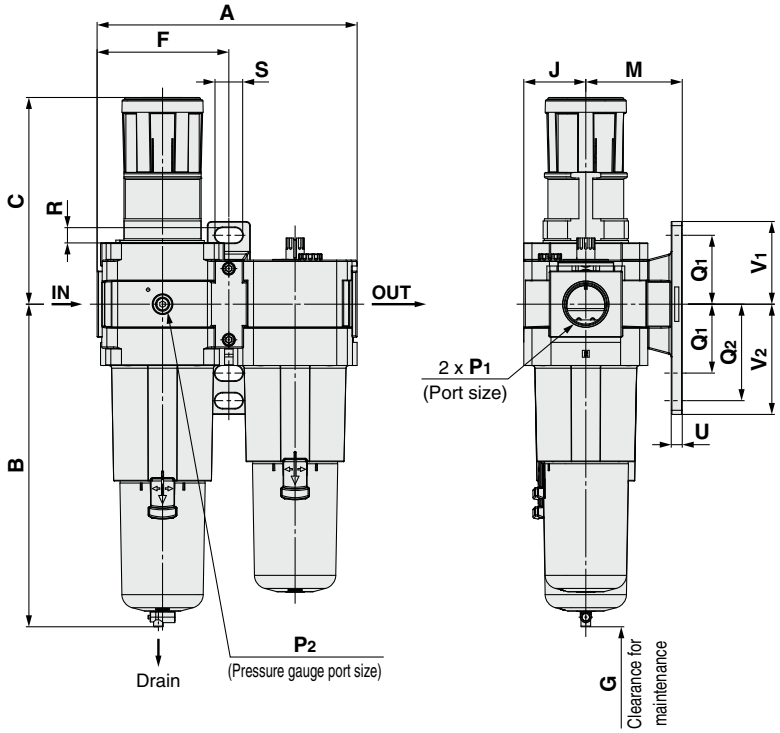

### AC30A-D

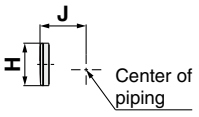
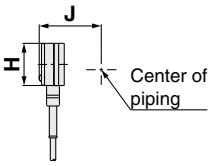
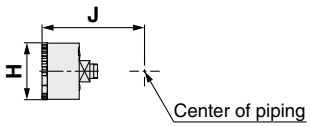


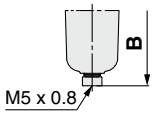
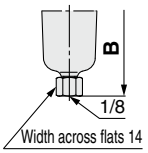
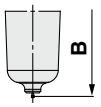
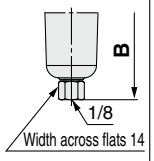
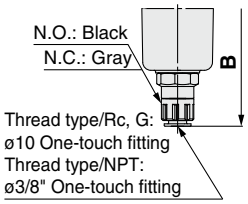
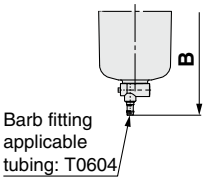
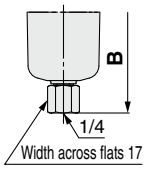
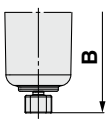
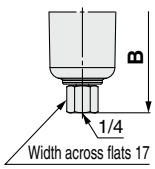
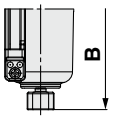
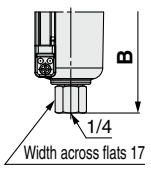

### AC40A-D to AC40-06-D




### AC50A-D to AC60A-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20A-D to AC60A-D** |  |  |  | |

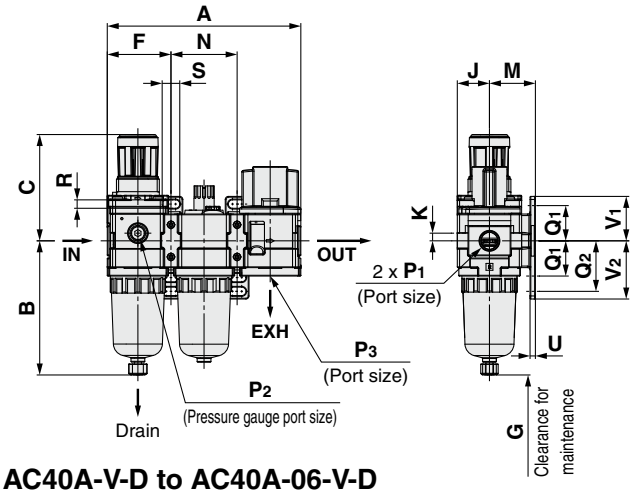
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20A-D** |  | |  |  |  | | |
| **AC30A-D to AC60A-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | Bracket mount | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | A | B | C | E | F | G | J | K | M | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20A-D** | 1/8, 1/4 | 1/8 | 83.2 | 87.6 | 71.8 | — | 41.6 | 60 | 21 | 5 | 30 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30A-D** | 1/4, 3/8 | 1/8 | 110.2 | 115.3 | 86.5 | 30 | 55.1 | 80 | 26.5 | 3.5 | 41 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40A-D** | 1/4, 3/8, 1/2 | 1/8 | 145.2 | 147.1 | 91.5 | 38.4 | 72.6 | 110 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40A-06-D** | 3/4 | 1/8 | 155.2 | 149.1 | 93 | 38.4 | 77.6 | 110 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50A-D** | 3/4, 1 | 1/8 | 191.2 | 234.1 | 155 | — | 98.1 | 110 | 45 | — | 70 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |
| **AC60A-D** | 1 | 1/8 | 196.2 | 234.1 | 155 | — | 98.1 | 110 | 45 | — | 70 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

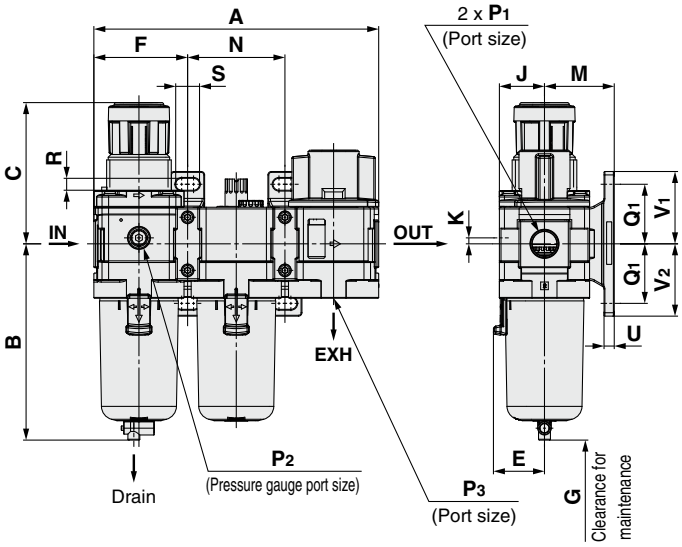
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20A-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30A-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40A-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40A-06-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50A-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |
| **AC60A-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

## Dimensions: With Pressure Relief 3-Port Valve (V)

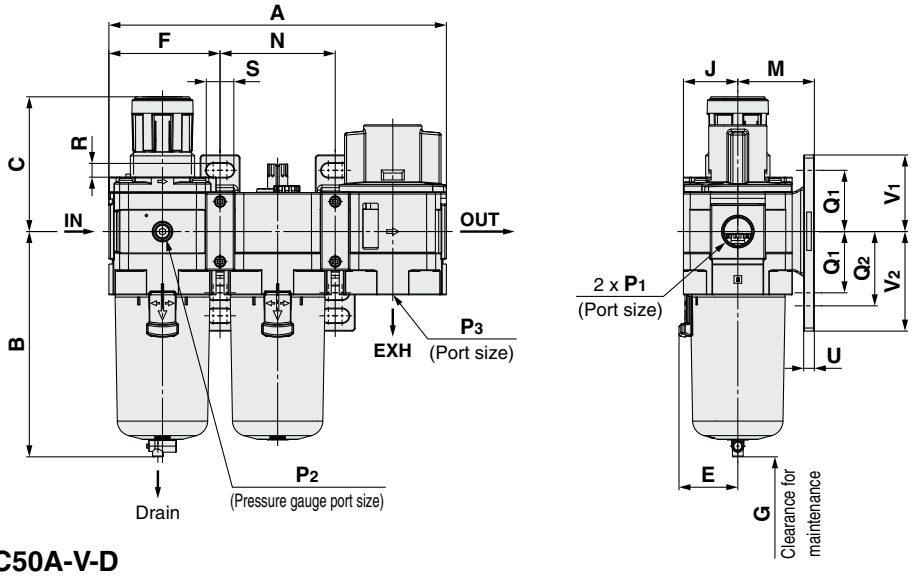
### AC20A-V-D



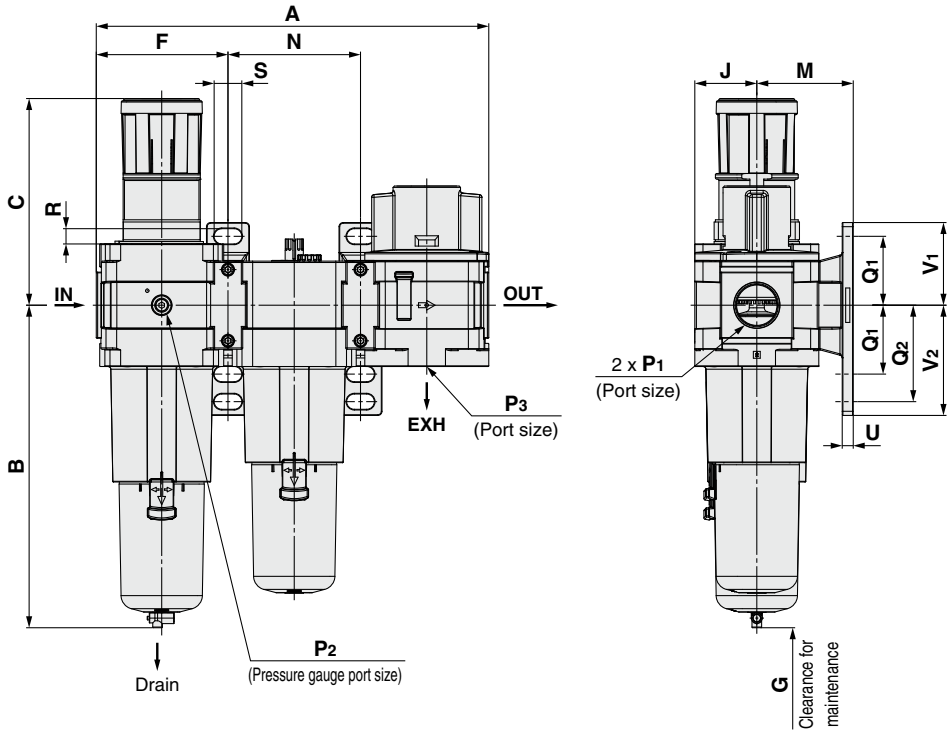

### AC30A-V-D

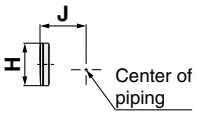
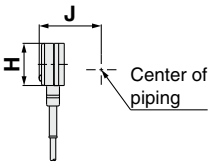
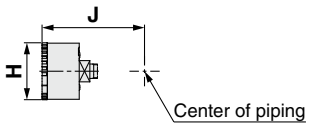


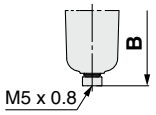
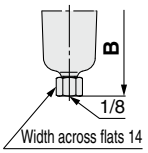
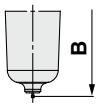
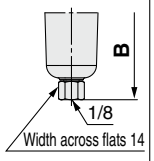
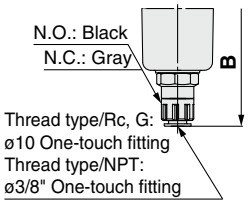
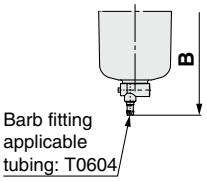
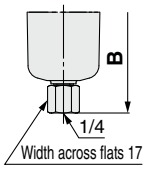
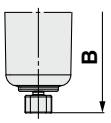
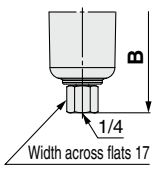
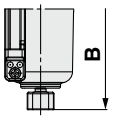
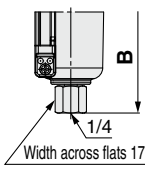

### AC40A-V-D to AC40A-06-V-D




### AC50A-V-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20A-V-D to AC50A-V-D** |  |  |  | |

| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20A-V-D** |  | |  |  |  | | |
| **AC30A-V-D to AC50A-V-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | Bracket mount | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20A-V-D** | 1/8, 1/4 | 1/8 | 1/8 | 126.4 | 87.6 | 71.8 | — | 41.6 | 60 | 21 | 5 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30A-V-D** | 1/4, 3/8 | 1/8 | 1/4 | 167.4 | 115.3 | 86.5 | 30 | 55.1 | 80 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40A-V-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 220.4 | 147.1 | 91.5 | 38.4 | 72.6 | 110 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40A-06-V-D** | 3/4 | 1/8 | 1/2 | 235.4 | 149.1 | 93 | 38.4 | 77.6 | 110 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50A-V-D** | 3/4, 1 | 1/8 | 1/2 | 287.4 | 234.1 | 155 | — | 98.1 | 110 | 45 | — | 70 | 96.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

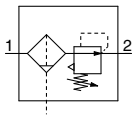
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20A-V-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30A-V-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40A-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40A-06-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50A-V-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

Air Combination

# Air Filter + Regulator

# AC20B-D to AC60B-D

Symbol




## How to Order

**AC 30 B – ❷ 03 DE – ❺ – ❻ – D**

❶ ❷ ❸ ❹ ❺ ❻

· Option/Semi-standard: Select one each for **a** to **i**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AC30B-F03DE1-16NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N**[*1] | NPT | ● | ● | ● | ● | ● |
| | | | **F**[*2] | G | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| | | | + | | | | | | |
| ❹ | Option[*3] | **a** Float type auto drain | **Nil** | Without auto drain | ● | ● | ● | ● | ● |
| | | | **C**[*4] | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● | ● | ● |
| | | | **D**[*5] | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **b** Pressure gauge[*6] | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● |
| | | **b** Digital pressure switch | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❺ | Attachment | **c** Pressure relief 3-port valve | **Nil** | Without attachment | ● | ● | ● | ● | ● |
| | | | **V** | Mounting position: AF + AR + **V** | ● | ● | ● | ● | — |
| | | | **V1**[*7] | Mounting position: **V** + AF + AR□K | ● | ● | ● | ● | — |
| | | | + | | | | | | |
| ❻ | Semi-standard | **d** Set pressure[*8] | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **e** Bowl[*9] | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —[*10] | —[*10] | —[*10] | —[*10] |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —[*11] | —[*11] | —[*11] | —[*11] |
| | | | + | | | | | | |
| | | **f** Air filter drain port[*12] | **Nil** | With drain cock | ● | ● | ● | ● | ● |
| | | | **J**[*13] | Drain guide 1/8 | ● | — | — | — | — |
| | | | | Drain guide 1/4 | — | ● | ● | ● | ● |
| | | | **W**[*14] | Drain cock with barb fitting (for ø6 x ø4 nylon tube) | — | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **g** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● | ● | ● |

**AC30B-D**

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❻ Semi-standard | h | Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | i | Unit | **Nil** | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | | **Z**∗15 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗17 | ○∗17 | ○∗17 | ○∗17 | ○∗17 |
| | | | **ZA**∗16 | Digital pressure switch: With unit selection function | △∗18 | △∗18 | △∗18 | △∗18 | △∗18 |

∗1 Drain guide is NPT1/8 (applicable to the AC20B-D) and NPT1/4 (applicable to the AC30B-D to AC60B-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30B-D to AC60B-D).
∗2 Drain guide is G1/8 (applicable to the AC20B-D) and G1/4 (applicable to the AC30B-D to AC60B-D).
∗3 Options G and M are not assembled and supplied loose at the time of shipment.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗7 The regulator is equipped with a backflow function in this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
∗8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗9 Refer to chemical data on page 68 for chemical resistance of the bowl.
∗10 A bowl guard is provided as standard equipment (polycarbonate).
∗11 A bowl guard is provided as standard equipment (nylon).
∗12 The combination of float type auto drain C and D is not available.
∗13 Without a valve function
∗14 The combination of metal bowl 2 and 8 is not available.
∗15 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special.
The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗16 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
∗17 ○: For the pipe thread type: NPT only
∗18 △: Select with options: E1, E2, E3, E4.

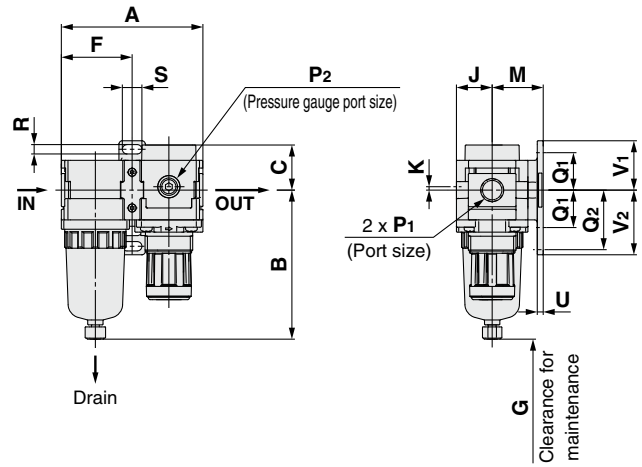
## Standard Specifications

| Model | | | AC20B-D | AC30B-D | AC40B-D | AC40B-06-D | AC50B-D | AC60B-D |
|---|---|---|---|---|---|---|---|---|
| **Component** | **Air Filter** | **[AF]** | **AF20-D** | **AF30-D** | **AF40-D** | **AF40-06-D** | **AF50-D** | **AF60-D** |
| | **Regulator** | **[AR]** | **AR20-D** | **AR30-D** | **AR40-D** | **AR40-06-D** | **AR50-D** | **AR60-D** |
| **Port size** | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| **Pressure gauge port size**∗1 | | **[AR]** | 1/8 | | | | | |
| **Fluid** | | | Air | | | | | |
| **Ambient and fluid temperatures**∗2 | | | –5 to 60°C (No freezing) | | | | | |
| **Proof pressure** | | | 1.5 MPa | | | | | |
| **Max. operating pressure** | | | 1.0 MPa | | | | | |
| **Auto drain minimum operating pressure** | **N.C.** | **[AF]** | 0.1 MPa | 0.15 MPa | | | | |
| | **N.O.** | **[AF]** | — | 0.1 MPa | | | | |
| **Set pressure range** | | **[AR]** | 0.05 to 0.85 MPa | | | | | |
| **Nominal filtration rating**∗3 | | **[AF]** | 5 μm | | | | | |
| **Compressed air purity class**∗4 | | | ISO 8573-1:2010 [ 6 : 4 : 4 ]∗5 | | | | | |
| **Drain capacity** | | **[AF]** | 8 $cm^3$ | 25 $cm^3$ | 45 $cm^3$ | | | |
| **Bowl material** | | **[AF]** | Polycarbonate | | | | | |
| **Bowl guard** | | **[AF]** | Semi-standard (Steel) | Standard (Polycarbonate) | | | | |
| **Construction** | | **[AR]** | Relieving type | | | | | |
| **Weight** | | | 0.25 kg | 0.51 kg | 0.95 kg | 1.02 kg | 2.20 kg | 2.39 kg |

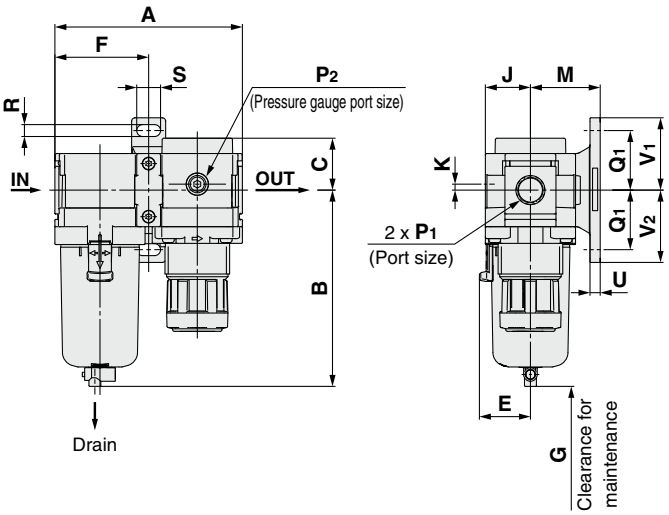
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗5 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].

## Dimensions

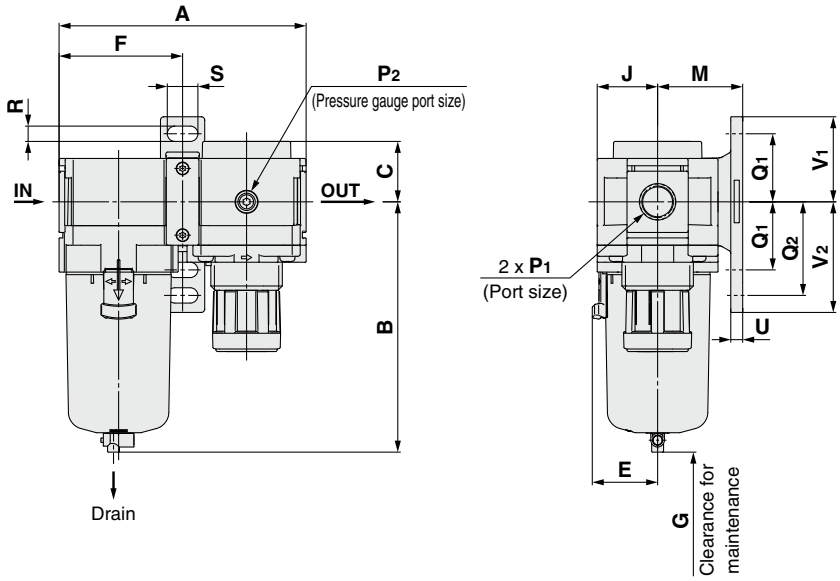
### AC20B-D



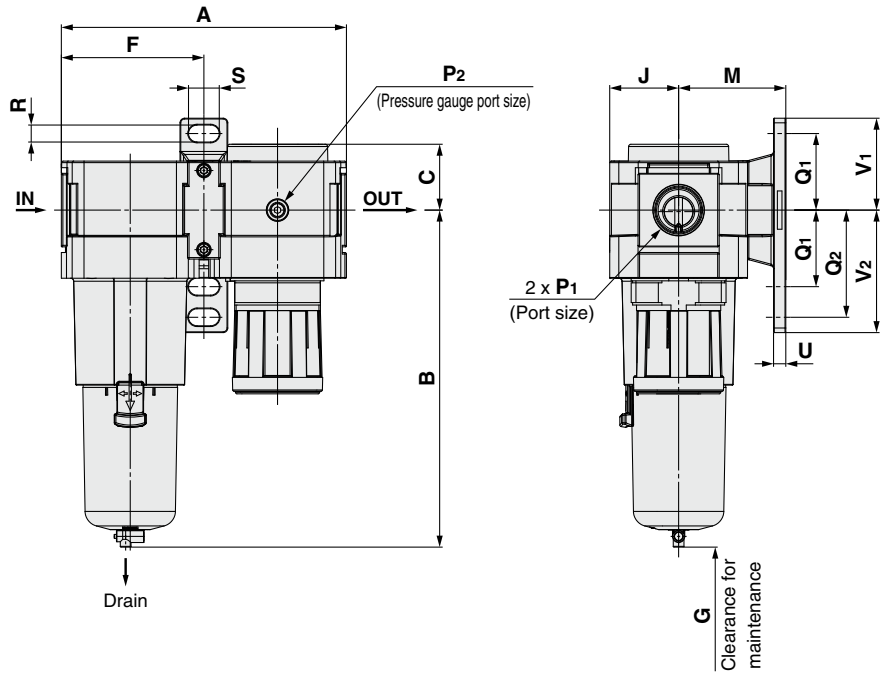

### AC30B-D

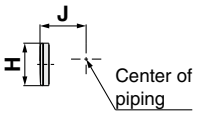
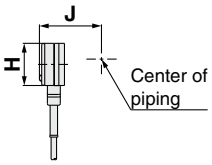
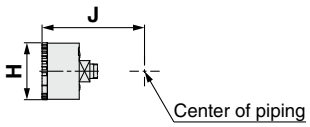


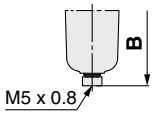
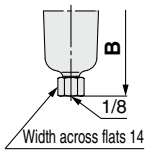
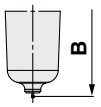
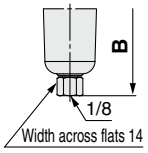
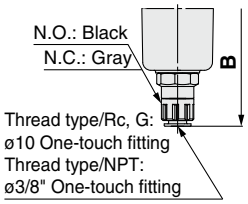
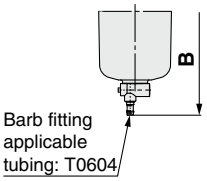
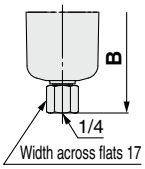
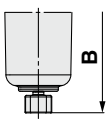
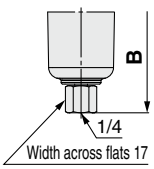
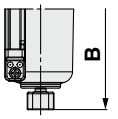
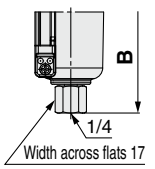

### AC40B-D to AC40B-06-D




### AC50B-D to AC60B-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20B-D to AC60B-D** |  |  |  | |

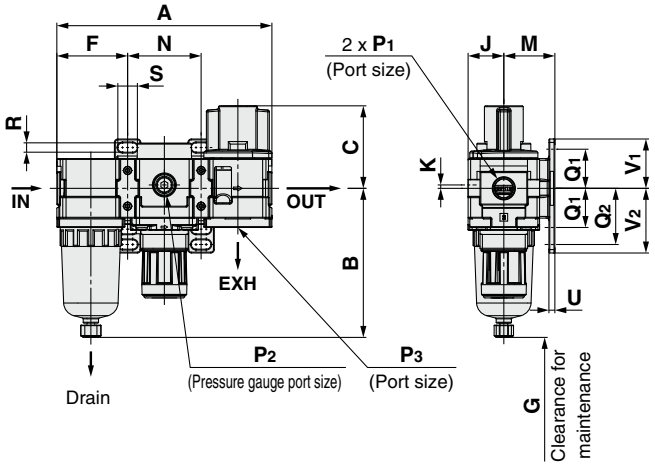
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20B-D** |  | |  |  |  | | |
| **AC30B-D to AC60B-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | Bracket mount | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | A | B | C | E | F | G | J | K | M | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20B-D** | 1/8, 1/4 | 1/8 | 83.2 | 87.6 | 26.5 | — | 41.6 | 25 | 21 | 2 | 30 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30B-D** | 1/4, 3/8 | 1/8 | 110.2 | 115.4 | 30.5 | 30 | 55.1 | 35 | 26.5 | 3.5 | 41 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40B-D** | 1/4, 3/8, 1/2 | 1/8 | 145.2 | 147.1 | 35.5 | 38.4 | 72.6 | 40 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40B-06-D** | 3/4 | 1/8 | 155.2 | 149.1 | 35.5 | 38.4 | 77.6 | 40 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50B-D** | 3/4, 1 | 1/8 | 186.2 | 220.1 | 43 | — | 93.1 | 30 | 45 | — | 70 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |
| **AC60B-D** | 1 | 1/8 | 196.2 | 234.1 | 45 | — | 98.1 | 30 | 45 | — | 70 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

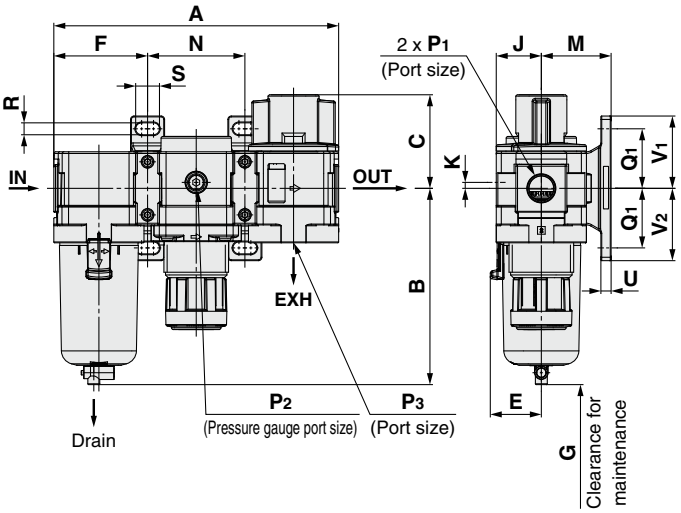
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20B-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30B-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40B-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40B-06-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50B-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 259.9 | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 |
| **AC60B-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

## Dimensions: With Pressure Relief 3-Port Valve (V)

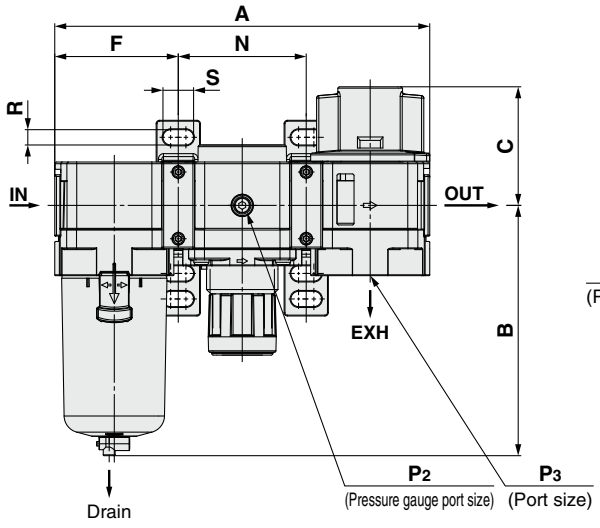
### AC20B-V-D

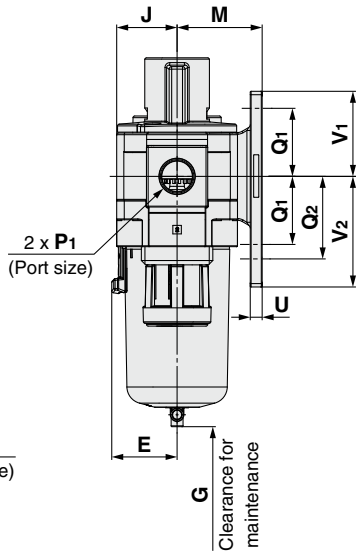



### AC30B-V-D

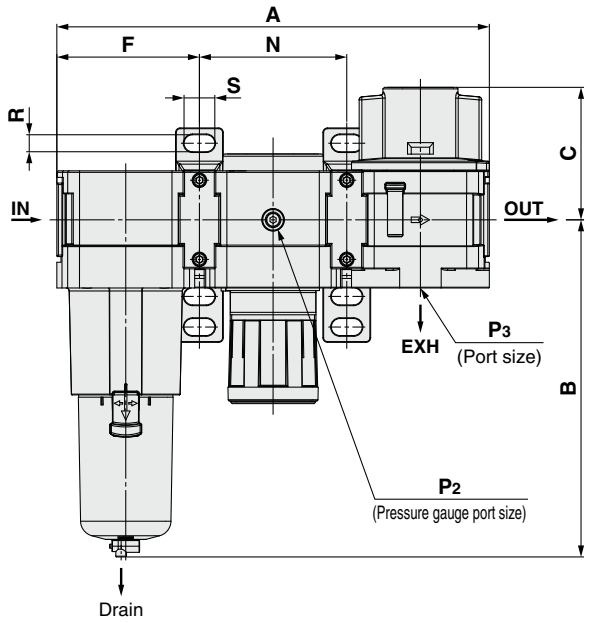


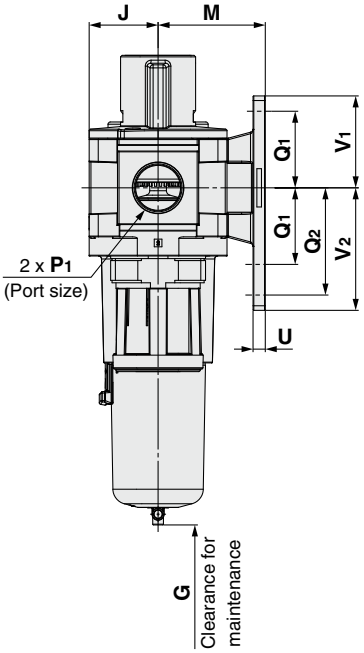

### AC40B-V-D to AC40B-06-V-D

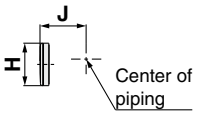
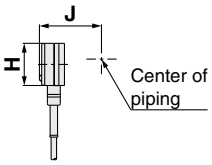
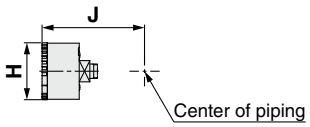


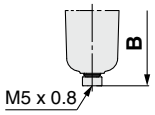
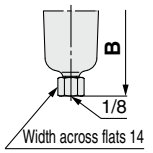
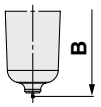
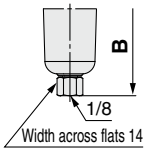
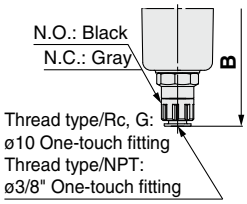
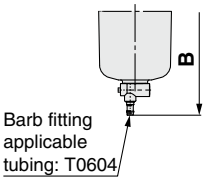
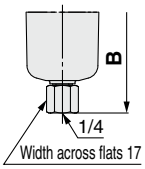
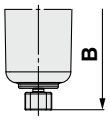
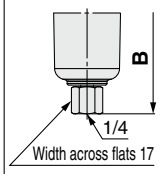
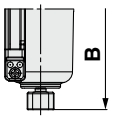
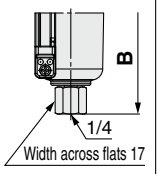




### AC50B-V-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20B-V-D to AC50B-V-D** |  |  |  | |

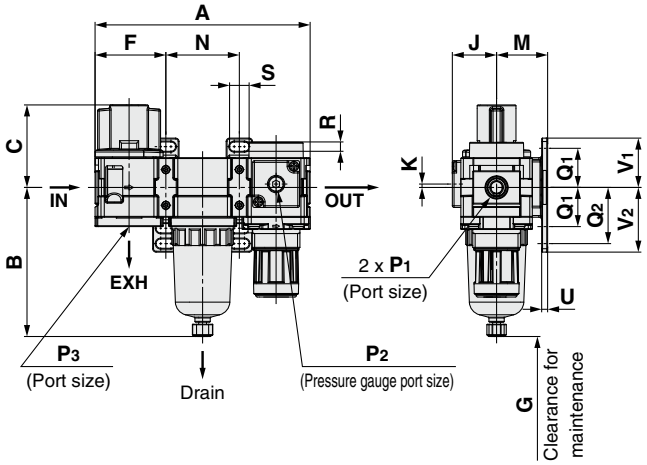
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20B-V-D** |  | |  |  |  | | |
| **AC30B-V-D to AC50B-V-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20B-V-D** | 1/8, 1/4 | 1/8 | 1/8 | 126.4 | 87.6 | 48.5 | — | 41.6 | 25 | 21 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30B-V-D** | 1/4, 3/8 | 1/8 | 1/4 | 167.4 | 115.4 | 55 | 30 | 55.1 | 35 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40B-V-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 220.4 | 147.1 | 69.7 | 38.4 | 72.6 | 40 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40B-06-V-D** | 3/4 | 1/8 | 1/2 | 235.4 | 149.1 | 71.7 | 38.4 | 77.6 | 40 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50B-V-D** | 3/4, 1 | 1/8 | 1/2 | 282.4 | 220.1 | 86.5 | — | 93.1 | 30 | 45 | — | 70 | 96.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

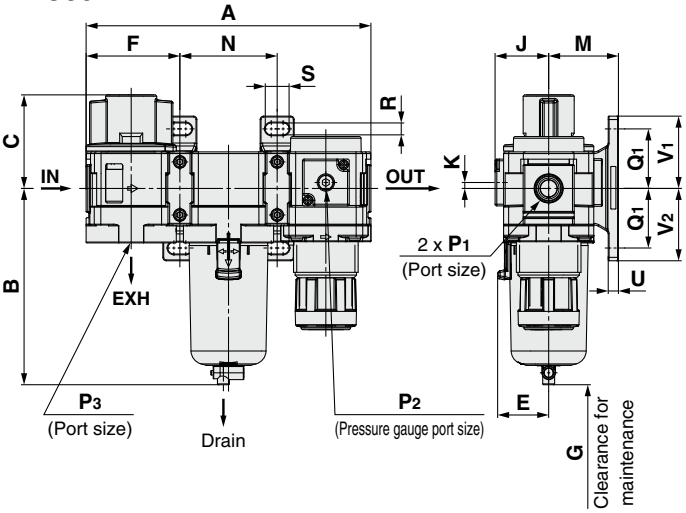
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20B-V-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30B-V-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40B-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40B-06-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50B-V-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 259.9 | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 |

## Dimensions: With Pressure Relief 3-Port Valve (V1)

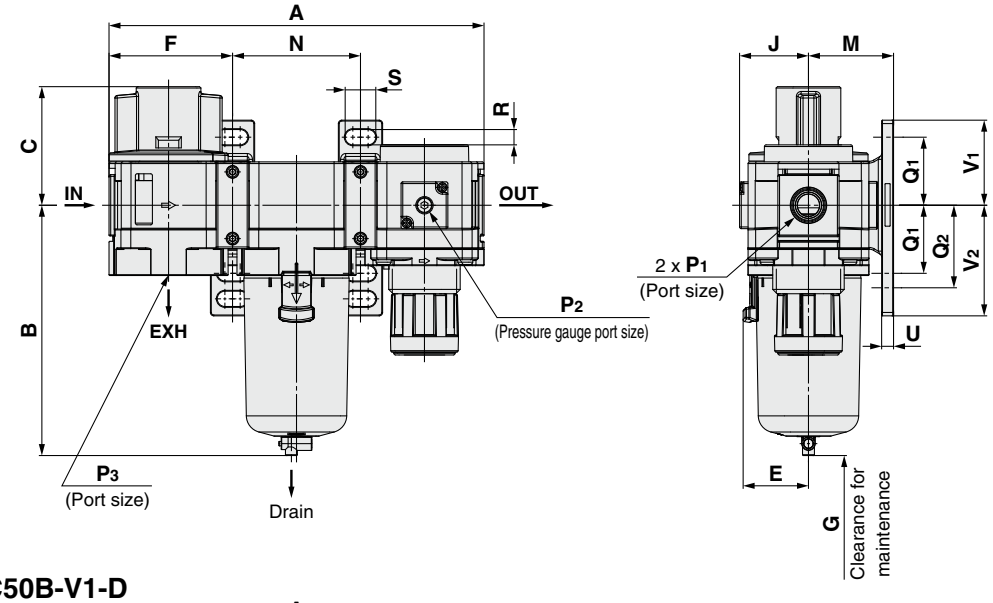
### AC20B-V1-D



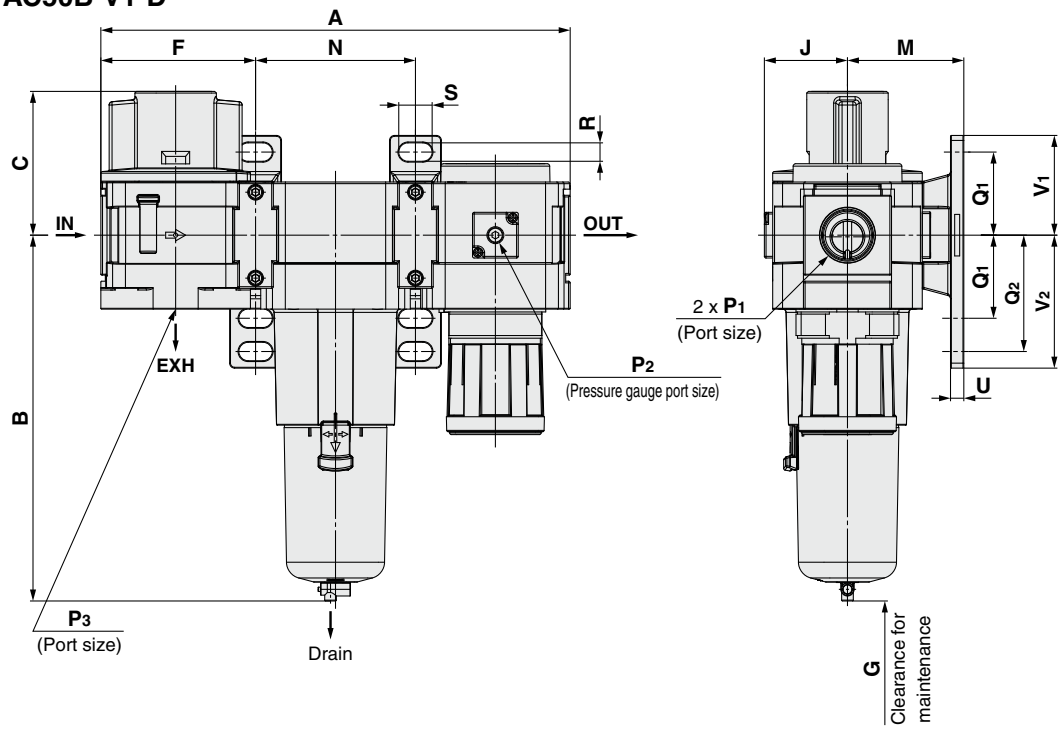

### AC30B-V1-D

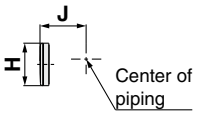
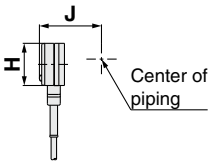
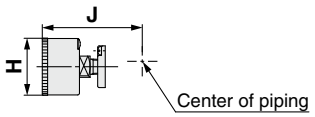


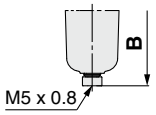
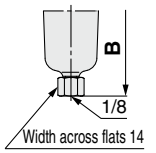
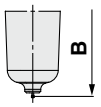
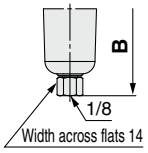
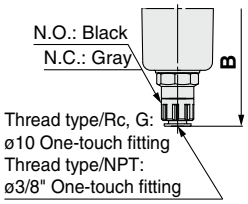
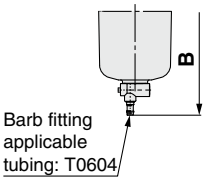
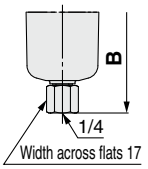
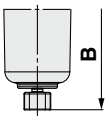
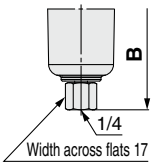
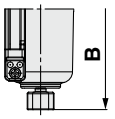
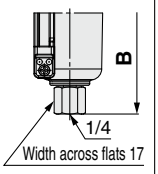

### AC40B-V1-D to AC40B-06-V1-D




### AC50B-V1-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20B-V1-D to AC50B-V1-D** |  |  |  | |

| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20B-V1-D** |  | |  |  |  | | |
| **AC30B-V1-D to AC50B-V1-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | Bracket mount | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20B-V1-D** | 1/8, 1/4 | 1/8 | 1/8 | 126.4 | 87.6 | 48.5 | — | 41.6 | 25 | 26 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30B-V1-D** | 1/4, 3/8 | 1/8 | 1/4 | 167.4 | 115.4 | 55 | 30 | 55.1 | 35 | 31.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40B-V1-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 220.4 | 147.1 | 69.7 | 38.4 | 72.6 | 40 | 40.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40B-06-V1-D** | 3/4 | 1/8 | 1/2 | 235.4 | 149.1 | 71.7 | 38.4 | 77.6 | 40 | 40.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC50B-V1-D** | 3/4, 1 | 1/8 | 1/2 | 282.4 | 220.1 | 86.5 | — | 93.1 | 30 | 50 | — | 70 | 96.2 | 50 | 70 | 11 | 20 | 8 | 60 | 80 |

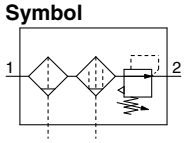
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20B-V1-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 62.5 | ø37.5 | 63.5 | ø37.5 | 63.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30B-V1-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 68 | ø37.5 | 69 | ø37.5 | 69 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40B-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 78 | ø42.5 | 78 | ø42.5 | 78 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40B-06-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AC50B-V1-D** | □28 | 51 | □27.8 | 61.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 | 259.9 | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 |

Air Combination

# Air Filter + Mist Separator + Regulator

# AC20C-D to AC40C-D

Symbol



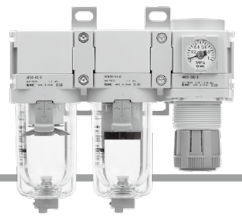

## How to Order

**AC 30 C – ❷ 03 DE – ❺ – ❻ – D**

❶ ❷ ❸ ❹ ❺ ❻

· Option/Semi-standard: Select one each for **a** to **i**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AC30C-F03DE1-16NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● |
| | | | **N**[*1] | NPT | ● | ● | ● |
| | | | **F**[*2] | G | ● | ● | ● |
| | | | + | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — |
| | | | **02** | 1/4 | ● | ● | ● |
| | | | **03** | 3/8 | — | ● | ● |
| | | | **04** | 1/2 | — | — | ● |
| | | | **06** | 3/4 | — | — | ● |
| | | | + | | | | |
| ❹ | Option[*3] | **a** Float type auto drain | **Nil** | Without auto drain | ● | ● | ● |
| | | | **C**[*4] | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● |
| | | | **D**[*5] | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● |
| | | | + | | | | |
| | | **b** Pressure gauge[*6] | **Nil** | Without pressure gauge | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● |
| | | **b** Digital pressure switch | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● |
| | | | + | | | | |
| ❺ | Attachment | **c** Pressure relief 3-port valve | **Nil** | Without attachment | ● | ● | ● |
| | | | **V** | Mounting position: AF + AFM + AR + **V** | ● | ● | ● |
| | | | **V1**[*7] | Mounting position: **V** + AF + AFM + AR□K | ● | ● | ● |
| | | | + | | | | |
| ❻ | Semi-standard | **d** Set pressure[*8] | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● |
| | | | + | | | | |
| | | **e** Bowl[*9] | **Nil** | Polycarbonate bowl | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● |
| | | | **C** | With bowl guard | ● | —[*10] | —[*10] |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —[*11] | —[*11] |
| | | | + | | | | |
| | | **f** Air filter Mist separator drain port[*12] | **Nil** | With drain cock | ● | ● | ● |
| | | | **J**[*13] | Drain guide 1/8 | ● | — | — |
| | | | | Drain guide 1/4 | — | ● | ● |
| | | | **W**[*14] | Drain cock with barb fitting (for ø6 x ø4 nylon tube) | — | ● | ● |
| | | | + | | | | |
| | | **g** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● |



AC30C-D

| | | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|---|
| ❻ Semi-standard | h Flow direction | Nil | Flow direction: Left to right | ● | ● | ● |
| | | R | Flow direction: Right to left | ● | ● | ● |
| | | + | | | | |
| | i Unit | Nil | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● |
| | | Z∗15 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗17 | ○∗17 | ○∗17 |
| | | ZA∗16 | Digital pressure switch: With unit selection function | △∗18 | △∗18 | △∗18 |

∗1 Drain guide is NPT1/8 (applicable to the AC20C-D) and NPT1/4 (applicable to the AC30C-D to AC40C-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30C-D to AC40C-D).
∗2 Drain guide is G1/8 (applicable to the AC20C-D) and G1/4 (applicable to the AC30C-D to AC40C-D).
∗3 Options G and M are not assembled and supplied loose at the time of shipment.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗7 The regulator is equipped with a backflow function in this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
∗8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗9 Refer to chemical data on pages 68 and 75 for chemical resistance of the bowl.
∗10 A bowl guard is provided as standard equipment (polycarbonate).
∗11 A bowl guard is provided as standard equipment (nylon).
∗12 The combination of float type auto drain C and D is not available.
∗13 Without a valve function
∗14 The combination of metal bowl 2 and 8 is not available.
∗15 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special.
The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗16 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
∗17 ○: For the pipe thread type: NPT only
∗18 △: Select with options: E1, E2, E3, E4.

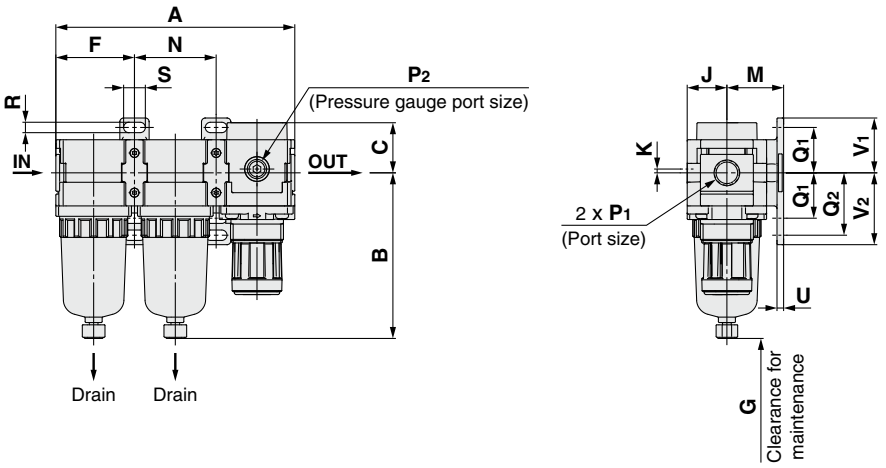
## Standard Specifications

| Model | | | AC20C-D | AC30C-D | AC40C-D | AC40C-06-D |
|---|---|---|---|---|---|---|
| Component | Air Filter | [AF] | AF20-D | AF30-D | AF40-D | AF40-06-D |
| | Mist Separator | [AFM] | AFM20-D | AFM30-D | AFM40-D | AFM40-06-D |
| | Regulator | [AR] | AR20-D | AR30-D | AR40-D | AR40-06-D |
| Port size | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| Pressure gauge port size∗1 | | [AR] | 1/8 | | | |
| Fluid | | | Air | | | |
| Ambient and fluid temperatures∗2 | | | –5 to 60°C (No freezing) | | | |
| Proof pressure | | | 1.5 MPa | | | |
| Max. operating pressure | | | 1.0 MPa | | | |
| Auto drain minimum operating pressure | N.C. | [AF/AFM] | 0.1 MPa | 0.15 MPa | | |
| | N.O. | [AF/AFM] | — | 0.1 MPa | | |
| Set pressure range | | [AR] | 0.05 to 0.85 MPa | | | |
| Max. flow capacity∗3 | | [AFM] | 200 L/min (ANR) | 450 L/min (ANR) | 1100 L/min (ANR) | |
| Nominal filtration rating∗4 | | [AF] | 5 μm | | | |
| | | [AFM] | 0.3 μm (99.9% filtered particle size) | | | |
| Outlet side oil mist concentration∗5, ∗6 | | [AFM] | Max. 1.0 mg/m$^3$ (≈ 0.8 ppm) | | | |
| Compressed air purity class∗7 | | | ISO 8573-1:2010 [ 3 : 4 : 3 ]∗8 | | | |
| Drain capacity | | [AF/AFM] | 8 cm$^3$ | 25 cm$^3$ | 45 cm$^3$ | |
| Bowl material | | [AF/AFM] | Polycarbonate | | | |
| Bowl guard | | [AF/AFM] | Semi-standard (Steel) | Standard (Polycarbonate) | | |
| Construction | | [AR] | Relieving type | | | |
| Weight | | | 0.38 kg | 0.75 kg | 1.42 kg | 1.54 kg |

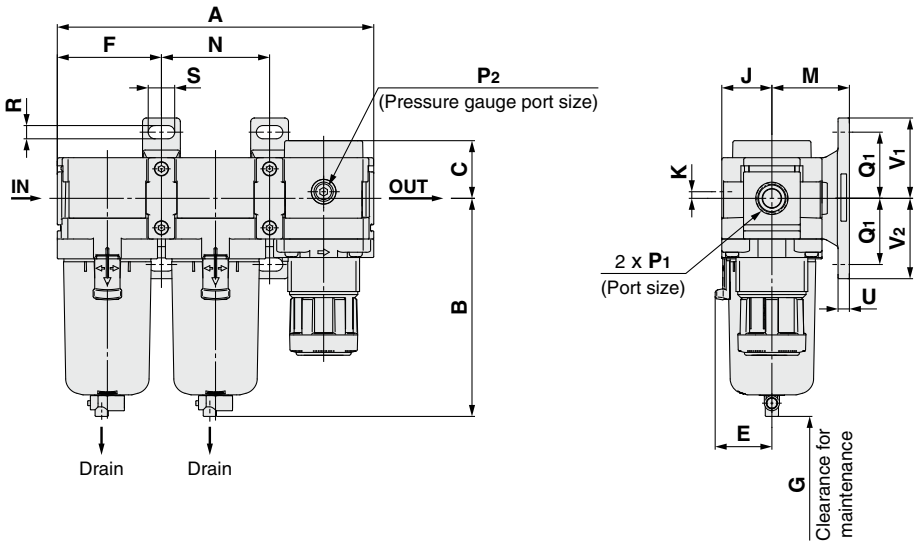
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 Mist separator inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity
The maximum flow capacity varies depending on the inlet pressure.
Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the outlet side.
∗4 For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗5 The outlet side oil mist concentration for the following conditions in accordance with [Test condition: ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above
Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m$^3$, and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable
∗6 The bowl seal and other O-rings are slightly lubricated.
∗7 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗8 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].

## Dimensions

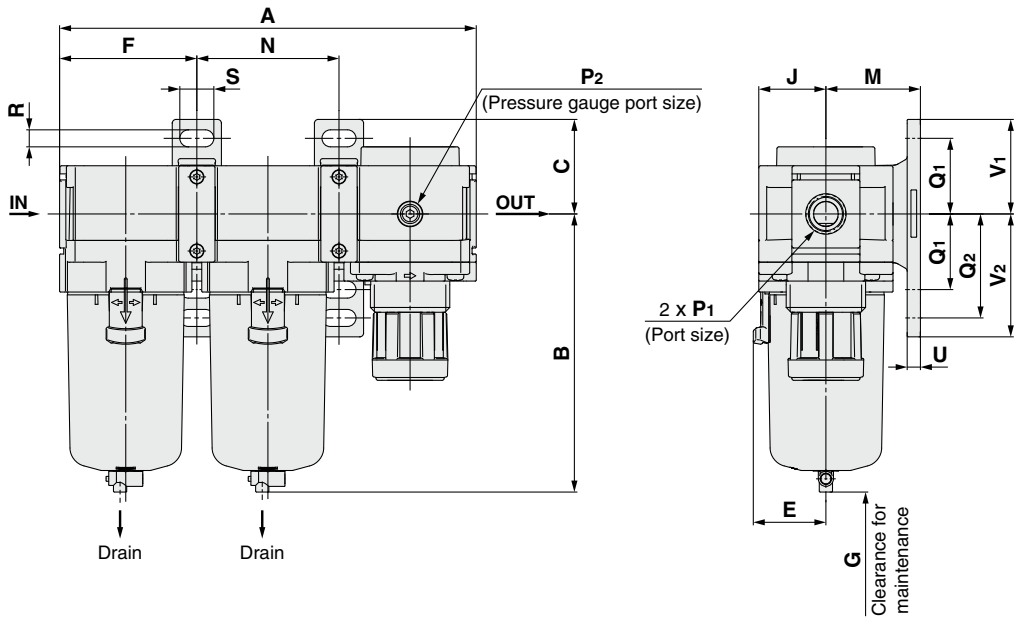
### AC20C-D

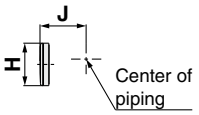
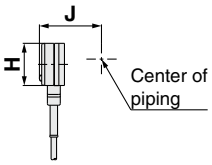
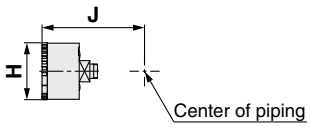


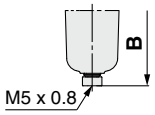
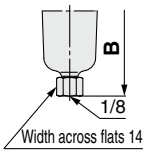
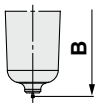
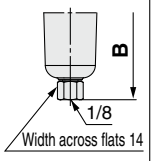
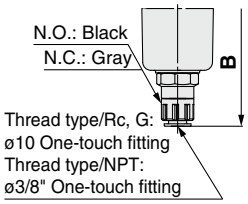
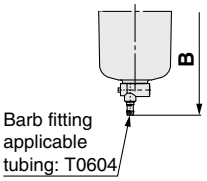
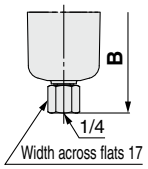
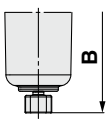
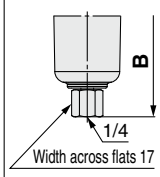
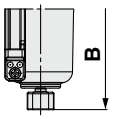
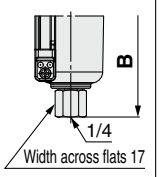

### AC30C-D




### AC40C-D to AC40C-06-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20C-D to AC40C-06-D** |  |  |  | |

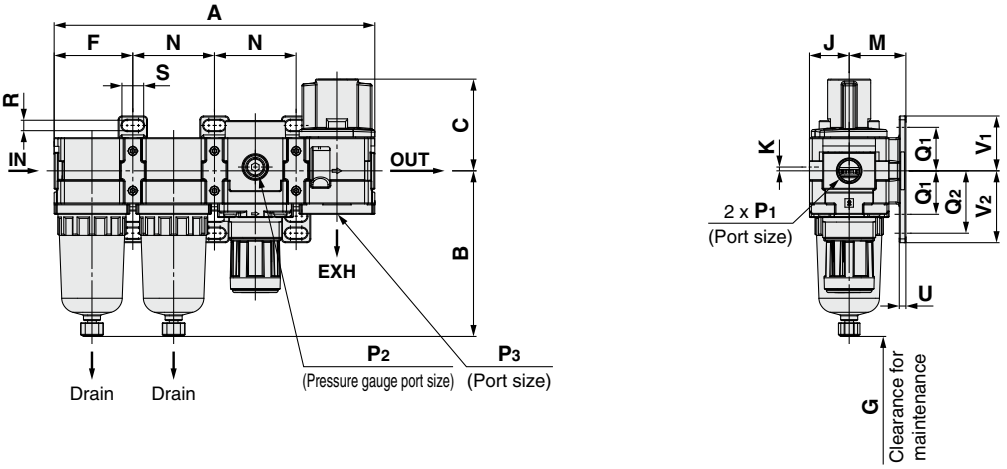
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20C-D** |  | |  |  |  | | |
| **AC30C-D to AC40C-06-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20C-D** | 1/8, 1/4 | 1/8 | 126.4 | 87.6 | 26.5 | — | 41.6 | 40 | 21 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30C-D** | 1/4, 3/8 | 1/8 | 167.4 | 115.4 | 30.5 | 30 | 55.1 | 50 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40C-D** | 1/4, 3/8, 1/2 | 1/8 | 220.4 | 147.1 | 35.5 | 38.4 | 72.6 | 75 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40C-06-D** | 3/4 | 1/8 | 235.4 | 149.1 | 35.5 | 38.4 | 77.6 | 75 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

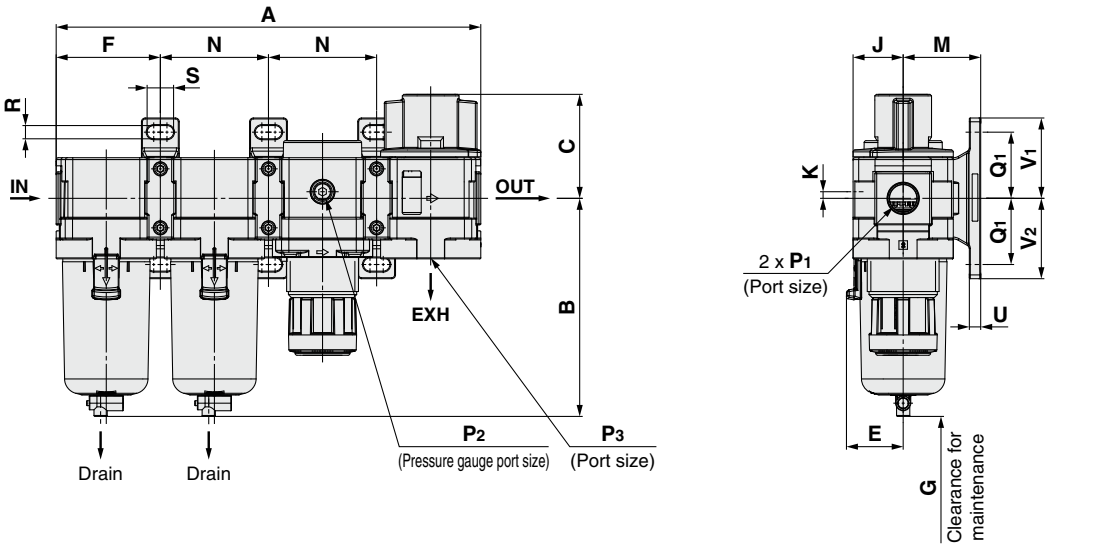
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20C-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30C-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40C-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40C-06-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

## Dimensions: With Pressure Relief 3-Port Valve (V)

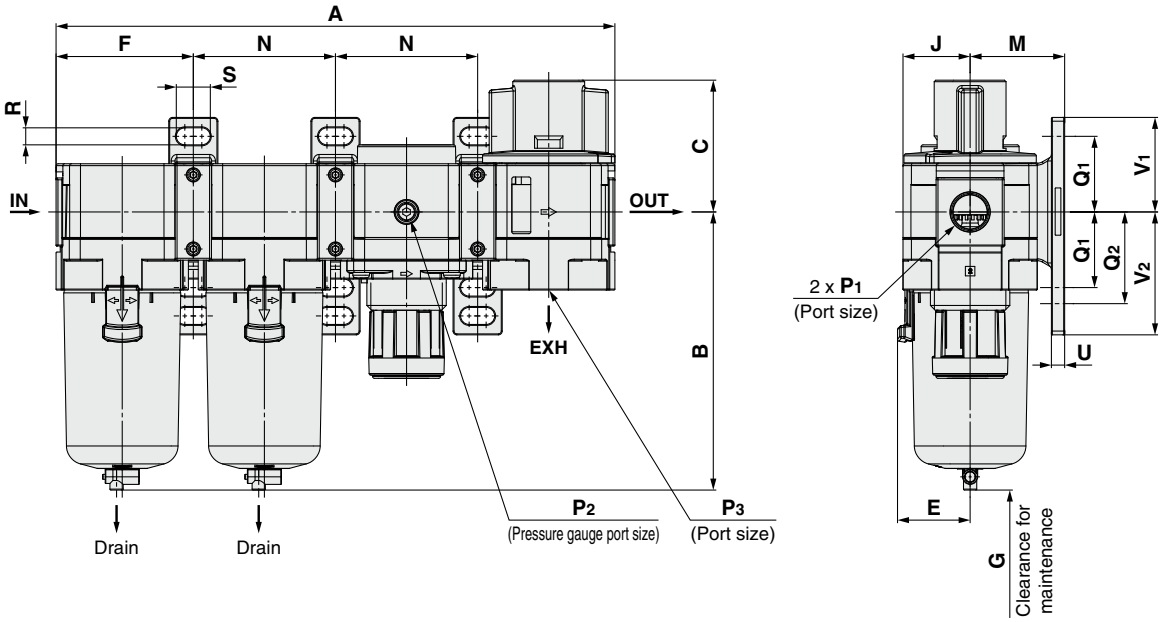
### AC20C-V-D

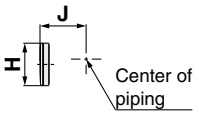
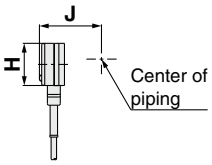
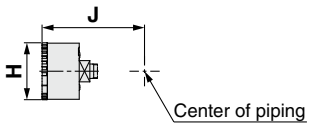


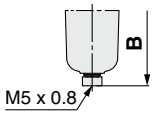
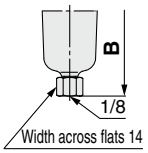
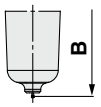
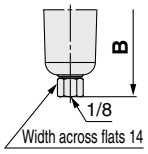
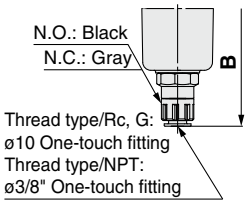
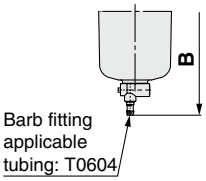
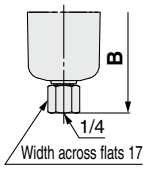
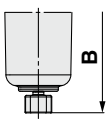
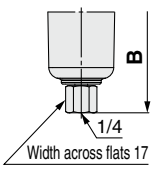
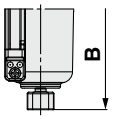
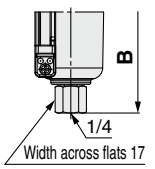

### AC30C-V-D




### AC40C-V-D to AC40C-06-V-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20C-V-D to AC40C-06-V-D** |  |  |  | |

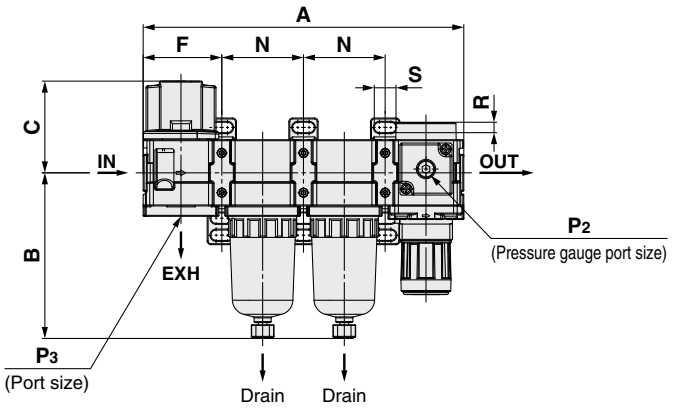
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20C-V-D** |  | |  |  |  | | |
| **AC30C-V-D to AC40C-06-V-D** |  |  |  |  |  |  |  |

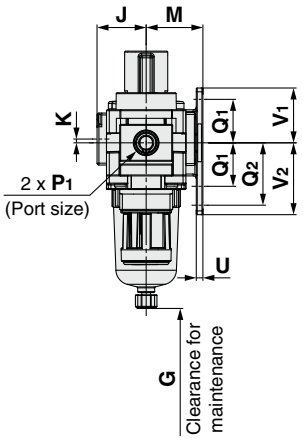
| Model | Standard specifications | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20C-V-D** | 1/8, 1/4 | 1/8 | 1/8 | 169.6 | 87.6 | 48.5 | — | 41.6 | 40 | 21 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30C-V-D** | 1/4, 3/8 | 1/8 | 1/4 | 224.6 | 115.4 | 55 | 30 | 55.1 | 50 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40C-V-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 295.6 | 147.1 | 69.7 | 38.4 | 72.6 | 75 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40C-06-V-D** | 3/4 | 1/8 | 1/2 | 315.6 | 149.1 | 71.7 | 38.4 | 77.6 | 75 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20C-V-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30C-V-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40C-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40C-06-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

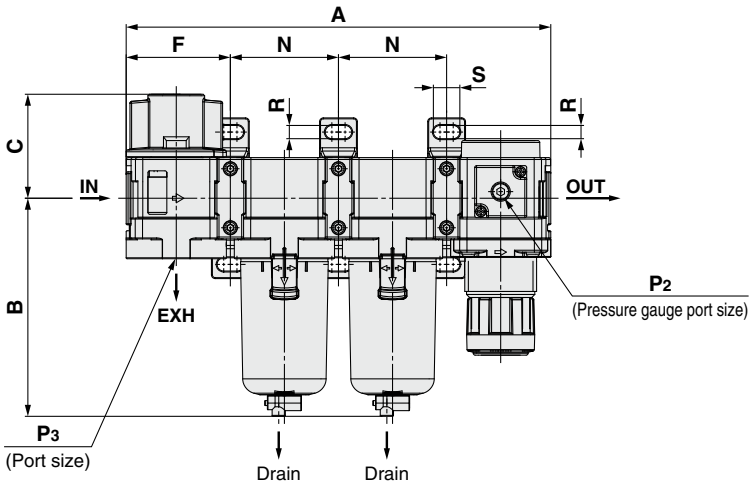
## Dimensions: With Pressure Relief 3-Port Valve (V1)

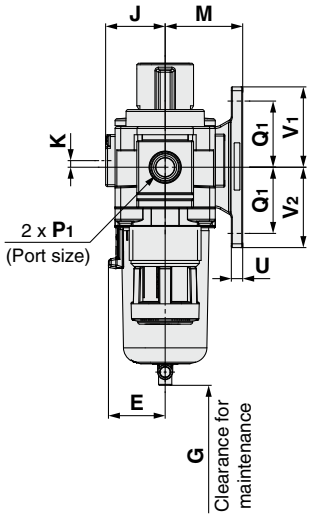
### AC20C-V1-D



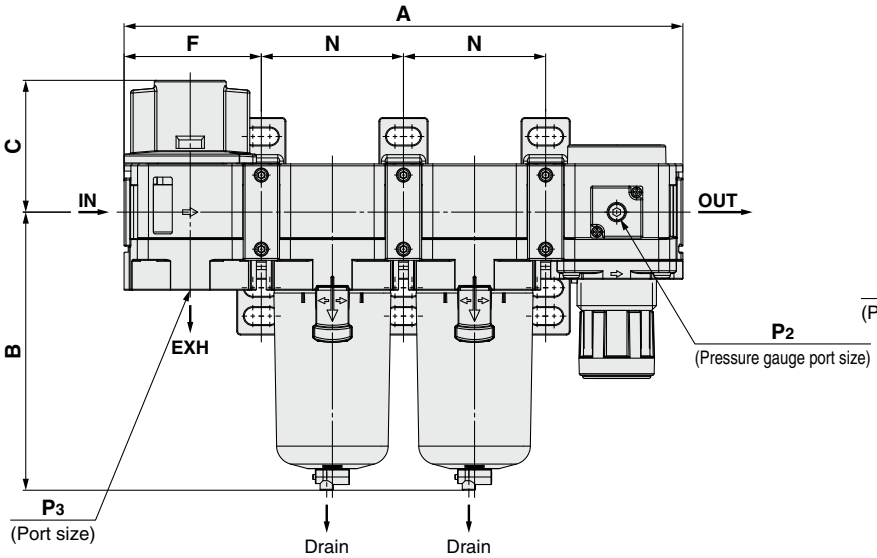



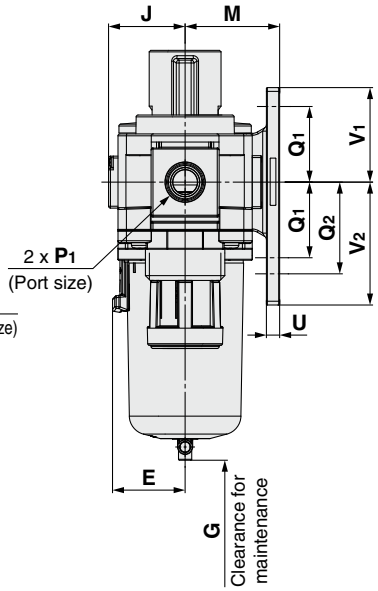

### AC30C-V1-D

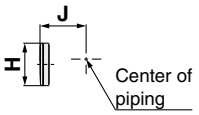
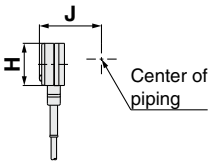
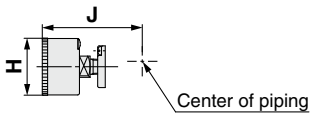


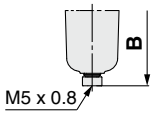
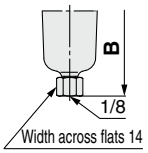
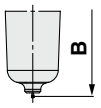
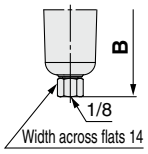
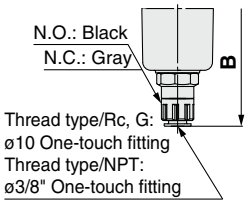
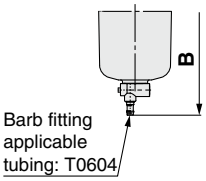
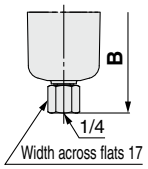
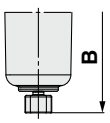
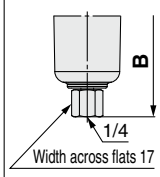
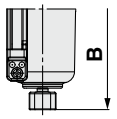
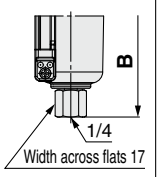




### AC40C-V1-D to AC40C-06-V1-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20C-V1-D to AC40C-06-V1-D** |  |  |  | |

| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20C-V1-D** |  | |  |  |  | | |
| **AC30C-V1-D to AC40C-06-V1-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | Bracket mount | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20C-V1-D** | 1/8, 1/4 | 1/8 | 1/8 | 169.6 | 87.6 | 48.5 | — | 41.6 | 40 | 26 | 2 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30C-V1-D** | 1/4, 3/8 | 1/8 | 1/4 | 224.6 | 115.4 | 55 | 30 | 55.1 | 50 | 31.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40C-V1-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 295.6 | 147.1 | 69.7 | 38.4 | 72.6 | 75 | 40.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40C-06-V1-D** | 3/4 | 1/8 | 1/2 | 315.6 | 149.1 | 71.7 | 38.4 | 77.6 | 75 | 40.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

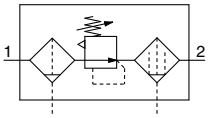
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20C-V1-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 62.5 | ø37.5 | 63.5 | ø37.5 | 63.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30C-V1-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 68 | ø37.5 | 69 | ø37.5 | 69 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40C-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 78 | ø42.5 | 78 | ø42.5 | 78 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40C-06-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

Air Combination

# Filter Regulator + Mist Separator

# AC20D-D to AC40D-D

Symbol



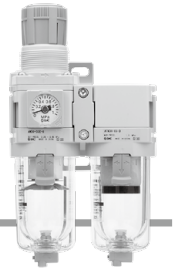

## How to Order

**AC 30 D – ❑ 03 DE – ❑ – ❑ – D**

❶ ❷ ❸ ❹ ❺ ❻

· Option/Semi-standard: Select one each for **a** to **i**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AC30D-F03DE1-16NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● |
| | | | **N***1 | NPT | ● | ● | ● |
| | | | **F***2 | G | ● | ● | ● |
| | | | + | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — |
| | | | **02** | 1/4 | ● | ● | ● |
| | | | **03** | 3/8 | — | ● | ● |
| | | | **04** | 1/2 | — | — | ● |
| | | | **06** | 3/4 | — | — | ● |
| | | | + | | | | |
| ❹ | Option*3 | **a** Float type auto drain | **Nil** | Without auto drain | ● | ● | ● |
| | | | **C***4 | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● |
| | | | **D***5 | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● |
| | | | + | | | | |
| | | **b** Pressure gauge*6 | **Nil** | Without pressure gauge | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● |
| | | **b** Digital pressure switch | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● |
| | | | + | | | | |
| ❺ | Attachment | **c** Pressure relief 3-port valve | **Nil** | Without attachment | ● | ● | ● |
| | | | **V** | Mounting position: AW + AFM + **V** | ● | ● | ● |
| | | | **V1***7 | Mounting position: **V** + AW❑K + AFM | ● | ● | ● |
| | | | + | | | | |
| ❻ | Semi-standard | **d** Set pressure*8 | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● |
| | | | + | | | | |
| | | **e** Bowl*9 | **Nil** | Polycarbonate bowl | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● |
| | | | **C** | With bowl guard | ● | —*10 | —*10 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —*11 | —*11 |
| | | | + | | | | |
| | | **f** Filter regulator Mist separator drain port*12 | **Nil** | With drain cock | ● | ● | ● |
| | | | **J***13 | Drain guide 1/8 | ● | — | — |
| | | | | Drain guide 1/4 | — | ● | ● |
| | | | **W***14 | Drain cock with barb fitting (for ø6 x ø4 nylon tube) | — | ● | ● |
| | | | + | | | | |
| | | **g** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● |
| | | | + | | | | |
| | | **h** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● |



AC30D-D

| | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|
| ❻ Semi-standard i Unit | **Nil** | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● |
| | **Z**∗15 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗17 | ○∗17 | ○∗17 |
| | **ZA**∗16 | Digital pressure switch: With unit selection function | △∗18 | △∗18 | △∗18 |

∗1 Drain guide is NPT1/8 (applicable to the AC20D-D) and NPT1/4 (applicable to the AC30D-D to AC40D-D). The auto drain port comes with a ø3/8" One-touch fitting (applicable to the AC30D-D to AC40D-D).
∗2 Drain guide is G1/8 (applicable to the AC20D-D) and G1/4 (applicable to the AC30D-D to AC40D-D).
∗3 Options G and M are not assembled and supplied loose at the time of shipment.
∗4 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗5 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗6 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗7 The filter regulator is equipped with a backflow function in this configuration. Additionally, when performing maintenance work, make sure that the outlet pressure is released to atmospheric pressure using a pressure gauge.
∗8 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗9 Refer to chemical data on pages 75 and 109 for chemical resistance of the bowl.
∗10 A bowl guard is provided as standard equipment (polycarbonate).
∗11 A bowl guard is provided as standard equipment (nylon).
∗12 The combination of float type auto drain C and D is not available.
∗13 Without a valve function
∗14 The combination of metal bowl 2 and 8 is not available.
∗15 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special.
The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗16 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit is provided for use in Japan.)
∗17 ○: For the pipe thread type: NPT only
∗18 △: Select with options: E1, E2, E3, E4.

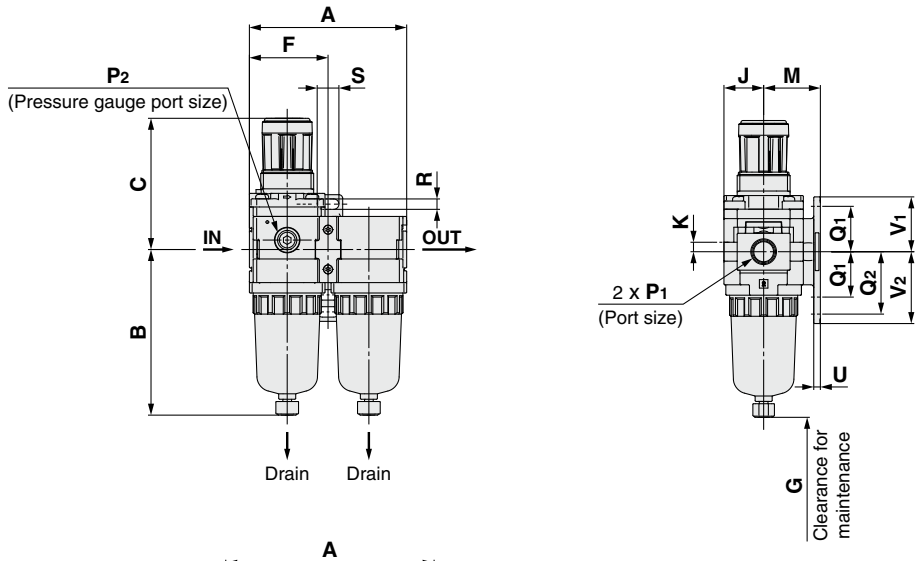
## Standard Specifications

| Model | | | AC20D-D | AC30D-D | AC40D-D | AC40D-06-D |
|---|---|---|---|---|---|---|
| Component | Filter Regulator | [AW] | AW20-D | AW30-D | AW40-D | AW40-06-D |
| | Mist Separator | [AFM] | AFM20-D | AFM30-D | AFM40-D | AFM40-06-D |
| Port size | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| Pressure gauge port size∗1 | | [AW] | 1/8 | | | |
| Fluid | | | Air | | | |
| Ambient and fluid temperatures∗2 | | | –5 to 60°C (No freezing) | | | |
| Proof pressure | | | 1.5 MPa | | | |
| Max. operating pressure | | | 1.0 MPa | | | |
| Auto drain minimum operating pressure | N.C. | [AW/AFM] | 0.1 MPa | 0.15 MPa | | |
| | N.O. | [AW/AFM] | — | 0.1 MPa | | |
| Set pressure range | | [AW] | 0.05 to 0.85 MPa | | | |
| Max. flow capacity∗3 | | [AFM] | 200 L/min (ANR) | 450 L/min (ANR) | 1100 L/min (ANR) | |
| Nominal filtration rating∗4 | | [AW] | 5 μm | | | |
| | | [AFM] | 0.3 μm (99.9% filtered particle size) | | | |
| Outlet side oil mist concentration∗5, ∗6 | | [AFM] | Max. 1.0 mg/m$^3$ (≈ 0.8 ppm) | | | |
| Compressed air purity class∗7 | | | ISO 8573-1:2010 [ 3 : 4 : 3 ]∗8 | | | |
| Drain capacity | | [AW/AFM] | 8 cm$^3$ | 25 cm$^3$ | 45 cm$^3$ | |
| Bowl material | | [AW/AFM] | Polycarbonate | | | |
| Bowl guard | | [AW/AFM] | Semi-standard (Steel) | Standard (Polycarbonate) | | |
| Construction | | [AW] | Relieving type | | | |
| Weight | | | 0.30 kg | 0.58 kg | 1.12 kg | 1.21 kg |

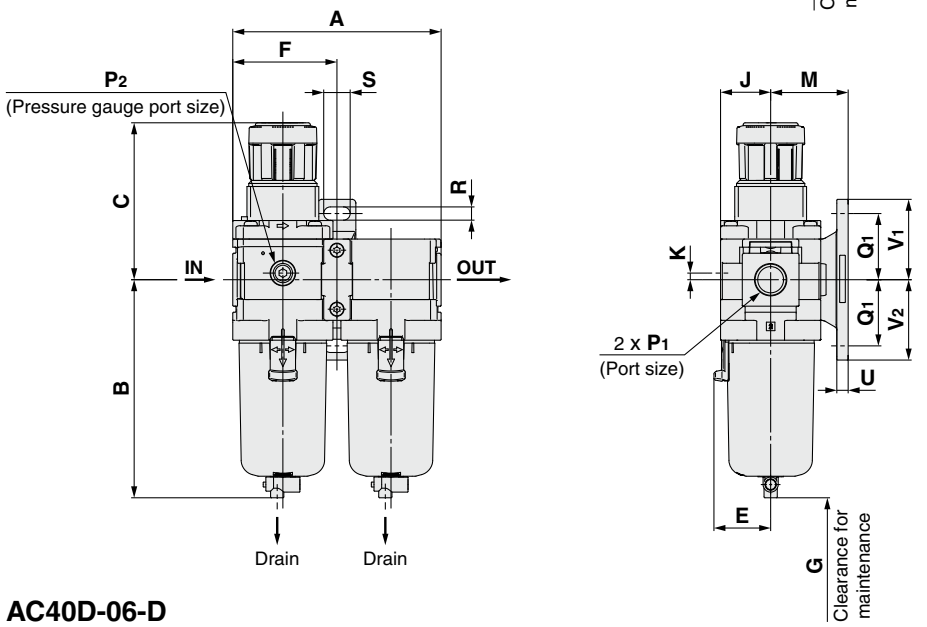
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 Mist separator inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity
The maximum flow capacity varies depending on the inlet pressure.
Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the outlet side.
∗4 For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗5 The outlet side oil mist concentration for the following conditions in accordance with [Test condition: ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above
Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m$^3$, and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable
∗6 The bowl seal and other O-rings are slightly lubricated.
∗7 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗8 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].

## Dimensions

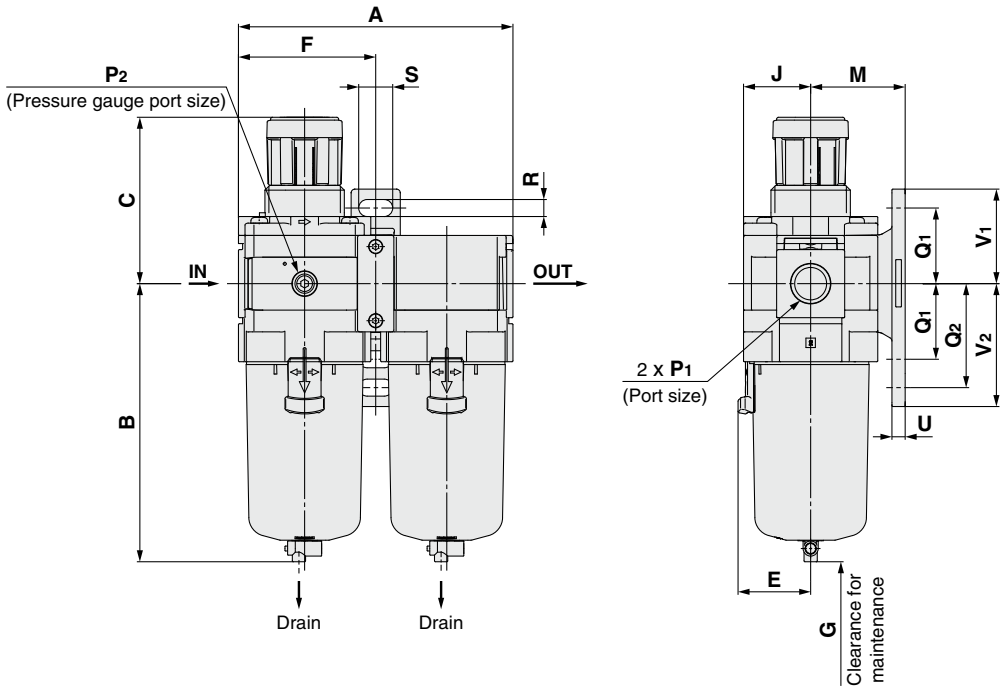
### AC20D-D

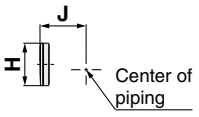
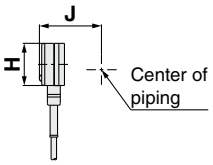
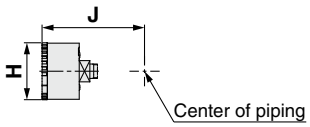


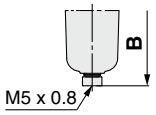
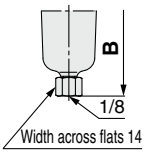
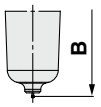
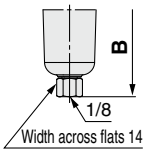
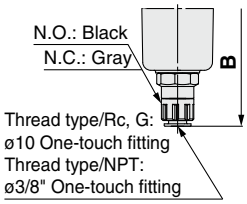
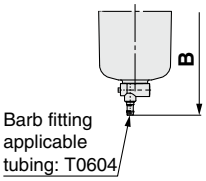
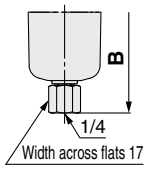
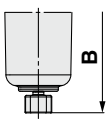
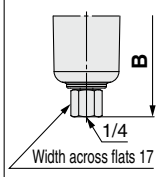
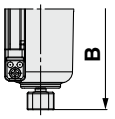
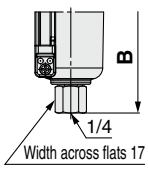

### AC30D-D




### AC40D-D to AC40D-06-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20D-D to AC40D-06-D** |  |  |  | |

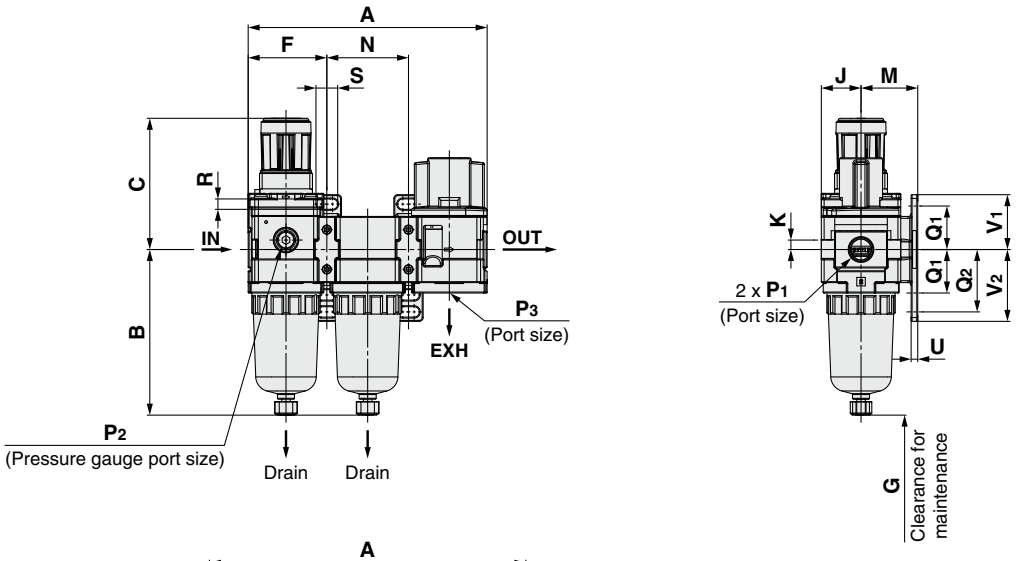
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20D-D** |  | |  |  |  | | |
| **AC30D-D to AC40D-06-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | Bracket mount | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $P_1$ | $P_2$ | A | B | C | E | F | G | J | K | M | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20D-D** | 1/8, 1/4 | 1/8 | 83.2 | 87.6 | 71.8 | — | 41.6 | 40 | 21 | 5 | 30 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30D-D** | 1/4, 3/8 | 1/8 | 110.2 | 115.3 | 86.5 | 30 | 55.1 | 55 | 26.5 | 3.5 | 41 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40D-D** | 1/4, 3/8, 1/2 | 1/8 | 145.2 | 147.1 | 91.5 | 38.4 | 72.6 | 80 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40D-06-D** | 3/4 | 1/8 | 155.2 | 149.1 | 93 | 38.4 | 77.6 | 80 | 35.5 | — | 50 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

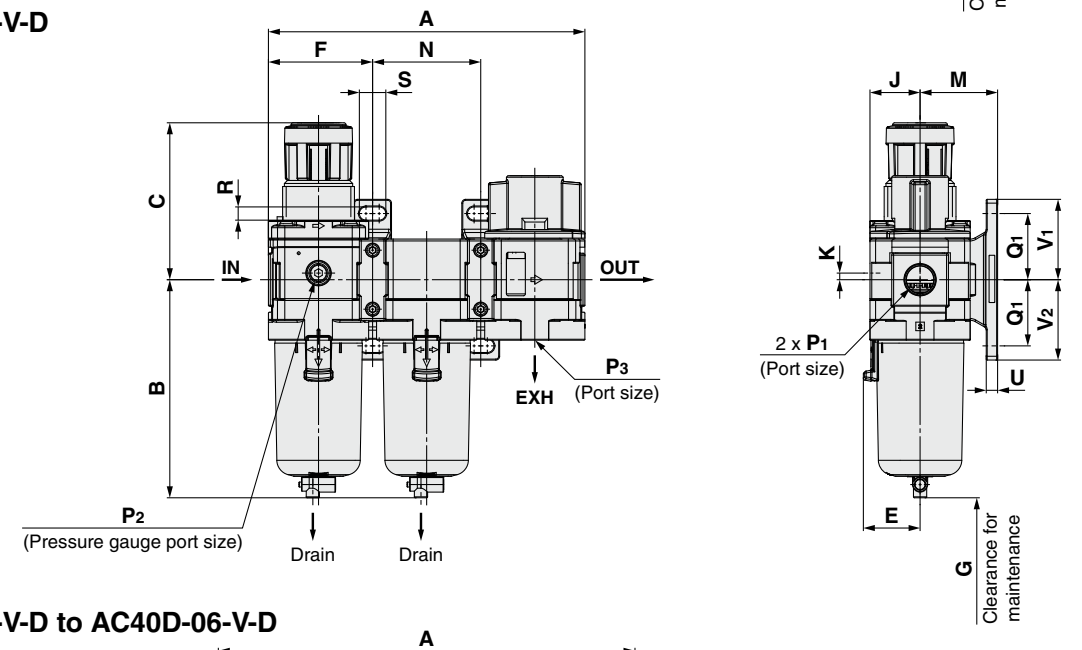
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20D-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30D-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40D-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40D-06-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

## Dimensions: With Pressure Relief 3-Port Valve (V)

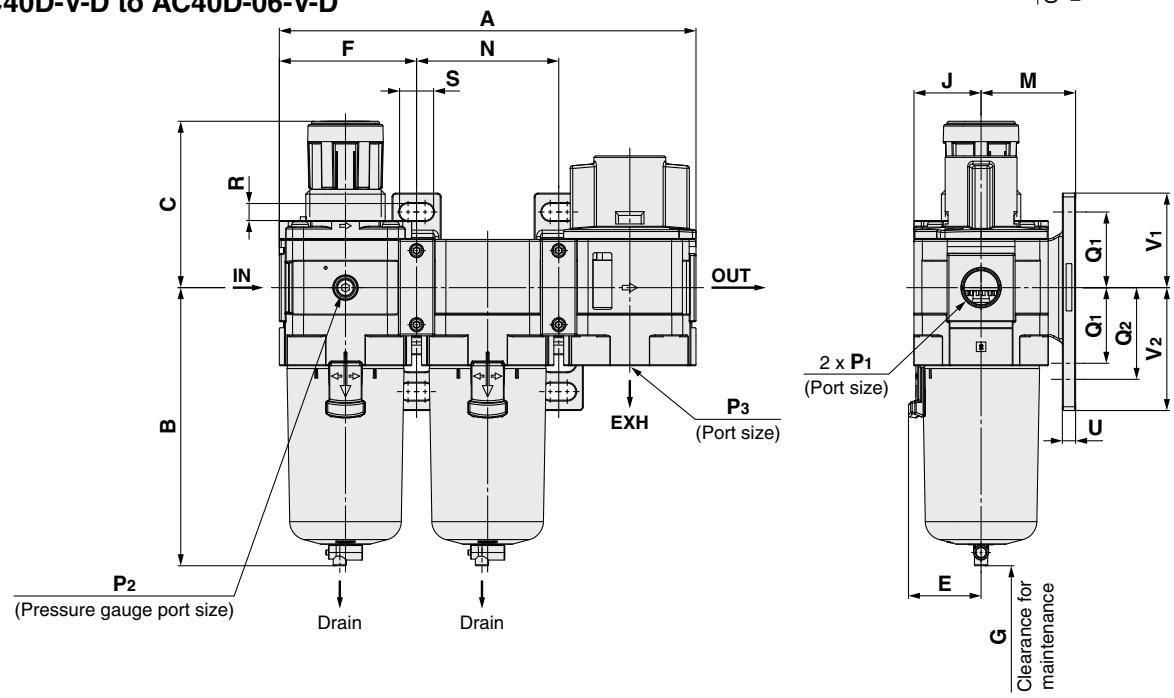
### AC20D-V-D

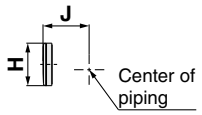
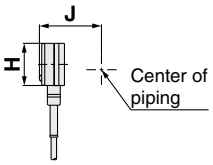
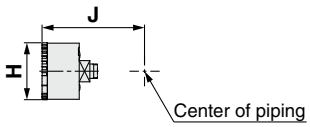


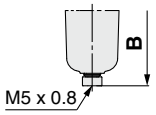
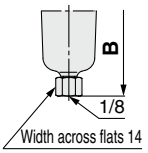
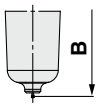
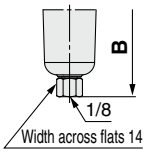
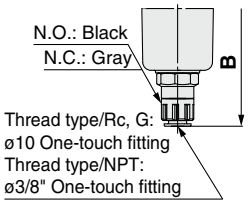
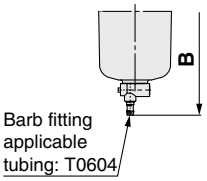
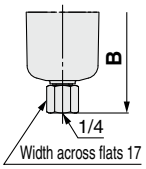
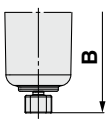
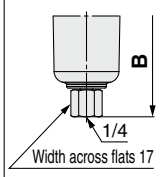
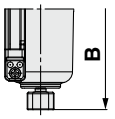
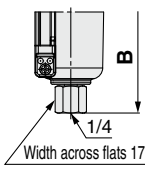

### AC30D-V-D




### AC40D-V-D to AC40D-06-V-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20D-V-D to AC40D-06-V-D** |  |  |  | |

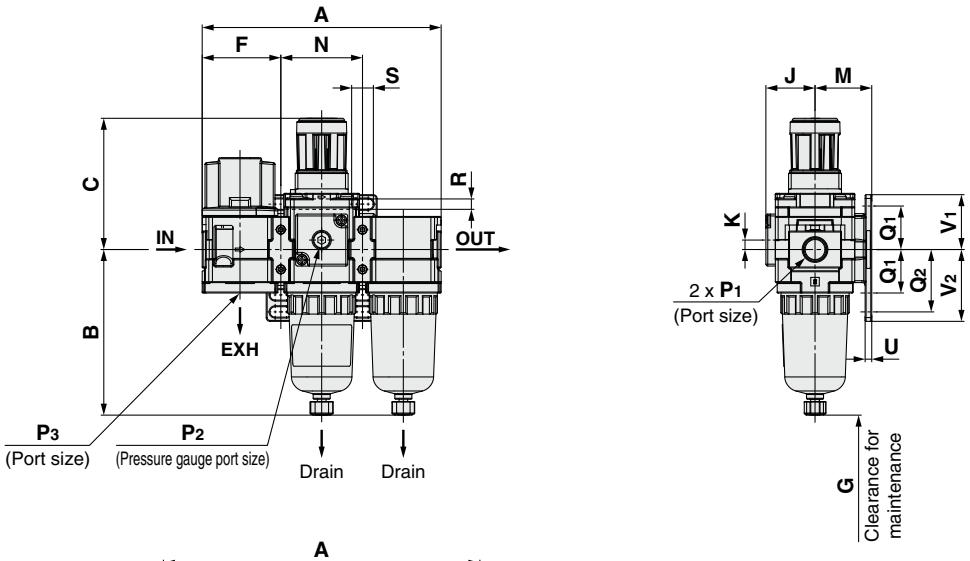
| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20D-V-D** |  | |  |  |  | | |
| **AC30D-V-D to AC40D-06-V-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20D-V-D** | 1/8, 1/4 | 1/8 | 1/8 | 126.4 | 87.6 | 71.8 | — | 41.6 | 40 | 21 | 5 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30D-V-D** | 1/4, 3/8 | 1/8 | 1/4 | 167.4 | 115.3 | 86.5 | 30 | 55.1 | 55 | 26.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40D-V-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 220.4 | 147.1 | 91.5 | 38.4 | 72.6 | 80 | 35.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40D-06-V-D** | 3/4 | 1/8 | 1/2 | 235.4 | 149.1 | 93 | 38.4 | 77.6 | 80 | 35.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

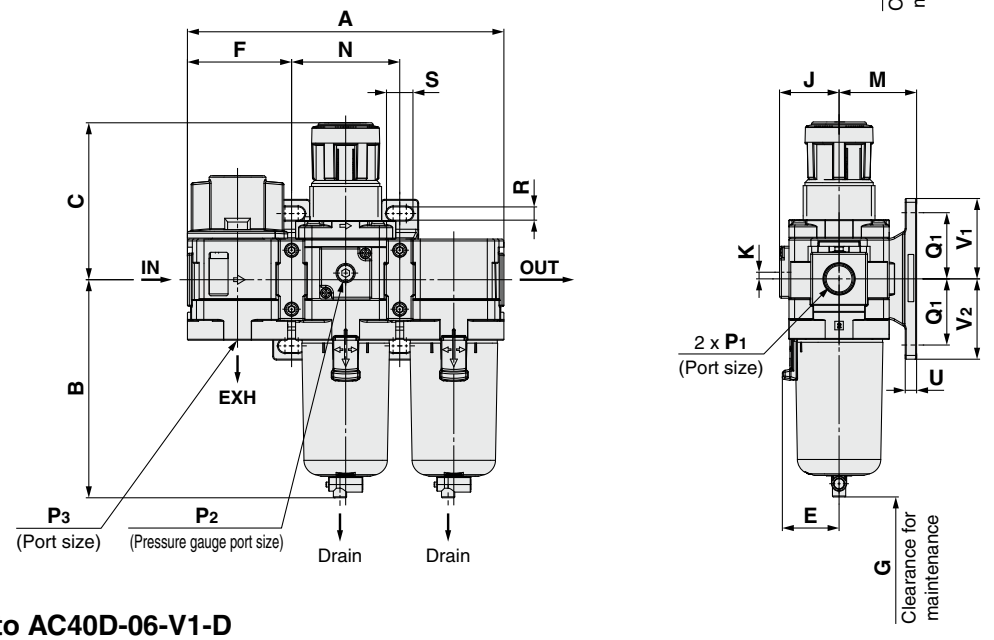
| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20D-V-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30D-V-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40D-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40D-06-V-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

## Dimensions: With Pressure Relief 3-Port Valve (V1)

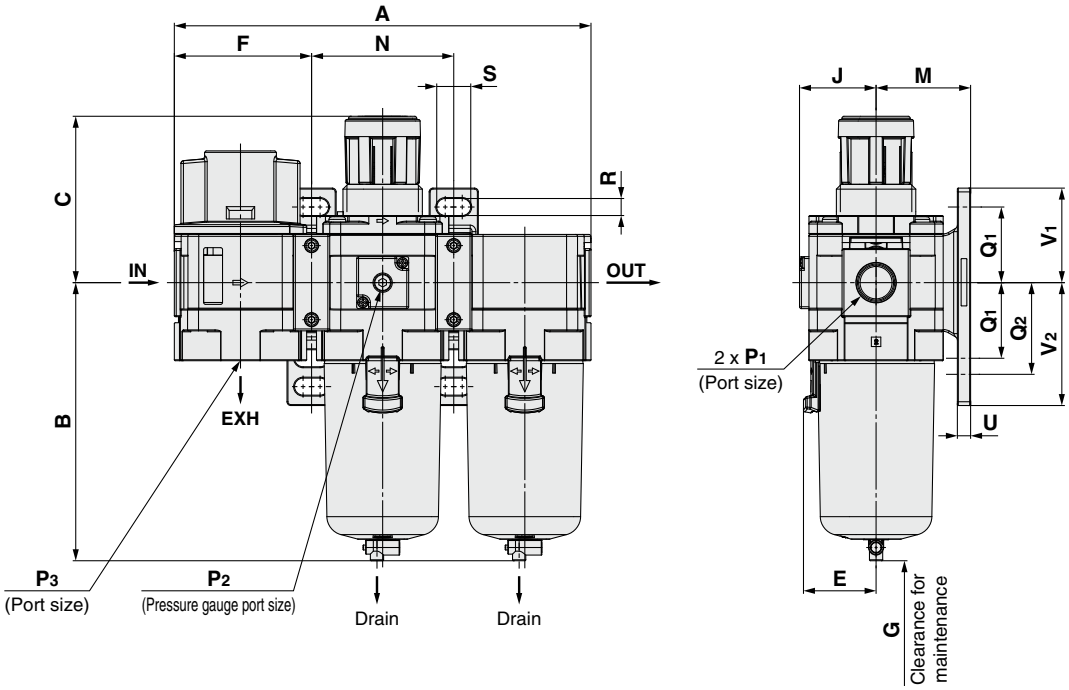
### AC20D-V1-D

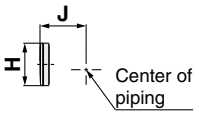
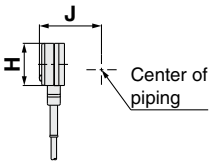
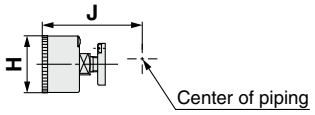


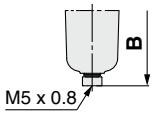
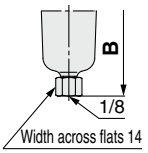
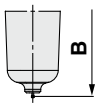
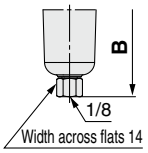
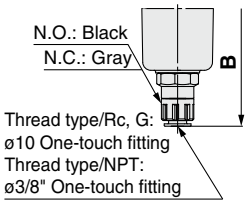
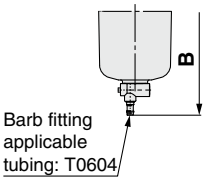
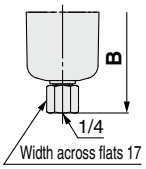
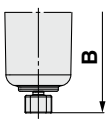
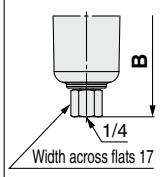
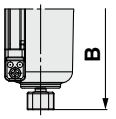
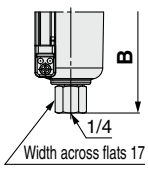

### AC30D-V1-D




### AC40D-V1-D to AC40D-06-V1-D



| Applicable model | Optional specifications | | | |
|---|---|---|---|---|
| | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
| **AC20D-V1-D to AC40D-06-V1-D** |  |  |  | |

| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AC20D-V1-D** |  | |  |  |  | | |
| **AC30D-V1-D to AC40D-06-V1-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Bracket mount | | | | | | | | |
| | $P_1$ | $P_2$ | $P_3$ | A | B | C | E | F | G | J | K | M | N | $Q_1$ | $Q_2$ | R | S | U | $V_1$ | $V_2$ |
| **AC20D-V1-D** | 1/8, 1/4 | 1/8 | 1/8 | 126.4 | 87.6 | 71.8 | — | 41.6 | 40 | 26 | 5 | 30 | 43.2 | 24 | 33 | 5.5 | 11.5 | 3.5 | 29 | 38 |
| **AC30D-V1-D** | 1/4, 3/8 | 1/8 | 1/4 | 167.4 | 115.3 | 86.5 | 30 | 55.1 | 55 | 31.5 | 3.5 | 41 | 57.2 | 35 | — | 7 | 14 | 6 | 42.5 | 42.5 |
| **AC40D-V1-D** | 1/4, 3/8, 1/2 | 1/8 | 3/8 | 220.4 | 147.1 | 91.5 | 38.4 | 72.6 | 80 | 40.5 | — | 50 | 75.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |
| **AC40D-06-V1-D** | 3/4 | 1/8 | 1/2 | 235.4 | 149.1 | 93 | 38.4 | 77.6 | 80 | 40.5 | — | 50 | 80.2 | 40 | 55 | 9 | 18 | 7 | 50 | 65 |

| Model | Optional specifications | | | | | | | | | | | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | H | J | H | J | H | J | H | J | B | B | B | B | B | B | B |
| **AC20D-V1-D** | □28 | 27 | □27.8 | 37.5 | ø37.5 | 62.5 | ø37.5 | 63.5 | ø37.5 | 63.5 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AC30D-V1-D** | □28 | 32.5 | □27.8 | 43 | ø37.5 | 68 | ø37.5 | 69 | ø37.5 | 69 | 157.1 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AC40D-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 78 | ø42.5 | 78 | ø42.5 | 78 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AC40D-06-V1-D** | □28 | 41.5 | □27.8 | 52 | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |

# *AC-D Series*
# Option / Accessory / Attachment Part No. List

| Section | Description \ Model | | | Part no. | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **For AC20-D** | **For AC30-D** | **For AC40-D** | **For AC40-06-D** | **For AC50-D** | **For AC60-D** |
| | | | | **For AC20A-D** | **For AC30A-D** | **For AC40A-D** | **For AC40A-06-D** | **For AC50A-D** | **For AC60A-D** |
| | | | | **For AC20B-D** | **For AC30B-D** | **For AC40B-D** | **For AC40B-06-D** | **For AC50B-D** | **For AC60B-D** |
| | | | | **For AC20C-D** | **For AC30C-D** | **For AC40C-D** | **For AC40C-06-D** | — | — |
| | | | | **For AC20D-D** | **For AC30D-D** | **For AC40D-D** | **For AC40D-06-D** | — | — |
| **Option** | ∗1 Pressure gauge | **Round type** | **Standard** | G36-10-□01 | | G46-10-□01 | | | |
| | | | **0.02 to 0.2 MPa setting** | G36-4-□01 | | G46-4-□01 | | | |
| | | Round type (with color zone) | **Standard** | G36-10-□01-L | | G46-10-□01-L | | | |
| | | | **0.02 to 0.2 MPa setting** | G36-4-□01-L | | G46-4-□01-L | | | |
| | | Square embedded type∗2 | **Standard** | GC3-10AS-D [136150A (Pressure gauge cover only)] | | | | | |
| | | | **0.02 to 0.2 MPa setting** | GC3-4AS-D [136150A (Pressure gauge cover only)] | | | | | |
| | **Digital pressure switch** | | **NPN output, Wiring bottom entry** | ISE35-N-25-MLA-X523 [ISE35-N-25-M (Switch body only)]∗3 | | | | | |
| | | | **NPN output, Wiring top entry** | ISE35-R-25-MLA-X523 [ISE35-R-25-M (Switch body only)]∗3 | | | | | |
| | | | **PNP output, Wiring bottom entry** | ISE35-N-65-MLA-X523 [ISE35-N-65-M (Switch body only)]∗3 | | | | | |
| | | | **PNP output, Wiring top entry** | ISE35-R-65-MLA-X523 [ISE35-R-65-M (Switch body only)]∗3 | | | | | |
| | **Float type auto drain**∗4 | | **N.C.** | AD27-D | AD37-D | AD47-D | | | |
| | | | **N.O.** | — | AD38-D | AD48-D | | | |
| **Accessory** | **Spacer** | | **p. 48** | Y200-D | Y300-D | Y400-D | Y500-D | Y600-D | |
| | **Spacer with bracket** | | **p. 48** | Y200T-D | Y300T-D | Y400T-D | Y500T-D | Y600T-D | |
| **Attachment** | **Pressure relief 3-port valve**∗5, ∗6 | | **p. 49** | VHS20-□01-D<br>VHS20-□02-D | VHS30-□02-D<br>VHS30-□03-D | VHS40-□02-D<br>VHS40-□03-D<br>VHS40-□04-D | VHS40-□06-D | VHS50-□06-D<br>VHS50-□10-D | — |
| | **Piping adapter**∗5, ∗6 | | **p. 50** | E200-□01-D<br>E200-□02-D<br>E200-□03-D | E300-□02-D<br>E300-□03-D<br>E300-□04-D | E400-□02-D<br>E400-□03-D<br>E400-□04-D<br>E400-□06-D | E500-□06-D<br>E500-□10-D | E600-□06-D<br>E600-□10-D | |
| | **L-shaped piping adapter**∗5, ∗6 | | **p. 51** | E200L-□01-D<br>E200L-□02-D | E300L-□01-D<br>E300L-□02-D<br>E300L-□03-D | E400L-□02-D<br>E400L-□03-D<br>E400L-□04-D | E500L-□04-D<br>E500L-□06-D | E600L-□04-D<br>E600L-□06-D<br>E600L-□10-D | |
| | **T-shaped piping adapter**∗5, ∗6 | | **p. 51-1** | E200T-□01-D<br>E200T-□02-D | E300T-□01-D<br>E300T-□02-D<br>E300T-□03-D | E400T-□02-D<br>E400T-□03-D<br>E400T-□04-D | E500T-□04-D<br>E500T-□06-D | E600T-□04-D<br>E600T-□06-D<br>E600T-□10-D | |
| | **T-spacer**∗5, ∗6 | Standard | **p. 52** | Y210-□01-D<br>Y210-□02-D | Y310-□01-D<br>Y310-□02-D<br>Y310-□03-D | Y410-□02-D<br>Y410-□03-D<br>Y410-□04-D | Y510-□02-D<br>Y510-□03-D<br>Y510-□04-D<br>Y510-□06-D | Y610-□03-D<br>Y610-□04-D<br>Y610-□06-D | |
| | | Slim type | | Y210-□01-1-D<br>Y210-□02-1-D | Y310-□01-1-D<br>Y310-□02-1-D | Y410-□02-1-D<br>Y410-□03-1-D | Y510-□02-1-D<br>Y510-□03-1-D | Y610-□03-1-D<br>Y610-□04-1-D | |
| | **Cross spacer**∗5, ∗6 | Standard | **p. 53** | Y24-□01-D<br>Y24-□02-D | Y34-□01-D<br>Y34-□02-D<br>Y34-□03-D | Y44-□02-D<br>Y44-□03-D<br>Y44-□04-D | Y54-□02-D<br>Y54-□03-D<br>Y54-□04-D<br>Y54-□06-D | Y64-□03-D<br>Y64-□04-D<br>Y64-□06-D | |
| | | Front and back port selectable type | | Y24-□01-1-D<br>Y24-□02-1-D | Y34-□01-1-D<br>Y34-□02-1-D<br>Y34-□03-1-D | Y44-□02-1-D<br>Y44-□03-1-D<br>Y44-□04-1-D | Y54-□03-1-D<br>Y54-□04-1-D<br>Y54-□06-1-D | — | |
| | **Pressure switch**∗6 | Standard | **p. 54** | IS10M-20-D | IS10M-30-D | IS10M-40-D | IS10M-50-D | IS10M-60-D | |
| | | Slim type | | IS10M-20-1-D | IS10M-30-1-D | IS10M-40-1-D | IS10M-50-1-D | IS10M-60-1-D | |
| | **Pressure switch with T-spacer**∗5, ∗6 | | **p. 55** | IS10T-20-□01-D<br>IS10T-20-□02-D | IS10T-30-□01-D<br>IS10T-30-□02-D<br>IS10T-30-□03-D | IS10T-40-□02-D<br>IS10T-40-□03-D<br>IS10T-40-□04-D | IS10T-50-□02-D<br>IS10T-50-□03-D<br>IS10T-50-□04-D<br>IS10T-50-□06-D | IS10T-60-□03-D<br>IS10T-60-□04-D<br>IS10T-60-□06-D | |
| | **Pressure switch with L-shaped piping adapter**∗5, ∗6 | | **p. 56** | IS10L-20-□01-D<br>IS10L-20-□02-D | IS10L-30-□01-D<br>IS10L-30-□02-D<br>IS10L-30-□03-D | IS10L-40-□02-D<br>IS10L-40-□03-D<br>IS10L-40-□04-D | IS10L-50-□04-D<br>IS10L-50-□06-D | IS10L-60-□04-D<br>IS10L-60-□06-D<br>IS10L-60-□10-D | |
| | **Pressure switch with piping adapter**∗5, ∗6 | | **p. 57** | IS10E-20-□01-D<br>IS10E-20-□02-D<br>IS10E-20-□03-D | IS10E-30-□02-D<br>IS10E-30-□03-D<br>IS10E-30-□04-D | IS10E-40-□02-D<br>IS10E-40-□03-D<br>IS10E-40-□04-D<br>IS10E-40-□06-D | IS10E-50-□06-D<br>IS10E-50-□10-D | IS10E-60-□06-D<br>IS10E-60-□10-D | |

∗1 □ in part numbers for a round type pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the connection thread NPT and pressure gauge supply for psi unit specifications.

∗2 Including one O-ring and 2 mounting screws

∗3 Lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached. [ ]: Switch body only
Regarding how to order the digital pressure switch, refer to the **Web Catalog**.

∗4 Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27-D) and 0.15 MPa (AD37-D/AD47-D). Please contact SMC separately for psi and °F unit display specifications.

∗5 □ in attachment part numbers indicates a pipe thread type. No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread.

∗6 Separate spacers are required for modular units.

# *AC-D Series*
# Accessories (Spacer / Spacer with Bracket)

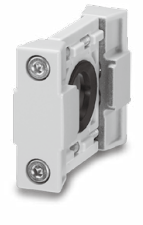
## Spacer / Spacer with Bracket

**Y 300 □ – D**

❶ ❷

| | Symbol | Description | ❶ Body size [Applicable AC size] | | | | |
|---|---|---|---|---|---|---|---|
| | | | **200** [AC20] | **300** [AC30] | **400** [AC40] | **500** [AC40-06] | **600** [AC50/AC60] |
| ❷ Bracket | **Nil** | Spacer | ● | ● | ● | ● | ● |
| | **T** | Spacer with bracket | ● | ● | ● | ● | ● |

**Spacer (Y□-D)**



**Spacer with bracket (Y□T-D)**

### Standard Specifications

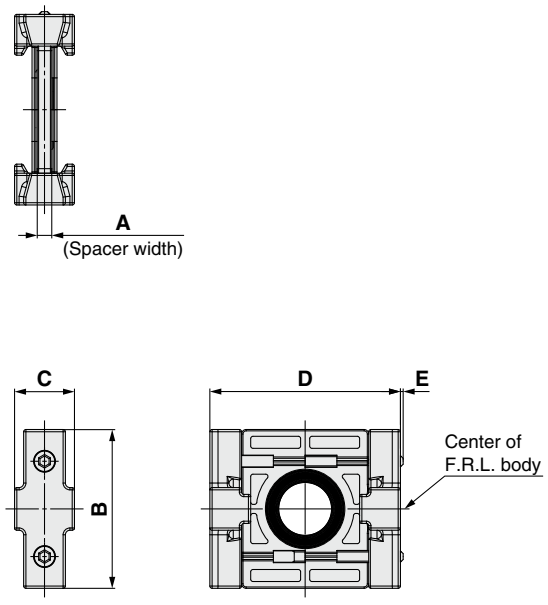
| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

### Replacement Parts

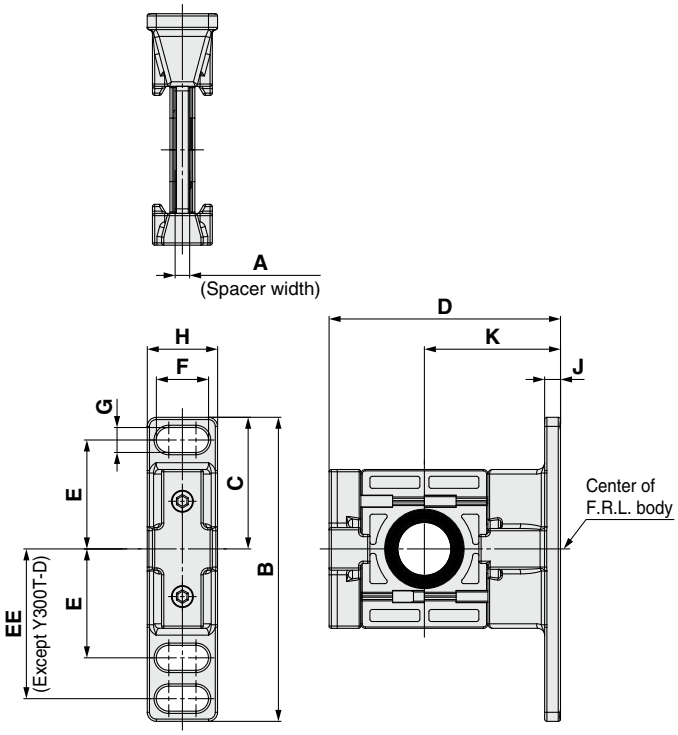
| Description | Material | Part no. | | | | |
|---|---|---|---|---|---|---|
| | | **Y200-D Y200T-D** | **Y300-D Y300T-D** | **Y400-D Y400T-D** | **Y500-D Y500T-D** | **Y600-D Y600T-D** |
| Seal | HNBR | Y220P-050S | Y320P-050S | Y420P-050S | Y520P-050S | Y620P-050S |

## Dimensions

**Spacer**




**Spacer with bracket**




| Model | A | B | C | D | E | Applicable size |
|---|---|---|---|---|---|---|
| **Y200-D** | 3.2 | 35 | 13.2 | 42 | 0.6 | **AC20-D** |
| **Y300-D** | 4.2 | 43 | 16.2 | 53 | — | **AC30-D** |
| **Y400-D** | 5.2 | 51 | 19.2 | 71 | — | **AC40-D** |
| **Y500-D** | 5.2 | 54 | 21.2 | 71 | — | **AC40-06-D** |
| **Y600-D** | 6.2 | 64 | 27.2 | 90 | — | **AC50-D AC60-D** |

| Model | A | B | C | D | E | EE | F | G | H | J | K | Applicable size |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Y200T-D** | 3.2 | 67 | 29 | 51 | 24 | 33 | 11.5 | 5.5 | 15.5 | 3.5 | 30 | **AC20-D** |
| **Y300T-D** | 4.2 | 85 | 42.5 | 67.5 | 35 | — | 14 | 7 | 20 | 6 | 41 | **AC30-D** |
| **Y400T-D** | 5.2 | 115 | 50 | 85.5 | 40 | 55 | 18 | 9 | 26 | 7 | 50 | **AC40-D** |
| **Y500T-D** | 5.2 | 115 | 50 | 85.5 | 40 | 55 | 18 | 9 | 26 | 7 | 50 | **AC40-06-D** |
| **Y600T-D** | 6.2 | 140 | 60 | 115 | 50 | 70 | 20 | 11 | 31.2 | 8 | 70 | **AC50-D AC60-D** |

# Attachments

## Pressure Relief 3-Port Valve: (V, V1)

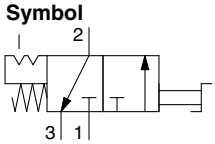
· By using a pressure relief 3-port valve, pressure left in the line can be easily exhausted.

**VHS 30 – ❷ 03 – ❹ – D**

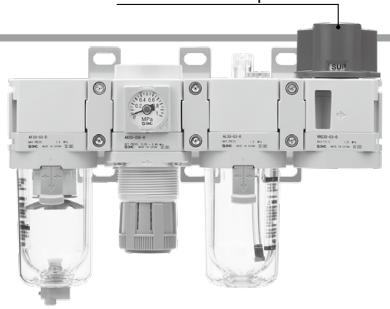
❶ ❷ ❸ ❹

· Semi-standard: Select one each for **a** and **b**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) VHS30-N03-RZ-D

**Symbol**




Pressure relief 3-port valve



| | | Symbol | Description | ❶ Body size [Applicable AC size] | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | **20** [AC20] | **30** [AC30] | **40** [AC40] | **40** [AC40-06] | **50** [AC50/AC60]*4 |
| ❷ | Pipe thread type | **Nil** | Rc*1 | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size | **01** | 1/8 | ● | — | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | — | ● | ● | — | — |
| | | **04** | 1/2 | — | — | ● | — | — |
| | | **06** | 3/4 | — | — | — | ● | ● |
| | | **10** | 1 | — | — | — | — | ● |
| | | + | | | | | | |
| ❹ Semi-standard | **a** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | **b** Unit | **Nil** | Unit on product label: MPa | ● | ● | ● | ● | ● |
| | | **Z***2 | Unit on product label: psi | ○*3 | ○*3 | ○*3 | ○*3 | ○*3 |

∗1 The pipe thread type for the EXH port is G.
∗2 For the pipe thread type: NPT only. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗3 ○: For the pipe thread type: NPT only
∗4 The VHS50 can be connected to the AC60.

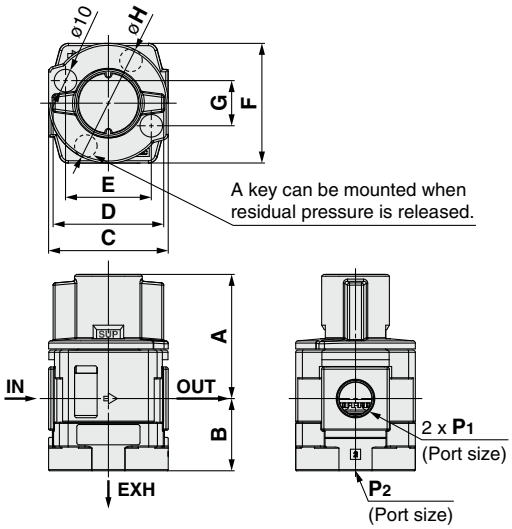
### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

### Flow Rate Characteristics

| Model | Port size | | Flow rate characteristics | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | IN → OUT | | | OUT → EXH | | |
| | IN, OUT | EXH | C ($dm^3/s \cdot bar$) | b | Cv | C ($dm^3/s \cdot bar$) | b | Cv |
| **VHS20** | 1/8 | 1/8 | 4.0 | 0.41 | 1.1 | 3.7 | 0.42 | 1.1 |
| | 1/4 | | 5.8 | 0.31 | 1.4 | 3.8 | 0.42 | 1.1 |
| **VHS30** | 1/4 | 1/4 | 8.8 | 0.44 | 2.4 | 8.0 | 0.46 | 2.3 |
| | 3/8 | | 14.1 | 0.28 | 3.5 | 7.8 | 0.46 | 2.2 |
| **VHS40** | 1/4 | 3/8 | 9.5 | 0.49 | 2.8 | 13.3 | 0.47 | 3.6 |
| | 3/8 | | 17.2 | 0.47 | 4.8 | 13.6 | 0.47 | 3.7 |
| | 1/2 | | 26.7 | 0.29 | 6.3 | 13.4 | 0.43 | 3.7 |
| **VHS40-06** | 3/4 | 1/2 | 34.0 | 0.22 | 7.6 | 16.1 | 0.41 | 4.4 |
| **VHS50** | 3/4 | 1/2 | 45.0 | 0.26 | 10.6 | 23.0 | 0.49 | 6.4 |
| | 1 | | 53.3 | 0.36 | 13.5 | 22.8 | 0.49 | 6.3 |

### Dimensions




| Model | P1 | P2 | A | B | C | D | Applicable size |
|---|---|---|---|---|---|---|---|
| **VHS20-D** | 1/8, 1/4 | 1/8 | 48.5 | 23 | 40 | 37 | **AC20-D** |
| **VHS30-D** | 1/4, 3/8 | 1/4 | 55 | 32 | 53 | 49 | **AC30-D** |
| **VHS40-D** | 1/4, 3/8, 1/2 | 3/8 | 69.7 | 41.3 | 70 | 63 | **AC40-D** |
| **VHS40-06-D** | 3/4 | 1/2 | 71.7 | 43.3 | 75 | 63 | **AC40-06-D** |
| **VHS50-D** | 3/4, 1 | 1/2 | 86.5 | 44.5 | 90 | 80 | **AC50-D/AC60-D** |

| Model | E | F | G | H | Applicable size |
|---|---|---|---|---|---|
| **VHS20-D** | 28 | 42 | 17.5 | 40 | **AC20-D** |
| **VHS30-D** | 38 | 53 | 20 | 53 | **AC30-D** |
| **VHS40-D** | 52 | 71 | 29 | 70 | **AC40-D** |
| **VHS40-06-D** | 52 | 71 | 29 | 70 | **AC40-06-D** |
| **VHS50-D** | 72 | 90 | 33 | 90 | **AC50-D/AC60-D** |

### Caution on Mounting

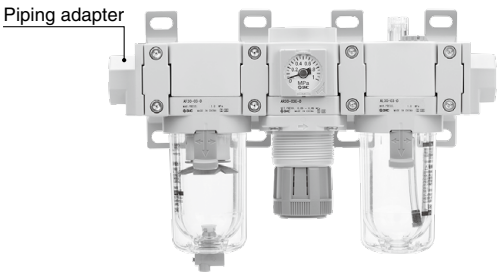
· Use an air filter on the inlet side for operating protection.
· When mounting a silencer, etc., on the EXH port, refer to the operation manual.

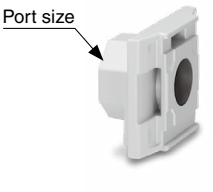
## Piping Adapter: 1/8, 1/4, 3/8, 1/2, 3/4, 1

· Using on the inlet side or the outlet side of F.R.L. units makes it easier to perform maintenance, as the component can be installed/ removed without removing the piping.

**E 300 – ❷ 03 – D**

❶ ❷ ❸



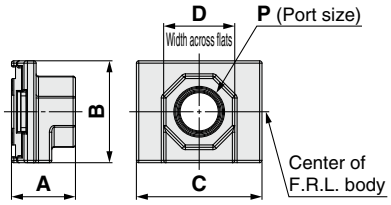




| | | Symbol | Description | ❶ Body size [Applicable AC size] 200 [AC20] | 300 [AC30] | 400 [AC40] | 500 [AC40-06] | 600 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● |
| | | N | NPT | ● | ● | ● | ● | ● |
| | | F | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size | 01 | 1/8 | ● | ● | — | — | — |
| | | 02 | 1/4 | ● | ● | ● | — | — |
| | | 03 | 3/8 | ● | ● | ● | — | — |
| | | 04 | 1/2 | — | — | ● | — | — |
| | | 06 | 3/4 | — | — | ● | ● | ● |
| | | 10 | 1 | — | — | — | ● | ● |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

### Dimensions




| Model | P | A | B | C | D | Applicable AC size |
|---|---|---|---|---|---|---|
| **E200-D** | 1/8, 1/4, 3/8 | 24 | 35 | 42 | 24 | **AC20-D** |
| **E300-D** | 1/4, 3/8, 1/2 | 27 | 43 | 53 | 30 | **AC30-D** |
| **E400-D** | 1/4, 3/8, 1/2, 3/4 | 30 | 51 | 71 | 36 | **AC40-D** |
| **E500-D** | 3/4 | 31 | 54 | 71 | 36 | **AC40-06-D** |
| | 1 | | | | 46 | |
| **E600-D** | 3/4, 1 | 39 | 64 | 90 | 46 | **AC50-D** **AC60-D** |

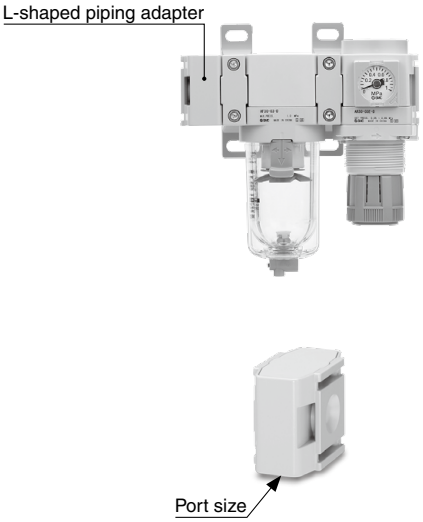
### Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

## L-Shaped Piping Adapter: 1/8, 1/4, 3/8, 1/2, 3/4, 1

· Upward/downward piping is possible on the inlet side and the outlet side of F.R.L. units.
· Ideal for space-saving and reducing piping labor
· Using on the inlet side or the outlet side of F.R.L. units makes it easier to perform maintenance, as the component can be installed/ removed without removing the piping.

**E 300 L – ❷ 03 – D**
❶ ❷ ❸

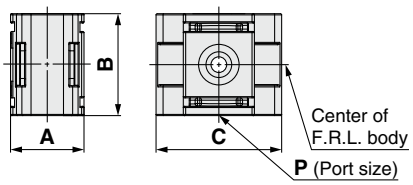



| | | Symbol | Description | ❶ Body size [Applicable AC size] 200 [AC20] | 300 [AC30] | 400 [AC40] | 500 [AC40-06] | 600 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size | **01** | 1/8 | ● | ● | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | — | ● | ● | — | — |
| | | **04** | 1/2 | — | — | ● | ● | ● |
| | | **06** | 3/4 | — | — | — | ● | ● |
| | | **10** | 1 | — | — | — | — | ● |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

### Dimensions




| Model | P | A | B | C | Applicable AC size |
|---|---|---|---|---|---|
| **E200L-D** | 1/8, 1/4 | 28 | 35 | 42 | **AC20-D** |
| **E300L-D** | 1/8, 1/4, 3/8 | 31 | 43 | 53 | **AC30-D** |
| **E400L-D** | 1/4, 3/8, 1/2 | 39 | 51 | 71 | **AC40-D** |
| **E500L-D** | 1/2, 3/4 | 47 | 54 | 71 | **AC40-06-D** |
| **E600L-D** | 1/2, 3/4, 1 | 62 | 64 | 90 | **AC50-D** **AC60-D** |

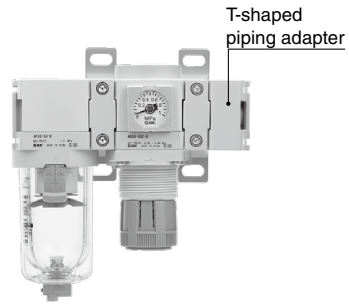
### Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

## T-Shaped Piping Adapter: 1/8, 1/4, 3/8, 1/2, 3/4, 1

· Both upward and downward piping are possible on the inlet and outlet sides of F.R.L. units.
· Ideal for space-saving and reducing piping labor
· Using on the inlet side or the outlet side of F.R.L. units makes it easier to perform maintenance, as the component can be installed/ removed without removing the piping.

**E 300 T − ❷ 03 − D**
❶ ❷ ❸



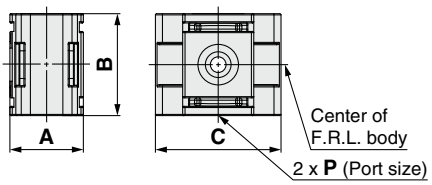

| | | Symbol | Description | ❶ Body size [Applicable AC size] 200 [AC20] | 300 [AC30] | 400 [AC40] | 500 [AC40-06] | 600 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size | **01** | 1/8 | ● | ● | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | — | ● | ● | — | — |
| | | **04** | 1/2 | — | — | ● | ● | ● |
| | | **06** | 3/4 | — | — | — | ● | ● |
| | | **10** | 1 | — | — | — | — | ● |


| | Port size |
|---|---|
| IN | — |
| OUT | ❸ |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | −5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

### Dimensions




| Model | P | A | B | C | Applicable AC size |
|---|---|---|---|---|---|
| **E200T-D** | 1/8, 1/4 | 28 | 35 | 42 | **AC20-D** |
| **E300T-D** | 1/8, 1/4, 3/8 | 31 | 43 | 53 | **AC30-D** |
| **E400T-D** | 1/4, 3/8, 1/2 | 39 | 51 | 71 | **AC40-D** |
| **E500T-D** | 1/2, 3/4 | 47 | 54 | 71 | **AC40-06-D** |
| **E600T-D** | 1/2, 3/4, 1 | 62 | 64 | 90 | **AC50-D** **AC60-D** |

### Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

## T-Spacer: 1/8, 1/4, 3/8, 1/2, 3/4

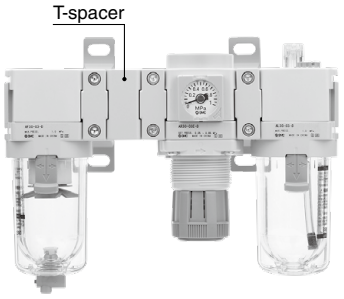
· Using a T-spacer facilitates the branching of air flow.

**Y 310 – □ 03 – □ – D**

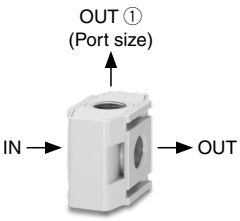
❶ ❷ ❸ ❹

| | | Symbol | Description | ❶ Body size [Applicable AC size] 210 [AC20] | 310 [AC30] | 410 [AC40] | 510 [AC40-06] | 610 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● |
| | | N | NPT | ● | ● | ● | ● | ● |
| | | F | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size (OUT①) | 01 | 1/8 | ● | ● | — | — | — |
| | | 02 | 1/4 | ● | ● | ● | ● | — |
| | | 03 | 3/8 | — | ○ | ● | ● | ● |
| | | 04 | 1/2 | — | — | ○ | ○ | ● |
| | | 06 | 3/4 | — | — | — | ○ | ○ |
| | | + | | | | | | |
| ❹ Semi-standard | Body type | Nil | Standard | ● | ● | ● | ● | ● |
| | | 1 | Slim | ● | ● | ● | ● | ● |

∗ ○: Only applicable to the standard type body

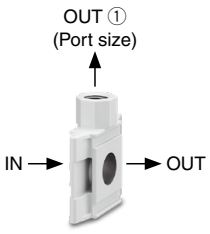



**Body type: Standard (Y□-□□-D)**




| | Port size |
|---|---|
| IN | — |
| OUT | — |
| OUT ① | ❸ |

**Body type: Slim (Y□-□□-1-D)**



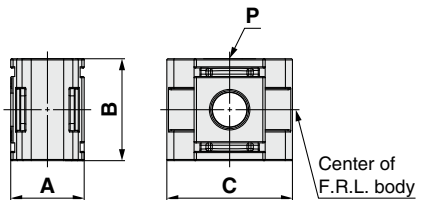

| | Port size |
|---|---|
| IN | — |
| OUT | — |
| OUT ① | ❸ |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

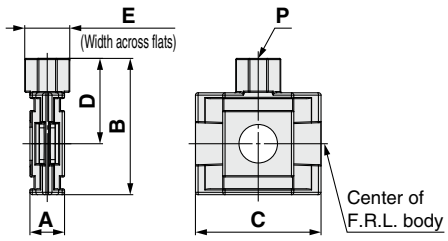
## Dimensions

**Body type: Standard**




| Model | P | A | B | C | Applicable AC size |
|---|---|---|---|---|---|
| **Y210-D** | 1/8, 1/4 | 28 | 35 | 42 | **AC20-D** |
| **Y310-D** | 1/8, 1/4, 3/8 | 31 | 43 | 53 | **AC30-D** |
| **Y410-D** | 1/4, 3/8, 1/2 | 39 | 51 | 71 | **AC40-D** |
| **Y510-D** | 1/4, 3/8, 1/2, 3/4 | 47 | 54 | 71 | **AC40-06-D** |
| **Y610-D** | 3/8, 1/2, 3/4 | 62 | 64 | 90 | **AC50-D, AC60-D** |

**Body type: Slim**




| Model | P | A | B | C | D | E | Applicable AC size |
|---|---|---|---|---|---|---|---|
| **Y210-1-D** | 1/8, 1/4 | 14.6 | 48.5 | 42 | 31 | 19 | **AC20-D** |
| **Y310-1-D** | 1/8, 1/4 | 14.6 | 57.5 | 53 | 36 | 19 | **AC30-D** |
| **Y410-1-D** | 1/4, 3/8 | 18.6 | 67 | 71 | 41.5 | 24 | **AC40-D** |
| **Y510-1-D** | 1/4, 3/8 | 18.6 | 70 | 63 | 43 | 24 | **AC40-06-D** |
| **Y610-1-D** | 3/8, 1/2 | 22 | 87 | 90 | 55 | 30 | **AC50-D, AC60-D** |

### Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

· The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

· When the slim body type is to be mounted to a wall using a spacer with bracket, use a spacer on only one side.

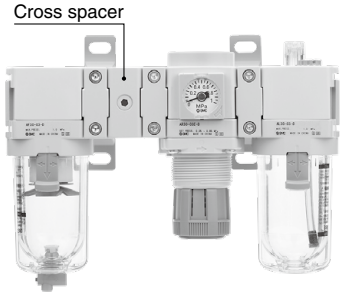
## Cross Spacer: 1/8, 1/4, 3/8, 1/2, 3/4

· The piping can be branched upward/downward (OUT ①) or forward/backward (OUT ②).

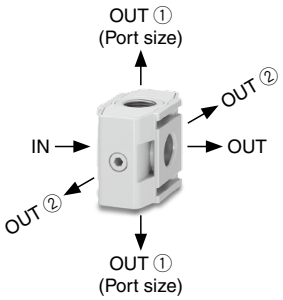
**Y 34 – □ 03 – □ – D**
❶ ❷ ❸ ❹

| | Symbol | Description | ❶ Body size [Applicable AC size] 24 [AC20] | 34 [AC30] | 44 [AC40] | 54 [AC40-06] | 64 [AC50, AC60] |
|---|---|---|---|---|---|---|---|
| ❷ Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● |
| | N | NPT | ● | ● | ● | ● | ● |
| | F | G | ● | ● | ● | ● | ● |
| ❸ Port size (OUT ①) | 01 | 1/8 | ● | ● | — | — | — |
| | 02 | 1/4 | ● | ● | ● | ○ | — |
| | 03 | 3/8 | — | ● | ● | ● | ○ |
| | 04 | 1/2 | — | — | ● | ● | ○ |
| | 06 | 3/4 | — | — | — | ● | ○ |
| ❹ Semi-standard: Body type | Nil | Standard*1 | ● | ● | ● | ● | ● |
| | 1 | Front and back port selectable type*2 | ● | ● | ● | ● | — |

*1 The front and back ports are for releasing pressure and only come in size 1/8, irrespective of the ❸ port size. The minimum port size is 1.4 mm.
*2 The front and back ports come in the same size as the ❸ port size.
*3 "○" indicates that only the standard body type is applicable.

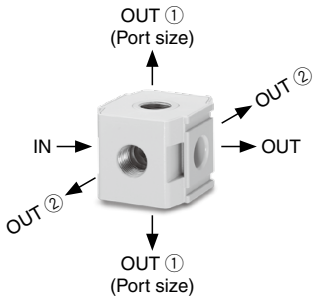



**Body type: Standard (Y□-□□-D)**




| | Port size |
|---|---|
| IN | — |
| OUT | — |
| OUT ① | ❸ |
| OUT ② | 1/8 |

**Body type: Front and back port selectable (Y□-□□-1-D)**



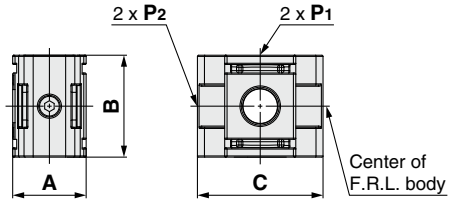

| | Port size |
|---|---|
| IN | — |
| OUT | — |
| OUT ① | ❸ |
| OUT ② | ❸ |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |

## Dimensions

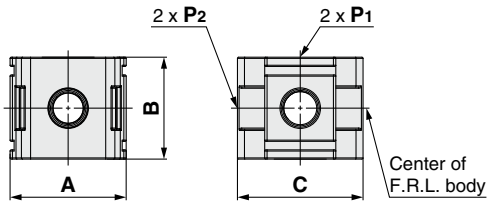
**Body type: Standard**




| Model | P1 | P2*1 | A | B | C | Applicable AC size |
|---|---|---|---|---|---|---|
| **Y24-D** | 1/8, 1/4 | 1/8 | 28 | 35 | 42 | **AC20-D** |
| **Y34-D** | 1/8, 1/4, 3/8 | 1/8 | 31 | 43 | 53 | **AC30-D** |
| **Y44-D** | 1/4, 3/8, 1/2 | 1/8 | 39 | 51 | 71 | **AC40-D** |
| **Y54-D** | 1/4, 3/8, 1/2, 3/4 | 1/8 | 47 | 54 | 71 | **AC40-06-D** |
| **Y64-D** | 3/8, 1/2, 3/4 | 1/8 | 62 | 64 | 90 | **AC50-D, AC60-D** |

*1 A resin plug is attached to the P2 port and shipped together with the product.

**Body type: Front and back port selectable**




| Model | P1, P2*1 | A | B | C | Applicable AC size |
|---|---|---|---|---|---|
| **Y24-1-D** | 1/8, 1/4 | 40 | 35 | 42 | **AC20-D** |
| **Y34-1-D** | 1/8, 1/4, 3/8 | 49 | 43 | 53 | **AC30-D** |
| **Y44-1-D** | 1/4, 3/8, 1/2 | 60 | 51 | 71 | **AC40-D** |
| **Y54-1-D** | 3/8, 1/2, 3/4 | 72 | 54 | 71 | **AC40-06-D** |

*1 Two hexagon socket head plugs the same size as the P1 and P2 ports are shipped together with the product.

## Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
· The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

## Pressure Switch

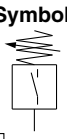
· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.

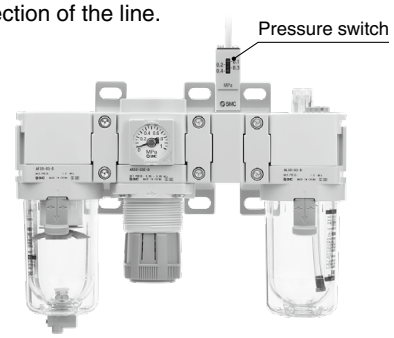
**IS10M − 30 − □ − D**

❶ ❷

· Semi-standard: Select one each for **a** to **d**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) IS10M-30-6LP-D

**Symbol**






| | | Symbol | Description | ❶ Body size [Applicable AC size] 20 [AC20] | 30 [AC30] | 40 [AC40] | 50 [AC40-06] | 60 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ Semi-standard | a Set pressure range | Nil | 0.1 to 0.4 MPa | ● | ● | ● | ● | ● |
| | | 6∗1 | 0.1 to 0.6 MPa | ○ | ○ | ○ | ○ | ○ |
| | + | | | | | | | |
| | b Lead wire length | Nil | 0.5 m | ● | ● | ● | ● | ● |
| | | L | 3 m | ● | ● | ● | ● | ● |
| | | Z | 5 m | ● | ● | ● | ● | ● |
| | + | | | | | | | |
| | c Pressure unit of the scale plate | Nil | MPa | ● | ● | ● | ● | ● |
| | | P∗2 | MPa/psi dual scale | ○ | ○ | ○ | ○ | ○ |
| | + | | | | | | | |
| | d Body type | Nil | Standard | ● | ● | ● | ● | ● |
| | | 1 | Slim | ● | ● | ● | ● | ● |

**Body type: Standard (IS10M-□□-D)**

**Body type: Slim (IS10M-□□-1-D)**

●: Without restrictions
○: With restrictions (Refer to ∗1 and ∗2.)

∗1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
∗2 This product is for overseas use only according to the New Measurement Act.
(The SI unit type is provided for use in Japan.)

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.0 MPa |
| **Max. operating pressure** | 0.7 MPa |
| **Set pressure range (when OFF)** | 0.1 to 0.4 MPa |
| **Hysteresis** | 0.08 MPa or less |
| **Contact point configuration** | 1a |

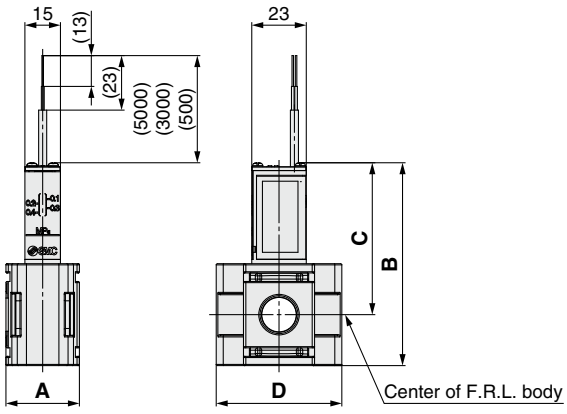
### Switch Characteristics

| | |
|---|---|
| **Max. contact point capacity** | 2 VA (AC), 2 W (DC) |
| **Operating voltage: AC, DC** | 100 V or less |
| **Max. operating current** | 12 V to 24 VAC, DC: 50 mA<br>48 VAC, DC: 40 mA<br>100 VAC, DC: 20 mA |

∗ For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

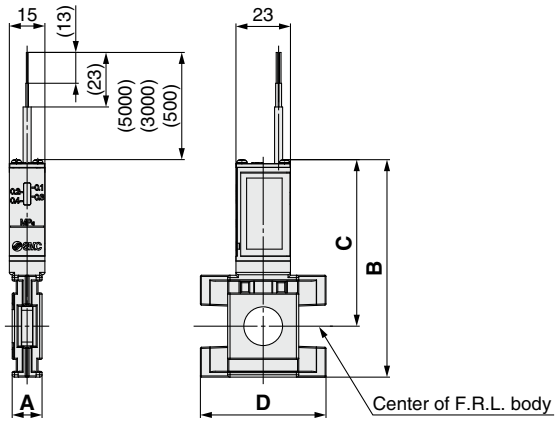
## Dimensions

### Body type: Standard




| Model | A | B | C | D | Applicable AC size |
|---|---|---|---|---|---|
| **IS10M-20-D** | 28 | 77.6 | 60.1 | 42 | **AC20-D** |
| **IS10M-30-D** | 31 | 85.6 | 64.1 | 53 | **AC30-D** |
| **IS10M-40-D** | 39 | 93.6 | 68.1 | 71 | **AC40-D** |
| **IS10M-50-D** | 47 | 96.6 | 69.6 | 71 | **AC40-06-D** |
| **IS10M-60-D** | 62 | 106.6 | 74.6 | 90 | **AC50-D, AC60-D** |

### Body type: Slim




| Model | A | B | C | D | Applicable AC size |
|---|---|---|---|---|---|
| **IS10M-20-1-D** | 10.6 | 83.8 | 66.3 | 42 | **AC20-D** |
| **IS10M-30-1-D** | 12.6 | 91.8 | 70.3 | 53 | **AC30-D** |
| **IS10M-40-1-D** | 14.6 | 97.8 | 72.3 | 58.6 | **AC40-D** |
| **IS10M-50-1-D** | 16.6 | 100.8 | 73.8 | 59.3 | **AC40-06-D** |
| **IS10M-60-1-D** | 22 | 110.8 | 78.8 | 90 | **AC50-D, AC60-D** |

## Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
· When the slim body type is to be mounted to a wall using a spacer with bracket, use a spacer on only one side.

## Pressure Switch with T-Spacer

· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.

**IS10T – 30 – ❑ 03 – ❑ – D**
❶ ❷ ❸ ❹

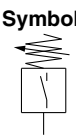
· Semi-standard: Select one each for **a** to **c**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) IS10T-30-N03-6LP-D

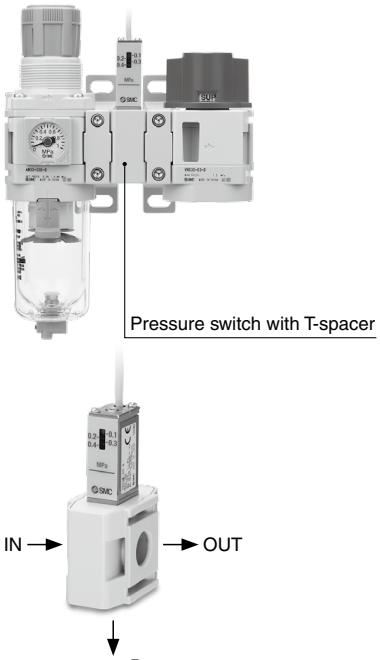
| | | Symbol | Description | ❶ Body size [Applicable AC size] 20 [AC20] | 30 [AC30] | 40 [AC40] | 50 [AC40-06] | 60 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size (OUT①) | **01** | 1/8 | ● | ● | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | ● | — |
| | | **03** | 3/8 | — | ● | ● | ● | ● |
| | | **04** | 1/2 | — | — | ● | ● | ● |
| | | **06** | 3/4 | — | — | — | ● | ● |
| | | + | | | | | | |
| ❹ | Semi-standard **a** Set pressure range | **Nil** | 0.1 to 0.4 MPa | ● | ● | ● | ● | ● |
| | | **6**∗1 | 0.1 to 0.6 MPa | ○ | ○ | ○ | ○ | ○ |
| | | + | | | | | | |
| | **b** Lead wire length | **Nil** | 0.5 m | ● | ● | ● | ● | ● |
| | | **L** | 3 m | ● | ● | ● | ● | ● |
| | | **Z** | 5 m | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | **c** Pressure unit of the scale plate | **Nil** | MPa | ● | ● | ● | ● | ● |
| | | **P**∗2 | MPa/psi dual scale | ○ | ○ | ○ | ○ | ○ |

●: Without restrictions
○: With restrictions (Refer to ∗1 and ∗2.)

∗1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
∗2 For the pipe thread type: NPT only
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

**Symbol**






| | Port size |
|---|---|
| IN | — |
| OUT | — |
| OUT ① | ❸ |

### Standard Specifications

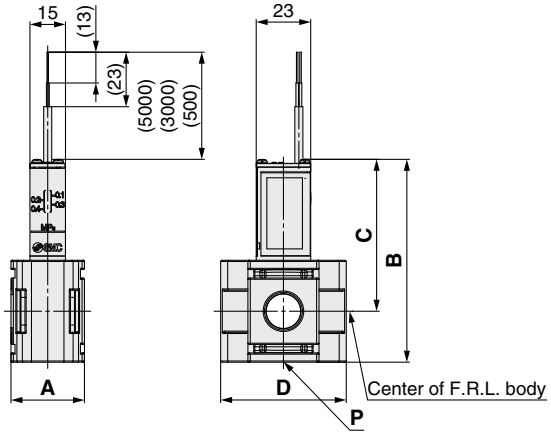
| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.0 MPa |
| **Max. operating pressure** | 0.7 MPa |
| **Set pressure range (when OFF)** | 0.1 to 0.4 MPa |
| **Hysteresis** | 0.08 MPa or less |
| **Contact point configuration** | 1a |

### Switch Characteristics

| | |
|---|---|
| **Max. contact point capacity** | 2 VA (AC), 2 W (DC) |
| **Operating voltage: AC, DC** | 100 V or less |
| **Max. operating current** | 12 V to 24 VAC, DC: 50 mA<br>48 VAC, DC: 40 mA<br>100 VAC, DC: 20 mA |

∗ For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

### Dimensions




| Model | P | A | B | C | D | Applicable AC size |
|---|---|---|---|---|---|---|
| **IS10T-20-D** | 1/8, 1/4 | 28 | 77.6 | 60.1 | 42 | **AC20-D** |
| **IS10T-30-D** | 1/8, 1/4, 3/8 | 31 | 85.6 | 64.1 | 53 | **AC30-D** |
| **IS10T-40-D** | 1/4, 3/8, 1/2 | 39 | 93.6 | 68.1 | 71 | **AC40-D** |
| **IS10T-50-D** | 1/4, 3/8, 1/2, 3/4 | 47 | 96.6 | 69.6 | 71 | **AC40-06-D** |
| **IS10T-60-D** | 3/8, 1/2, 3/4 | 62 | 106.6 | 74.6 | 90 | **AC50-D, AC60-D** |

### Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
· The backflow of oil may occur when a spacer is used on the inlet side of the lubricator. Attach a check valve between the lubricator and the product to prevent backflow.

## Pressure Switch with L-Shaped Piping Adapter

· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.
· Using on the inlet side or the outlet side of F.R.L. units allows the component to be installed/removed without removing the piping.

**IS10L – 30 – ❑ 03 – ❑ – D**
❶ ❷ ❸ ❹

· Semi-standard: Select one each for **a** to **d**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) IS10L-30-N03-6LP-D

| | | Symbol | Description | ❶ Body size [Applicable AC size] 20 [AC20] | 30 [AC30] | 40 [AC40] | 50 [AC40-06] | 60 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size (OUT) | **01** | 1/8 | ● | ● | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | — | ● | ● | — | — |
| | | **04** | 1/2 | — | — | ● | ● | ● |
| | | **06** | 3/4 | — | — | — | ● | ● |
| | | **10** | 1 | — | — | — | — | ● |
| | | + | | | | | | |
| ❹ Semi-standard | **a** Set pressure range | **Nil** | 0.1 to 0.4 MPa | ● | ● | ● | ● | ● |
| | | **6**∗1 | 0.1 to 0.6 MPa | ○ | ○ | ○ | ○ | ○ |
| | | + | | | | | | |
| | **b** Lead wire length | **Nil** | 0.5 m | ● | ● | ● | ● | ● |
| | | **L** | 3 m | ● | ● | ● | ● | ● |
| | | **Z** | 5 m | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | **c** Pressure unit of the scale plate | **Nil** | MPa | ● | ● | ● | ● | ● |
| | | **P**∗2 | MPa/psi dual scale | ○ | ○ | ○ | ○ | ○ |
| | | + | | | | | | |
| | **d** Mounting position | **Nil** | Right | ● | ● | ● | ● | ● |
| | | **R** | Left | ● | ● | ● | ● | ● |

●: Without restrictions ○: With restrictions (Refer to ∗1 and ∗2.)

∗1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
∗2 For the pipe thread type: NPT only
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

### Standard Specifications

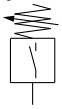
| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.0 MPa |
| **Max. operating pressure** | 0.7 MPa |
| **Set pressure range (when OFF)** | 0.1 to 0.4 MPa |
| **Hysteresis** | 0.08 MPa or less |
| **Contact point configuration** | 1a |

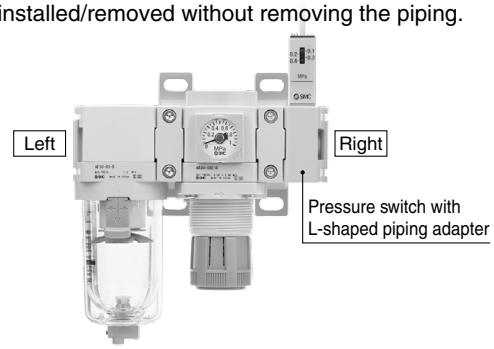
### Switch Characteristics

| | |
|---|---|
| **Max. contact point capacity** | 2 VA (AC), 2 W (DC) |
| **Operating voltage: AC, DC** | 100 V or less |
| **Max. operating current** | 12 V to 24 VAC, DC: 50 mA<br>48 VAC, DC: 40 mA<br>100 VAC, DC: 20 mA |

∗ For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

**Symbol**

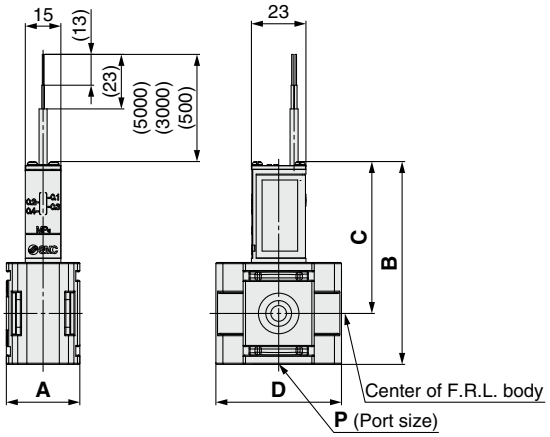






| | Port size |
|---|---|
| IN | — |
| OUT | ❸ |

### Dimensions




| Model | P | A | B | C | D | Applicable AC size |
|---|---|---|---|---|---|---|
| **IS10L-20-D** | 1/8, 1/4 | 28 | 77.6 | 60.1 | 42 | **AC20-D** |
| **IS10L-30-D** | 1/8, 1/4, 3/8 | 31 | 85.6 | 64.1 | 53 | **AC30-D** |
| **IS10L-40-D** | 1/4, 3/8, 1/2 | 39 | 93.6 | 68.1 | 71 | **AC40-D** |
| **IS10L-50-D** | 1/2, 3/4 | 47 | 96.6 | 69.6 | 71 | **AC40-06-D** |
| **IS10L-60-D** | 1/2, 3/4, 1 | 62 | 106.6 | 74.6 | 90 | **AC50-D, AC60-D** |

### Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

## Pressure Switch with Piping Adapter

· A compact, integrated pressure switch can be easily installed to facilitate the pressure detection of the line.

**IS10E – 30 – ☐ 03 – ☐ – D**
(1) (2) (3) (4)

· Semi-standard: Select one each for **a** to **d**.
· Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) IS10E-30-N03-6LP-D

| | | Symbol | Description | ❶ Body size [Applicable AC size] 20 [AC20] | 30 [AC30] | 40 [AC40] | 50 [AC40-06] | 60 [AC50, AC60] |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size (OUT) | **01** | 1/8 | ● | — | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | ● | ● | ● | — | — |
| | | **04** | 1/2 | — | ● | ● | — | — |
| | | **06** | 3/4 | — | — | ● | ● | ● |
| | | **10** | 1 | — | — | — | ● | ● |
| | | + | | | | | | |
| ❹ Semi-standard | **a** Set pressure range | **Nil** | 0.1 to 0.4 MPa | ● | ● | ● | ● | ● |
| | | **6**∗1 | 0.1 to 0.6 MPa | ○ | ○ | ○ | ○ | ○ |
| | | + | | | | | | |
| | **b** Lead wire length | **Nil** | 0.5 m | ● | ● | ● | ● | ● |
| | | **L** | 3 m | ● | ● | ● | ● | ● |
| | | **Z** | 5 m | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | **c** Pressure unit of the scale plate | **Nil** | MPa | ● | ● | ● | ● | ● |
| | | **P**∗2 | MPa/psi dual scale | ○ | ○ | ○ | ○ | ○ |
| | | + | | | | | | |
| | **d** Mounting position | **Nil** | Right | ● | ● | ● | ● | ● |
| | | **R** | Left | ● | ● | ● | ● | ● |

●: Without restrictions ○: With restrictions (Refer to ∗1 and ∗2.)

∗1 The set pressure range for the 6P is 0.2 to 0.6 MPa (30 to 90 psi).
∗2 For the pipe thread type: NPT only
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)

### Standard Specifications

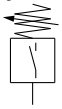
| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.0 MPa |
| **Max. operating pressure** | 0.7 MPa |
| **Set pressure range (when OFF)** | 0.1 to 0.4 MPa |
| **Hysteresis** | 0.08 MPa or less |

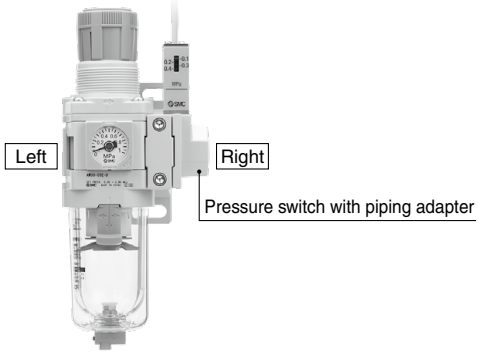
### Switch Characteristics

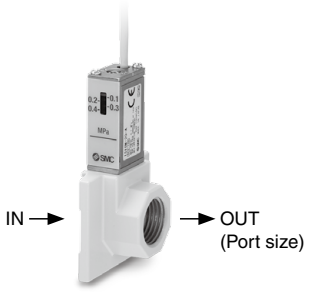
| | |
|---|---|
| **Contact point configuration** | 1a |
| **Max. contact point capacity** | 2 VA (AC), 2 W (DC) |
| **Operating voltage: AC, DC** | 100 V or less |
| **Max. operating current** | 12 V to 24 VAC, DC: 50 mA<br>48 VAC, DC: 40 mA<br>100 VAC, DC: 20 mA |

∗ For detailed specifications of the IS10 series, refer to the IS10 series section on the SMC website: https://www.smcworld.com

**Symbol**

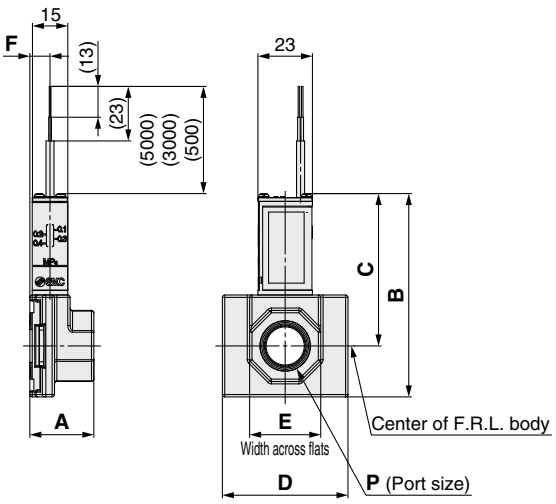





| | Port size |
|---|---|
| IN | — |
| OUT | ❸ |

### Dimensions




| Model | P | A | B | C | D | E | F | Applicable AC size |
|---|---|---|---|---|---|---|---|---|
| **IS10E-20-D** | 1/8, 1/4, 3/8 | 24 | 77.8 | 60.3 | 42 | 24 | 8.5 | **AC20-D** |
| **IS10E-30-D** | 1/4, 3/8, 1/2 | 27 | 85.8 | 64.3 | 53 | 30 | | **AC30-D** |
| **IS10E-40-D** | 1/4, 3/8, 1/2, 3/4 | 30 | 93.8 | 68.3 | 71 | 36 | | **AC40-D** |
| **IS10E-50-D** | 3/4 | 31 | 96.8 | 69.8 | 71 | 36 | | **AC40-06-D** |
| | 1 | | | | | 46 | | |
| **IS10E-60-D** | 3/4, 1 | 39 | 106.8 | 74.8 | 90 | 46 | 9.5 | **AC50-D, AC60-D** |

### Caution on Mounting

Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.

## Turn Adapter

· Allows for modular connection with the product rotated 90 degrees

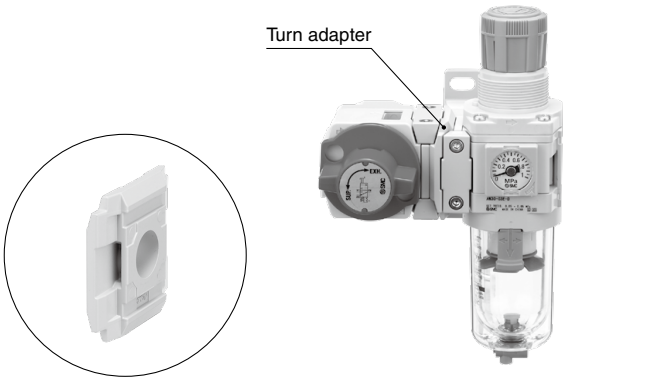
**E 310 T – D**

**Body size** | **Turn Adapter**

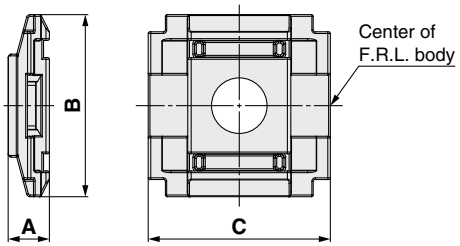
| |
|---|
| 210 |
| 310 |
| 410 |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |




### Dimensions




| Model | A | B | C | Applicable AC size |
|---|---|---|---|---|
| **E210T-D** | 9 | 42 | 42 | **AC20-D** |
| **E310T-D** | 12 | 53 | 53 | **AC30-D** |
| **E410T-D** | 15 | 71 | 71 | **AC40-D** |

### Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
· When mounting to a wall using a spacer with bracket, use a spacer on only one side.

## Size Conversion Adapter

· Allows for modular connection with products 1 body size larger or smaller

**E 310 R – D**

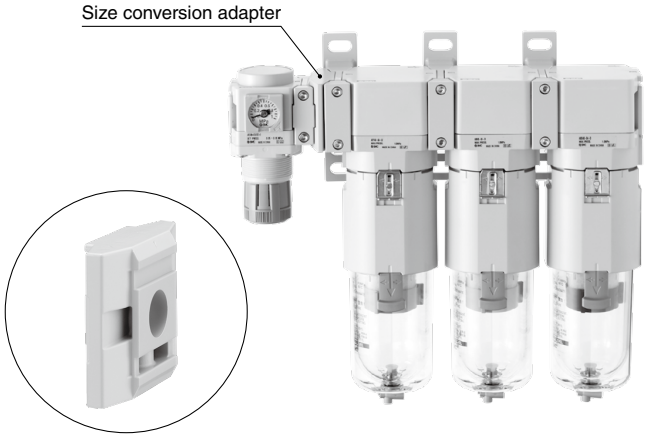
**Adapter for different sizes**

**Body size**

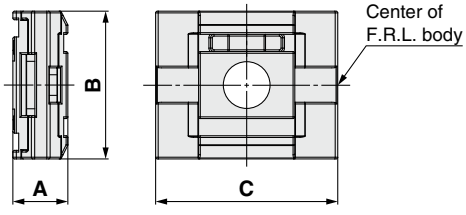
| | |
|---|---|
| **310** | For connecting sizes 20 and 30 |
| **410** | For connecting sizes 30 and 40 |

### Standard Specifications

| | |
|---|---|
| **Fluid** | Air |
| **Ambient and fluid temperatures** | –5 to 60°C (No freezing) |
| **Proof pressure** | 1.5 MPa |
| **Max. operating pressure** | 1.0 MPa |




### Dimensions




| Model | A | B | C | Applicable AC size |
|---|---|---|---|---|
| **E310R-D** | 16 | 43 | 53 | **AC20-D, AC30-D** |
| **E410R-D** | 20 | 51 | 71 | **AC30-D, AC40-D** |

### Caution on Mounting

· Pipe threads are not provided on the face which connects with the other components. For use, a separate spacer (or spacer with bracket) is required.
· When mounting to a wall using a spacer with bracket, use a spacer on only one side.

# *AC-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Air Supply

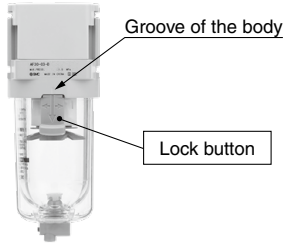
### ⚠ Caution

**1.** Use an air filter with 5 μm or less filtration rating on the inlet side of the valve to avoid any damage to the seat caused by dust when mounting a pressure relief 3-port valve on the inlet side.

## Mounting / Adjustment

### ⚠ Caution

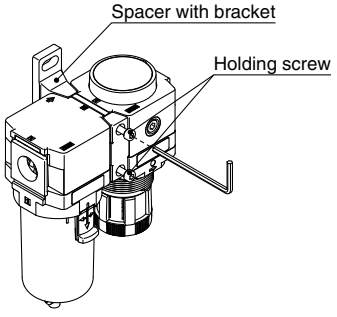
**1.** When the bowl is installed on the air filter, filter regulator, lubricator, mist separator, or micro mist separator (AC30-D to AC60-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.




**2.** 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 | AC20□ | AC30□ | AC40□ | AC40□-06 | AC50□ AC60□ |
|---|---|---|---|---|---|
| Spacer with bracket part no. | Y200T-D | Y300T-D | Y400T-D | Y500T-D | Y600T-D |
| Spacer part no. | Y200-D | Y300-D | Y400-D | Y500-D | Y600-D |
| Torque | 0.36 ±0.036 | 1.2 ±0.05 | 1.2 ±0.05 | 1.4 ±0.05 | 2.0 ±0.1 |




## Selection

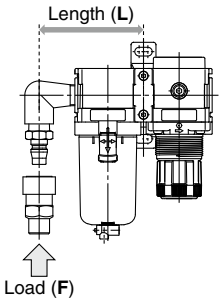
### ⚠ Warning

**1.** 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 | AC20□ | AC30□ | AC40□ | AC40□-06 | AC50□ AC60□ |
|---|---|---|---|---|---|
| Max. moment (**M**) | 14.5 | 16 | 19.5 | 35 | 45 |

Max. moment (**M**) = Length (**L**) x Load (**F**)




**2.** Float type auto drain
Operate under the following conditions to avoid a malfunction.
<N.O. type>
- Operating compressor: 0.75 kW (100 L/min (ANR)) or more
  When using 2 or more auto drains, multiply the value above by the number of auto drains to find the capacity of the compressors you will need.
  For example, when using 2 auto drains, 1.5 kW (200 L/min (ANR)) of the compressor capacity is required.
- Operating pressure: 0.1 MPa or more

<N.C. type>
- Operating pressure for AD27-D: 0.1 MPa or more
  Operating pressure for AD37-D/AD47-D: 0.15 MPa or more

**3.** Use a regulator or filter regulator with backflow function when mounting a pressure relief 3-port valve on the inlet side to ensure the release of the residual pressure. Otherwise, residual pressure will not be fully released.

### ⚠ Caution

**1.** When releasing air at the intermediate position using a T-spacer on the inlet side of the lubricator, lubricant may backflow. Therefore, releasing air that does not contain traces of lubricant is not possible. To release air that does not contain traces of lubricant, use a check valve (AKM series) on the inlet side of the lubricator to prevent a backflow of the lubricant.

**2.** If a pressure relief 3-port valve is mounted on the inlet side of the lubricator, causing a backflow of air, it can result in a backflow of oil or damage to internal parts. Do not use it in this manner.

**3.** An F.R.L. unit shipped from the plant has its model number labeled. However, components that are combined together during the distribution process do not have a label on them.

**4.** When operating at an inlet pressure lower than the inlet pressure used in the flow rate characteristics graph, the pressure drop on the outlet side may be greater. Therefore, be sure to conduct testing using the actual equipment.
For air combination selection, refer to page 99 in the "Product Selection Guide."

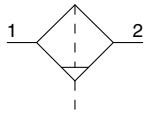
# Modular Type
# Air Filter
# *AF Series*

| **Air Filter**<br>**AF Series**<br>  <br>**p. 60 to 68** | Model | Port size | Filtration [μm] | Options |
|---|---|---|---|---|
| | **AF20-D** | 1/8, 1/4 | 5 | Bracket<br>Float type auto drain |
| | **AF30-D** | 1/4, 3/8 | | |
| | **AF40-D** | 1/4, 3/8, 1/2 | | |
| | **AF40-06-D** | 3/4 | | |
| | **AF50-D** | 3/4, 1 | | |
| | **AF60-D** | 1 | | |

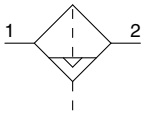
# Air Filter
# AF20-D to AF60-D

**Symbol**

Air Filter




Air Filter with Auto Drain




**AF30-D**

## How to Order

**AF** **30** – ❷ **03** **BD** – ❺ **–D**

❶ ❷ ❸ ❹ ❺

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

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| | | | + | | | | | | |
| ❹ | Option | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● | ● | ● |
| | | | **B**∗1 | With bracket | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **b** Float type auto drain∗2 | **Nil** | Without auto drain | ● | ● | ● | ● | ● |
| | | | **C**∗3 | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● | ● | ● |
| | | | **D**∗4 | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❺ | Semi-standard | **c** Bowl∗5 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —∗6 | —∗6 | —∗6 | —∗6 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —∗7 | —∗7 | —∗7 | —∗7 |
| | | | + | | | | | | |
| | | **d** Indicator | **Nil** | Without indicator | ● | ● | ● | ● | ● |
| | | | **L** | With element service indicator∗14 | ● | ● | ●∗12 | ● | ● |
| | | | + | | | | | | |
| | | **e** Drain port∗8 | **Nil** | With drain cock | ● | ● | ● | ● | ● |
| | | | **J**∗9 | Drain guide 1/8 | ● | — | — | — | — |
| | | | | Drain guide 1/4 | — | ● | ● | ● | ● |
| | | | **W**∗10 | Drain cock with barb fitting | — | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **f** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **g** Unit | **Nil** | Unit on product label: MPa, °C | ● | ● | ● | ● | ● |
| | | | **Z**∗11 | Unit on product label: psi, °F | ○∗13 | ○∗13 | ○∗13 | ○∗13 | ○∗13 |

∗1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 The auto drain port is ø10 One-touch fitting (❷ Pipe thread type: Rc, G) or ø3/8" One-touch fitting (❷ Pipe thread type: NPT)
∗3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗4 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗5 Refer to chemical data on page 68 for chemical resistance of the bowl.
∗6 A bowl guard is provided as standard equipment (polycarbonate).
∗7 A bowl guard is provided as standard equipment (nylon).
∗8 The combination of float type auto drain C and D is not available.
∗9 Without a valve function. The mounting screws are the same as the thread of ❷.
∗10 The combination of metal bowl 2 and 8 is not available.
∗11 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗12 Excludes port size "06"
∗13 ○: For the pipe thread type: NPT only
∗14 A special body type is required to mount the element service indicator. It cannot be mounted on a standard body.

## Standard Specifications

| Model | | AF20-D | AF30-D | AF40-D | AF40-06-D | AF50-D | AF60-D |
|---|---|---|---|---|---|---|---|
| **Port size** | | 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 temperatures** | | –5 to 60°C (No freezing) | | | | | |
| **Proof pressure** | | 1.5 MPa | | | | | |
| **Max. operating pressure** | | 1.0 MPa | | | | | |
| **Auto drain minimum operating pressure** | **N.C.** | 0.1 MPa | 0.15 MPa | | | | |
| | **N.O.** | — | 0.1 MPa | | | | |
| **Nominal filtration rating**∗1 | | 5 µm | | | | | |
| **Compressed air purity class**∗2 | | ISO 8573-1:2010 [ 6 : 8 : 4 ]∗3 | | | | | |
| **Drain capacity** | | 8 $cm^3$ | 25 $cm^3$ | 45 $cm^3$ | | | |
| **Bowl material** | | Polycarbonate | | | | | |
| **Bowl guard** | | Semi-standard (Steel) | Standard (Polycarbonate) | | | | |
| **Weight** | | 0.09 kg | 0.17 kg | 0.35 kg | 0.39 kg | 0.85 kg | 0.92 kg |

∗1 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗2 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗3 The compressed air quality class on the inlet side is [ 7 : 9 : 4 ].

## Bowl Assembly/Part Nos.

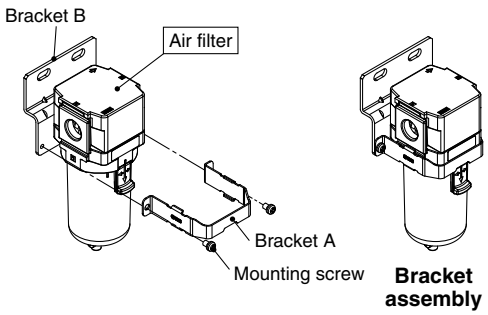
| Bowl material | Drain discharge mechanism | Drain port | Other | Model | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | **AF20-D** | **AF30-D** | **AF40-D** | **AF40-06-D** | **AF50-D** | **AF60-D** |
| Polycarbonate | Manual | With drain cock | — | C2SF-D | — | — | | | |
| | | | With bowl guard | C2SF-C-D | C3SF-D | C4SF-D | | | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-W-D | C4SF-W-D | | | |
| | | With drain guide (without valve function) | — | C2SF□-J-D | — | — | | | |
| | | | With bowl guard | C2SF□-CJ-D | C3SF□-J-D | C4SF□-J-D | | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-D | — | — | | | |
| | | | With bowl guard | AD27-C-D | AD37□-D | AD47□-D | | | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-D | AD48□-D | | | |
| Nylon | Manual | With drain cock | — | C2SF-6-A | — | — | | | |
| | | | With bowl guard | C2SF-6C-A | C3SF-6-A | C4SF-6-A | | | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-6W-A | C4SF-6W-A | | | |
| | | With drain guide (without valve function) | — | C2SF□-6J-A | — | — | | | |
| | | | With bowl guard | C2SF□-6CJ-A | C3SF□-6J-A | C4SF□-6J-A | | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-6-A | — | — | | | |
| | | | With bowl guard | AD27-6C-A | AD37□-6-A | AD47□-6-A | | | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-6-A | AD48□-6-A | | | |
| Metal | Manual | With drain cock | — | C2SF-2-A | C3SF-2-A | C4SF-2-A | | | |
| | | | With level gauge | — | C3LF-8-A | C4LF-8-A | | | |
| | | With drain guide (without valve function) | — | C2SF□-2J-A | C3SF□-2J-A | C4SF□-2J-A | | | |
| | | | With level gauge | — | C3LF□-8J-A | C4LF□-8J-A | | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-2-A | AD37□-2-A | AD47□-2-A | | | |
| | | | With level gauge | — | AD37□-8-A | AD47□-8-A | | | |
| | | Normally open (N.O.) | — | — | AD38□-2-A | AD48□-2-A | | | |
| | | | With level gauge | — | AD38□-8-A | AD48□-8-A | | | |

∗1 The bowl assembly comes with a bowl seal.
□ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).
No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")
Please contact SMC separately for psi and °F unit display specifications.

## Option/Part Nos.

| Optional specifications | Model | | | | | |
|---|---|---|---|---|---|---|
| | **AF20-D** | **AF30-D** | **AF40-D** | **AF40-06-D** | **AF50-D** | **AF60-D** |
| **Bracket assembly**∗1 | AF24P-070AS | AF34P-070AS | AF44P-070AS | AF49P-070AS | AF54P-070AS | |
| **Auto drain** | Refer to "Bowl Assembly/Part Nos." | | | | | |

∗1 The assembly consists of a bracket A/B and 2 mounting screws.




## Replacement Parts

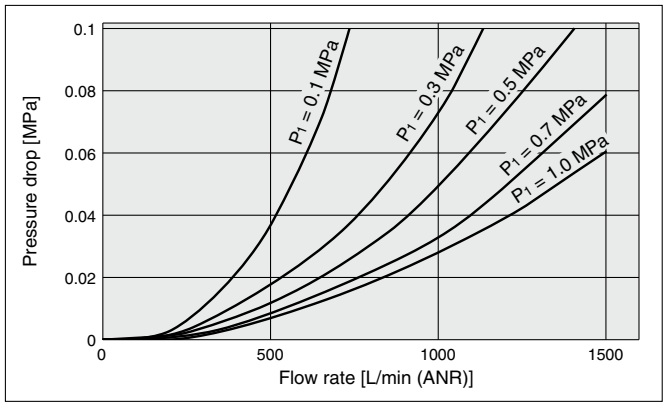
| Description | Part no. | | | | | |
|---|---|---|---|---|---|---|
| | **AF20-D** | **AF30-D** | **AF40-D** | **AF40-06-D** | **AF50-D** | **AF60-D** |
| **Filter element** | AF20P-060S | AF30P-060S | AF40P-060S | | AF50P-060S | AF60P-060S |
| **Baffle** | AF24P-040S | AF34P-040S | AF44P-040S | | AF54P-040S | AF64P-040S |
| **Bowl seal** | C2SFP-260S | C32FP-260S | C42FP-260S | | | |
| **Bowl assembly**∗1, ∗2 | Refer to "Bowl Assembly/Part Nos." | | | | | |

∗1 The bowl assembly comes with a bowl seal.
∗2 Please contact SMC separately for psi and °F unit display specifications.

## Flow Rate Characteristics (Representative values)

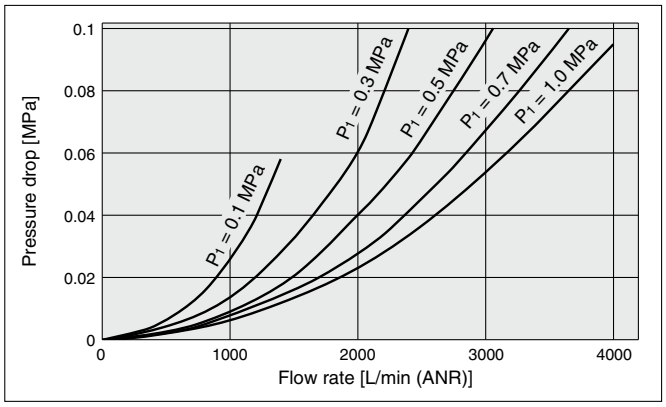
### AF20-D

Rc1/4



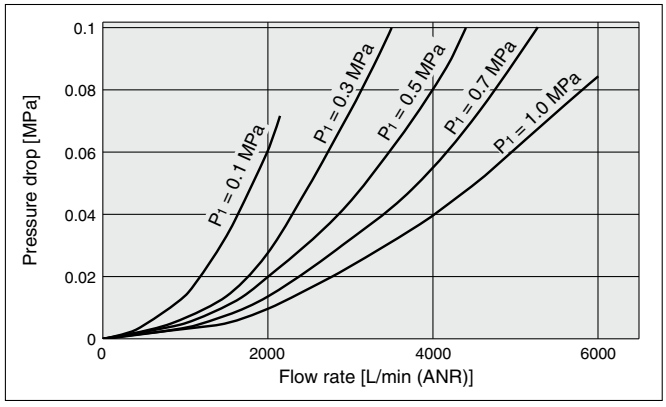

### AF30-D

Rc3/8



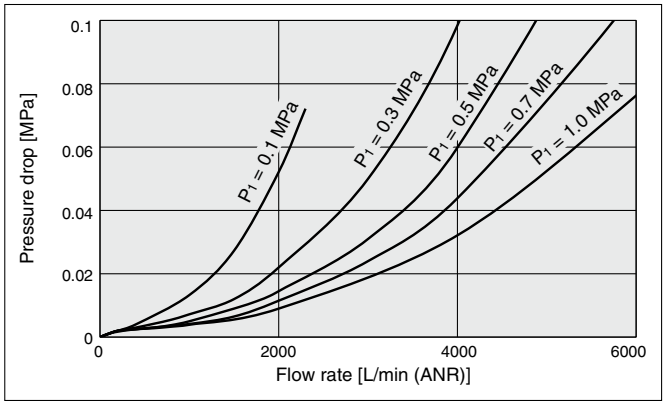

### AF40-D

Rc1/2



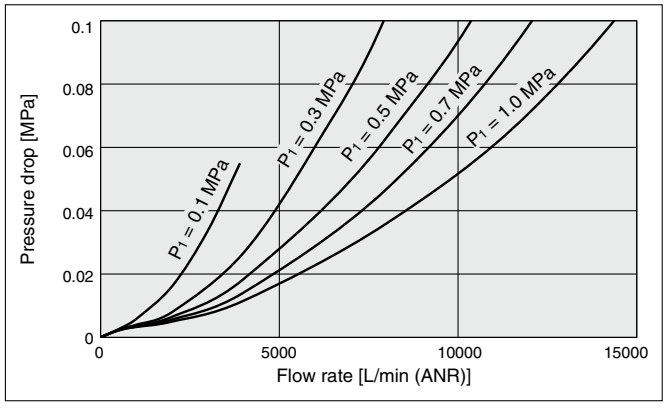

### AF40-06-D

Rc3/4



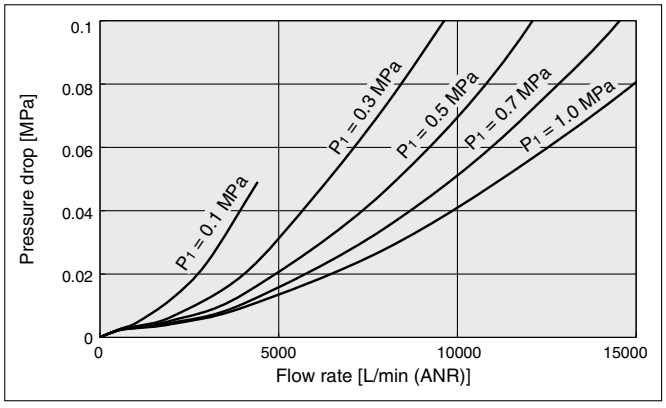

### AF50-D

Rc1



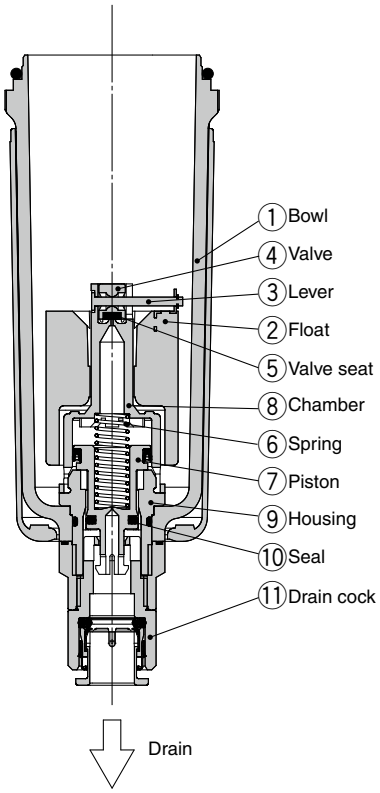

### AF60-D

Rc1



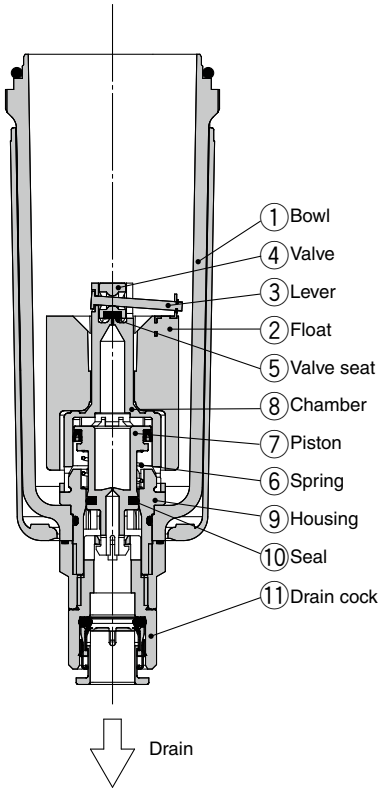
## Working Principle: Float Type Auto Drain

### N.O. type: AD38-D, AD48-D



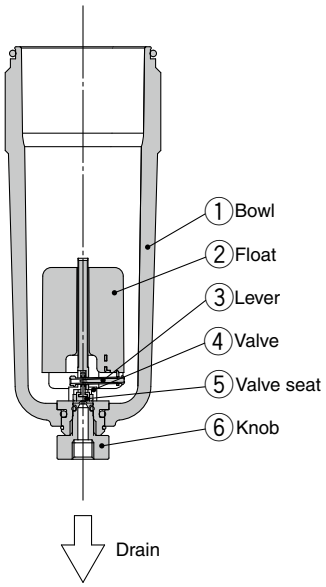

- **When pressure inside the bowl is released:**
  When pressure is released from the bowl ①, the piston ⑦ is lowered by the spring ⑥.
  The sealing action of the seal ⑩ is interrupted, and the outside air flows inside the bowl ① through the housing hole ⑨ and the drain cock ⑪.
  Therefore, if there 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 is 0.1 MPa or more, the force of the piston ⑦ surpasses the force of the 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, the float ② will be pulled down by its own weight, causing the valve ④, which is connected to the lever ③, to seal the valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.
  This allows the pressure inside the bowl ① to enter the chamber ⑧. The result is that the combined pressure inside the chamber ⑧ and the force of the spring ⑥ lowers the piston ⑦.
  This causes the sealing action of the seal ⑩ to be interrupted, and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning the drain cock ⑪ manually counterclockwise lowers the piston ⑦, and causes the seal created by the seal ⑩ to be interrupted, thus allowing the condensate to drain out.

### N.C. type: AD37-D, AD47-D



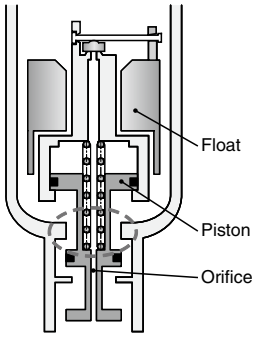
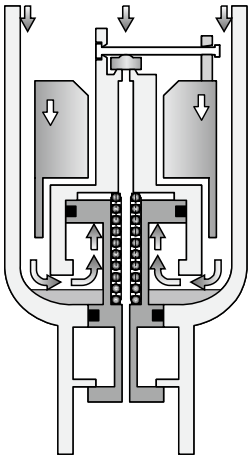
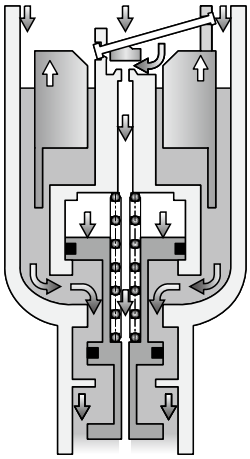
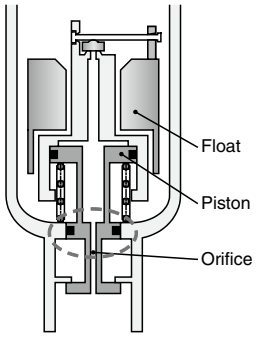

- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, spring ⑥ keeps the piston ⑦ in its upward position.
  This keeps the seal created by the seal ⑩ in place; thus, the inside of the bowl ① is shut off from the outside air.
  Therefore, even if there is 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 the spring ⑥ and the pressure inside the bowl ① keeps the 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, the float ② will be pulled down by its own weight, causing the valve ④, which is connected to the lever ③, to seal the valve seat ⑤.
- **When there is an accumulation of condensate in the bowl:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted. This allows the pressure inside the bowl ① to enter the chamber ⑧.
  The result is that the pressure inside the chamber ⑧ surpasses the force of the spring ⑥ and pushes the piston ⑦ downward.
  This causes the sealing action of the seal ⑩ to be interrupted and the accumulated condensate in the bowl ① drains out through the drain cock ⑪.
  Turning the drain cock ⑪ manually counterclockwise lowers the piston ⑦, and causes the seal created by the seal ⑩ to be interrupted, thus allowing the condensate to drain out.

### Compact auto drain N.C. type: AD27-D

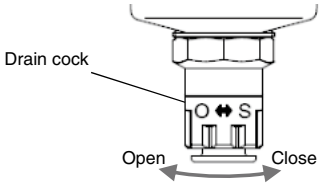


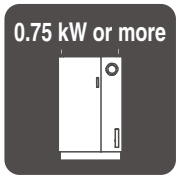
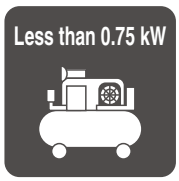

- **When pressure inside the bowl is released:**
  Even when pressure inside the bowl ① is released, the weight of the float ② causes the valve ④, which is connected to the lever ③, to seal the valve seat ⑤. As a result, the inside of the bowl ① is shut off from the outside air.
  Therefore, even if 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 the valve ④ cause the valve ④ to seal the 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:**
  The float ② rises due to its own buoyancy and the seal at the valve seat ⑤ is interrupted.
  The condensate inside the bowl ① drains out through the knob ⑥.
  Turning the knob ⑥ manually counterclockwise lowers it and causes the sealing action of the valve seat ⑤ to be interrupted, which allows the condensate to drain out.

## Operating State and Proper Use of Float Type Auto Drain

| Auto drain | When pressure is not applied (After exhausting residual pressure) | When pressure is applied | | Minimum operating pressure |
|---|---|---|---|---|
| | | Before condensate accumulates | When condensate accumulates | |
| N.O.<br>Normally open | Condensate discharged (Open)<br>  | Condensate not discharged (Close)<br>  | Condensate discharged (Open)<br>  | **0.1 MPa or more**<br>AF30-D to AF60-D |
| N.C.<br>Normally closed | Condensate not discharged (Close)<br>  | | | **0.1 MPa or more**<br>AF20-D<br>**0.15 MPa or more**<br>AF30-D to AF60-D |

◆ For both N.O. and N.C., the condensate can be discharged manually by turning the drain cock to the "O" position.

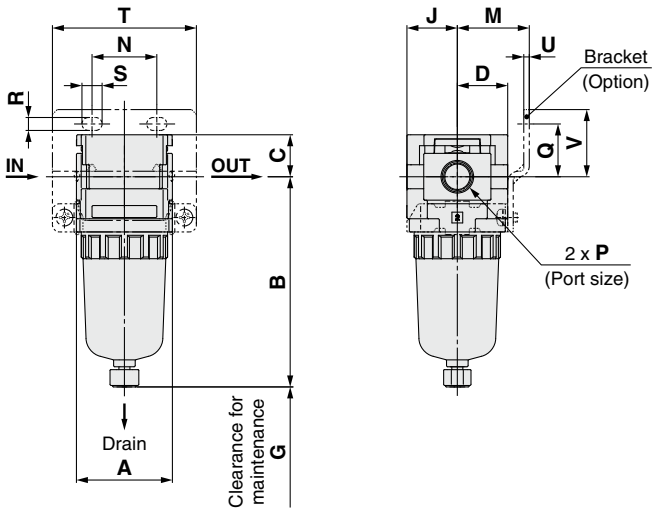



| Proper Use | | | Recommended auto drain |
|---|---|---|---|
| Compressor | When pressure is not applied (After exhausting residual pressure) | Cold climates | |
|  | **Condensate not accumulated**<br>Do not want to accumulate condensate generated at the inlet side when pressure is not applied. | **Want to prevent troubles caused by freezing.** | N.O.*1<br>Normally open |
|  | **Condensate accumulated** | — | N.C.<br>Normally closed |

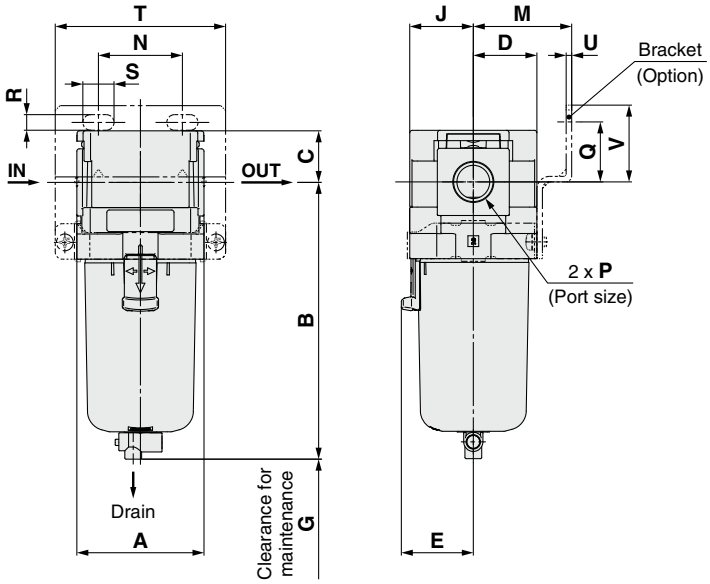
*1 For N.O. (Normally open) type, the condensate discharge passage is open when pressure is not applied. For this reason, the drain port is not closed completely in a compressor with a small supply amount (less than 0.75 kW) and the air will ceaselessly blow out.

## Dimensions

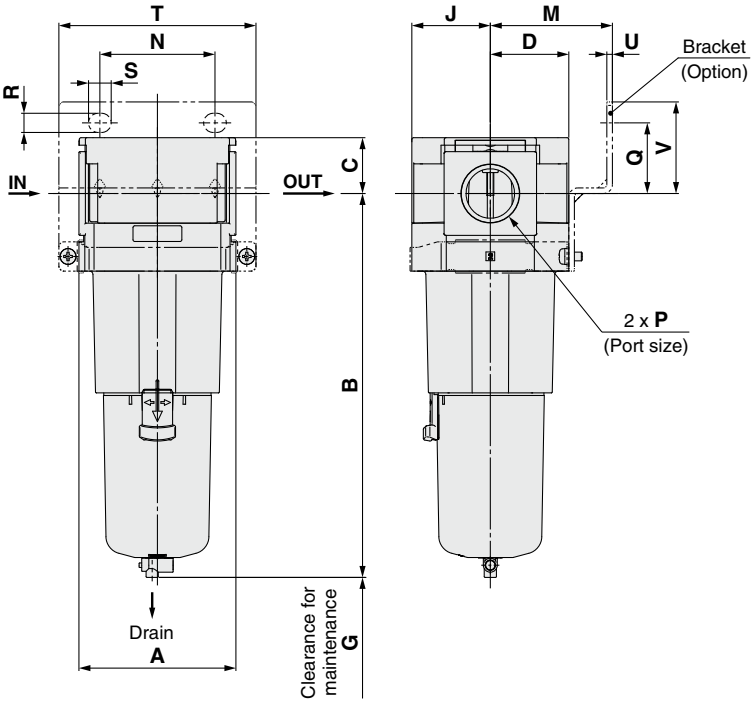
### AF20-D

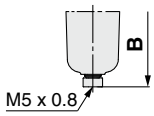
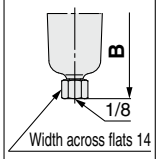
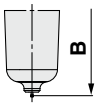
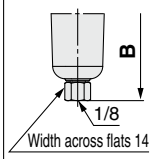
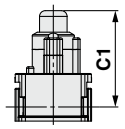
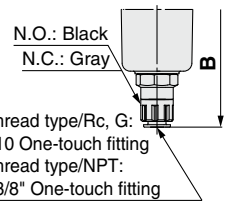
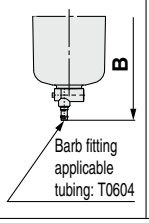
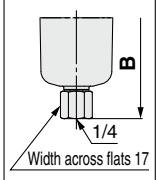
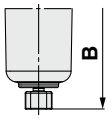
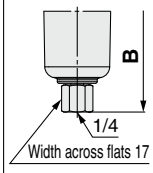
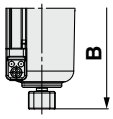
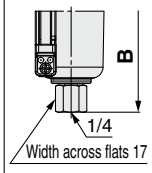
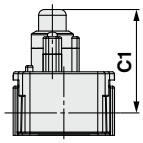



### AF30-D to AF40-06-D




### AF50-D to AF60-D



| Applicable model | Optional specifications | Semi-standard | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | | With element service indicator |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide | |
| **AF20-D** |  | |  |  |  | | |  |
| **AF30-D to AF60-D** |  |  |  |  |  |  |  |  |

| 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** |
| **AF20-D** | 1/8, 1/4 | 40 | 87.6 | 17.5 | 21 | — | 25 | 21 | 30 | 27 | 22 | 5.4 | 8.4 | 60 | 2.3 | 28 | 104.9 |
| **AF30-D** | 1/4, 3/8 | 53 | 115.4 | 21.5 | 26.5 | 30 | 35 | 26.5 | 41 | 35 | 25 | 6.5 | 13 | 71 | 2.3 | 32 | 157.1 |
| **AF40-D** | 1/4, 3/8, 1/2 | 70 | 147.1 | 25.5 | 35.5 | 38.4 | 40 | 35.5 | 50 | 52 | 30 | 8.5 | 12.5 | 88 | 2.3 | 39 | 186.9 |
| **AF40-06-D** | 3/4 | 75 | 149.1 | 27 | 35.5 | 38.4 | 40 | 35.5 | 50 | 52 | 34 | 8.5 | 12.5 | 88 | 2.3 | 43 | 188.9 |
| **AF50-D** | 3/4, 1 | 90 | 220.1 | 32 | 45 | — | 30 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 | 259.9 |
| **AF60-D** | 1 | 95 | 234.1 | 32 | 45 | — | 30 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 | 273.9 |

| Model | Semi-standard specifications | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | | With element service indicator | |
| | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide | | |
| | **B** | **B** | **B** | **B** | **B** | **B** | **A** | **C1** |
| **AF20-D** | — | 91.4 | 87.4 | 93.9 | — | — | 40 | 50.6 |
| **AF30-D** | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 | 53 | 54.3 |
| **AF40-D** | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 | 70 | 58.3 |
| **AF40-06-D** | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 | 75 | — |
| **AF50-D** | 228.6 | 226.9 | 222.5 | 227 | 242.5 | 247 | 90 | 64.3 |
| **AF60-D** | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 | 90 | 64.3 |

# Air Filter/*AF20-D to AF60-D*

# Made to Order

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

Made to Order

## ① Long Bowl

Drain capacity is greater than that of standard models.

### Applicable Models/Drain Capacity

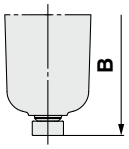
| Model | AF20-D | AF30-D | AF40-D | AF40-06-D | AF50-D | AF60-D |
|---|---|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| **Drain capacity [cm³]** | 19 | 43 | 88 | | | |
| **B dimension [mm]**∗1 | 108.1 | 137.4 | 167.2 | 169.2 | 240.2 | 254.2 |

∗1 For polycarbonate bowls. Please contact SMC for other bowl materials.

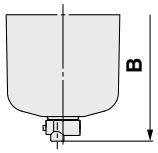
**AF** **30** - □ **03** □ - □ - **D** - **X64**

❶ ❷ ❸ ❹ ❺ ● Long bowl

**AF20-D**




**AF30 to 60-D**




· Semi-standard: Select one each for **a** to **d**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AF30-03B-2R-D-X64

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| | | | + | | | | | | |
| ❹ | Option (Mounting) | | **Nil** | Without mounting option | ● | ● | ● | ● | ● |
| | | | **B**∗1 | With bracket | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❺ | Semi-standard | **a** Bowl∗2 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —∗3 | —∗3 | —∗3 | —∗3 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —∗4 | —∗4 | —∗4 | —∗4 |
| | | | + | | | | | | |
| | | **b** Drain port | **Nil** | With drain cock | ● | ● | ● | ● | ● |
| | | | **J**∗5 | Drain guide 1/8 | ● | — | — | — | — |
| | | | | Drain guide 1/4 | — | ● | ● | ● | ● |
| | | | **W**∗6 | Drain cock with barb fitting | — | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **c** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **d** Unit | **Nil** | Unit on product label: MPa, °C | ● | ● | ● | ● | ● |
| | | | **Z**∗7 | Unit on product label: psi, °F | ○∗8 | ○∗8 | ○∗8 | ○∗8 | ○∗8 |

∗1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 Refer to chemical data on page 68 for chemical resistance of the bowl.
∗3 A bowl guard is provided as standard equipment (polycarbonate).
∗4 A bowl guard is provided as standard equipment (nylon).
∗5 Without a valve function. The mounting screws are the same as the thread of ❷.
∗6 The combination of metal bowl 2 is not available.
∗7 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗8 ○: For the pipe thread type: NPT only

# *AF-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Design / Selection

### ⚠ Warning

**1. The bowl material of the standard air filter is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

**Chemical resistance of polycarbonate or nylon bowl**

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

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

When the above factors are present, or there is some doubt, use a metal bowl for safety.

## Maintenance

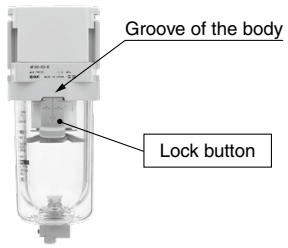
### ⚠ Warning

**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.

## Mounting / Adjustment

### ⚠ Caution

**1.** When the bowl is installed on the air filter (AF30-D to AF60-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.




## Handling

### ⚠ Caution

**1.** The element service indicator (Semi-standard: L) is used to check the pressure differential between the IN and OUT sides. When operating at a flow rate with a pressure differential exceeding 0.025 MPa, the element service indicator may operate even when the element is in its initial state.

**2.** For models with an element service indicator, adjust the flow rate in the direction that increases the flow rate.
If the designated flow rate is exceeded, reset the flow rate to zero and readjust it until the designated flow rate is reached.

**3.** For models with an element service indicator, as the element becomes more clogged, the indicator will display an increasing level of red. Be sure to replace the element before the level of red reaches the top of the indicator.

# Modular Type
# Mist Separator/Micro Mist Separator
# *AFM/AFD Series*

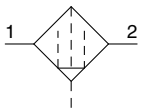
| | Model | Port size | Filtration [μm] | Options |
|---|---|---|---|---|
| **Mist Separator AFM Series**  **p. 70 to 75** | **AFM20-D** | 1/8, 1/4 | 0.3 | Bracket<br>Float type auto drain |
| | **AFM30-D** | 1/4, 3/8 | | |
| | **AFM40-D** | 1/4, 3/8, 1/2 | | |
| | **AFM40-06-D** | 3/4 | | |
| **Micro Mist Separator AFD Series**  **p. 70 to 75** | **AFD20-D** | 1/8, 1/4 | 0.01 | Bracket<br>Float type auto drain |
| | **AFD30-D** | 1/4, 3/8 | | |
| | **AFD40-D** | 1/4, 3/8, 1/2 | | |
| | **AFD40-06-D** | 3/4 | | |

# Mist Separator
# *AFM20-D to AFM40-D*
# Micro Mist Separator
# *AFD20-D to AFD40-D*

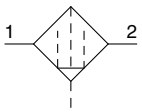
**AFM30-D** **AFD30-D**

**Symbol**

Mist Separator




Micro Mist Separator




## How to Order

**AFM** **30** – ☐ **03** **BD** – ☐ –D

**AFD** **30** – ☐ **03** **BD** – ☐ –D

❶ ❷ ❸ ❹ ❺

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AFM30-03BD-R-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● |
| | | | **F** | G | ● | ● | ● |
| | | | + | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — |
| | | | **02** | 1/4 | ● | ● | ● |
| | | | **03** | 3/8 | — | ● | ● |
| | | | **04** | 1/2 | — | — | ● |
| | | | **06** | 3/4 | — | — | ● |
| | | | + | | | | |
| ❹ | Option | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● |
| | | | **B**∗1 | With bracket | ● | ● | ● |
| | | | + | | | | |
| | | **b** Float type auto drain∗2 | **Nil** | Without auto drain | ● | ● | ● |
| | | | **C**∗3 | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● |
| | | | **D**∗4 | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● |
| | | | + | | | | |
| ❺ | Semi-standard | **c** Bowl∗5 | **Nil** | Polycarbonate bowl | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● |
| | | | **C** | With bowl guard | ● | —∗6 | —∗6 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —∗7 | —∗7 |
| | | | + | | | | |
| | | **d** Indicator | **Nil** | Without indicator | ● | ● | ● |
| | | | **L** | With element service indicator∗14 | ● | ● | ●∗12 |
| | | | + | | | | |
| | | **e** Drain port∗8 | **Nil** | With drain cock | ● | ● | ● |
| | | | **J**∗9 | Drain guide 1/8 | ● | — | — |
| | | | | Drain guide 1/4 | — | ● | ● |
| | | | **W**∗10 | Drain cock with barb fitting | — | ● | ● |
| | | | + | | | | |
| | | **f** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● |
| | | | + | | | | |
| | | **g** Unit | **Nil** | Unit on product label: MPa, °C | ● | ● | ● |
| | | | **Z**∗11 | Unit on product label: psi, °F | ○∗13 | ○∗13 | ○∗13 |

∗1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 The auto drain port is ø10 One-touch fitting (❷ Pipe thread type: Rc, G) or ø3/8" One-touch fitting (❷ Pipe thread type: NPT)
∗3 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗4 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗5 Refer to chemical data on page 75 for chemical resistance of the bowl.
∗6 A bowl guard is provided as standard equipment (polycarbonate).
∗7 A bowl guard is provided as standard equipment (nylon).
∗8 The combination of float type auto drain C and D is not available.
∗9 Without a valve function. The mounting screws are the same as the thread of ❷.
∗10 The combination of metal bowl 2 and 8 is not available.
∗11 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗12 Excludes port size "06"
∗13 ○: For the pipe thread type: NPT only
∗14 A special body type is required to mount the element service indicator. It cannot be mounted on a standard body.

# *AFM20-D to AFM40-D Series*
# *AFD20-D to AFD40-D Series*

## Standard Specifications

| Model | | | AFM20-D/AFD20-D | AFM30-D/AFD30-D | AFM40-D/AFD40-D | AFM40-06-D/AFD40-06-D |
|---|---|---|---|---|---|---|
| **Port size** | | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| **Fluid** | | | Air | | | |
| **Ambient and fluid temperatures** | | | –5 to 60°C (No freezing) | | | |
| **Proof pressure** | | | 1.5 MPa | | | |
| **Max. operating pressure** | | | 1.0 MPa | | | |
| **Min. operating pressure** | | | 0.05 MPa | | | |
| **Auto drain minimum operating pressure** | **N.C.** | | 0.1 MPa | 0.15 MPa | | |
| | **N.O.** | | — | 0.1 MPa | | |
| **Max. flow capacity**∗1 | | **[AFM]** | 200 L/min (ANR) | 450 L/min (ANR) | 1100 L/min (ANR) | |
| | | **[AFD]** | 120 L/min (ANR) | 240 L/min (ANR) | 600 L/min (ANR) | |
| **Nominal filtration rating**∗2 | | **[AFM]** | 0.3 μm (99.9% filtered particle size) | | | |
| | | **[AFD]** | 0.01 μm (99.9% filtered particle size) | | | |
| **Outlet side oil mist concentration**∗3, ∗4 | | **[AFM]** | Max. 1.0 mg/m$^3$ (≈ 0.8 ppm) | | | |
| | | **[AFD]** | Max. 0.1 mg/m$^3$ (Before saturated with oil 0.01 mg/m$^3$ or less ≈ 0.008 ppm) | | | |
| **Compressed air purity class**∗5 | | **[AFM]** | ISO 8573-1:2010 [ 3 : 7 : 3 ]∗6 | | | |
| | | **[AFD]** | ISO 8573-1:2010 [ 1 : 7 : 2 ]∗7 | | | |
| **Drain capacity** | | | 8 cm$^3$ | 25 cm$^3$ | 45 cm$^3$ | |
| **Bowl material** | | | Polycarbonate | | | |
| **Bowl guard** | | | Semi-standard (Steel) | Standard (Polycarbonate) | | |
| **Weight** | | | 0.10 kg | 0.18 kg | 0.37 kg | 0.40 kg |

∗1 Inlet pressure: 0.7 MPa. Flow at 20°C, atmospheric pressure, and 65% of the relative humidity
The maximum flow capacity varies depending on the inlet pressure.
Keep the air flow within the maximum flow capacity to prevent an outflow of lubricant to the outlet side.

∗2 For the following conditions in accordance with [Test condition: ISO 8573-4:2001, Test method ISO 12500-3:2009 compliant] in addition to the conditions above
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable

∗3 The outlet side oil mist concentration for the following conditions in accordance with [Test condition: ISO 8573-2:2007, Test method ISO 12500-1:2007 compliant] in addition to the conditions above
Conditions: When a new element is used, the oil mist concentration on the filter inlet side is 10 mg/m$^3$, and the flow capacity, inlet pressure, and the oil mist concentration on the filter inlet side are stable

∗4 The bowl seal and other O-rings are slightly lubricated.

∗5 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.

∗6 The compressed air quality class on the inlet side is [ 6 : 8 : 4 ].

∗7 The compressed air quality class on the inlet side is [ 3 : 7 : 3 ].

## Bowl Assembly/Part Nos.

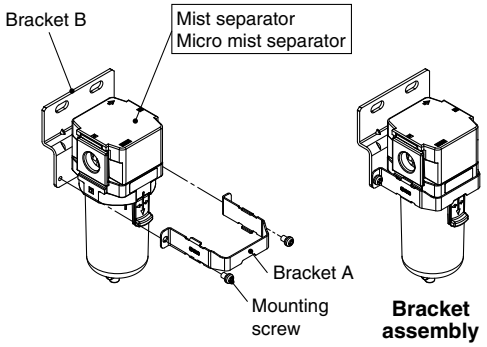
| Bowl material | Drain discharge mechanism | Drain port | Other | Model | | | |
|---|---|---|---|---|---|---|---|
| | | | | **AFM20-D/AFD20-D** | **AFM30-D/AFD30-D** | **AFM40-D/AFD40-D** | **AFM40-06-D/AFD40-06-D** |
| Polycarbonate | Manual | With drain cock | — | C2SF-D | — | — | |
| | | | With bowl guard | C2SF-C-D | C3SF-D | C4SF-D | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-W-D | C4SF-W-D | |
| | | With drain guide (without valve function) | — | C2SF□-J-D | — | — | |
| | | | With bowl guard | C2SF□-CJ-D | C3SF□-J-D | C4SF□-J-D | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-D | — | — | |
| | | | With bowl guard | AD27-C-D | AD37□-D | AD47□-D | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-D | AD48□-D | |
| Nylon | Manual | With drain cock | — | C2SF-6-A | — | — | |
| | | | With bowl guard | C2SF-6C-A | C3SF-6-A | C4SF-6-A | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-6W-A | C4SF-6W-A | |
| | | With drain guide (without valve function) | — | C2SF□-6J-A | — | — | |
| | | | With bowl guard | C2SF□-6CJ-A | C3SF□-6J-A | C4SF□-6J-A | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-6-A | — | — | |
| | | | With bowl guard | AD27-6C-A | AD37□-6-A | AD47□-6-A | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-6-A | AD48□-6-A | |
| Metal | Manual | With drain cock | — | C2SF-2-A | C3SF-2-A | C4SF-2-A | |
| | | | With level gauge | — | C3LF-8-A | C4LF-8-A | |
| | | With drain guide (without valve function) | — | C2SF□-2J-A | C3SF□-2J-A | C4SF□-2J-A | |
| | | | With level gauge | — | C3LF□-8J-A | C4LF□-8J-A | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-2-A | AD37□-2-A | AD47□-2-A | |
| | | | With level gauge | — | AD37□-8-A | AD47□-8-A | |
| | | Normally open (N.O.) | — | — | AD38□-2-A | AD48□-2-A | |
| | | | With level gauge | — | AD38□-8-A | AD48□-8-A | |

∗1 The bowl assembly comes with a bowl seal. □ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain). No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")
Please contact SMC separately for psi and °F unit display specifications.

## Option/Part Nos.

| Optional specifications | Model | | | |
|---|---|---|---|---|
| | **AFM20-D AFD20-D** | **AFM30-D AFD30-D** | **AFM40-D AFD40-D** | **AFM40-06-D AFD40-06-D** |
| **Bracket assembly**∗1 | AF24P-070AS | AF34P-070AS | AF44P-070AS | AF49P-070AS |
| **Auto drain** | Refer to "Bowl Assembly/Part Nos." | | | |

∗1 The assembly consists of a bracket A/B and 2 mounting screws.




## Replacement Parts

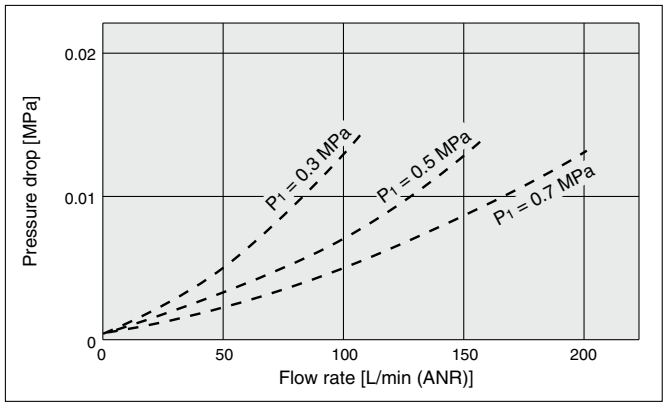
| Description | | Part no. | | | |
|---|---|---|---|---|---|
| | | **AFM20-D AFD20-D** | **AFM30-D AFD30-D** | **AFM40-D AFD40-D** | **AFM40-06-D AFD40-06-D** |
| **Element assembly** | **AFM20 to 40-D** | AFM20P-060AS | AFM30P-060AS | AFM40P-060AS | |
| | **AFD20 to 40-D** | AFD20P-060AS | AFD30P-060AS | AFD40P-060AS | |
| **Bowl seal** | | C2SFP-260S | C32FP-260S | C42FP-260S | |
| **Bowl assembly**∗1, ∗2 | | Refer to "Bowl Assembly/Part Nos." | | | |

∗1 The bowl assembly comes with a bowl seal.
∗2 Please contact SMC separately for psi and °F unit display specifications.

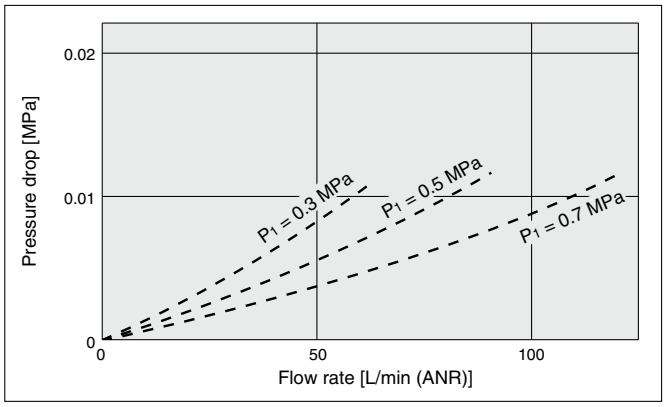
## Flow Rate Characteristics (Representative values)

- - - - Initial state

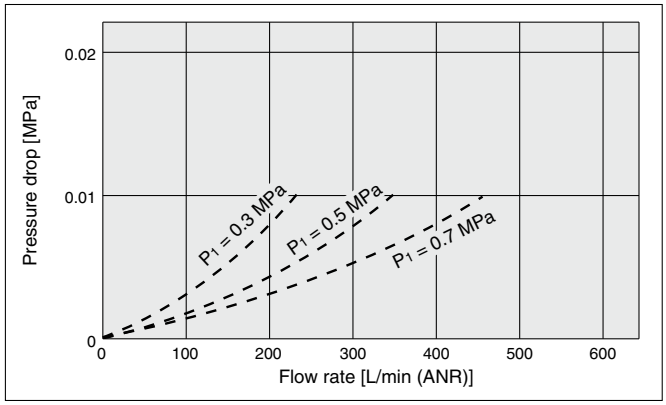
### AFM20-D



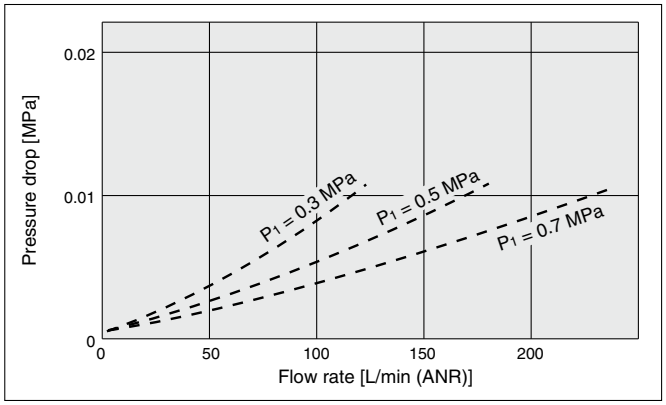

### AFD20-D



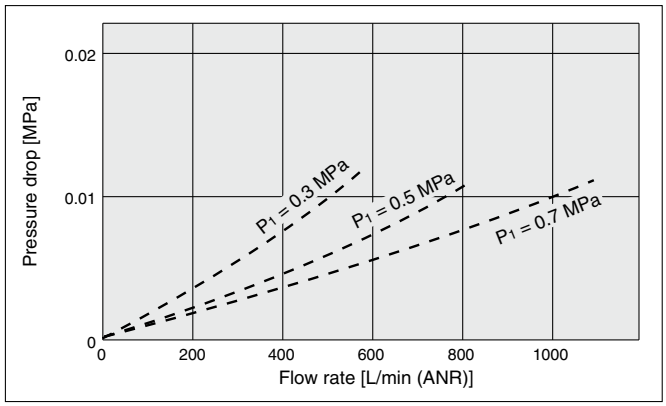

### AFM30-D



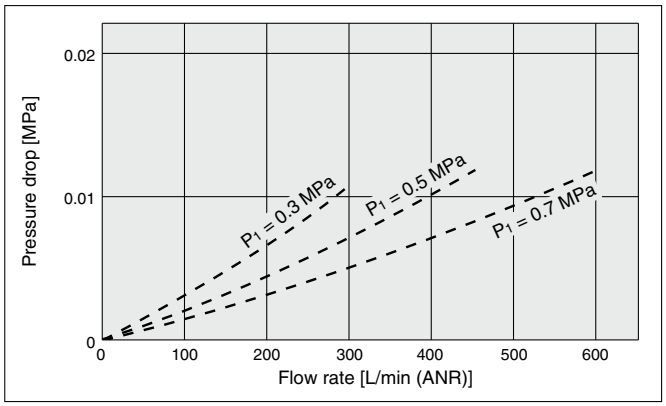

### AFD30-D




### AFM40-D

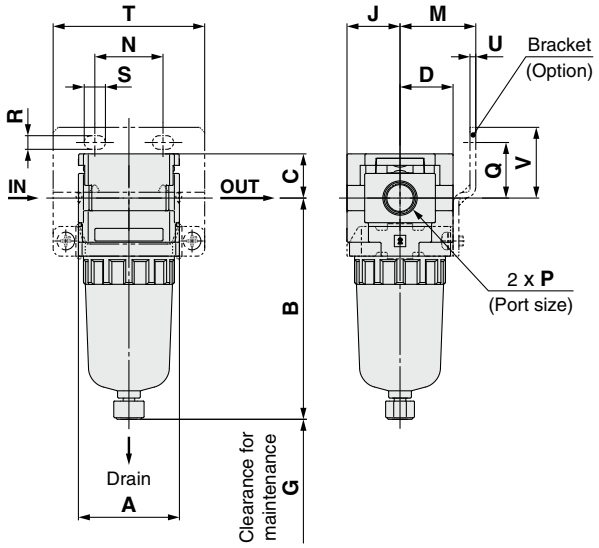



### AFD40-D

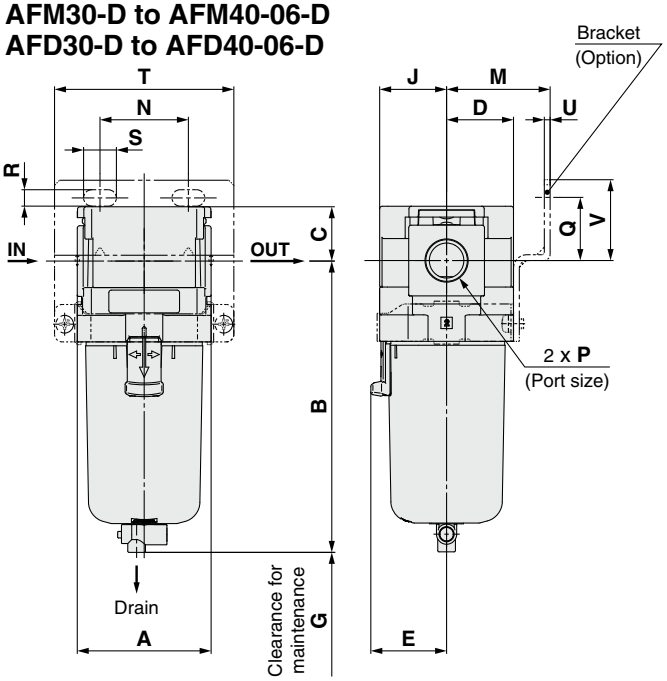


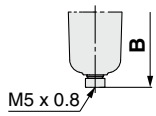
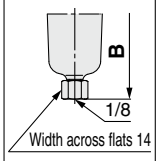
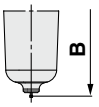
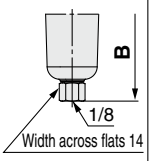
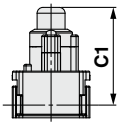
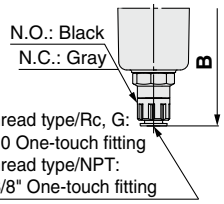
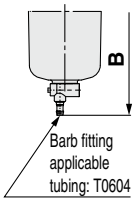
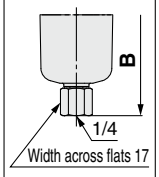
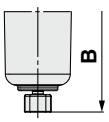
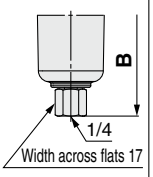
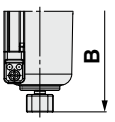
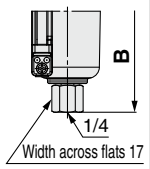
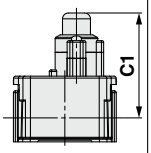
## Dimensions

**AFM20-D**
**AFD20-D**




**AFM30-D to AFM40-06-D**
**AFD30-D to AFD40-06-D**




| Applicable model | Optional specifications | Semi-standard | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | | With element service indicator |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide | |
| **AFM20-D AFD20-D** |  | |  |  |  | | |  |
| **AFM30-D to AFM40-06-D** **AFD30-D to AFD40-06-D** |  |  |  |  |  |  |  |  |

| 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-D/AFD20-D** | 1/8, 1/4 | 40 | 87.6 | 17.5 | 21 | — | 40 | 21 | 30 | 27 | 22 | 5.4 | 8.4 | 60 | 2.3 | 28 | 104.9 |
| **AFM30-D/AFD30-D** | 1/4, 3/8 | 53 | 115.4 | 21.5 | 26.5 | 30 | 50 | 26.5 | 41 | 35 | 25 | 6.5 | 13 | 71 | 2.3 | 32 | 157.1 |
| **AFM40-D/AFD40-D** | 1/4, 3/8, 1/2 | 70 | 147.1 | 25.5 | 35.5 | 38.4 | 75 | 35.5 | 50 | 52 | 30 | 8.5 | 12.5 | 88 | 2.3 | 39 | 186.9 |
| **AFM40-06-D/AFD40-06-D** | 3/4 | 75 | 149.1 | 27 | 35.5 | 38.4 | 75 | 35.5 | 50 | 52 | 34 | 8.5 | 12.5 | 88 | 2.3 | 43 | 188.9 |

| Model | Semi-standard specifications | | | | | | |
|---|---|---|---|---|---|---|---|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | | With element service indicator |
| | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide | |
| | B | B | B | B | B | B | C1 |
| **AFM20-D/AFD20-D** | — | 91.4 | 87.4 | 93.9 | — | — | 50.6 |
| **AFM30-D/AFD30-D** | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 | 54.3 |
| **AFM40-D/AFD40-D** | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 | 58.3 |
| **AFM40-06-D/AFD40-06-D** | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 | — |

# Mist Separator/*AFM20-D to AFM40-06-D*
# Micro Mist Separator/*AFD20-D to AFD40-06-D*
# Made to Order

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

Made to Order

## ① Long Bowl

Drain capacity is greater than that of standard models.

### Applicable Models/Drain Capacity

| Model | AFM20-D/AFD20-D | AFM30-D/AFD30-D | AFM40-D/AFD40-D | AFM40-06-D/AFD40-06-D |
|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| **Drain capacity [cm³]** | 19 | 43 | 88 | |
| **B dimension [mm]**∗1 | 108.1 | 137.4 | 167.2 | 169.2 |

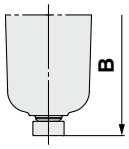
∗1 For polycarbonate bowls. Please contact SMC for other bowl materials.

**AFM** **30** - ☐ **03** ☐ - ☐ -D- **X64**

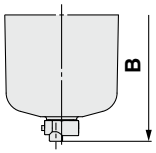
**AFD** **30** - ☐ **03** ☐ - ☐ -D- **X64**

❶ ❷ ❸ ❹ ❺ ● Long bowl

**AFM20-D**
**AFD20-D**




**AFM30 to 40-06-D**
**AFD30 to 40-06-D**




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

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 |
|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | | **Nil** | Rc | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● |
| | | | **F** | G | ● | ● | ● |
| | | | + | | | | |
| ❸ | Port size | | **01** | 1/8 | ● | — | — |
| | | | **02** | 1/4 | ● | ● | ● |
| | | | **03** | 3/8 | — | ● | ● |
| | | | **04** | 1/2 | — | — | ● |
| | | | **06** | 3/4 | — | — | ● |
| | | | + | | | | |
| ❹ | Option (Mounting) | | **Nil** | Without mounting option | ● | ● | ● |
| | | | **B**∗1 | With bracket | ● | ● | ● |
| | | | + | | | | |
| ❺ | Semi-standard | **a** Bowl∗2 | **Nil** | Polycarbonate bowl | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —∗3 | —∗3 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —∗4 | —∗4 |
| | | | + | | | | |
| | | **b** Drain port | **Nil** | With drain cock | ● | ● | ● |
| | | | **J**∗5 | Drain guide 1/8 | ● | — | — |
| | | | | Drain guide 1/4 | — | ● | ● |
| | | | **W**∗6 | Drain cock with barb fitting | — | ● | ● |
| | | | + | | | | |
| | | **c** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● |
| | | | + | | | | |
| | | **d** Unit | **Nil** | Unit on product label: MPa, °C | ● | ● | ● |
| | | | **Z**∗7 | Unit on product label: psi, °F | ○∗8 | ○∗8 | ○∗8 |

∗1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 Refer to chemical data on page 75 for chemical resistance of the bowl.
∗3 A bowl guard is provided as standard equipment (polycarbonate).
∗4 A bowl guard is provided as standard equipment (nylon).
∗5 Without a valve function. The mounting screws are the same as the thread of ❷.
∗6 The combination of metal bowl 2 is not available.
∗7 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗8 ○: For the pipe thread type: NPT only

# *AFM-D/AFD-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Design / Selection

### ⚠ Warning

**1. The bowl material of the standard mist separator and micro mist separator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

**Chemical resistance of polycarbonate or nylon bowl**

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

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

When the above factors are present, or there is some doubt, use a metal bowl for safety.

## 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

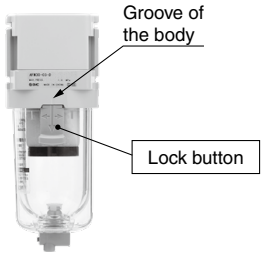
### ⚠ Warning

**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.

## Mounting / Adjustment

### ⚠ Caution

**1.** When the bowl is installed on the mist separator (AFM30-D/AFM40-D), or micro mist separator (AFD30-D/AFD40-D), install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.




## Design

### ⚠ Caution

**1.** Design the system so that the mist separator or micro 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). An 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.

## Handling

### ⚠ Caution

**1.** The element service indicator (Semi-standard: L) is used to check the pressure differential between the IN and OUT sides. When operating at a flow rate with a pressure differential exceeding 0.025 MPa, the element service indicator may operate even when the element is in its initial state.

**2.** For models with an element service indicator, adjust the flow rate in the direction that increases the flow rate.
If the designated flow rate is exceeded, reset the flow rate to zero and readjust it until the designated flow rate is reached.

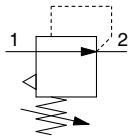
**3.** For models with an element service indicator, as the element becomes more clogged, the indicator will display an increasing level of red. Be sure to replace the element before the level of red reaches the top of the indicator.

# Modular Type Regulator
# *AR* Series

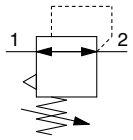
| Regulator AR Series | Model | Port size | Set pressure | Options |
|---|---|---|---|---|
|  | **AR20(K)-D** | 1/8, 1/4 | 0.05 to 0.85 MPa<br>0.02 to 0.2 MPa | Bracket<br>Set nut (for panel mount)<br>Square embedded type pressure gauge<br>Digital pressure switch<br>Round type pressure gauge |
| | **AR30(K)-D** | 1/4, 3/8 | | |
| | **AR40(K)-D** | 1/4, 3/8, 1/2 | | |
| | **AR40(K)-06-D** | 3/4 | | |
| | **AR50(K)-D** | 3/4, 1 | | Bracket<br>Square embedded type pressure gauge<br>Digital pressure switch<br>Round type pressure gauge |
| **p. 77 to 86** | **AR60(K)-D** | 1 | | |

# Regulator
# *AR20-D to AR60-D*
## Regulator with Backflow Function
# *AR20K-D to AR60K-D*

**Symbol**
Regulator

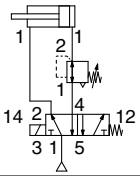



Regulator with Backflow Function

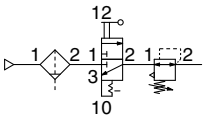



· **Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.**

Example 1)
When the pressure in the rear and the front of the cylinder differs:




Example 2)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.




## How to Order

**AR 30 ❶ ❷ – ❸ 03 ❹ BE – ❺ – D ❻**

· Option/Semi-standard: Select one each for **a** to **g**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AR30K-03BE-1NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | With backflow function | | **Nil** | Without backflow function | ● | ● | ● | ● | ● |
| | | | **K***1 | With backflow function | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❸ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❹ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| | | | + | | | | | | |
| ❺ | Option*2 | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● | ● | ● |
| | | | **B***3 | With bracket | ● | ● | ● | ● | ● |
| | | | **H** | With set nut (for panel mount) | ● | ● | ● | — | — |
| | | | + | | | | | | |
| | | **b** Pressure gauge*4 | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● |
| | | **b** Digital pressure switch*5 | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |

**AR30-D**

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❻ | Semi-standard | **c** Set pressure*6 | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **d** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **e** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **f** Knob | **Nil** | Downward | ● | ● | ● | ● | ● |
| | | | **Y** | Upward | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **g** Unit | **Nil** | Unit on product label: MPa, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | | **Z***7 | Unit on product label: psi, Pressure gauge: MPa/psi dual scale | ○*9 | ○*9 | ○*9 | ○*9 | ○*9 |
| | | | **ZA***8 | Digital pressure switch: With unit selection function | △*10 | △*10 | △*10 | △*10 | △*10 |

*1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
*2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
*3 The assembly consists of a bracket and set nuts (applicable to the AR20(K)-D to AR40(K)-D).
For the AR50(K)-D and AR60(K)-D, the assembly consists of 2 types of the bracket and 2 mounting screws.
*4 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
*5 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)
*6 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
*7 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
*8 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
*9 ○: For the pipe thread type: NPT only
*10 △: Select with options: E1, E2, E3, E4.

# *AR20-D to AR60-D* Series
# *AR20K-D to AR60K-D* Series

## Standard Specifications

| Model | AR20(K)-D | AR30(K)-D | AR40(K)-D | AR40(K)-06-D | AR50(K)-D | AR60(K)-D |
|---|---|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |
| **Pressure gauge port size**∗1 | 1/8 | | | | | |
| **Fluid** | Air | | | | | |
| **Ambient and fluid temperatures**∗2 | –5 to 60°C (No freezing) | | | | | |
| **Proof pressure** | 1.5 MPa | | | | | |
| **Max. operating pressure** | 1.0 MPa | | | | | |
| **Set pressure range** | 0.05 to 0.85 MPa | | | | | |
| **Construction** | Relieving type | | | | | |
| **Weight** | 0.14 kg | 0.27 kg | 0.48 kg | 0.51 kg | 1.13 kg | 1.25 kg |

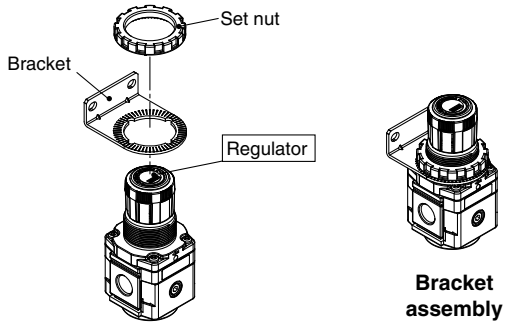
∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch

## Option/Part Nos.

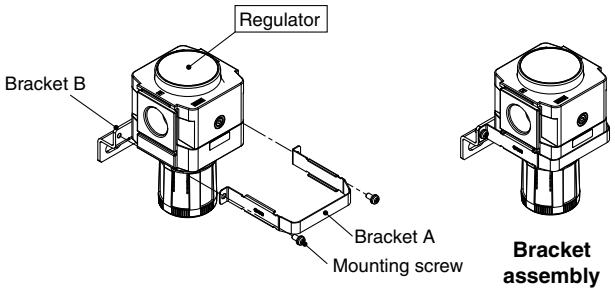
| Optional specifications | | | Model | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | AR20(K)-D | AR30(K)-D | AR40(K)-D | AR40(K)-06-D | AR50(K)-D | AR60(K)-D |
| **Bracket assembly**∗1 | | | AR23P-270AS | AR33P-270AS | AR43P-270AS | | AR54P-270AS | |
| **Set nut** | | | AR23P-260S | AR33P-260S | AR43P-260S | | —∗2 | |
| **Pressure gauge**∗3 | **Round type** | **Standard** | G36-10-□01 | | G46-10-□01 | | | |
| | | **0.02 to 0.2 MPa setting** | G36-4-□01 | | G46-4-□01 | | | |
| | **Round type (with color zone)** | **Standard** | G36-10-□01-L | | G46-10-□01-L | | | |
| | | **0.02 to 0.2 MPa setting** | G36-4-□01-L | | G46-4-□01-L | | | |
| | **Square embedded type**∗4 | **Standard** | GC3-10AS-D [136150A (Pressure gauge cover only)] | | | | | |
| | | **0.02 to 0.2 MPa setting** | GC3-4AS-D [136150A (Pressure gauge cover only)] | | | | | |
| **Digital pressure switch** | | **NPN output, Wiring bottom entry** | ISE35-N-25-MLA-X523 [ISE35-N-25-M (Switch body only)]∗5 | | | | | |
| | | **NPN output, Wiring top entry** | ISE35-R-25-MLA-X523 [ISE35-R-25-M (Switch body only)]∗5 | | | | | |
| | | **PNP output, Wiring bottom entry** | ISE35-N-65-MLA-X523 [ISE35-N-65-M (Switch body only)]∗5 | | | | | |
| | | **PNP output, Wiring top entry** | ISE35-R-65-MLA-X523 [ISE35-R-65-M (Switch body only)]∗5 | | | | | |

∗1 The assembly consists of a bracket and set nuts. For the AR50(K)-D and AR60(K)-D, the assembly consists of a bracket A/B and 2 mounting screws.
∗2 Please contact SMC regarding the set nuts for the AR50(K)-D and AR60(K)-D.
∗3 □ in part numbers for a round pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the pressure gauge supply for both MPa and psi unit specifications.
∗4 Including one O-ring and 2 mounting screws. [ ]: Pressure gauge cover only
∗5 In addition to the pressure switch body, lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached.
[ ]: Switch body only (For the digital pressure switch specifications, refer to the **Web Catalog**.)

**AR20(K)-D to AR40(K)-06-D**




**AR50(K)-D/AR60(K)-D**




## Replacement Parts

| Description | | Part no. | | | | | |
|---|---|---|---|---|---|---|---|
| | | AR20(K)-D | AR30(K)-D | AR40(K)-D | AR40(K)-06-D | AR50(K)-D | AR60(K)-D |
| **Valve assembly** | | AR24P-060AS | AR34P-060AS | AR44P-060AS | AR49P-060AS | AR54P-060AS | AR64P-060AS |
| **Diaphragm assembly** | **Relieving type** | AR24P-150AS | AR34P-150AS | AR44P-150AS | | AR54P-150AS | |
| | **Non-relieving type** | AR24P-150AS-N | AR34P-150AS-N | AR44P-150AS-N | | AR54P-150AS-N | |
| **Valve guide assembly** | | AR24P-050AS | AR34P-050AS | AR44P-050AS | | AR54P-050AS | |
| **Check valve assembly**∗1 | | AR24KP-020AS | | | | | |

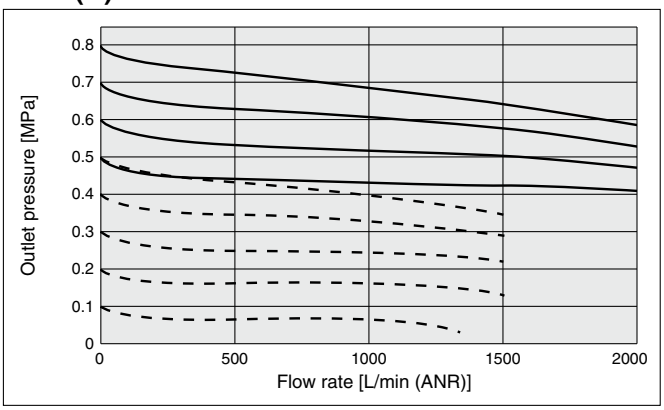
∗1 The check valve assembly is applicable for a regulator with backflow function (AR20K-D to AR60K-D) only. The assembly consists of a check valve cover, check valve body assembly, and 2 mounting screws.

## Flow Rate Characteristics (Representative values)

——— Inlet pressure: 1.0 MPa
- - - - Inlet pressure: 0.7 MPa

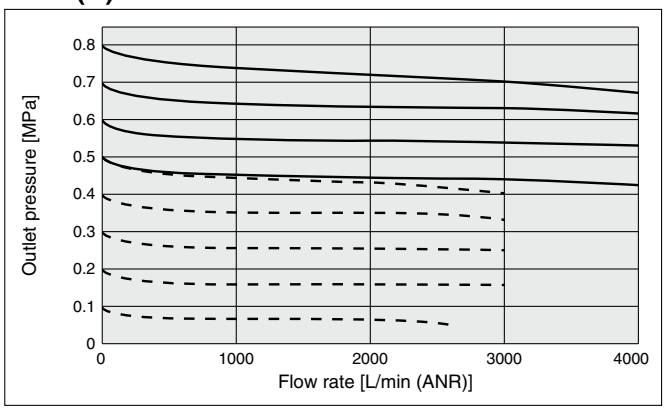
### AR20(K)-D

Rc1/4



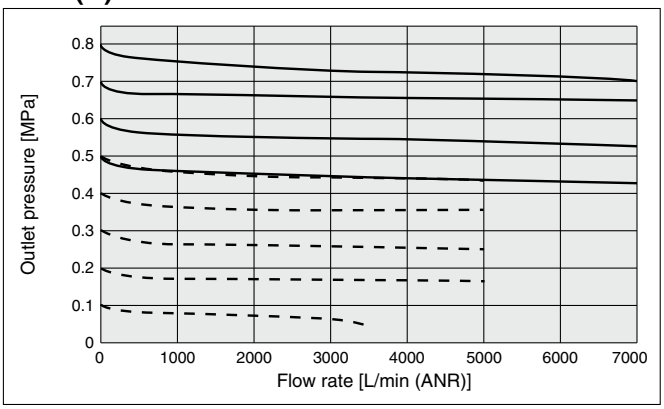

### AR30(K)-D

Rc3/8



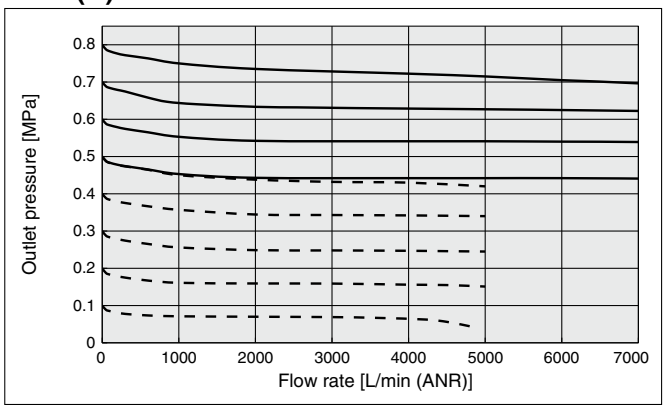

### AR40(K)-D

Rc1/2



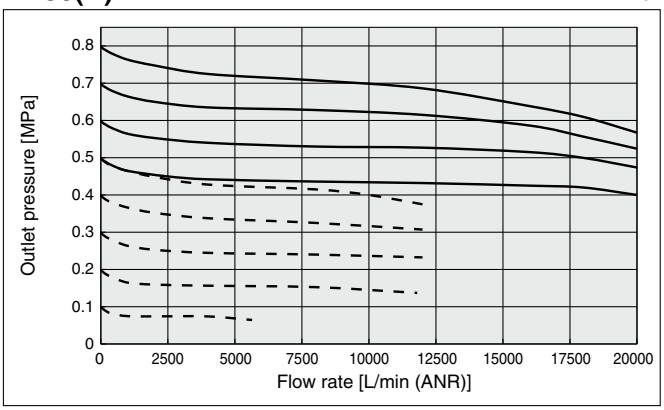

### AR40(K)-06-D

Rc3/4



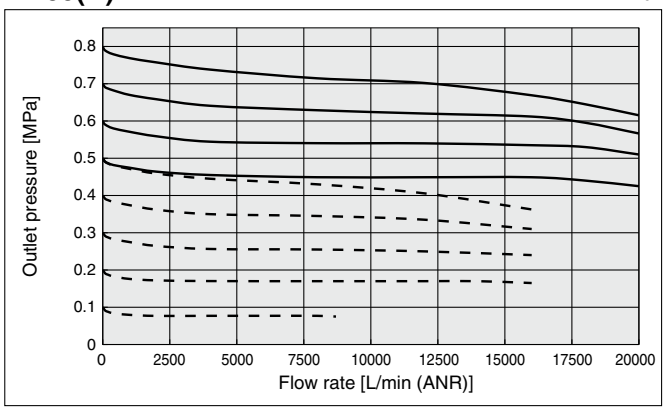

### AR50(K)-D

Rc1




### AR60(K)-D

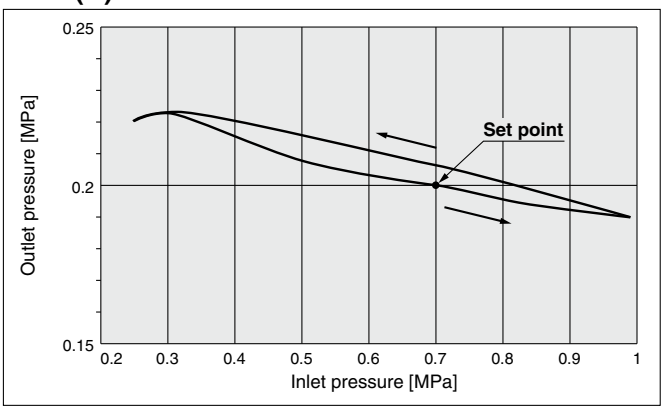
Rc1



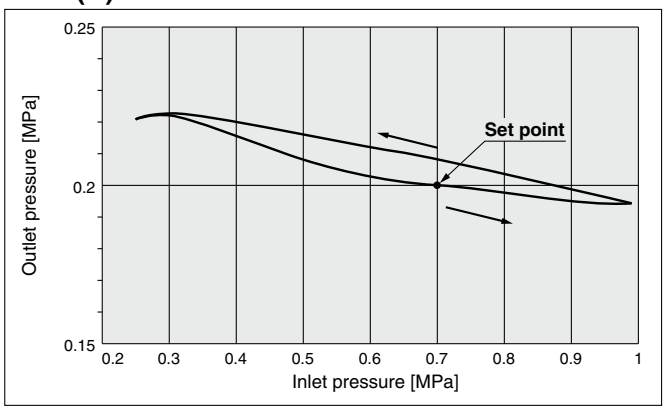
## Pressure Characteristics (Representative values)

Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)

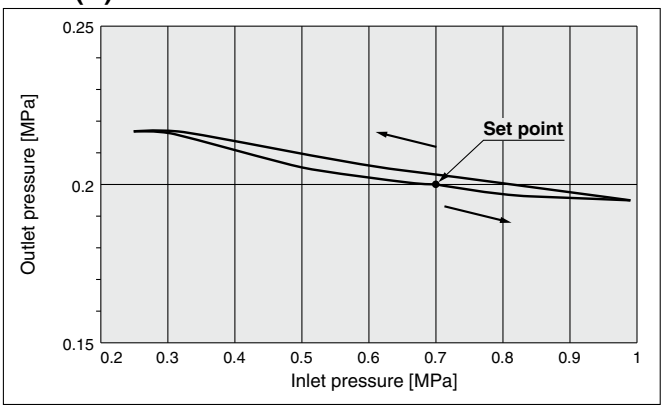
### AR20(K)-D



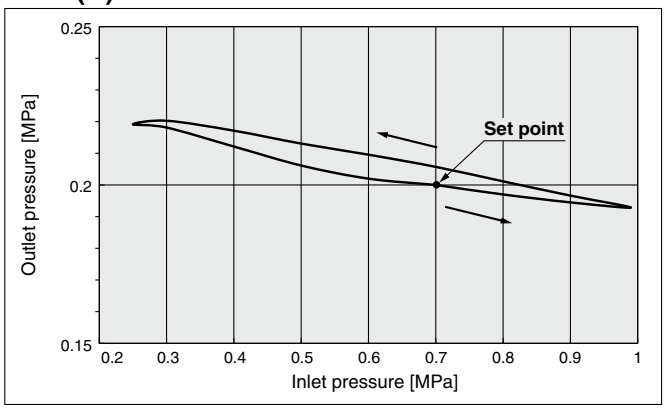

### AR30(K)-D



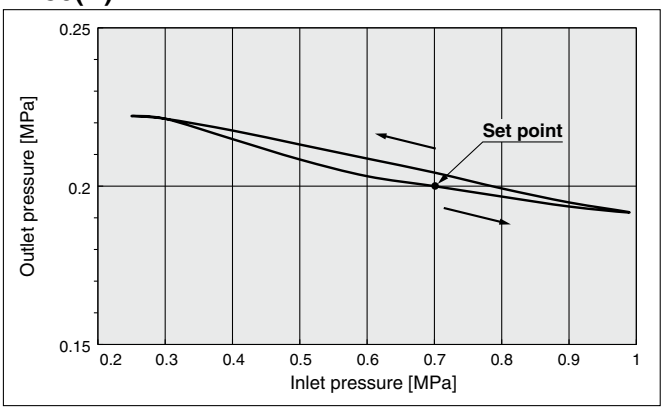

### AR40(K)-D



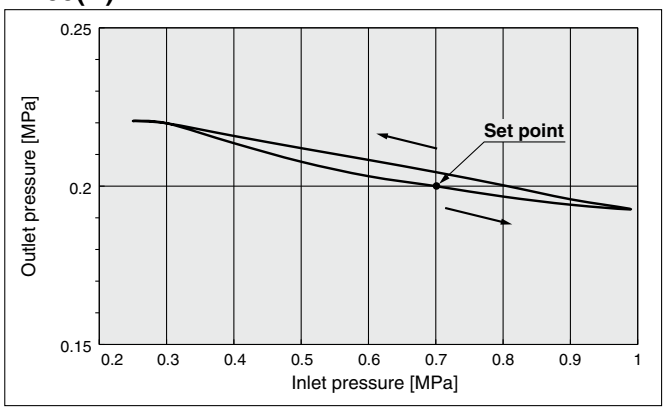

### AR40(K)-06-D




### AR50(K)-D

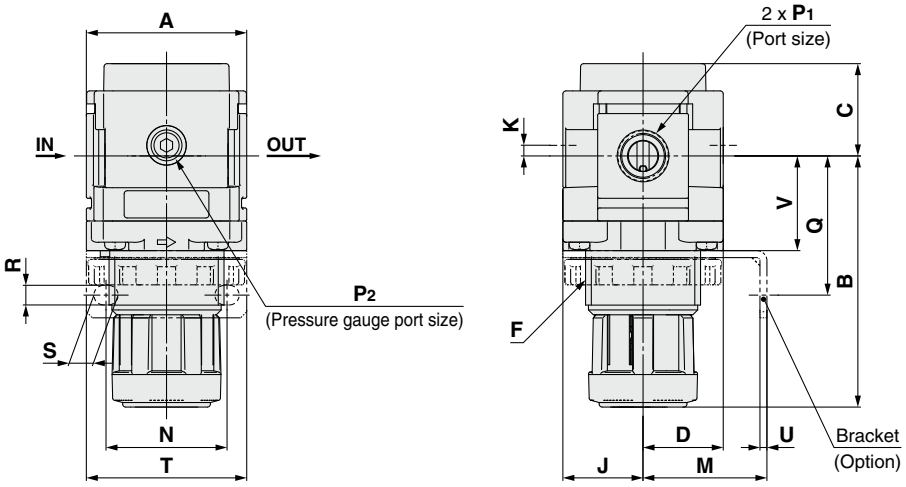



### AR60(K)-D



## Dimensions

### Standard (Round Type Pressure Gauge)
### AR20-D to AR40-06-D




**Panel cutout dimensions**

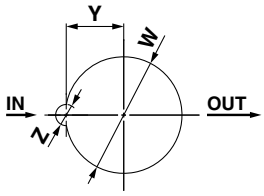
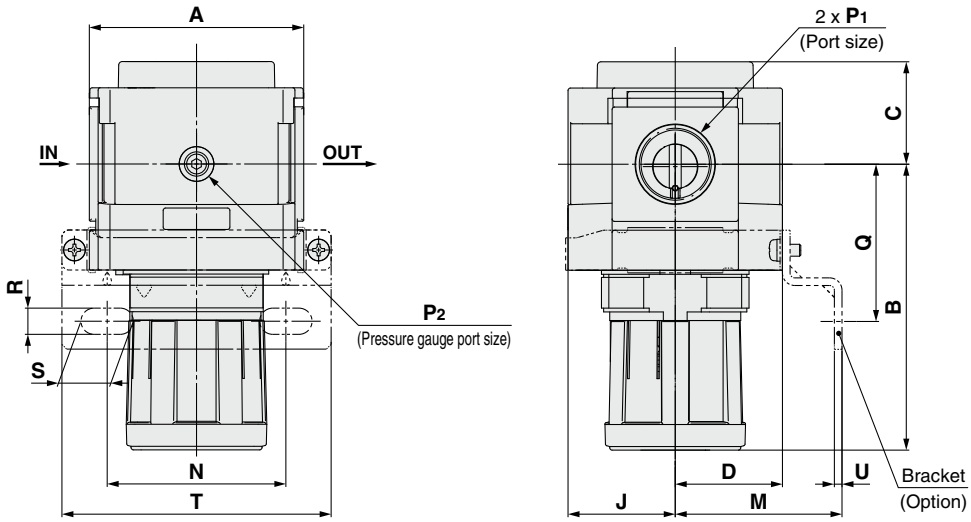
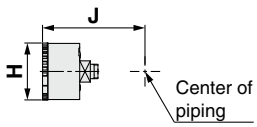



**Plate thickness**
**AR20-D to AR30-D : Max. 3.5**
**AR40-D to AR40-06-D: Max. 5**

### AR50-D to AR60-D




Round type pressure gauge




| Model | Standard specifications | | | | | | | | | Optional specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | |
| | P1 | P2 | A | B*1 | C | D | F | J | K | H | J | H | J | H | J |
| **AR20-D** | 1/8, 1/4 | 1/8 | 40 | 66.8 | 26.5 | 21 | M28 x 1 | 21 | 2 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 |
| **AR30-D** | 1/4, 3/8 | 1/8 | 53 | 86.5 | 30.5 | 26.5 | M38 x 1.5 | 26.5 | 3.5 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 |
| **AR40-D** | 1/4, 3/8, 1/2 | 1/8 | 70 | 91.5 | 35.5 | 35.5 | M42 x 1.5 | 35.5 | — | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 |
| **AR40-06-D** | 3/4 | 1/8 | 75 | 93 | 35.5 | 35.5 | M42 x 1.5 | 35.5 | — | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 |
| **AR50-D** | 3/4, 1 | 1/8 | 90 | 125 | 43 | 45 | — | 45 | — | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 |
| **AR60-D** | 1 | 1/8 | 95 | 155 | 45 | 45 | — | 45 | — | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 |

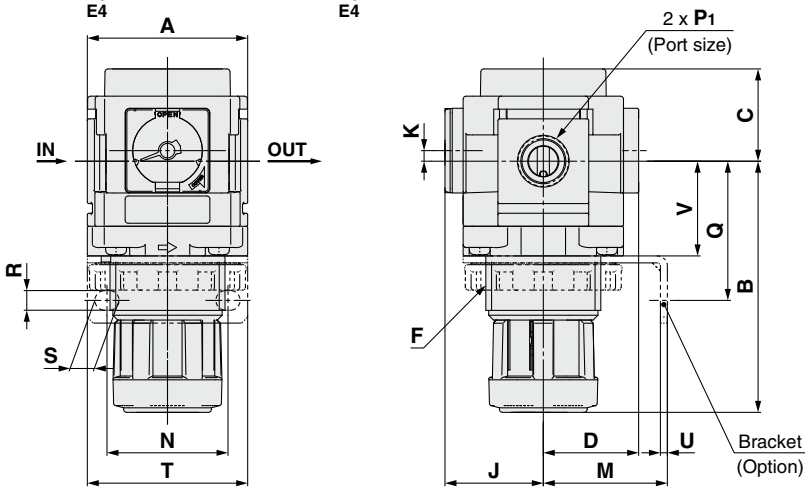
| Model | Optional specifications | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bracket mount | | | | | | | Panel mount | | | |
| | M | N | Q | R | S | T | U | V | W | Y | Z |
| **AR20-D** | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 24.7 | 28.5 | 14 | 6 |
| **AR30-D** | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 |
| **AR40-D** | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 |
| **AR40-06-D** | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 |
| **AR50-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |
| **AR60-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |

*1 The dimension of B is the length when the regulator knob is unlocked.

## Dimensions

### Standard (Square Embedded Type Pressure Gauge, Digital Pressure Switch)

**AR20-□□□ E / E1 / E2 / E3 / E4 -D to AR40-□□□ E / E1 / E2 / E3 / E4 -D**




**Panel cutout dimensions**

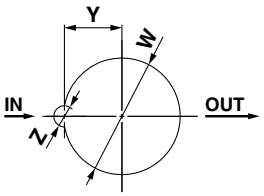
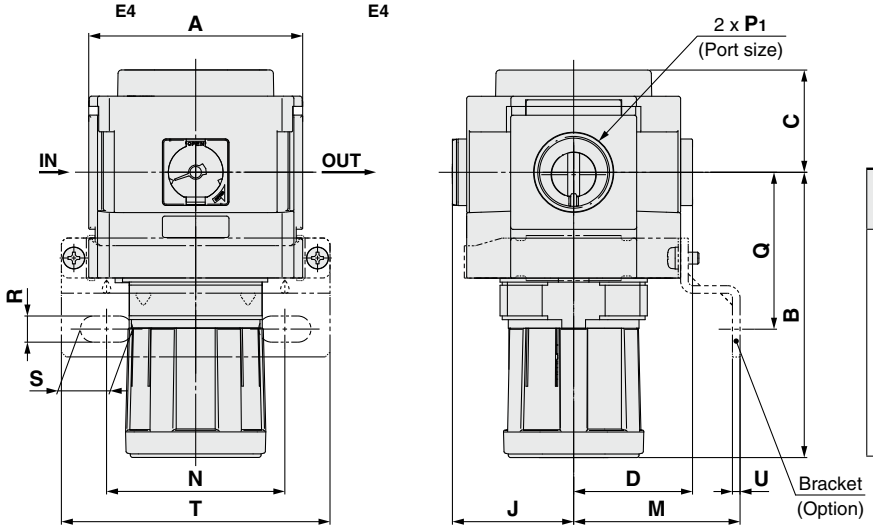
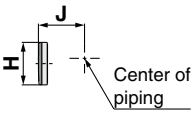
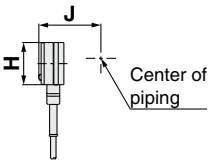



**Plate thickness**
**AR20-D to AR30-D : Max. 3.5**
**AR40-D to AR40-06-D: Max. 5**

**AR50-□□□ E / E1 / E2 / E3 / E4 -D to AR60-□□□ E / E1 / E2 / E3 / E4 -D**




| Square embedded type pressure gauge | Digital pressure switch |
|---|---|
|  |  |



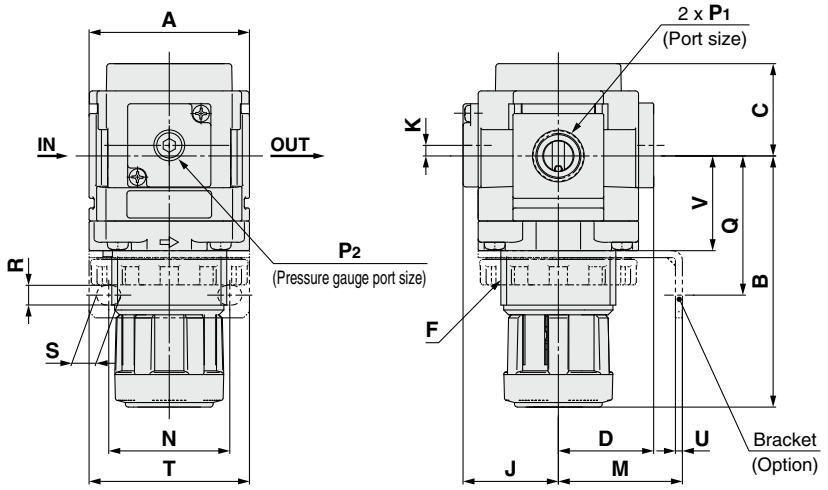
| Model | Standard specifications | | | | | | | Optional specifications | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Square embedded type pressure gauge | | Digital pressure switch | |
| | P1 | A | B*1 | C | D | F | K | H | J | H | J |
| **AR20-D** | 1/8, 1/4 | 40 | 66.8 | 26.5 | 26 | M28 x 1 | 2 | □28 | 27 | □27.8 | 37.5 |
| **AR30-D** | 1/4, 3/8 | 53 | 86.5 | 30.5 | 31.5 | M38 x 1.5 | 3.5 | □28 | 32.5 | □27.8 | 43 |
| **AR40-D** | 1/4, 3/8, 1/2 | 70 | 91.5 | 35.5 | 40.5 | M42 x 1.5 | — | □28 | 41.5 | □27.8 | 52 |
| **AR40-06-D** | 3/4 | 75 | 93 | 35.5 | 40.5 | M42 x 1.5 | — | □28 | 41.5 | □27.8 | 52 |
| **AR50-D** | 3/4, 1 | 90 | 125 | 43 | 50 | — | — | □28 | 51 | □27.8 | 61.5 |
| **AR60-D** | 1 | 95 | 155 | 45 | 50 | — | — | □28 | 51 | □27.8 | 61.5 |

| Model | Optional specifications | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bracket mount | | | | | | | Panel mount | | | |
| | M | N | Q | R | S | T | U | V | W | Y | Z |
| **AR20-D** | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 24.7 | 28.5 | 14 | 6 |
| **AR30-D** | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 |
| **AR40-D** | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 |
| **AR40-06-D** | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 |
| **AR50-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |
| **AR60-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |

*1 The dimension of B is the length when the regulator knob is unlocked.

## Dimensions

### With Backflow Function (Round Type Pressure Gauge, Square Embedded Type Pressure Gauge, Digital Pressure Switch)
### AR20K-D to AR40K-06-D




**Panel cutout dimensions**

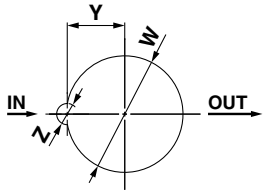
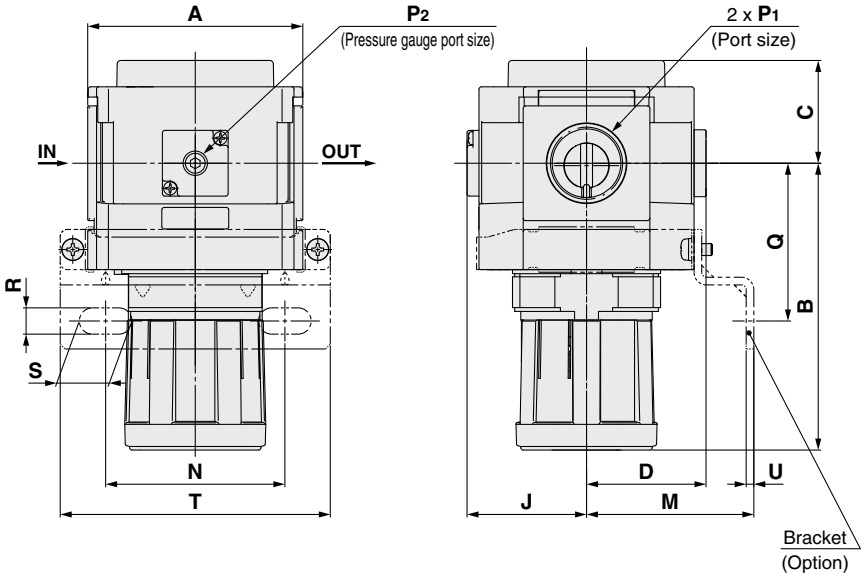
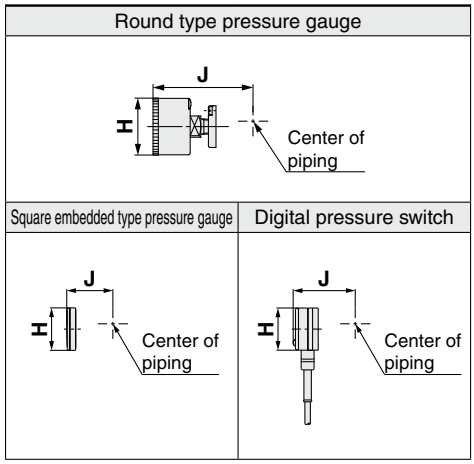



**Plate thickness**
**AR20K-D to AR30K-D : Max. 3.5**
**AR40K-D to AR40K-06-D: Max. 5**

### AR50K-D to AR60K-D




| Model | Standard specifications | | | | | | | | | Optional specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | |
| | P1 | P2 | A | B*1 | C | D | F | J | K | H | J | H | J | H | J |
| **AR20K-D** | 1/8, 1/4 | 1/8 | 40 | 66.8 | 26.5 | 26 | M28 x 1 | 26 | 2 | ø37.5 | 62.5 | ø37.5 | 63.5 | ø37.5 | 63.5 |
| **AR30K-D** | 1/4, 3/8 | 1/8 | 53 | 86.5 | 30.5 | 31.5 | M38 x 1.5 | 31.5 | 3.5 | ø37.5 | 68 | ø37.5 | 69 | ø37.5 | 69 |
| **AR40K-D** | 1/4, 3/8, 1/2 | 1/8 | 70 | 91.5 | 35.5 | 40.5 | M42 x 1.5 | 40.5 | — | ø42.5 | 78 | ø42.5 | 78 | ø42.5 | 78 |
| **AR40K-06-D** | 3/4 | 1/8 | 75 | 93 | 35.5 | 40.5 | M42 x 1.5 | 40.5 | — | ø42.5 | 78 | ø42.5 | 78 | ø42.5 | 78 |
| **AR50K-D** | 3/4, 1 | 1/8 | 90 | 125 | 43 | 50 | — | 50 | — | ø42.5 | 87.5 | ø42.5 | 87.5 | ø42.5 | 87.5 |
| **AR60K-D** | 1 | 1/8 | 95 | 155 | 45 | 50 | — | 50 | — | ø42.5 | 87.5 | ø42.5 | 87.5 | ø42.5 | 87.5 |

| Model | Optional specifications | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Square embedded type pressure gauge | | Digital pressure switch | | Bracket mount | | | | | | | Panel mount | | | |
| | H | J | H | J | M | N | Q | R | S | T | U | V | W | Y | Z |
| **AR20K-D** | □28 | 27 | □27.8 | 37.5 | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 24.7 | 28.5 | 14 | 6 |
| **AR30K-D** | □28 | 32.5 | □27.8 | 43 | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 |
| **AR40K-D** | □28 | 41.5 | □27.8 | 52 | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 |
| **AR40K-06-D** | □28 | 41.5 | □27.8 | 52 | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 |
| **AR50K-D** | □28 | 51 | □27.8 | 61.5 | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |
| **AR60K-D** | □28 | 51 | □27.8 | 61.5 | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — |

*1 The dimension of B is the length when the regulator knob is unlocked.

# Regulator/*AR20-D to AR60-D*
# Regulator with Backflow Function/*AR20K-D to AR60K-D*
# Made to Order

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

Made to Order

## ①0.4 MPa Setting

The setting specification is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

### Specifications

| Made-to-order part no. | -X406 |
|---|---|
| **Proof pressure [MPa]** | 1.5 |
| **Max. operating pressure [MPa]** | 1.0 |
| **Set pressure range [MPa]**∗1 | 0.05 to 0.4 |

∗1 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

### Applicable Models

| Model | AR20(K)-D | AR30(K)-D | AR40(K)-D | AR40(K)-06-D | AR50(K)-D | AR60(K)-D |
|---|---|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |

**AR 30 ❶ - ❷ ❸ 03 ❹ - ❺ ❻ - D - X406**

**0.4 MPa setting**

· Option/Semi-standard: Select one each for **a** to **f**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphabetic order.
Example) AR30K-03BE-NR-D-X406

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|---|
| ❷ | With backflow function | | **Nil** | Without backflow function | ● | ● | ● | ● | ● |
| | | | **K**∗1 | With backflow function | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❸ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❹ | Port size | | **01** | 1/8 | ● | — | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | — |
| | | | **03** | 3/8 | — | ● | ● | — | — |
| | | | **04** | 1/2 | — | — | ● | — | — |
| | | | **06** | 3/4 | — | — | ● | ● | — |
| | | | **10** | 1 | — | — | — | ● | ● |
| | | | + | | | | | | |
| ❺ | Option∗2 | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● | ● | ● |
| | | | **B**∗3 | With bracket | ● | ● | ● | ● | ● |
| | | | **H** | With set nut (for panel mount) | ● | ● | ● | — | — |
| | | | + | | | | | | |
| | | **b** Pressure gauge∗4 | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● |
| | | **b** Digital pressure switch∗5 | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| ❻ | Semi-standard | **c** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● | ● |
| | | | **N** | Non-relieving type | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **d** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **e** Knob | **Nil** | Downward | ● | ● | ● | ● | ● |
| | | | **Y** | Upward | ● | ● | ● | ● | ● |
| | | | + | | | | | | |
| | | **f** Unit | **Nil** | Unit on product label: MPa, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | | **Z**∗6 | Unit on product label: psi, Pressure gauge: MPa/psi dual scale | ○∗8 | ○∗8 | ○∗8 | ○∗8 | ○∗8 |
| | | | **ZA**∗7 | Digital pressure switch: With unit selection function | △∗9 | △∗9 | △∗9 | △∗9 | △∗9 |

∗1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
∗2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
∗3 The assembly consists of a bracket and set nuts (applicable to the AR20(K)-D to AR40(K)-D).
The AR50(K)-D and AR60(K)-D assemblies include 2 types of brackets and 2 mounting screws.
∗4 A 0.7 MPa pressure gauge will be fitted.
∗5 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring top entry" for the electrical entry. (Select "wiring bottom entry" when the semi-standard Y is chosen simultaneously.)
∗6 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗7 For options: E1, E2, E3, E4. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗8 ○: For the pipe thread type: NPT only
∗9 △: Select with options: E1, E2, E3, E4.

# *AR(K)-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Design / Selection

### ⚠ Warning

**1.** Residual pressure disposal (outlet pressure removal) is not possible for the AR20-D to AR60-D even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the regulator with a backflow function (AR20K-D to AR60K-D).

### ⚠ Caution

**1.** When operating at an inlet pressure lower than the inlet pressure used in the flow rate characteristics graph, the pressure drop on the outlet side may be greater. Therefore, be sure to conduct testing using the actual equipment.
For pressure control equipment selection, refer to page 123 in the "Product Selection Guide."

## Maintenance

### ⚠ Warning

**1.** When using the regulator with backflow function between a solenoid valve and an actuator, check the pressure gauge periodically. Sudden pressure fluctuations may shorten the durability of the pressure gauge. A digital pressure gauge is recommended for such situation or as deemed necessary.

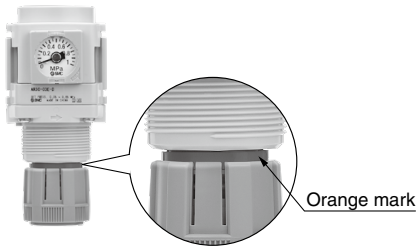
## Mounting / Adjustment

### ⚠ Warning

**1.** Set the regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.
**2.** Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

### ⚠ Caution

**1.** Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.
- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).




## Piping

### ⚠ Warning

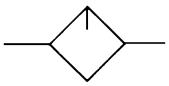
**1.** To screw the pressure gauge and piping materials into the pressure gauge port on the product, tighten to the recommended torque (3 to 5 N·m) while securely holding the AR(K)-D in place. Additionally, when mounting a One-touch fitting to the pressure gauge port, refer to the Fittings and Tubing Precautions.

# Modular Type Lubricator
# *AL Series*

| Lubricator AL Series | Model | Port size | Options |
|---|---|---|---|
|  p. 88 to 93 | **AL20-D** | 1/8, 1/4 | Bracket |
| | **AL30-D** | 1/4, 3/8 | |
| | **AL40-D** | 1/4, 3/8, 1/2 | |
| | **AL40-06-D** | 3/4 | |
| | **AL50-D** | 3/4, 1 | |
| | **AL60-D** | 1 | |

# Lubricator
# *AL20-D to AL60-D*

**Symbol**



**AL30-D**

## How to Order

**AL** **30** – ❷ **03** **B** – ❺ **–D**

❶ ❷ ❸ ❹ ❺

· Option/Semi-standard: Select one each for **a** to **d**.
· Option/Semi-standard symbol:
When more than one specification is required, indicate in alphanumeric order.
Example) AL30-03B-3RW-D

| | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 50 | 60 |
|---|---|---|---|---|---|---|---|---|
| ❷ | Pipe thread type | **Nil** | Rc | ● | ● | ● | ● | ● |
| | | **N** | NPT | ● | ● | ● | ● | ● |
| | | **F** | G | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❸ | Port size | **01** | 1/8 | ● | — | — | — | — |
| | | **02** | 1/4 | ● | ● | ● | — | — |
| | | **03** | 3/8 | — | ● | ● | — | — |
| | | **04** | 1/2 | — | — | ● | — | — |
| | | **06** | 3/4 | — | — | ● | ● | — |
| | | **10** | 1 | — | — | — | ● | ● |
| | | + | | | | | | |
| ❹ | Option (Mounting) | **Nil** | Without mounting option | ● | ● | ● | ● | ● |
| | | **B**∗1 | With bracket | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| ❺ Semi-standard | **a** Bowl∗2 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● |
| | | **2** | Metal bowl | ● | ● | ● | ● | ● |
| | | **6** | Nylon bowl | ● | ● | ● | ● | ● |
| | | **8** | Metal bowl with level gauge | — | ● | ● | ● | ● |
| | | **C** | With bowl guard | ● | —∗3 | —∗3 | —∗3 | —∗3 |
| | | **6C** | With bowl guard (Nylon bowl) | ● | —∗4 | —∗4 | —∗4 | —∗4 |
| | | + | | | | | | |
| | **b** Lubricant exhaust port | **Nil** | Without drain cock | ● | ● | ● | ● | ● |
| | | **3** | With drain cock | ● | ● | ● | ● | ● |
| | | **3W**∗5 | Drain cock with barb fitting | — | ● | ● | ● | ● |
| | | + | | | | | | |
| | **c** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● |
| | | + | | | | | | |
| | **d** Unit | **Nil** | Unit on product label: MPa, °C | ● | ● | ● | ● | ● |
| | | **Z**∗6 | Unit on product label: psi, °F | ○∗7 | ○∗7 | ○∗7 | ○∗7 | ○∗7 |

∗1 Option B is included in the package with the product but does not come assembled. The assembly consists of 2 types of the bracket and 2 mounting screws.
∗2 Refer to chemical data on page 93 for chemical resistance of the bowl.
∗3 A bowl guard is provided as standard equipment (polycarbonate).
∗4 A bowl guard is provided as standard equipment (nylon).
∗5 The combination of metal bowl 2 and 8 is not available.
∗6 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗7 ○: For the pipe thread type: NPT only

## Standard Specifications

| Model | AL20-D | AL30-D | AL40-D | AL40-06-D | AL50-D | AL60-D |
|---|---|---|---|---|---|---|
| **Port size** | 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 temperatures** | –5 to 60°C (No freezing) | | | | | |
| **Proof pressure** | 1.5 MPa | | | | | |
| **Max. operating pressure** | 1.0 MPa | | | | | |
| **Min. dripping flow rate**∗1 | 15 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) | Port size 1/4: 30 L/min (ANR) Port size 3/8: 40 L/min (ANR) Port size 1/2: 50 L/min (ANR) | 50 L/min (ANR) | 190 L/min (ANR) | 220 L/min (ANR) |
| **Oil capacity** | 25 $cm^3$ | 55 $cm^3$ | 135 $cm^3$ | | | |
| **Recommended lubricant** | Class 1 turbine oil (ISO VG32) | | | | | |
| **Bowl material** | Polycarbonate | | | | | |
| **Bowl guard** | Semi-standard (Steel) | Standard (Polycarbonate) | | | | |
| **Weight** | 0.10 kg | 0.18 kg | 0.37 kg | 0.41 kg | 0.92 kg | 0.99 kg |

∗1 The flow rate is 5 drops or greater/min under the following conditions: Inlet pressure of 0.5 MPa; Class 1 turbine oil (ISO VG32); Temperature at 20°C; Oil adjustment valve fully open. For a circuit that repeatedly turns ON and OFF on the outlet side, make the adjustment so that the average air consumption per minute becomes the minimum dripping flow rate or more.

## Bowl Assembly/Part Nos.

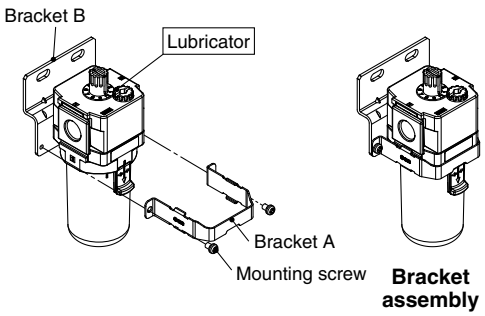
| Bowl material | Lubricant exhaust port | Other | Model | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | **AL20-D** | **AL30-D** | **AL40-D** | **AL40-06-D** | **AL50-D** | **AL60-D** |
| Polycarbonate | Without drain cock | — | C2SL-D | — | — | | | |
| | | With bowl guard | C2SL-C-D | C3SL-D | C4SL-D | | | |
| | With drain cock | — | C2SL-3-D | — | — | | | |
| | | With bowl guard | C2SL-3C-D | C3SL-3-D | C4SL-3-D | | | |
| | Drain cock with barb fitting | With bowl guard | — | C3SL-3W-D | C4SL-3W-D | | | |
| Nylon | Without drain cock | — | C2SL-6-A | — | — | | | |
| | | With bowl guard | C2SL-6C-A | C3SL-6-A | C4SL-6-A | | | |
| | With drain cock | — | C2SL-36-A | — | — | | | |
| | | With bowl guard | C2SL-36C-A | C3SL-36-A | C4SL-36-A | | | |
| | Drain cock with barb fitting | With bowl guard | — | C3SL-36W-A | C4SL-36W-A | | | |
| Metal | Without drain cock | — | C2SL-2-A | C3SL-2-A | C4SL-2-A | | | |
| | | With level gauge | — | C3LL-8-A | C4LL-8-A | | | |
| | With drain cock | — | C2SL-23-A | C3SL-23-A | C4SL-23-A | | | |
| | | With level gauge | — | C3LL-38-A | C4LL-38-A | | | |

∗1 The bowl assembly comes with a bowl seal. Please contact SMC separately for psi and °F unit display specifications.

## Option/Part Nos.

| Optional specifications | Model | | | | | |
|---|---|---|---|---|---|---|
| | **AL20-D** | **AL30-D** | **AL40-D** | **AL40-06-D** | **AL50-D** | **AL60-D** |
| **Bracket assembly**∗1 | AF24P-070AS | AF34P-070AS | AF44P-070AS | AF49P-070AS | AF54P-070AS | |

∗1 The assembly consists of a bracket A/B and 2 mounting screws.




## Replacement Parts

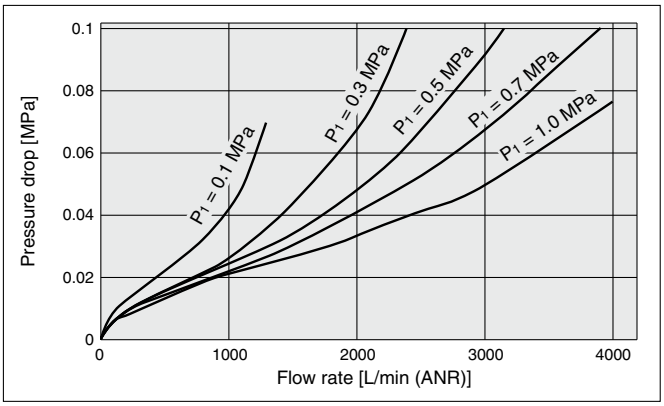
| Description | Part no. | | | | | |
|---|---|---|---|---|---|---|
| | **AL20-D** | **AL30-D** | **AL40-D** | **AL40-06-D** | **AL50-D** | **AL60-D** |
| **Sight dome assembly** | AL20P-080AS | | | | | |
| **Lubrication plug assembly** | AL24P-060AS | AL34P-060AS | AL44P-060AS | | | |
| **Bumper retainer assembly** | AL20P-030AS | AL30P-030AS | AL40P-030AS | | AL54P-030AS | AL60P-030AS |
| **Bumper** | AL20P-040S | AL30P-040S | AL44P-040S | | AL60P-040AS | |
| **Bowl seal** | C2SFP-260S | C32FP-260S | C42FP-260S | | | |
| **Bowl assembly**∗1, ∗2 | Refer to “Bowl Assembly/Part Nos.” | | | | | |

∗1 The bowl assembly comes with a bowl seal.
∗2 Please contact SMC separately for psi and °F unit display specifications.

## Flow Rate Characteristics (Representative values)

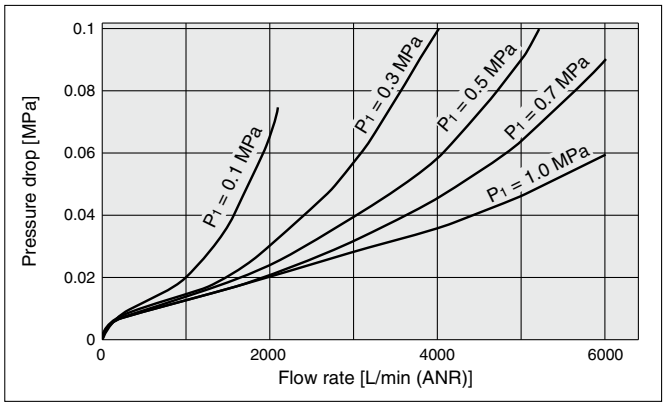
### AL20-D

Rc1/4



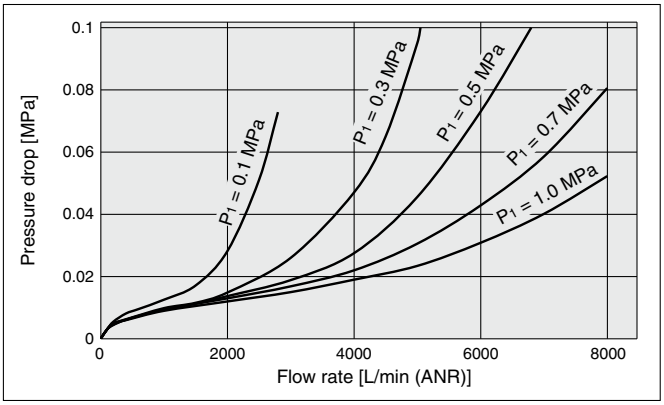

### AL30-D

Rc3/8



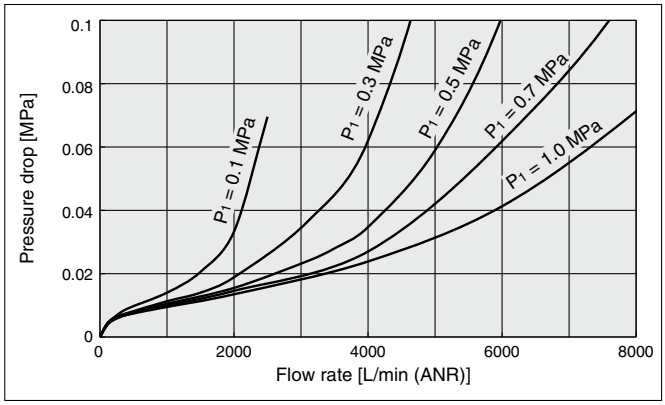

### AL40-D

Rc1/2



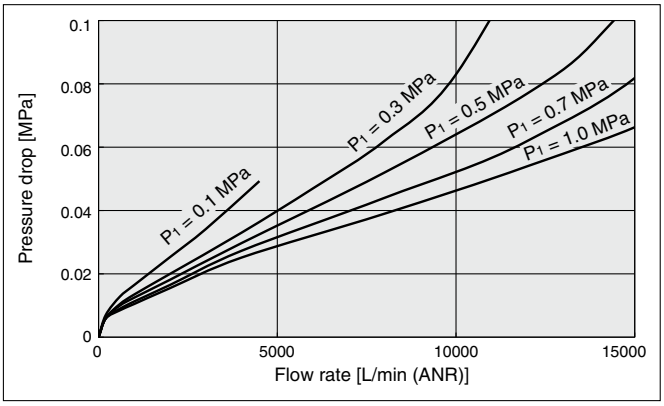

### AL40-06-D

Rc3/4



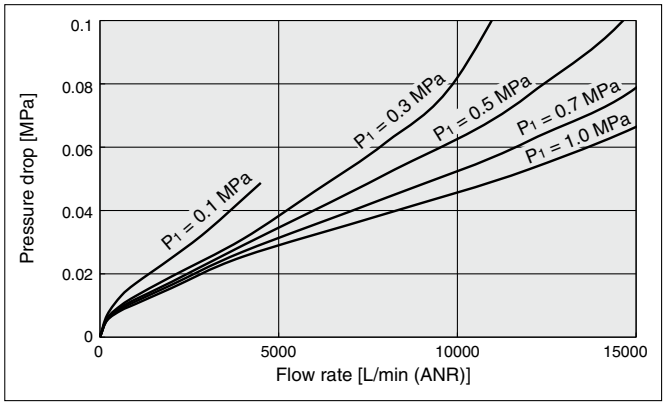

### AL50-D

Rc1



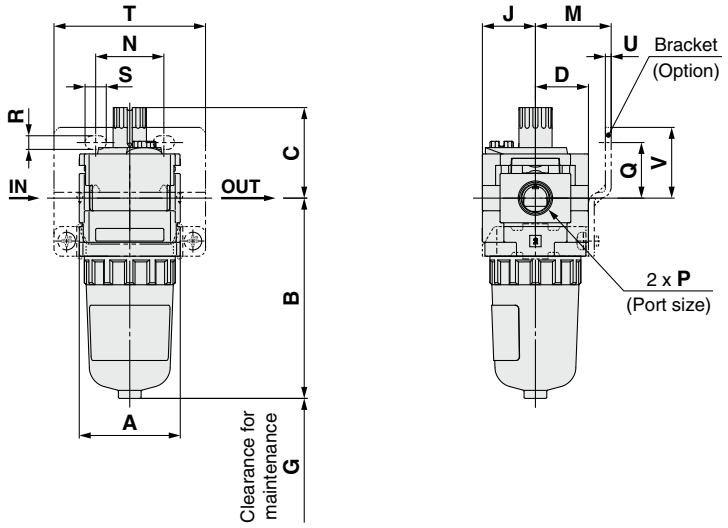

### AL60-D

Rc1

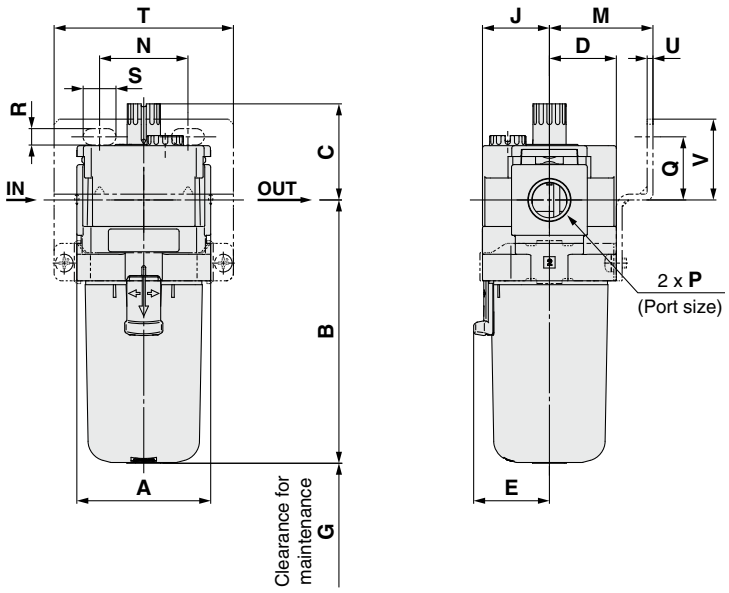


## Dimensions

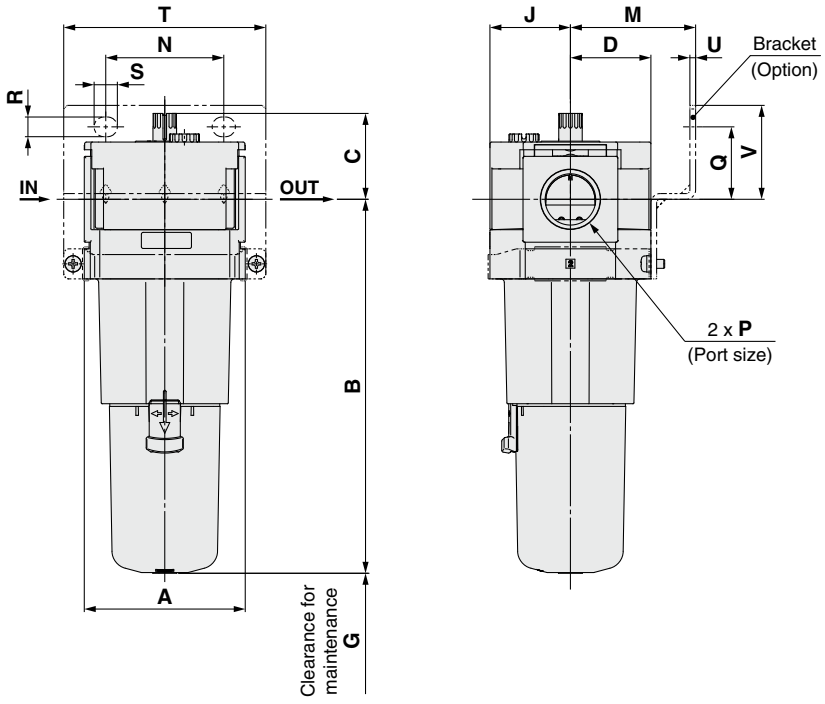
### AL20-D

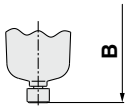
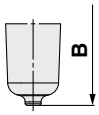
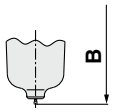
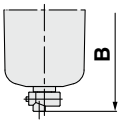
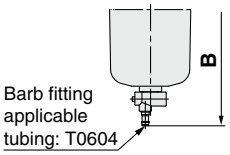
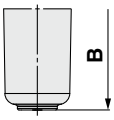
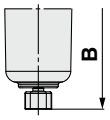
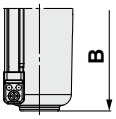
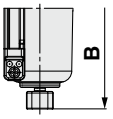



### AL30-D to AL40-06-D




### AL50-D to AL60-D



| Applicable model | Semi-standard | | | | | |
|---|---|---|---|---|---|---|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | With drain cock | Drain cock with barb fitting | Without drain cock | With drain cock | Without drain cock | With drain cock |
| **AL20-D** |  | |  |  | | |
| **AL30-D to AL60-D** |  |  |  |  |  |  |



| Model | Standard specifications | | | | | | | | Optional specifications | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Bracket mount | | | | | | | |
| | **P** | **A** | **B** | **C** | **D** | **E** | **G** | **J** | **M** | **N** | **Q** | **R** | **S** | **T** | **U** | **V** |
| **AL20-D** | 1/8, 1/4 | 40 | 79.3 | 35.9 | 21 | — | 60 | 21 | 30 | 27 | 22 | 5.4 | 8.4 | 60 | 2.3 | 28 |
| **AL30-D** | 1/4, 3/8 | 53 | 104.3 | 38.1 | 26.5 | 30 | 80 | 26.5 | 41 | 35 | 25 | 6.5 | 13 | 71 | 2.3 | 32 |
| **AL40-D** | 1/4, 3/8, 1/2 | 70 | 136.1 | 44 | 35.5 | 38.4 | 110 | 35.5 | 50 | 52 | 30 | 8.5 | 12.5 | 88 | 2.3 | 39 |
| **AL40-06-D** | 3/4 | 75 | 138.1 | 44 | 35.5 | 38.4 | 110 | 35.5 | 50 | 52 | 34 | 8.5 | 12.5 | 88 | 2.3 | 43 |
| **AL50-D** | 3/4, 1 | 90 | 209.1 | 48 | 45 | — | 110 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 |
| **AL60-D** | 1 | 95 | 223.1 | 48 | 45 | — | 110 | 45 | 70 | 66 | 40.5 | 11 | 13 | 113 | 3.2 | 52.5 |

| Model | Semi-standard specifications | | | | | |
|---|---|---|---|---|---|---|
| | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | With drain cock | With barb fitting | Without drain cock | With drain cock | Without drain cock | With drain cock |
| | **B** | **B** | **B** | **B** | **B** | **B** |
| **AL20-D** | 87.6 | — | 84.5 | 87.4 | — | — |
| **AL30-D** | 115.4 | 123.9 | 104.3 | 117.8 | 124.3 | 137.8 |
| **AL40-D** | 147.1 | 155.6 | 136 | 149.5 | 156.1 | 169.5 |
| **AL40-06-D** | 149.1 | 157.6 | 138 | 151.5 | 158.1 | 171.5 |
| **AL50-D** | 220.1 | 228.6 | 209 | 222.5 | 229 | 242.5 |
| **AL60-D** | 234.1 | 242.6 | 223 | 236.5 | 243 | 256.5 |

# *AL-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Design / Selection

## ⚠ Warning

**1.** Do not introduce air from the outlet side as this can damage the bumper.

**2. The standard bowl and sight dome of the lubricator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

**Chemical resistance of polycarbonate bowl with sight dome and nylon bowl with sight dome**

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

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

When the above factors are present, or there is some doubt, use a metal bowl for safety.

## Design / Selection

## ⚠ Caution

**1.** When the piping is branched on the inlet side, install a check valve to prevent the lubricant from back flowing.

## Maintenance

## ⚠ Warning

**1.** For the AL20-D, replenish the lubricant after releasing the inlet pressure. Lubrication cannot take place under a pressurized condition.

**2.** Tighten the lubrication plug to the recommended tightening torque. Insufficient tightening torque may cause loosening or defective sealing. Excessive tightening torque may damage the thread, etc.

**Recommended Torque** Unit: N·m

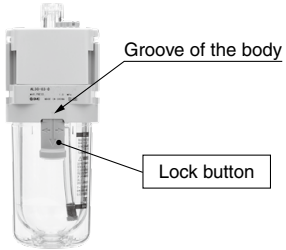
| Model | **AL20-D** | **AL30-D** | **AL40-D<br>AL40-06-D<br>AL50-D<br>AL60-D** |
|---|---|---|---|
| Torque | 0.25 to 0.35 | 0.35 to 0.45 | 0.5 to 0.6 |

**3.** Adjustment of the oil regulating valve (sight dome assembly) for models from the AL20-D to AL60-D should be carried out manually. Turning it counterclockwise increases the dripping amount, and turning it clockwise reduces the dripping amount. The use of tools can result in damage to the unit. From the fully closed position, three rotations will bring it to the fully open position. Do not rotate it any further than this. Note that the numbered scale markings are guidelines for adjusting the position, and not indicators of the dripping amount.

## Mounting / Adjustment

## ⚠ Caution

**1.** When the lubricator bowl is installed on the AL30-D to AL60-D, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.



# Modular Type
# Filter Regulator
# *AW Series*

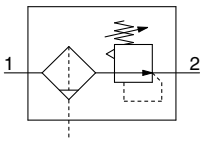


| **Filter Regulator AW Series** | Model | Port size | Set pressure | Options |
|---|---|---|---|---|
|  | **AW20(K)-D** | 1/8, 1/4 | 0.05 to 0.85 MPa<br>0.02 to 0.2 MPa | Bracket<br>Set nut (for panel mount)<br>Float type auto drain<br>Square embedded type pressure gauge<br>Digital pressure switch<br>Round type pressure gauge |
| | **AW30(K)-D** | 1/4, 3/8 | | |
| | **AW40(K)-D** | 1/4, 3/8, 1/2 | | |
| | **AW40(K)-06-D** | 3/4 | | |
| | **AW60(K)-D** | 3/4, 1 | | Bracket<br>Float type auto drain<br>Square embedded type pressure gauge<br>Digital pressure switch<br>Round type pressure gauge |

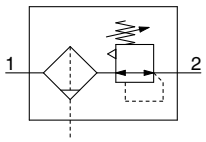
**p. 95 to 109**

# Filter Regulator
# *AW20-D to AW60-D*
## Filter Regulator with Backflow Function
# *AW20K-D to AW60K-D*

**Symbol**
Filter Regulator

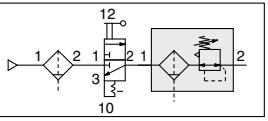



Filter Regulator with Backflow Function




- **Integrated filter and regulator units save space and require less piping.**
- **Models with the backflow function include a mechanism which allows for the air pressure in the outlet side to be released to the inlet side.**

Example)
When the air supply is cut off and releasing the inlet pressure to the atmosphere, the residual pressure release of the outlet side can be ensured for a safety purpose.




## How to Order

**AW 30 ❶ – ❷ ❸ 03 ❹ BE ❺ – ❻ – D**

- Option/Semi-standard: Select one each for **a** to **i**.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.

Example) AW30K-03BE-1NR-D

| | | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 60 |
|---|---|---|---|---|---|---|---|---|
| ❷ | With backflow function | | **Nil** | Without backflow function | ● | ● | ● | ● |
| | | | **K***1 | With backflow function | ● | ● | ● | ● |
| | | | + | | | | | |
| ❸ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● |
| | | | + | | | | | |
| ❹ | Port size | | **01** | 1/8 | ● | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — |
| | | | **03** | 3/8 | — | ● | ● | — |
| | | | **04** | 1/2 | — | — | ● | — |
| | | | **06** | 3/4 | — | — | ● | ● |
| | | | **10** | 1 | — | — | — | ● |
| | | | + | | | | | |
| ❺ | Option*2 | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● | ● |
| | | | **B***3 | With bracket | ● | ● | ● | ● |
| | | | **H** | With set nut (for panel mount) | ● | ● | ● | — |
| | | | + | | | | | |
| | | **b** Float type auto drain*4 | **Nil** | Without auto drain | ● | ● | ● | ● |
| | | | **C***5 | N.C. (Normally closed) Drain port is closed when pressure is not applied. | ● | ● | ● | ● |
| | | | **D***6 | N.O. (Normally open) Drain port is open when pressure is not applied. | — | ● | ● | ● |
| | | | + | | | | | |
| | | **c** Pressure gauge*7 | **Nil** | Without pressure gauge | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● |
| | | **c** Digital pressure switch*8 | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● |
| | | | + | | | | | |
| ❻ | Semi-standard | **d** Set pressure*9 | **Nil** | 0.05 to 0.85 MPa setting | ● | ● | ● | ● |
| | | | **1** | 0.02 to 0.2 MPa setting | ● | ● | ● | ● |
| | | | + | | | | | |
| | | **e** Bowl*10 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● |
| | | | **2** | Metal bowl | ● | ● | ● | ● |
| | | | **6** | Nylon bowl | ● | ● | ● | ● |
| | | | **8** | Metal bowl with level gauge | — | ● | ● | ● |
| | | | **C** | With bowl guard | ● | —*11 | —*11 | —*11 |
| | | | **6C** | With bowl guard (Nylon bowl) | ● | —*12 | —*12 | —*12 |
| | | | + | | | | | |
| | | **f** Drain port*13 | **Nil** | With drain cock | ● | ● | ● | ● |
| | | | **J***14 | Drain guide 1/8 | ● | — | — | — |
| | | | | Drain guide 1/4 | — | ● | ● | ● |
| | | | **W***15 | Drain cock with barb fitting | — | ● | ● | ● |

**AW30-D**

| | | Symbol | Description | ❶ Body size 20 | 30 | 40 | 60 |
|---|---|---|---|---|---|---|---|
| ❻ Semi-standard | **g** Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● |
| | | **N** | Non-relieving type | ● | ● | ● | ● |
| | | + | | | | | |
| | **h** Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● |
| | | **R** | Flow direction: Right to left | ● | ● | ● | ● |
| | | + | | | | | |
| | **i** Unit | **Nil** | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● | ● |
| | | **Z**∗16 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗18 | ○∗18 | ○∗18 | ○∗18 |
| | | **ZA**∗17 | Digital pressure switch: With unit selection function | △∗19 | △∗19 | △∗19 | △∗19 |

∗1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
∗2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
∗3 The assembly consists of a bracket and set nuts (applicable to the AW20(K)-D to AW40(K)-D).
For the AW60(K)-D, the assembly consists of 2 types of the bracket and 2 mounting screws.
∗4 The auto drain port is ø10 One-touch fitting (❷ Pipe thread type: Rc, G) or ø3/8" One-touch fitting (❷ Pipe thread type: NPT)
∗5 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗6 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗7 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type.
∗8 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.
∗9 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗10 Refer to chemical data on page 109 for chemical resistance of the bowl.
∗11 A bowl guard is provided as standard equipment (polycarbonate).
∗12 A bowl guard is provided as standard equipment (nylon).
∗13 The combination of float type auto drain C and D is not available.
∗14 Without a valve function. The mounting screws are the same as the thread of ❷.
∗15 The combination of metal bowl 2 and 8 is not available.
∗16 For the pipe thread type: NPT. This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗17 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗18 ○: For the pipe thread type: NPT only
∗19 △: Select with options: E1, E2, E3, E4.

# *AW20-D to AW60-D Series*
# *AW20K-D to AW60K-D Series*

## Standard Specifications

| Model | | AW20-D | AW30-D | AW40-D | AW40-06-D | AW60-D |
|---|---|---|---|---|---|---|
| **Port size** | | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 |
| **Pressure gauge port size**∗1 | | 1/8 | | | | |
| **Fluid** | | Air | | | | |
| **Ambient and fluid temperatures**∗2 | | –5 to 60°C (No freezing) | | | | |
| **Proof pressure** | | 1.5 MPa | | | | |
| **Max. operating pressure** | | 1.0 MPa | | | | |
| **Auto drain minimum operating pressure** | **N.C.** | 0.1 MPa | 0.15 MPa | | | |
| | **N.O.** | — | 0.1 MPa | | | |
| **Set pressure range** | | 0.05 to 0.85 MPa | | | | |
| **Nominal filtration rating**∗3 | | 5 μm | | | | |
| **Compressed air purity class**∗4 | | ISO 8573-1:2010 [ 6 : 4 : 4 ]∗5 | | | | |
| **Drain capacity** | | 8 $cm^3$ | 25 $cm^3$ | 45 $cm^3$ | | |
| **Bowl material** | | Polycarbonate | | | | |
| **Bowl guard** | | Semi-standard (Steel) | Standard (Polycarbonate) | | | |
| **Construction** | | Relieving type | | | | |
| **Weight** | | 0.18 kg | 0.34 kg | 0.64 kg | 0.69 kg | 1.76 kg |

∗1 Pressure gauge connection threads are not available for F.R.L. unit with a square embedded type pressure gauge or with a digital pressure switch.
∗2 –5 to 50°C for the products with the digital pressure switch
∗3 For the following conditions in accordance with [Test condition: ISO 8573-4:2001 compliant, Test method ISO 12500-3:2009 compliant]
Conditions: When a new element is used, and the flow capacity, inlet pressure, and the amount of solid bodies on the filter inlet side are stable
∗4 The compressed air purity class is indicated based on ISO 8573-1:2010 Compressed air – Part 1: Contaminants and purity classes.
For details on this standard, refer to page 110.
∗5 The compressed air quality class on the inlet side is [ 7 : 4 : 4 ].

## Bowl Assembly/Part Nos.

| Bowl material | Drain discharge mechanism | Drain port | Other | Model | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | **AW20-D** | **AW30-D** | **AW40-D** | **AW40-06-D** | **AW60-D** |
| Polycarbonate | Manual | With drain cock | — | C2SF-D | — | — | | |
| | | | With bowl guard | C2SF-C-D | C3SF-D | C4SF-D | | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-W-D | C4SF-W-D | | |
| | | With drain guide (without valve function) | — | C2SF□-J-D | — | — | | |
| | | | With bowl guard | C2SF□-CJ-D | C3SF□-J-D | C4SF□-J-D | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-D | — | — | | |
| | | | With bowl guard | AD27-C-D | AD37□-D | AD47□-D | | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-D | AD48□-D | | |
| Nylon | Manual | With drain cock | — | C2SF-6-A | — | — | | |
| | | | With bowl guard | C2SF-6C-A | C3SF-6-A | C4SF-6-A | | |
| | | Drain cock with barb fitting | With bowl guard | — | C3SF-6W-A | C4SF-6W-A | | |
| | | With drain guide (without valve function) | — | C2SF□-6J-A | — | — | | |
| | | | With bowl guard | C2SF□-6CJ-A | C3SF□-6J-A | C4SF□-6J-A | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-6-A | — | — | | |
| | | | With bowl guard | AD27-6C-A | AD37□-6-A | AD47□-6-A | | |
| | | Normally open (N.O.) | With bowl guard | — | AD38□-6-A | AD48□-6-A | | |
| Metal | Manual | With drain cock | — | C2SF-2-A | C3SF-2-A | C4SF-2-A | | |
| | | | With level gauge | — | C3LF-8-A | C4LF-8-A | | |
| | | With drain guide (without valve function) | — | C2SF□-2J-A | C3SF□-2J-A | C4SF□-2J-A | | |
| | | | With level gauge | — | C3LF□-8J-A | C4LF□-8J-A | | |
| | Automatic∗1 (Auto drain) | Normally closed (N.C.) | — | AD27-2-A | AD37□-2-A | AD47□-2-A | | |
| | | | With level gauge | — | AD37□-8-A | AD47□-8-A | | |
| | | Normally open (N.O.) | — | — | AD38□-2-A | AD48□-2-A | | |
| | | | With level gauge | — | AD38□-8-A | AD48□-8-A | | |

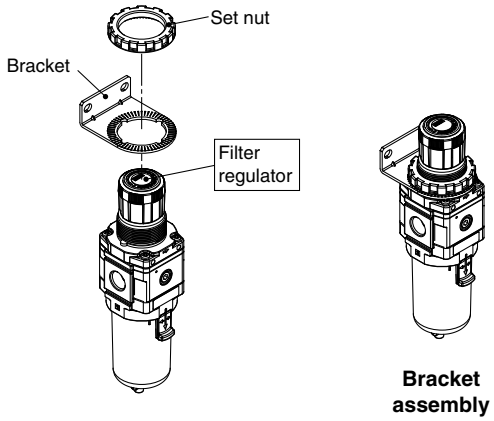
∗1 The bowl assembly comes with a bowl seal.
□ in bowl assembly part numbers indicates a pipe thread type (applicable tubing for auto drain).
No indication is necessary for Rc thread; however, indicate N for NPT thread, and F for G thread. (For auto drain, Nil: ø10, N: ø3/8")
Please contact SMC separately for psi and °F unit display specifications.

## Option/Part Nos.

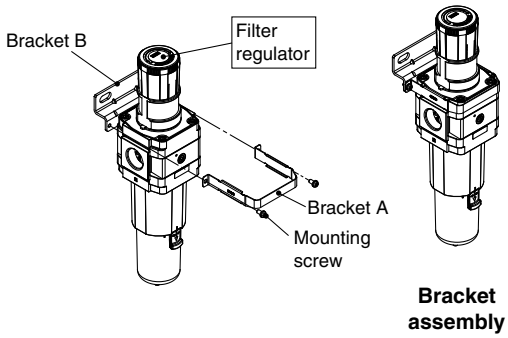
| Optional specifications | | | Model | | | | |
|---|---|---|---|---|---|---|---|
| | | | **AW20(K)-D** | **AW30(K)-D** | **AW40(K)-D** | **AW40(K)-06-D** | **AW60(K)-D** |
| **Bracket assembly**∗1 | | | AW23P-270AS | AR33P-270AS | AR43P-270AS | | AR54P-270AS |
| **Set nut** | | | AR23P-260S | AR33P-260S | AR43P-260S | | —∗2 |
| **Pressure gauge**∗3 | **Round type** | **Standard** | G36-10-□01 | | G46-10-□01 | | |
| | | **0.02 to 0.2 MPa setting** | G36-4-□01 | | G46-4-□01 | | |
| | **Round type (with color zone)** | **Standard** | G36-10-□01-L | | G46-10-□01-L | | |
| | | **0.02 to 0.2 MPa setting** | G36-4-□01-L | | G46-4-□01-L | | |
| | **Square embedded type**∗4 | **Standard** | GC3-10AS-D [136150A (Pressure gauge cover only)] | | | | |
| | | **0.02 to 0.2 MPa setting** | GC3-4AS-D [136150A (Pressure gauge cover only)] | | | | |
| **Digital pressure switch** | | **NPN output, Wiring bottom entry** | ISE35-N-25-MLA-X523 [ISE35-N-25-M (Switch body only)]∗5 | | | | |
| | | **NPN output, Wiring top entry** | ISE35-R-25-MLA-X523 [ISE35-R-25-M (Switch body only)]∗5 | | | | |
| | | **PNP output, Wiring bottom entry** | ISE35-N-65-MLA-X523 [ISE35-N-65-M (Switch body only)]∗5 | | | | |
| | | **PNP output, Wiring top entry** | ISE35-R-65-MLA-X523 [ISE35-R-65-M (Switch body only)]∗5 | | | | |

∗1 The assembly consists of a bracket and set nuts.
∗2 For the AW60(K)-D, the assembly consists of a bracket A/B and 2 mounting screws. Please contact SMC regarding the set nuts for the AW60(K)-D.
∗3 □ in part numbers for a round type pressure gauge indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the pressure gauge supply for both MPa and psi unit specifications.
∗4 Including one O-ring and 2 mounting screws. [ ]: Pressure gauge cover only
∗5 In addition to the pressure switch body, lead wire with connector (2 m), adapter, lock pin, O-ring (1 pc.), mounting screws (2 pcs.) are attached.
[ ]: Switch body only (Regarding how to order the digital pressure switch, refer to the **Web Catalog**.)

**AW20(K)-D to AW40(K)-06-D**




**AW60(K)-D**




## Replacement Parts

| Description | | Part no. | | | | |
|---|---|---|---|---|---|---|
| | | **AW20(K)-D** | **AW30(K)-D** | **AW40(K)-D** | **AW40(K)-06-D** | **AW60(K)-D** |
| **Valve assembly** | | AW24P-060AS | AW34P-060AS | AW44P-060AS | AW49P-060AS | AW64P-060AS |
| **Filter element** | | AF20P-060S | AF30P-060S | AF40P-060S | | AW60P-060S |
| **Baffle** | | AF24P-040S | AF34P-040S | AF44P-040S | | AW64P-030S |
| **Diaphragm assembly** | **Relieving type** | AR24P-150AS | AR34P-150AS | AR44P-150AS | | AR54P-150AS |
| | **Non-relieving type** | AR24P-150AS-N | AR34P-150AS-N | AR44P-150AS-N | | AR54P-150AS-N |
| **Bowl seal** | | C2SFP-260S | C32FP-260S | C42FP-260S | | |
| **Bowl assembly**∗1, ∗2 | | Refer to “Bowl Assembly/Part Nos.” | | | | |
| **Check valve assembly**∗3 | | AR24KP-020AS | | | | |

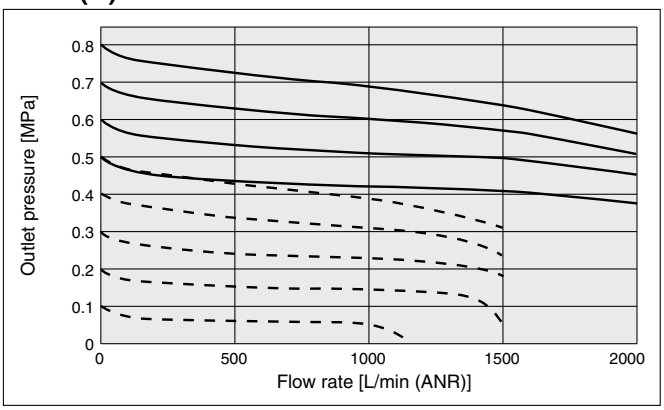
∗1 The bowl assembly comes with a bowl seal.
∗2 Please contact SMC separately for psi and °F unit display specifications.
∗3 The check valve assembly is applicable for a filter regulator with backflow function (AW20K-D to AW60K-D) only. The assembly consists of a check valve cover, check valve body assembly, and 2 mounting screws.

## Flow Rate Characteristics (Representative values)

——— Inlet pressure: 1.0 MPa
- - - - Inlet pressure: 0.7 MPa

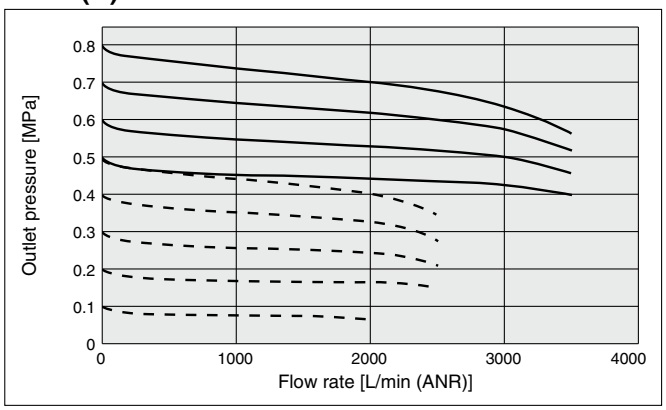
### AW20(K)-D

Rc1/4



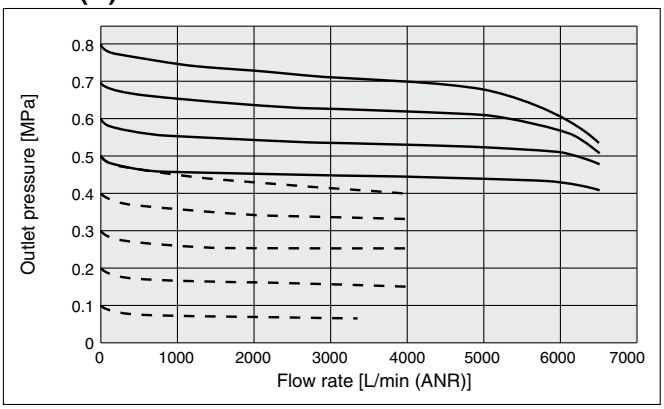

### AW30(K)-D

Rc3/8



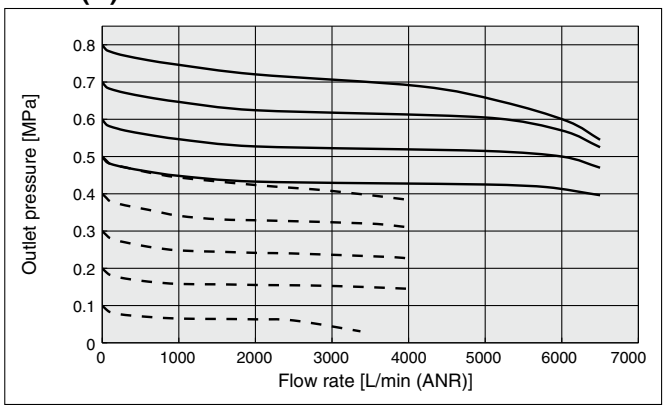

### AW40(K)-D

Rc1/2



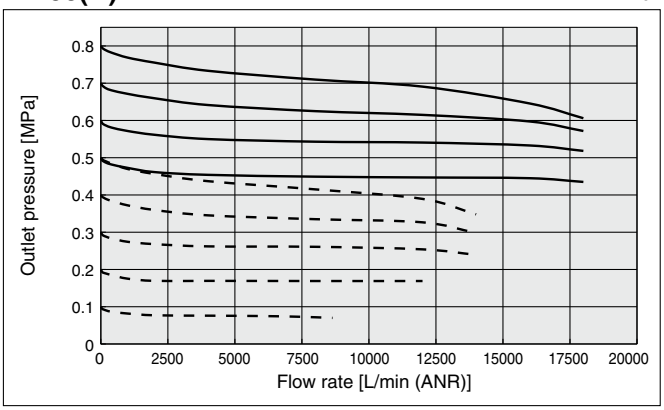

### AW40(K)-06-D

Rc3/4




### AW60(K)-D

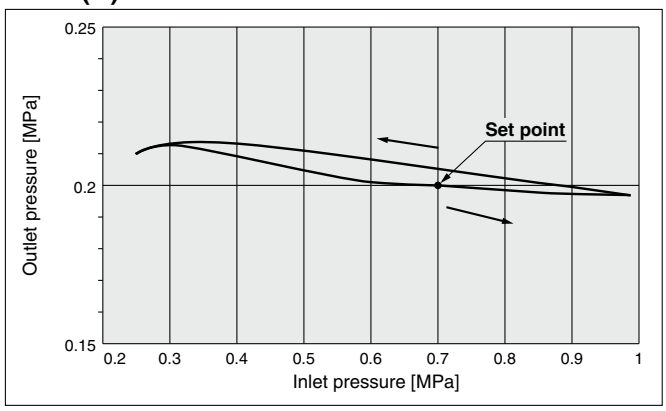
Rc1



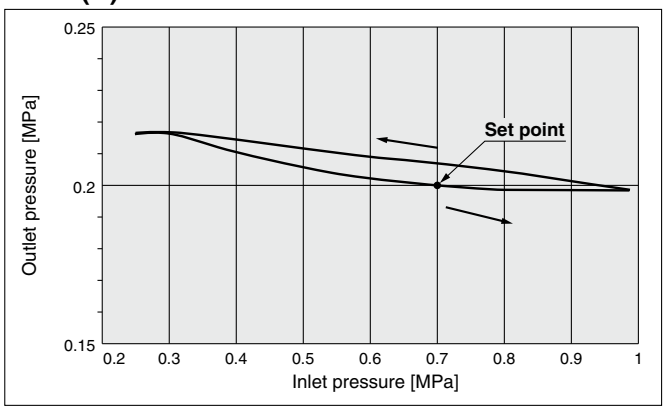
## Pressure Characteristics (Representative values)

Conditions: Inlet pressure of 0.7 MPa, Outlet pressure of 0.2 MPa, Flow rate 20 L/min (ANR)

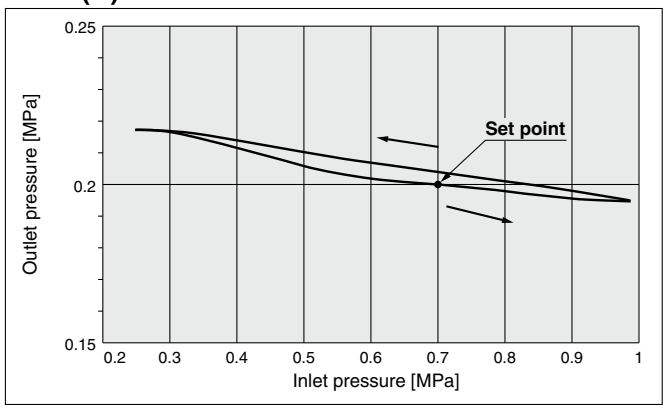
### AW20(K)-D



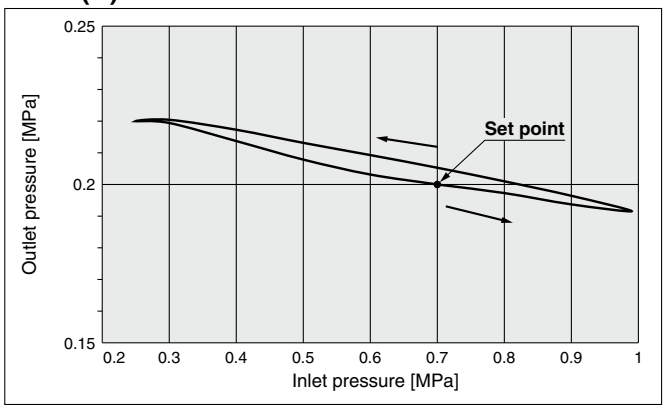

### AW30(K)-D



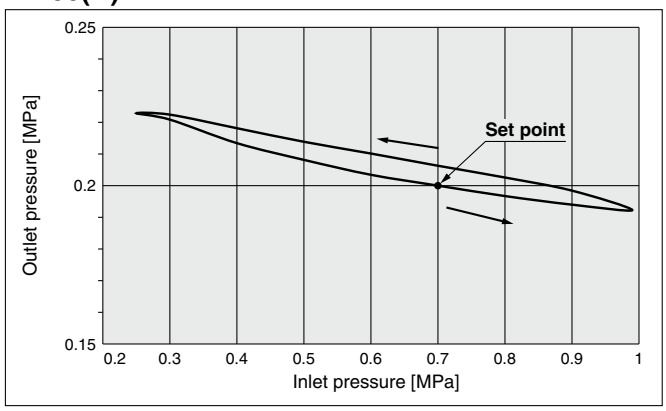

### AW40(K)-D




### AW40(K)-06-D



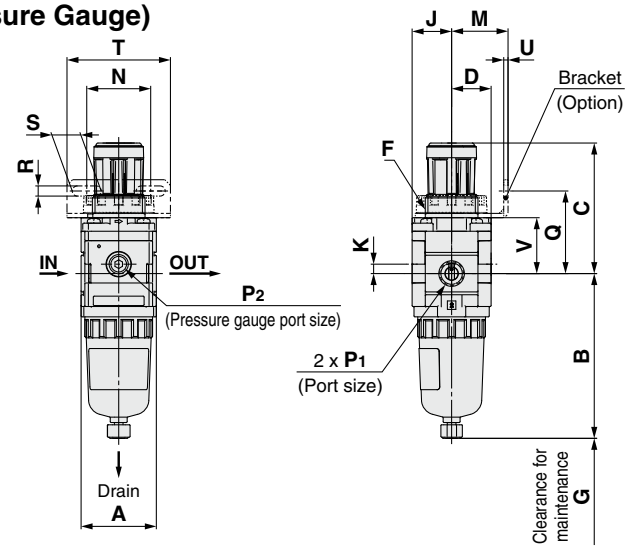

### AW60(K)-D



## Dimensions

### Standard (Round Type Pressure Gauge)

**AW20-D**




**Panel cutout dimensions**

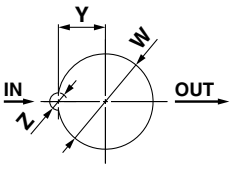
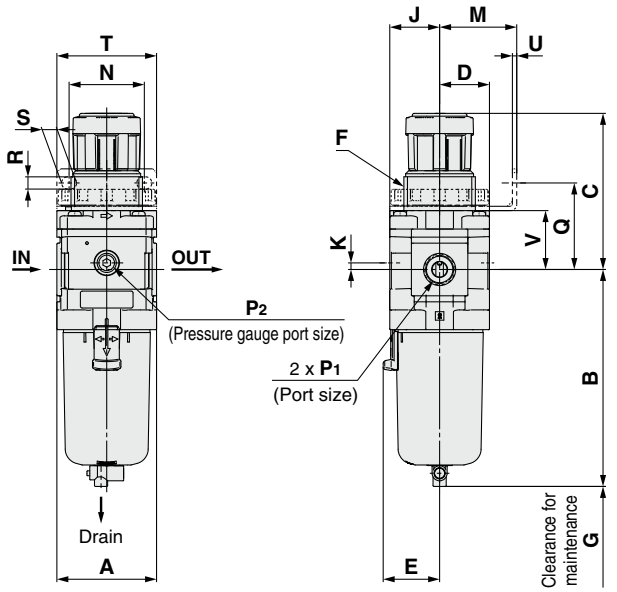
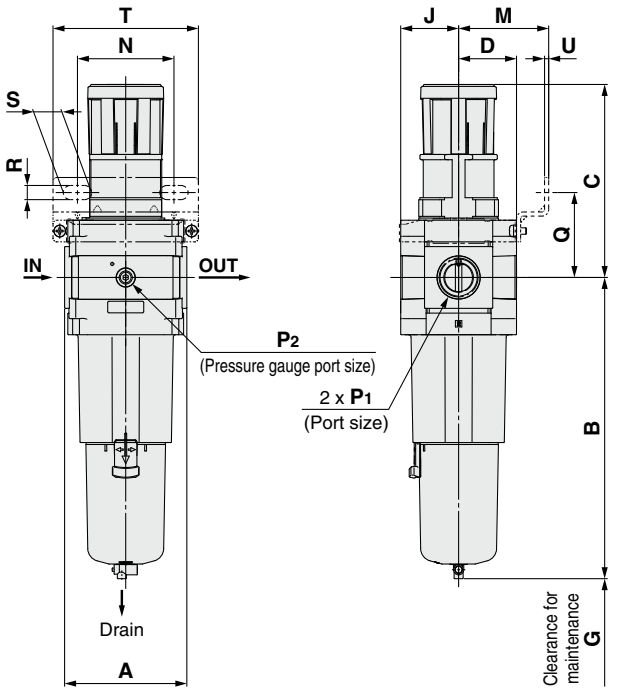



**Plate thickness**
**AW20-D to AW30-D : Max. 3.5**
**AW40-D to AW40-06-D: Max. 5**

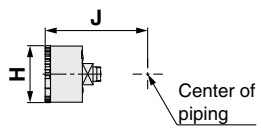
**AW30-D to AW40-06-D**

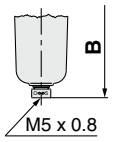
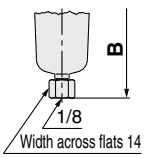
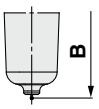
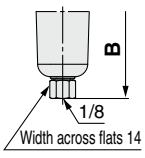
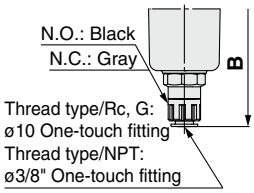
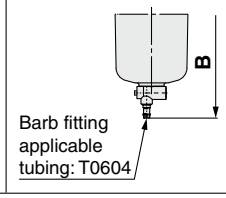
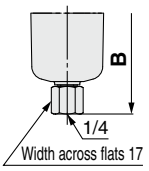
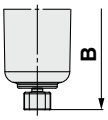
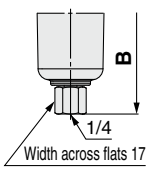
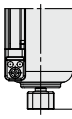
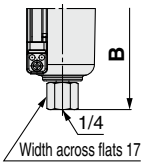



**AW60-D**



Round type pressure gauge




| Applicable model | Optional specifications | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AW20-D** |   | |   |   |   | | |
| **AW30-D to AW60-D** |   |   |   |   |   |   |   |

| Model | Standard specifications | | | | | | | | | | | Optional specifications | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | | Round type pressure gauge (with color zone) | |
| | $P_1$ | $P_2$ | A | B | C*1 | D | E | F | G | J | K | H | J | H | J | H | J |
| **AW20-D** | 1/8, 1/4 | 1/8 | 40 | 87.6 | 71.8 | 21 | — | M28 x 1 | 40 | 21 | 5 | ø37.5 | 57.5 | ø37.5 | 58.5 | ø37.5 | 58.5 |
| **AW30-D** | 1/4, 3/8 | 1/8 | 53 | 115.3 | 86.5 | 26.5 | 30 | M38 x 1.5 | 55 | 26.5 | 3.5 | ø37.5 | 63 | ø37.5 | 64 | ø37.5 | 64 |
| **AW40-D** | 1/4, 3/8, 1/2 | 1/8 | 70 | 147.1 | 91.5 | 35.5 | 38.4 | M42 x 1.5 | 80 | 35.5 | — | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 |
| **AW40-06-D** | 3/4 | 1/8 | 75 | 149.1 | 93 | 35.5 | 38.4 | M42 x 1.5 | 80 | 35.5 | — | ø42.5 | 73 | ø42.5 | 73 | ø42.5 | 73 |
| **AW60-D** | 3/4, 1 | 1/8 | 95 | 234.1 | 155 | 45 | — | — | 30 | 45 | — | ø42.5 | 82.5 | ø42.5 | 82.5 | ø42.5 | 82.5 |

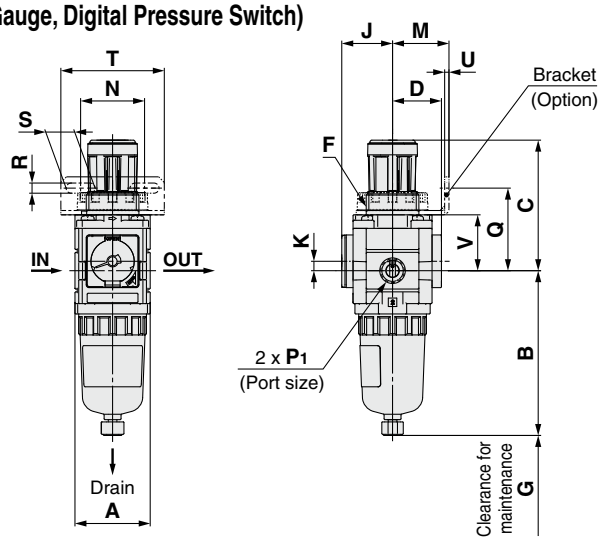
| Model | Optional specifications | | | | | | | | | | | | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bracket mount | | | | | | | Panel mount | | | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | M | N | Q | R | S | T | U | V | W | Y | Z | B | B | B | B | B | B | B |
| **AW20-D** | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 29.7 | 28.5 | 14 | 6 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AW30-D** | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 | 157 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AW40-D** | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AW40-06-D** | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AW60-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

*1 The dimension of C is the length when the filter regulator knob is unlocked.

## Dimensions

**Standard (Square Embedded Type Pressure Gauge, Digital Pressure Switch)**

**AW20-□□□ E / E1 / E2 / E3 / E4 -D**




**Panel cutout dimensions**

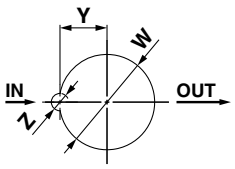
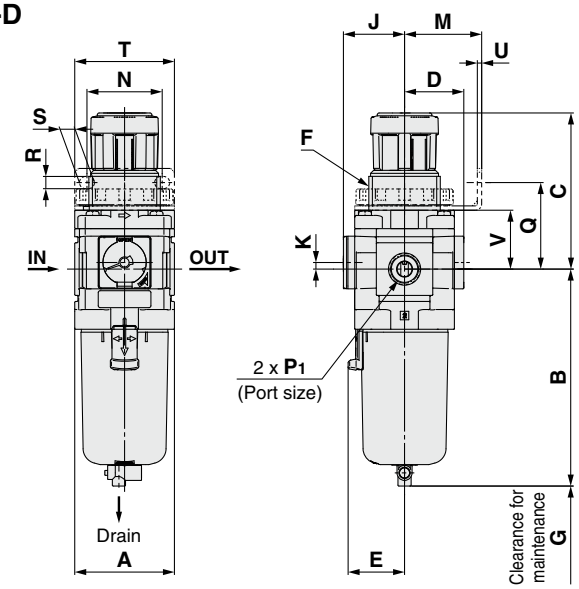
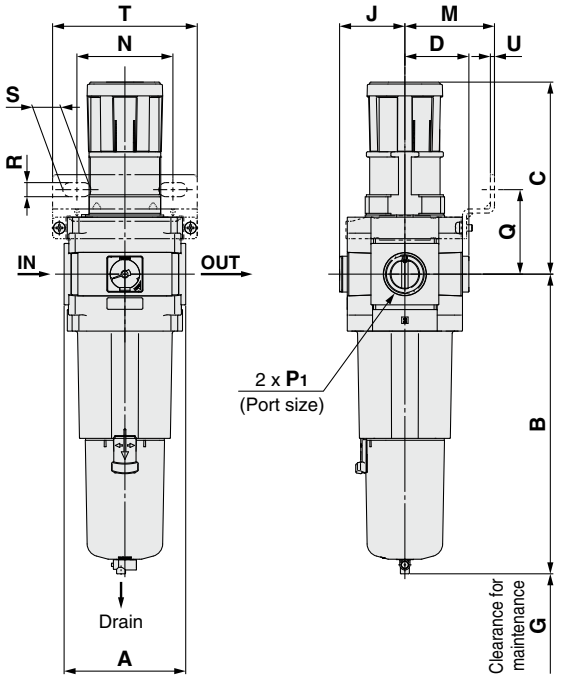


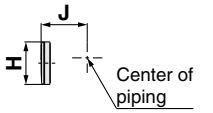
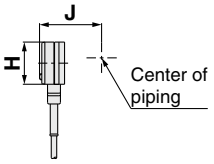

**Plate thickness**
**AW20-D to AW30-D : Max. 3.5**
**AW40-D to AW40-06-D: Max. 5**

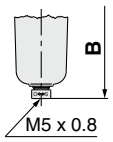
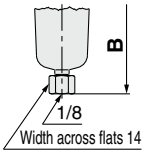
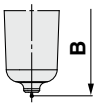
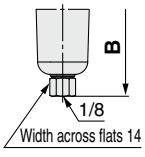
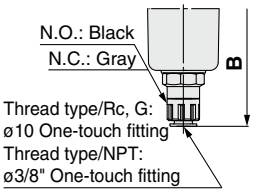
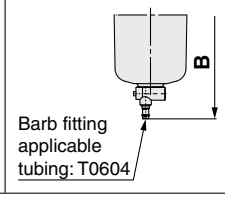
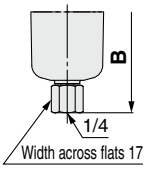
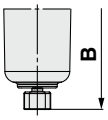
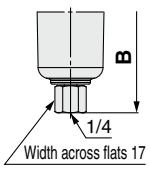
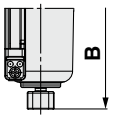
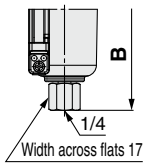
**AW30-□□□ E / E1 / E2 / E3 / E4 -D to AW40-□□□ E / E1 / E2 / E3 / E4 -D**




**AW60-□□□ E / E1 / E2 / E3 / E4 -D**



| Square embedded type pressure gauge | Digital pressure switch |
|---|---|
|  |  |

| Applicable model | Optional specifications | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AW20-D** |  | |  |  |  | | |
| **AW30-D to AW60-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | Optional specifications | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Square embedded type pressure gauge | | Digital pressure switch | |
| | $P_1$ | A | B | C*1 | D | E | F | G | K | H | J | H | J |
| **AW20-D** | 1/8, 1/4 | 40 | 87.6 | 71.8 | 26 | — | M28 x 1 | 40 | 5 | □28 | 27 | □27.8 | 37.5 |
| **AW30-D** | 1/4, 3/8 | 53 | 115.3 | 86.5 | 31.5 | 30 | M38 x 1.5 | 55 | 3.5 | □28 | 32.5 | □27.8 | 43 |
| **AW40-D** | 1/4, 3/8, 1/2 | 70 | 147.1 | 91.5 | 40.5 | 38.4 | M42 x 1.5 | 80 | — | □28 | 41.5 | □27.8 | 52 |
| **AW40-06-D** | 3/4 | 75 | 149.1 | 93 | 40.5 | 38.4 | M42 x 1.5 | 80 | — | □28 | 41.5 | □27.8 | 52 |
| **AW60-D** | 3/4, 1 | 95 | 234.1 | 155 | 50 | — | — | 30 | — | □28 | 51 | □27.8 | 61.5 |

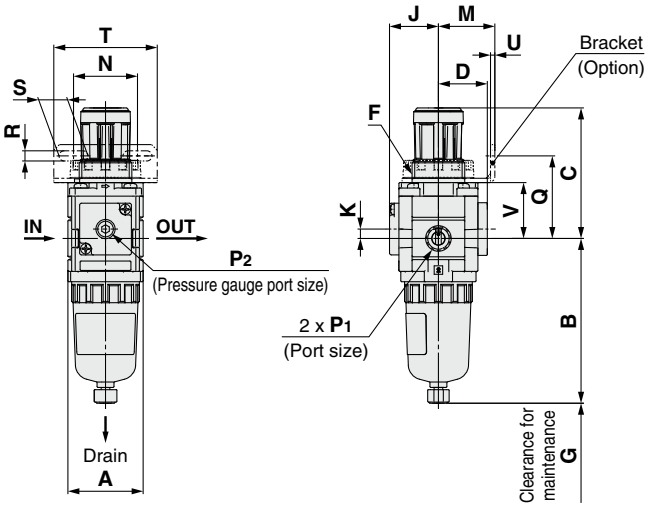
| Model | Optional specifications | | | | | | | | | | | | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bracket mount | | | | | | | Panel mount | | | | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | M | N | Q | R | S | T | U | V | W | Y | Z | B | B | B | B | B | B | B |
| **AW20-D** | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 29.7 | 28.5 | 14 | 6 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AW30-D** | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 | 157 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AW40-D** | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AW40-06-D** | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AW60-D** | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

*1 The dimension of C is the length when the filter regulator knob is unlocked.

## Dimensions

**With Backflow Function (Round Type Pressure Gauge, Square Embedded Type Pressure Gauge, Digital Pressure Switch)**

**AW20K-D**




**Panel cutout dimensions**

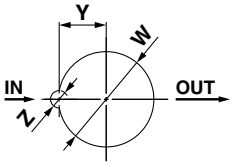
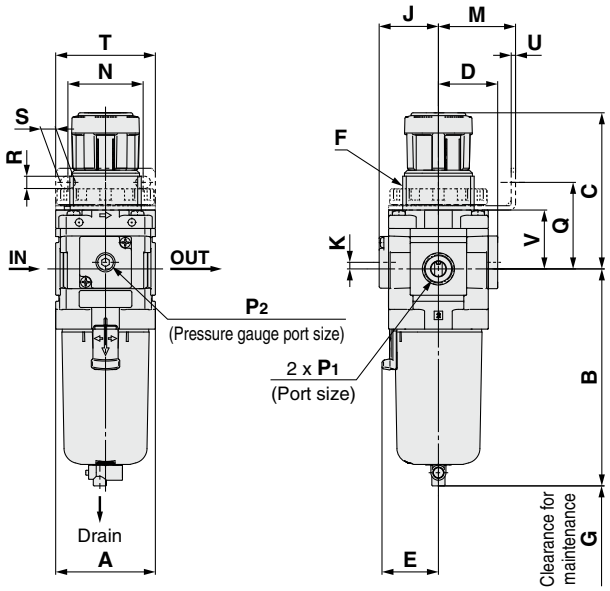
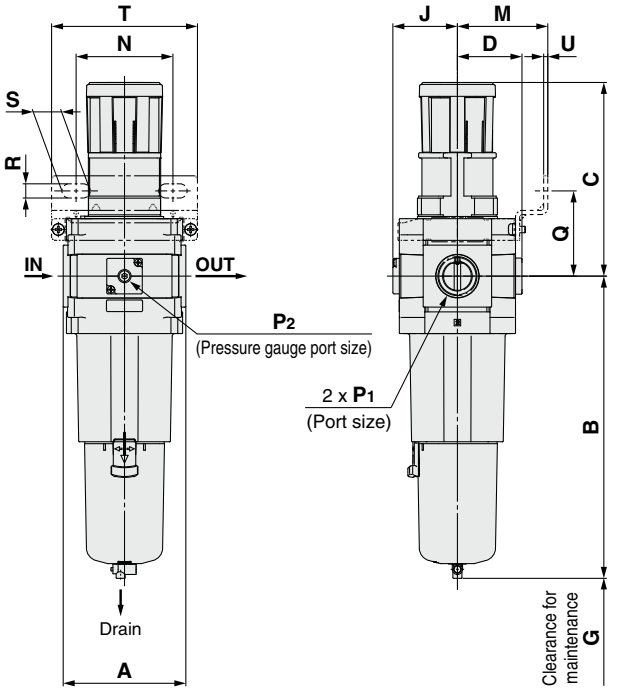


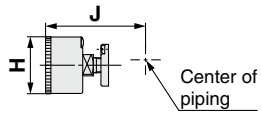
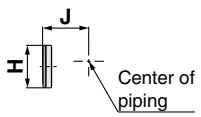
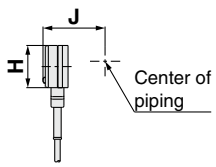

**Plate thickness**
**AW20K-D to AW30K-D : Max. 3.5**
**AW40K-D to AW40K-06-D: Max. 5**

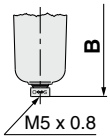
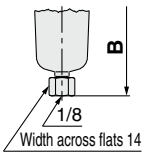
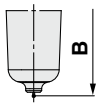
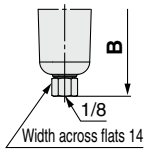
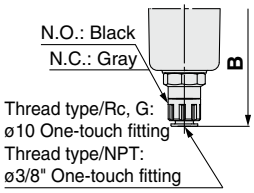
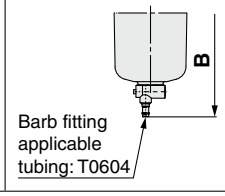
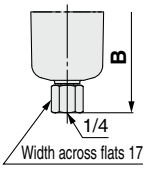
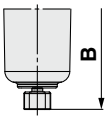
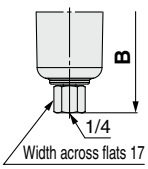
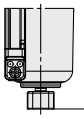
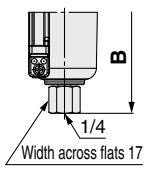
**AW30K-D to AW40K-06-D**




**AW60K-D**



| Round type pressure gauge | Square embedded type pressure gauge | Digital pressure switch |
|---|---|---|
|  |  |  |

| Applicable model | Optional specifications | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|
| | With auto drain | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | Drain cock with barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| **AW20K-D** |  | |  |  |  | | |
| **AW30K-D to AW60K-D** |  |  |  |  |  |  |  |

| Model | Standard specifications | | | | | | | | | | | Optional specifications | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (Semi-standard: Z) | |
| | $P_1$ | $P_2$ | A | B | C*1 | D | E | F | G | J | K | H | J | H | J | H | J | H | J |
| **AW20K-D** | 1/8, 1/4 | 1/8 | 40 | 87.6 | 71.8 | 26 | — | M28 x 1 | 40 | 26 | 5 | □28 | 27 | □27.8 | 37.5 | ø37.5 | 62.5 | ø37.5 | 63.5 |
| **AW30K-D** | 1/4, 3/8 | 1/8 | 53 | 115.3 | 86.5 | 31.5 | 30 | M38 x 1.5 | 55 | 31.5 | 3.5 | □28 | 32.5 | □27.8 | 43 | ø37.5 | 68 | ø37.5 | 69 |
| **AW40K-D** | 1/4, 3/8, 1/2 | 1/8 | 70 | 147.1 | 91.5 | 40.5 | 38.4 | M42 x 1.5 | 80 | 40.5 | — | □28 | 41.5 | □27.8 | 52 | ø42.5 | 78 | ø42.5 | 78 |
| **AW40K-06-D** | 3/4 | 1/8 | 75 | 149.1 | 93 | 40.5 | 38.4 | M42 x 1.5 | 80 | 40.5 | — | □28 | 41.5 | □27.8 | 52 | ø42.5 | 78 | ø42.5 | 78 |
| **AW60K-D** | 3/4, 1 | 1/8 | 95 | 234.1 | 155 | 50 | — | — | 30 | 50 | — | □28 | 51 | □27.8 | 61.5 | ø42.5 | 87.5 | ø42.5 | 87.5 |

| Model | Optional specifications | | | | | | | | | | | | | With auto drain | Semi-standard | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Round type pressure gauge (with color zone) | | Bracket mount | | | | | | | Panel mount | | | | | PC/PA bowl | | Metal bowl | | Metal bowl with level gauge | |
| | | | | | | | | | | | | | | | With barb fitting | With drain guide | With drain cock | With drain guide | With drain cock | With drain guide |
| | H | J | M | N | Q | R | S | T | U | V | W | Y | Z | B | B | B | B | B | B | B |
| **AW20K-D** | ø37.5 | 63.5 | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 29.7 | 28.5 | 14 | 6 | 104.9 | — | 91.4 | 87.4 | 93.9 | — | — |
| **AW30K-D** | ø37.5 | 69 | 41 | 40 | 46 | 6.5 | 8 | 53 | 2.3 | 31.3 | 38.5 | 19 | 7 | 157 | 123.9 | 122.2 | 117.8 | 122.3 | 137.8 | 142.3 |
| **AW40K-D** | ø42.5 | 78 | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 | 186.9 | 155.6 | 153.9 | 149.5 | 154 | 169.5 | 174 |
| **AW40K-06-D** | ø42.5 | 78 | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 | 188.9 | 157.6 | 155.9 | 151.5 | 156 | 171.5 | 176 |
| **AW60K-D** | ø42.5 | 87.5 | 70 | 75 | 66 | 11 | 22 | 113 | 3.2 | — | — | — | — | 273.9 | 242.6 | 240.9 | 236.5 | 241 | 256.5 | 261 |

*1 The dimension of C is the length when the filter regulator knob is unlocked.

# Filter Regulator/*AW20-D* to *AW60-D*
## Filter Regulator with Backflow Function/*AW20K-D* to *AW60K-D*
# Made to Order

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

Made to Order

## ① 0.4 MPa Setting

The setting specification is 0.4 MPa.

When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

### Specifications

| Made-to-order part no. | -X406 |
|---|---|
| **Proof pressure [MPa]** | 1.5 |
| **Max. operating pressure [MPa]** | 1.0 |
| **Set pressure range [MPa]**∗1 | 0.05 to 0.4 |

∗1 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

### Applicable Models

| Model | AW20(K)-D | AW30(K)-D | AW40(K)-D | AW40(K)-06-D | AW60(K)-D |
|---|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 |

## ② Long Bowl

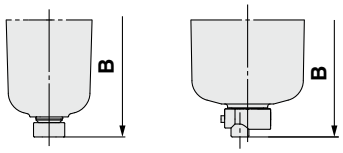
Drain capacity is greater than that of standard models.

### Applicable Models/Drain Capacity

| Model | AW20(K)-D | AW30(K)-D | AW40(K)-D | AW40(K)-06-D | AW60(K)-D |
|---|---|---|---|---|---|
| **Port size** | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 |
| **Drain capacity [cm³]** | 19 | 43 | 88 | | |
| **B dimension [mm]**∗1 | 108.1 | 137.3 | 167.2 | 169.2 | 254.2 |

∗1 For polycarbonate bowls. Please contact SMC for other bowl materials.

**AW20-D** **AW30 to 60-D**




## How to Order

**AW 30 ❶ ❷ – ❸ 03 ❹ ❺ – ❻ – D – X406**

| | |
|---|---|
| **X406** | 0.4 MPa setting |
| **X64** | Long bowl |

· Option/Semi-standard: Select one each for **a** to **h**.
· Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AW30K-03BE-2N-D-X406

| | | | Symbol | Description | 0.4 MPa Setting ❶ Body size 20 | 30 | 40 | 60 | Long Bowl ❶ Body size 20 | 30 | 40 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ❷ | With backflow function | | **Nil** | Without backflow function | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **K**∗1 | With backflow function | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | + | | | | | | | | | |
| ❸ | Pipe thread type | | **Nil** | Rc | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **N** | NPT | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **F** | G | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | + | | | | | | | | | |
| ❹ | Port size | | **01** | 1/8 | ● | — | — | — | ● | — | — | — |
| | | | **02** | 1/4 | ● | ● | ● | — | ● | ● | ● | — |
| | | | **03** | 3/8 | — | ● | ● | — | — | ● | ● | — |
| | | | **04** | 1/2 | — | — | ● | — | — | — | ● | — |
| | | | **06** | 3/4 | — | — | ● | ● | — | — | ● | ● |
| | | | **10** | 1 | — | — | — | ● | — | — | — | ● |
| | | | + | | | | | | | | | |
| ❺ | Option∗2 | **a** Mounting | **Nil** | Without mounting option | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **B**∗3 | With bracket | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **H** | With set nut (for panel mount) | ● | ● | ● | — | ● | ● | ● | — |
| | | | + | | | | | | | | | |
| | | **b** Float type auto drain∗4 | **Nil** | Without auto drain | ● | ● | ● | ● | — | — | — | — |
| | | | **C**∗5 | Float type auto drain (N.C.): Drain port is closed when pressure is not applied. | ● | ● | ● | ● | — | — | — | — |
| | | | **D**∗6 | Float type auto drain (N.O.): Drain port is open when pressure is not applied. | — | ● | ● | ● | — | — | — | — |
| | | | + | | | | | | | | | |
| | | **c** Pressure gauge∗7 | **Nil** | Without pressure gauge | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **E** | Square embedded type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **G** | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **M** | Round type pressure gauge (with color zone) | ● | ● | ● | ● | ● | ● | ● | ● |
| | | **c** Digital pressure switch∗8 | **E1** | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **E2** | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **E3** | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | **E4** | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● | ● | ● | ● |

∗1 Set the inlet pressure to at least 0.05 MPa higher than the set pressure.
∗2 Options B, G, H, and M are not assembled and supplied loose at the time of shipment.
∗3 The assembly consists of a bracket and set nuts (applicable to the AW20(K)-D to AW40(K)-D). The AR60(K)-D assembly includes 2 types of brackets and 2 mounting screws.
∗4 The auto drain port is ø10 One-touch fitting (❸ Pipe thread type: Rc, G) or ø3/8" One-touch fitting (❸ Pipe thread type: NPT)
∗5 When pressure is not applied, condensate which does not start the auto drain mechanism will be left in the bowl. Releasing the residual condensate before ending operations for the day is recommended.
∗6 If the compressor is small (0.75 kW, discharge flow is less than 100 L/min (ANR)), air leakage from the drain cock may occur during the start of operations. N.C. type is recommended.
∗7 When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.85 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type. 0.7 MPa pressure gauge for 0.4 MPa type (-X406).
∗8 When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, select "wiring bottom entry" for the electrical entry.



SMC

| | | | Symbol | Description | 0.4 MPa Setting ❶ Body size 20 | 30 | 40 | 60 | Long Bowl ❶ Body size 20 | 30 | 40 | 60 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ❻ | Semi-standard | d | Set pressure∗9 | **Nil** | 0.05 to 0.85 MPa setting | — | — | — | — | ● | ● | ● | ● |
| | | | | **1** | 0.02 to 0.2 MPa setting | — | — | — | — | ● | ● | ● | ● |
| | | + | | | | | | | | | | | |
| | | e | Bowl∗10 | **Nil** | Polycarbonate bowl | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **2** | Metal bowl | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **6** | Nylon bowl | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **8** | Metal bowl with level gauge | — | ● | ● | ● | — | — | — | — |
| | | | | **C** | With bowl guard | ● | —∗11 | —∗11 | —∗11 | ● | —∗11 | —∗11 | —∗11 |
| | | | | **6C** | With bowl guard (Nylon bowl) | ● | —∗12 | —∗12 | —∗12 | ● | —∗12 | —∗12 | —∗12 |
| | | + | | | | | | | | | | | |
| | | f | Drain port∗13 | **Nil** | With drain cock | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **J**∗14 | Drain guide 1/8 | ● | — | — | — | ● | — | — | — |
| | | | | | Drain guide 1/4 | — | ● | ● | ● | — | ● | ● | ● |
| | | | | **W**∗15 | Drain cock with barb fitting | — | ● | ● | ● | — | ● | ● | ● |
| | | + | | | | | | | | | | | |
| | | g | Exhaust mechanism | **Nil** | Relieving type | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **N** | Non-relieving type | ● | ● | ● | ● | ● | ● | ● | ● |
| | | + | | | | | | | | | | | |
| | | h | Flow direction | **Nil** | Flow direction: Left to right | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **R** | Flow direction: Right to left | ● | ● | ● | ● | ● | ● | ● | ● |
| | | + | | | | | | | | | | | |
| | | i | Unit | **Nil** | Unit on product label: MPa, °C, Pressure gauge in SI units: MPa | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | **Z**∗16 | Unit on product label: psi, °F, Pressure gauge: MPa/psi dual scale | ○∗18 | ○∗18 | ○∗18 | ○∗18 | ○∗18 | ○∗18 | ○∗18 | ○∗18 |
| | | | | **ZA**∗17 | Digital pressure switch: With unit selection function | △∗19 | △∗19 | △∗19 | △∗19 | △∗19 | △∗19 | △∗19 | △∗19 |

∗9 Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.
∗10 Refer to chemical data on page 109 for chemical resistance of the bowl.
∗11 A bowl guard is provided as standard equipment (polycarbonate).
∗12 A bowl guard is provided as standard equipment (nylon).
∗13 The combination of float type auto drain C and D is not available.
∗14 Without a valve function. The mounting screws are the same as the thread of ❸.
∗15 The combination of metal bowl 2 and 8 is not available.
∗16 For the pipe thread type: NPT
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.) Cannot be used with M: Round type pressure gauge (with color zone). Available by request for special. The digital pressure switch will be equipped with the unit selection function, setting to psi initially.
∗17 For options: E1, E2, E3, E4
This product is for overseas use only according to the New Measurement Act. (The SI unit type is provided for use in Japan.)
∗18 ○: For the pipe thread type: NPT only
∗19 △: Select with options: E1, E2, E3, E4.

# *AW(K)-D Series*
# Specific Product Precautions

**Be sure to read this before handling the products. Refer to the back cover for safety instructions. For F.R.L. units precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com**

## Design / Selection

### ⚠ Warning

**1.** Residual pressure disposal (outlet pressure removal) is not possible for the AW20-D to AW60-D even though the inlet pressure is exhausted. When the residual pressure disposal is performed, use the filter regulator with backflow function (AW20K-D to AW60K-D).

**2. The bowl material of the standard filter regulator is polycarbonate. Do not use in an environment where they are exposed to or come in contact with organic solvents, chemicals, cutting oil, synthetic oil, alkali, and thread lock solutions.**

**Chemical resistance of polycarbonate or nylon bowl**

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

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

When the above factors are present, or there is some doubt, use a metal bowl for safety.

### ⚠ Caution

**1.** When operating at an inlet pressure lower than the inlet pressure used in the flow rate characteristics graph, the pressure drop on the outlet side may be greater. Therefore, be sure to conduct testing using the actual equipment.

For pressure control equipment selection, refer to page 123 in the "Product Selection Guide."

## 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.

## Mounting / Adjustment

### ⚠ Warning

**1.** Set the filter regulator while verifying the displayed values of the inlet and outlet pressure gauges. Turning the regulator knob excessively can cause damage to the internal parts.

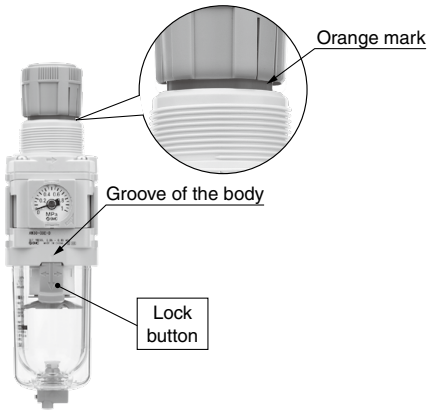
**2.** Do not use tools on the pressure regulator knob as this may cause damage. It must be operated manually.

### ⚠ Caution

**1.** Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure.

Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.

- Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)
- Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).




**2.** When the bowl is installed on the AW30-D to AW60-D, install them so that the lock button lines up to the groove of the front (or the back) of the body to avoid drop or damage of the bowl.

## Piping

### ⚠ Warning

**1.** To screw the pressure gauge and piping materials into the pressure gauge port on the product, tighten to the recommended torque (3 to 5 N·m) while securely holding the AW(K)-D in place. Additionally, when mounting a One-touch fitting to the pressure gauge port, refer to the Fittings and Tubing Precautions.

# International Standard ISO 8573-1:2010
## Compressed Air Purity Classes

**Compressed air is used in a variety of manufacturing processes. In this age, compressed air with a high degree of purity is becoming increasingly necessary.**
**For this reason, it is necessary to remove contaminants from systems which supply compressed air and to secure the quality. The standard which stipulates the class according to the quantities of contaminants in compressed air is ISO 8573-1.**

### [Outline]
Stipulates the purity class of contaminants (particles, water, oil) mixed in with the compressed air

### [Scope]
Can be used in various places in compressed air systems

### [Terms and Definitions]
- Purity class: An index assigned for each classification obtained by dividing the concentration of each contaminant into ranges
- Particle: Small discrete mass of solid or liquid matter
- Humidity and liquid water: Water vapor (gas), Water droplets
- Oil: Liquid oil, Oil mist, Vapor

### [Purity Classes]

| Class | Particles | | | | Humidity and liquid water | | Oil |
|---|---|---|---|---|---|---|---|
| | Maximum number of particles per cubic meter as a function of particle size d [μm] | | | Mass concentration Cp | Pressure dew point | Concentration of liquid water Cw | Concentration of total oil |
| | 0.1 < d ≤ 0.5 | 0.5 < d ≤ 1.0 | 1.0 < d ≤ 5.0 | [mg/m3] | [°C] | [g/m3] | [mg/m3] |
| 0 | As specified by the equipment user or supplier and more stringent than class 1 | | | | | | |
| 1 | ≤ 20000 | ≤ 400 | ≤ 10 | — | ≤ –70 | — | ≤ 0.01 |
| 2 | ≤ 400000 | ≤ 6000 | ≤ 100 | — | ≤ –40 | — | ≤ 0.1 |
| 3 | — | ≤ 90000 | ≤ 1000 | — | ≤ –20 | — | ≤ 1 |
| 4 | — | — | ≤ 10000 | — | ≤ +3 | — | ≤ 5 |
| 5 | — | — | ≤ 100000 | — | ≤ +7 | — | — |
| 6 | — | — | — | 0 < Cp ≤ 5 | ≤ +10 | — | — |
| 7 | — | — | — | 5 < Cp ≤ 10 | — | Cw ≤ 0.5 | — |
| 8 | — | — | — | — | — | 0.5 < Cw ≤ 5 | — |
| 9 | — | — | — | — | — | 5 < Cw ≤ 10 | — |
| x | — | — | — | Cp > 10 | — | Cw > 10 | > 5 |

### [How to Perform a Test to Check the Performance]
ISO 12500, which sets out the test method to be used in order to check the filter performance for each of the three kinds of contaminants, is indicated below.
- Particle: ISO 12500-3:2009
- Liquid water: ISO 12500-4:2009
- Oil: ISO 12500-1:2007

* Measured using a dedicated evaluation system which has been certified according to ISO 12500-□ and also by a third party (Certified)

### [Purity Class Designation Example]

**ISO 8573-1:2010 [ 4 : 6 : 2 ]**

**Oil class**

| | |
|---|---|
| **2** | Concentration of total oil ≤ 0.1 mg/m3 |

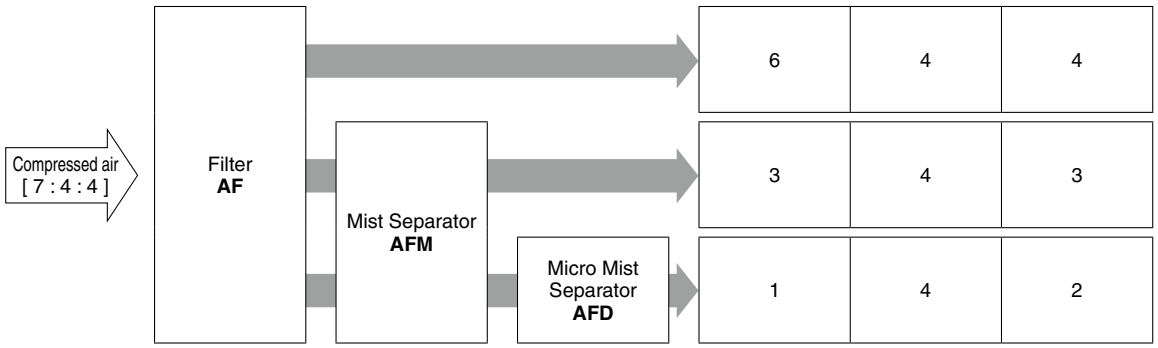
**Particle class**

| | |
|---|---|
| **4** | 1.0 μm < d ≤ Particles of 5.0 μm ≤ 10000 particles/m3 |

**Humidity and liquid water class**

| | |
|---|---|
| **6** | Pressure dew point ≤ +10°C |

Air quality of the compressed air obtained for the system




| Purity class as a system | | |
|---|---|---|
| Particles | Liquid water | Oil |
| 6 | 4 | 4 |
| 3 | 4 | 3 |
| 1 | 4 | 2 |

The class indicates the compressed air purity according to ISO 8573-1:2010 (JIS B 8392-1:2012) and indicates the maximum purity class which can be obtained using that system. Note, however, that this value will differ according to the inlet air conditions.

# ⚠ 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.

**Revision History**

Edition B
* Attachments have been added.
* Number of pages has been increased from 72 to 104.

YV

Edition C
* Sizes 40-06, 50, and 60 have been added to the AC series.
* Sizes 40-06, 50, and 60 have been added to the AF, AR(K), and AL.
* The VHS40-06 and 50 have been added.
* Size 40-06 has been added to the AFM/AFD.
* Sizes 40-06 and 60 have been added to the AW(K).
* Made to order options have been added.
* Number of pages has been increased from 104 to 112.

ZQ