

Modular F.R.L. Units

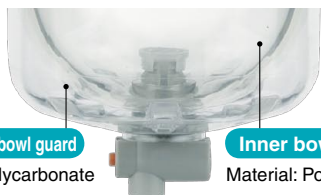
RoHS

Better visibility & environmental resistance

Double layer design

The bowl is covered with a transparent bowl guard!

- The inside is visible from 360°.
- The bowl is completely protected from the environment. Safety improved



Transparent bowl guard
Material: Polycarbonate

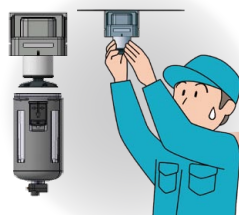
Inner bowl
Material: Polycarbonate
* Body size: 30 or more

Easy replacement of the element

The element and the bowl are in one piece. Replacement can be done in hand.

Replacement in hand!

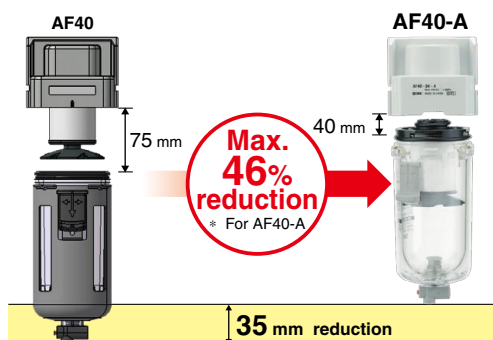
Previous model



New

* AF-A only
(Except AF10-A, AF50-A, AF60-A)

Reduced required maintenance space



Selection of pressure gauges



Square embedded type pressure gauge



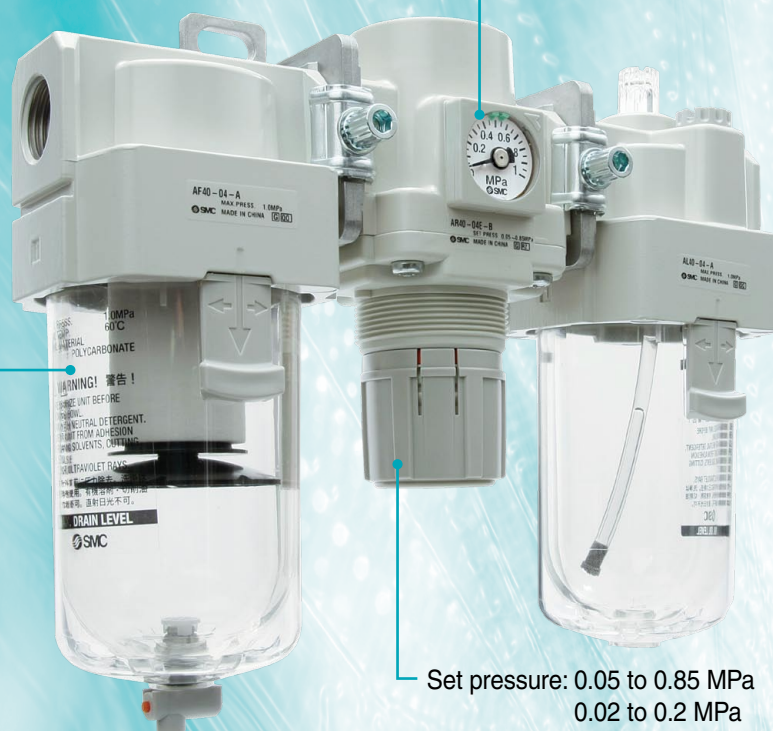
Round type pressure gauge



Digital pressure switch

Interchangeability

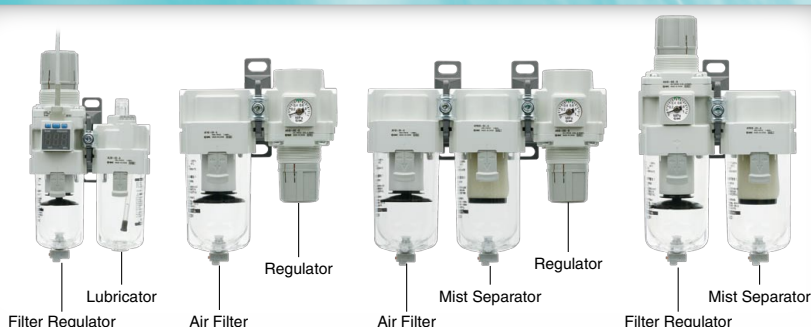
Interchangeable with the previous AR series by panel mounting



AR-K regulator with backflow function added.

New Made to order added.

- Long bowl (-X64)
- 0.4 MPa setting (-X406)
- With element service indicator (-X2141)
- High pressure (-X425)
- Low temperature (-X430)
- High temperature (-X440)
- Clean series (10-)
- Copper, fluorine and silicone-free + Low particle generation (21-)



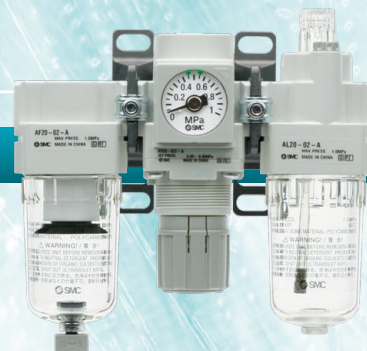
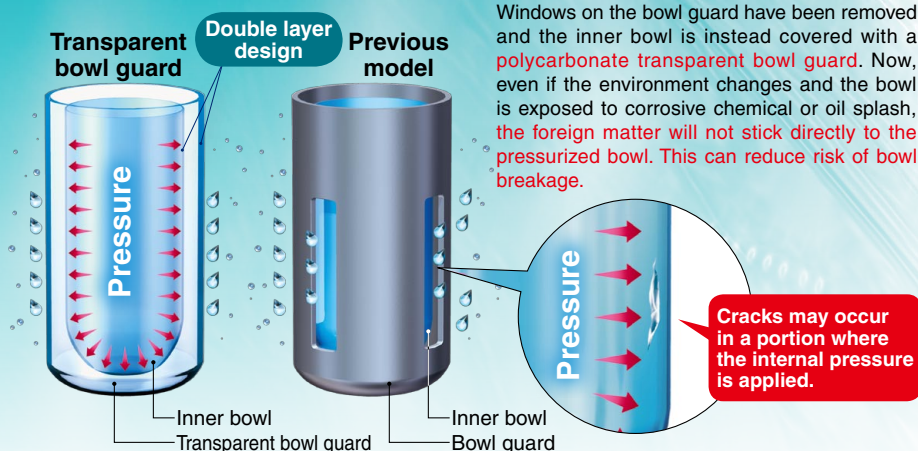
AC Series



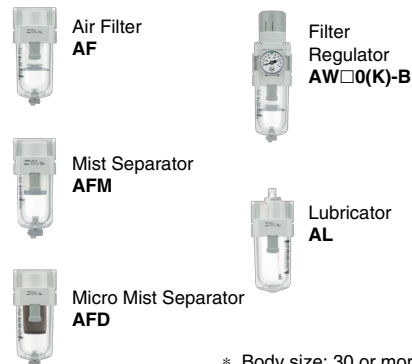
CAT.ES40-60B

► Transparent bowl guard

Better environmental resistance:
Transparent bowl guard can protect the inner bowl!



Applicable model



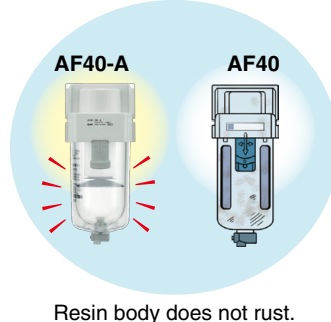
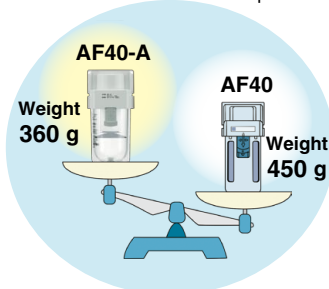
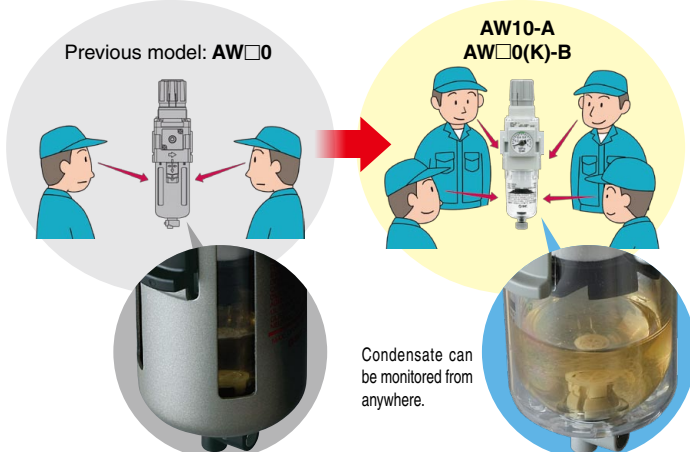
Better visibility: 360°

Use of transparent bowl guard makes it possible to check the condensate inside the filter bowl and the remaining oil amount in the lubricator from the entire periphery.

Light weight: Max. 90 g reduction

* Except AW

Metal related corrosion does not occur.

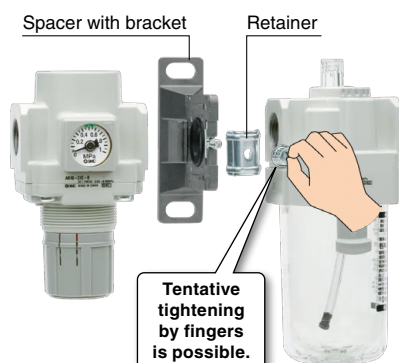


New Spacer

Modular connection

Step ①

- Mount the product by lining up the mating surface of the new spacer with bracket.
- Insert the retainer into the spacer bolt and tighten the nut. (temporary assembling)

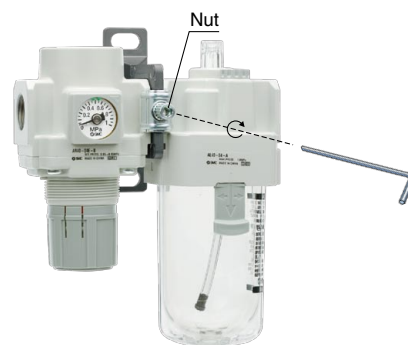


Step ②

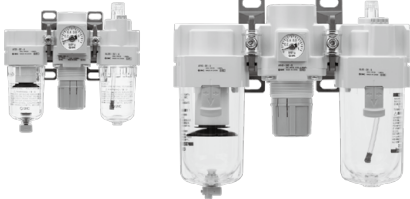
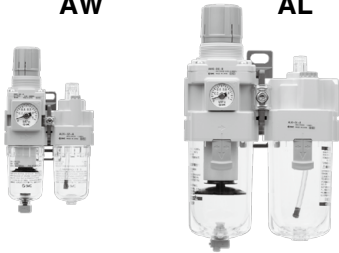

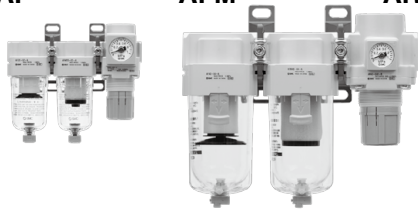
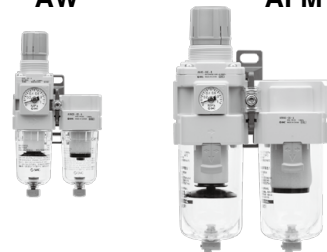
- Tighten the nut with the hexagon wrench.

Interchangeable with previous model

- New spacer can be connected to the previous AF, AR, AL, AW series.
- Previous spacer can be connected to the new AF□-A, AR□(K)-B, AL□-A, AW□(K)-B series.



Series Configuration

| Product | Model | Port size | | | | | | | INDEX |
|---|------------|-----------|-----|-----|-----|-----|-----|---|-------|
| | | M5 | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 | |
| Air Filter + Regulator + Lubricator AF AR AL  | AC10-A | ● | | | | | | | P.7 |
| | AC20-B | | ● | ● | | | | | |
| | AC25-B | | | ● | ● | | | | |
| | AC30-B | | | ● | ● | | | | |
| | AC40-B | | | ● | ● | ● | | | |
| | AC40-06-B | | | | | | ● | | |
| | AC50-B | | | | | | ● | ● | |
| | AC55-B | | | | | | | ● | |
| | AC60-B | | | | | | | ● | |
| Filter Regulator + Lubricator AW AL  | AC10A-A | ● | | | | | | | P.15 |
| | AC20A-B | | ● | ● | | | | | |
| | AC30A-B | | | ● | ● | | | | |
| | AC40A-B | | | ● | ● | ● | | | |
| | AC40A-06-B | | | | | | ● | | |
| | AC50A-B | | | | | | ● | ● | |
| | AC60A-B | | | | | | | ● | |
| Air Filter + Regulator AF AR  | AC10B-A | ● | | | | | | | P.21 |
| | AC20B-B | | ● | ● | | | | | |
| | AC25B-B | | | ● | ● | | | | |
| | AC30B-B | | | ● | ● | | | | |
| | AC40B-B | | | ● | ● | ● | | | |
| | AC40B-06-B | | | | | | ● | | |
| | AC50B-B | | | | | | ● | ● | |
| | AC55B-B | | | | | | | ● | |
| | AC60B-B | | | | | | | ● | |
| Air Filter + Mist Separator + Regulator AF AFM AR  | AC20C-B | | ● | ● | | | | | P.27 |
| | AC25C-B | | | ● | ● | | | | |
| | AC30C-B | | | ● | ● | | | | |
| | AC40C-B | | | ● | ● | ● | | | |
| | AC40C-06-B | | | | | | ● | | |
| Filter Regulator + Mist Separator AW AFM  | AC20D-B | | ● | ● | | | | | P.31 |
| | AC30D-B | | | ● | ● | | | | |
| | AC40D-B | | | ● | ● | ● | | | |
| | AC40D-06-B | | | | | | ● | | |

Air Combination

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF




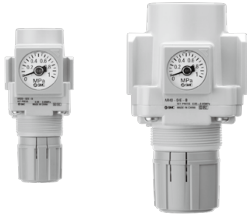

AFM / AFD







AR

AL

AW

Series Configuration

| | Product | Model | Port size | | | | | | | INDEX |
|----------------------------------|--|------------|-----------|-----|-----|-----|-----|-----|---|-------|
| | | | M5 | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 | |
| Air Filter | AF  | AF10-A | ● | | | | | | | P.43 |
| | | AF20-A | | ● | ● | | | | | |
| | | AF30-A | | | ● | ● | | | | |
| | | AF40-A | | | ● | ● | ● | | | |
| | | AF40-06-A | | | | | | ● | | |
| | | AF50-A | | | | | | ● | ● | |
| | | AF60-A | | | | | | | ● | |
| Mist Separator | AFM  | AFM20-A | | ● | ● | | | | | P.55 |
| | | AFM30-A | | | ● | ● | | | | |
| | | AFM40-A | | | ● | ● | ● | | | |
| | | AFM40-06-A | | | | | | ● | | |
| Micro Mist Separator | AFD  | AFD20-A | | ● | ● | | | | | P.55 |
| | | AFD30-A | | | ● | ● | | | | |
| | | AFD40-A | | | ● | ● | ● | | | |
| | | AFD40-06-A | | | | | | ● | | |
| Regulator | AR  | AR10-A | ● | | | | | | | P.64 |
| | | AR20-B | | ● | ● | | | | | |
| | | AR25-B | | | ● | ● | | | | |
| | | AR30-B | | | ● | ● | | | | |
| | | AR40-B | | | ● | ● | ● | | | |
| | | AR40-06-B | | | | | | ● | | |
| | | AR50-B | | | | | | ● | ● | |
| | | AR60-B | | | | | | | ● | |
| Regulator with Backflow Function | AR□K  | AR20K-B | | ● | ● | | | | | P.67 |
| | | AR25K-B | | | ● | ● | | | | |
| | | AR30K-B | | | ● | ● | | | | |
| | | AR40K-B | | | ● | ● | ● | | | |
| | | AR40K-06-B | | | | | | ● | | |
| | | AR50K-B | | | | | | ● | ● | |
| | | AR60K-B | | | | | | | ● | |

| Product | Model | Port size | | | | | | | INDEX |
|---|-------------|-----------|-----|-----|-----|-----|-----|---|-------|
| | | M5 | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 | |
| Lubricator   | AL | | | | | | | | P.82 |
| | AL10-A | ● | | | | | | | |
| | AL20-A | | ● | ● | | | | | |
| | AL30-A | | | ● | ● | | | | |
| | AL40-A | | | ● | ● | ● | | | |
| | AL40-06-A | | | | | | ● | | |
| | AL50-A | | | | | | ● | ● | |
| | AL60-A | | | | | | | ● | |
| Filter Regulator   | AW | | | | | | | | P.92 |
| | AW10-A | ● | | | | | | | |
| | AW20-B | | ● | ● | | | | | |
| | AW30-B | | | ● | ● | | | | |
| | AW40-B | | | ● | ● | ● | | | |
| | AW40-06-B | | | | | | ● | | |
| | AW60-B | | | | | | ● | ● | |
| Filter Regulator with Backflow Function   | AW□K | | | | | | | | P.95 |
| | AW20K-B | | ● | ● | | | | | |
| | AW30K-B | | | ● | ● | | | | |
| | AW40K-B | | | ● | ● | ● | | | |
| | AW40K-06-B | | | | | | ● | | |
| | AW60K-B | | | | | | ● | ● | |

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, such as additional machining, accessory assembly, or modular unit, and deliver such special products as quickly as standard products.

Repeat orders

Once we receive a Simple Special part number from your previous order, we will process the order, manufacture the product, and deliver it to you.

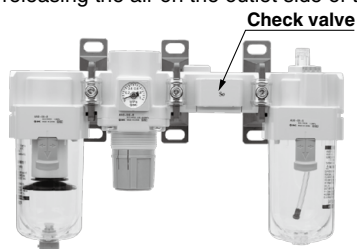
Please contact your local sales representative for more details.

Attachment List

Check valve

Page 34

■ A check valve with intermediate branch port can be easily installed to prevent a backflow of lubricant when branching the air flow and releasing the air on the outlet side of the regulator.



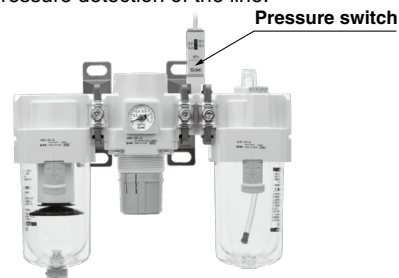
Applicable series

- Air Filter + Regulator + Lubricator (AC20 to AC40-B)
- Filter Regulator + Lubricator (AC20A to AC40A-B)
- * Port size: Except 06

Pressure switch

Page 35

■ A compact integrated pressure switch can be easily installed and facilitates the pressure detection of the line.



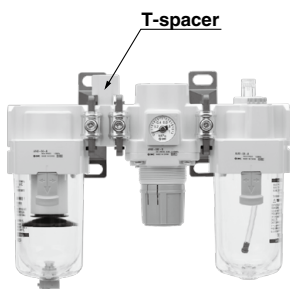
Applicable series

- Air Filter + Regulator + Lubricator (AC20-B to AC60-B)
- Filter Regulator + Lubricator (AC20A-B to AC60A-B)
- Air Filter + Regulator (AC20B-B to AC60B-B)
- Air Filter + Mist Separator + Regulator (AC20C-B to AC60C-B)
- Filter Regulator + Mist Separator (AC20D-B to AC60D-B)

T-spacer

Page 35

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



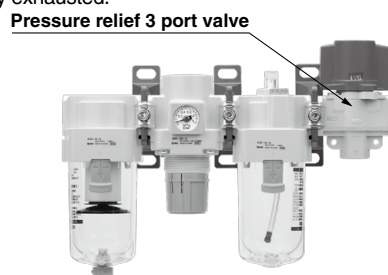
Applicable series

- Air Filter + Regulator + Lubricator (AC10-A to AC60-B)
- Air Filter + Regulator (AC10B-A to AC60B-B)
- Air Filter + Mist Separator + Regulator (AC20C-B to AC40C-B)

Pressure relief 3 port valve

Page 36

■ With the use of a pressure relief 3 port valve, pressure left in the line can be easily exhausted.



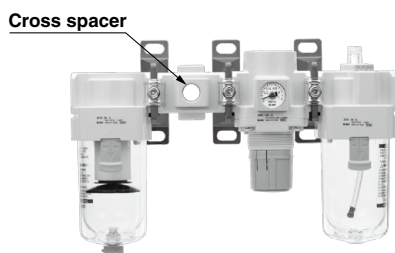
Applicable series

- Air Filter + Regulator + Lubricator (AC20-B to AC50-B)
- Filter Regulator + Lubricator (AC20A-B to AC50A-B)
- Air Filter + Regulator (AC20B-B to AC50B-B)
- Air Filter + Mist Separator + Regulator (AC20C-B to AC40C-B)
- Filter Regulator + Mist Separator (AC20D-B to AC40D-B)

Cross spacer

Page 36

■ Pippings are possible in all 4 directions.

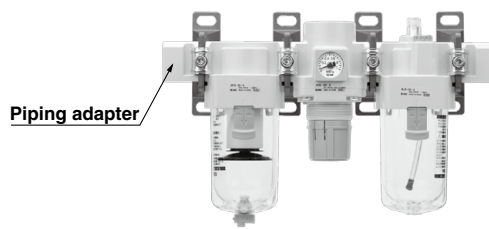


* Needs to be ordered separately.

Piping adapter

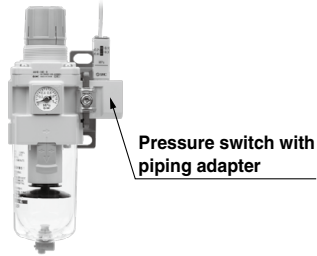
Page 37

■ A piping adapter allows installation/removal of the component without removing the piping and thus makes maintenance easier.



* Needs to be ordered separately.

Pressure switch with piping adapter Page 37



Pressure switch with piping adapter

* Needs to be ordered separately.

Accessories (Spacer/Spacer with bracket) Page 38

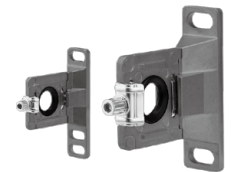
Spacer with bracket



Spacer



Spacer with bracket



* Needs to be ordered separately.

Made-to-Order List

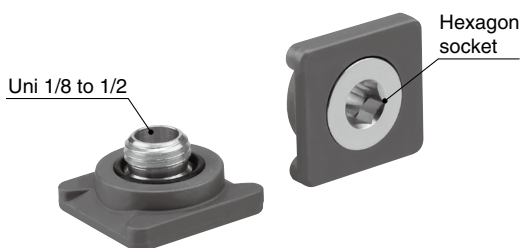
| | Air Filter AF Series | Mist Separator/ Micro Mist Separator AFM/AFD Series | Regulator AR Series | Regulator with Backflow Function AR□K Series | Filter Regulator AW Series | Filter Regulator with Backflow Function AW□K Series |
|---|-------------------------|---|------------------------|--|----------------------------------|--|
| Long bowl (-X64) | ● P.51 | ● P.61 | | | ● From P.108 | ● From P.109 |
| 0.4 MPa setting (-X406) | | | ● From P.78 | ● P.79 | ● From P.108 | ● From P.109 |
| With element service indicator (-X2141) | ● P.52 | ● P.62 | | | | |
| High pressure 2.0 MPa (-X425) | ● P.53 | | ● P.77 | | ● P.107 | |
| Low temperature -30 to 60°C (-X430) | ● P.53 | | ● P.77 | | ● P.106 | |
| High temperature -5 to 80°C (-X440) | ● P.53 | | ● P.77 | | ● P.106 | |
| Clean series (10-) | ● P.54 | ● P.63 | ● P.80 | ● P.80 | ● P.111 | ● P.111 |
| Copper, fluorine and silicone-free + Low particle generation (21-) | ● P.54 | ● P.63 | ● P.80 | ● P.80 | ● P.111 | ● P.111 |

Related Product

Modular adapter

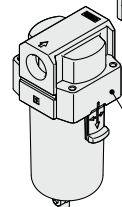
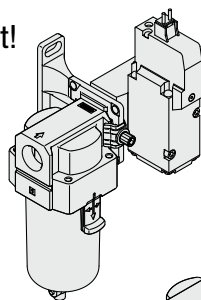
Easy modular connections for all equipment!

Example) Air filter + 3 port valve



Uni 1/8 to 1/2

Hexagon socket




Modular adapter (E310-U02)
Spacer with bracket (Y300T-A)

3 port valve

Air filter (AF30-A)

Modular Type Regulator *AR Series*

|  | Model | Port size | Set pressure | Options |
|--|--------------|---------------|-------------------------------------|--|
| | AR10-A | M5 x 0.8 | 0.05 to 0.7 MPa 0.02 to 0.2 MPa | Bracket Round type pressure gauge Set nut (for panel mount) *1 |
| | AR20(K)-B | 1/8, 1/4 | 0.05 to 0.85 MPa 0.02 to 0.2 MPa | Bracket |
| | AR25(K)-B | 1/4, 3/8 | | Set nut (for panel mount) *1 |
| | AR30(K)-B | | | Square embedded type pressure gauge |
| | AR40(K)-B | 1/4, 3/8, 1/2 | | Digital pressure switch |
| | AR40(K)-06-B | 3/4 | | Round type pressure gauge |
| | AR50(K)-B | 3/4, 1 | | Bracket Square embedded type pressure gauge |
| | AR60(K)-B | 1 | | Digital pressure switch Round type pressure gauge |

Pages 65 to 80

Pages 65 to 80

*1 Interchangeable with the previous AR series and panel mounting dimensions.

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

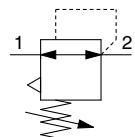
AR

AL

AW

Regulator AR10-A

Symbol
Regulator



AR10-A

How to Order

Refer to page 67 for size 20 to 60.

AR10-M5 - -A

- 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) AR10-M5BG-1NR-A

| | | Symbol | Description | | |
|-----|--|--------|-------------------|-----|---|
| ① | Option *1 | a | Mounting | Nil | Without mounting option |
| | | | | B*2 | With bracket |
| | | | | H | With set nut (for panel mount) |
| | | + | | | |
| | | b | Pressure gauge | Nil | Without pressure gauge |
| | | | | G*3 | Round type pressure gauge (without limit indicator) |
| + | | | | | |
| ② | Semi-standard | c | Set pressure *4 | Nil | 0.05 to 0.7 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 | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa |
| Z*5 | Name plate and pressure gauge in imperial units: psi | | | | |

*1 Options are not assembled and supplied loose at the time of shipment.

*2 Assembly of a bracket and set nuts

*3 A 1.0 MPa pressure gauge will be fitted. It is not assembled and supplied loose at the time of shipment.

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

*5 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

| | |
|--|-------------------------------|
| Port size | M5 x 0.8 |
| Pressure gauge port size ^{*1} | 1/16 |
| Fluid | Air |
| Ambient and fluid temperature | -5 to 60°C (with no freezing) |
| Proof pressure | 1.5 MPa |
| Maximum operating pressure | 1.0 MPa |
| Set pressure range | 0.05 to 0.7 MPa |
| Construction | Relieving type |
| Weight [kg] | 0.06 |

*1 Use a bushing (part no.: 131368) when connecting the R1/8 pressure gauge to the Rc1/16.

Options/Part No.

| | |
|---|-------------|
| Bracket assembly ^{*1} | AR12P-270AS |
| Set nut | AR12P-260S |
| Round type pressure gauge ^{*2} | G27-10-R1 |

*1 Assembly of a bracket and set nuts

*2 1.0 MPa pressure gauge

⚠ 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", <http://www.smcworld.com>

Selection**⚠ Warning**

- Although exhaust of the residual pressure to the inlet side is possible when eliminating the inlet pressure, exhaust is not possible when the set pressure is 0.15 MPa or less.

Maintenance**⚠ Warning**

- When using the regulator 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**

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

⚠ Caution

- 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).
- Pulsation will be generated when the difference between the inlet and the outlet pressure is large. In this case, reduce the pressure difference between the inlet and the outlet. Please consult with SMC if the pulsation problem is not resolved.

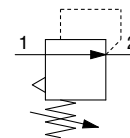
Regulator

AR20-B to AR60-B

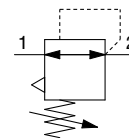
Regulator with Backflow Function

AR20K-B to AR60K-B

Symbol
Regulator



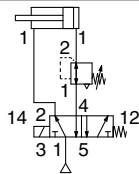
Regulator with
Backflow Function



- With the backflow function, it incorporates a mechanism to exhaust the air pressure in the outlet side reliably and quickly.

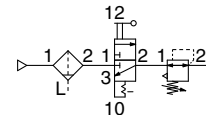
Example 1)

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

Refer to page 65 for size 10.

AR **30** **K** - **03** **BE** - **B** -

1 2 3 4 5 6

- 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-B

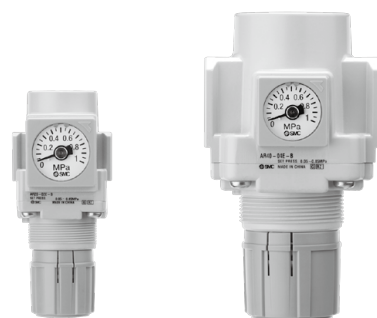
• Made to order

(Refer to pages 77 to 79 for details.)

| | | Symbol | Description | ① | | | | | | |
|---|------------------------|---------------------------|---------------------------|--|----|----|----|----|----|---|
| | | | | Body size | | | | | | |
| | | | | 20 | 25 | 30 | 40 | 50 | 60 | |
| ② | With backflow function | Nil | Without backflow function | ● | ● | ● | ● | ● | ● | |
| | | K*1 | With backflow function | ● | ● | ● | ● | ● | ● | |
| + | | | | | | | | | | |
| ③ | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● | ● | |
| | | N | NPT | ● | ● | ● | ● | ● | ● | |
| | | F | G | ● | ● | ● | ● | ● | ● | |
| + | | | | | | | | | | |
| ④ | Port size | 01 | 1/8 | ● | — | — | — | — | — | |
| | | 02 | 1/4 | ● | ● | ● | ● | — | — | |
| | | 03 | 3/8 | — | ● | ● | ● | — | — | |
| | | 04 | 1/2 | — | — | — | ● | — | — | |
| | | 06 | 3/4 | — | — | — | ● | ● | — | |
| | | 10 | 1 | — | — | — | — | ● | ● | |
| + | | | | | | | | | | |
| ⑤ | 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) | ● | ● | ● | ● | ● | ● |
| | | 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 | ● | ● | ● | ● | ● | ● |

Regulator **AR20-B to AR60-B Series**

Regulator with Backflow Function **AR20K-B to AR60K-B Series**



AR20-B, AR20K-B AR40-B, AR40K-B

| | | Symbol | Description | ① | | | | | | | | |
|---|---------------|--------|-------------------|-----------|---|------|------|------|------|------|------|--|
| | | | | Body size | | | | | | | | |
| | | | | 20 | 25 | 30 | 40 | 50 | 60 | | | |
| ⑥ | 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 | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa | ● | ● | ● | ● | ● | ● | |
| | | | | Z*7 | Name plate and pressure gauge in imperial units: psi | ○*9 | ○*9 | ○*9 | ○*9 | ○*9 | ○*9 | |
| | | | | ZA*8 | Digital pressure switch: With unit selection function | △*10 | △*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, M are not assembled and supplied loose at the time of shipment.
 *3 Assembly of a bracket and set nuts (applicable to the AR20(K)-B to AR40(K)-B). Including 2 mounting screws for the AR50(K)-B and AR60(K)-B.
 *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 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 is provided for use in Japan.)
 *9 ○: For pipe thread type: NPT only
 *10 △: Select with options: E1, E2, E3, E4.

Standard Specifications

| Model | AR20-B | AR25-B | AR30-B | AR40-B | AR40-06-B | AR50-B | AR60-B |
|----------------------------------|-------------------------------|----------|----------|---------------|-----------|--------|--------|
| Port size | 1/8, 1/4 | 1/4, 3/8 | 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 temperature *2 | -5 to 60°C (with no freezing) | | | | | | |
| Proof pressure | 1.5 MPa | | | | | | |
| Maximum operating pressure | 1.0 MPa | | | | | | |
| Set pressure range | 0.05 to 0.85 MPa | | | | | | |
| Construction | Relieving type | | | | | | |
| Weight [kg] | 0.16 | 0.21 | 0.29 | 0.44 | 0.47 | 1.17 | 1.22 |

- *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

AR20-B to AR60-B Series AR20K-B to AR60K-B Series

Options/Part No.

| Option | | | Model | AR20(K)-B | AR25(K)-B | AR30(K)-B | AR40(K)-B | AR40(K)-06-B | AR50(K)-B | AR60(K)-B | |
|----------------------------|------------------------------------|-------------------------|---|-------------|--|-------------|--------------|--------------|-------------|-----------|--|
| Bracket assembly *1 | | | | AR23P-270AS | AR28P-270AS | AR33P-270AS | AR43P-270AS | | AR52P-270AS | | |
| Set nut | | | | AR23P-260S | AR28P-260S | AR33P-260S | AR43P-260S | | — *2 | | |
| Pressure gauge | Round type *3 | Standard | G36-10-□01 | | | | G46-10-□01 | | | | |
| | | 0.02 to 0.2 MPa setting | G36-4-□01 | | | | G46-4-□01 | | | | |
| | Round type *3 (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 *4 embedded type | Standard | GC3-10AS [GC3P-010AS (Pressure gauge cover only)] | | | | | | | | |
| | | 0.02 to 0.2 MPa setting | GC3-4AS [GC3P-010AS (Pressure gauge cover only)] | | | | | | | | |
| Digital pressure switch *5 | | | NPN output, Wiring bottom entry | | ISE35-N-25-MLA [ISE35-N-25-M (Switch body only)] | | | | | | |
| | | | NPN output, Wiring top entry | | ISE35-R-25-MLA [ISE35-R-25-M (Switch body only)] | | | | | | |
| | | | PNP output, Wiring bottom entry | | ISE35-N-65-MLA [ISE35-N-65-M (Switch body only)] | | | | | | |
| | | | PNP output, Wiring top entry | | ISE35-R-65-MLA [ISE35-R-65-M (Switch body only)] | | | | | | |

*1 Assembly of a bracket and set nuts. Including 2 mounting screws for the AR50(K)-B and AR60(K)-B

*2 Please consult with SMC regarding the set nuts for the AR50(K)-B and AR60(K)-B.

*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 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 screw (2 pcs.) are attached.

[]: Switch body only. (Regarding how to order the digital pressure switch, refer to the **Web Catalog**.)

⚠ 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”, <http://www.smcworld.com>

Selection

⚠ Warning

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

Maintenance

⚠ Warning

- 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.

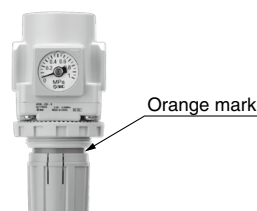
Mounting/Adjustment

⚠ Warning

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

⚠ Caution

- 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).



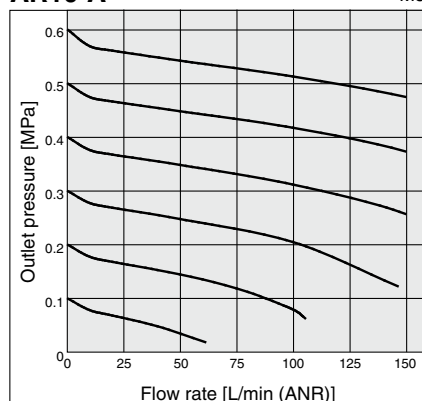
- A knob cover is available to prevent careless operation of the knob. Refer to page 112 for details.

Regulator **AR10-A Series**
 Regulator **AR20-B to AR60-B Series**
 Regulator with Backflow Function **AR20K-B to AR60K-B Series**

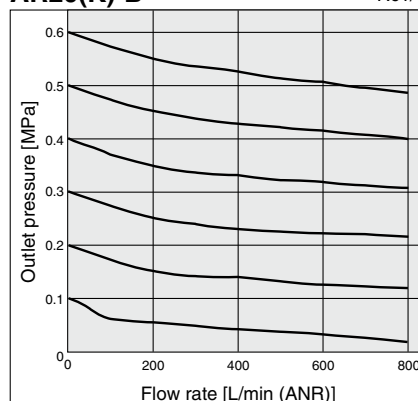
Flow Rate Characteristics (Representative values)

Condition: Inlet pressure of 0.7 MPa

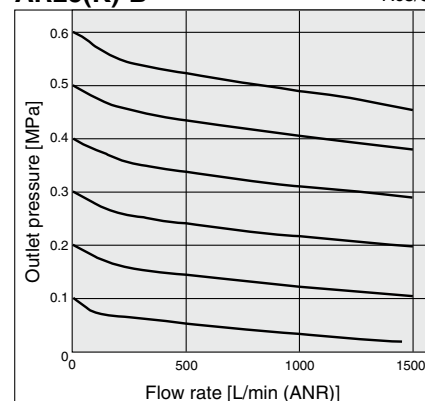
AR10-A M5



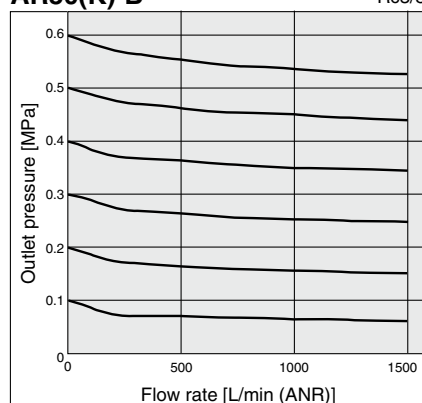
AR20(K)-B Rc1/4



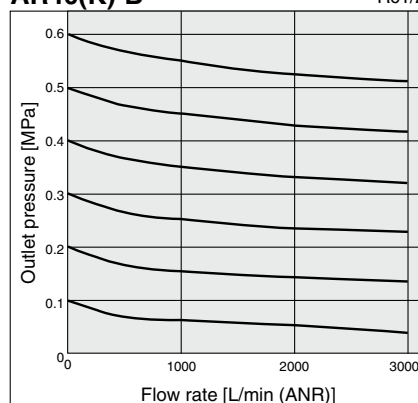
AR25(K)-B Rc3/8



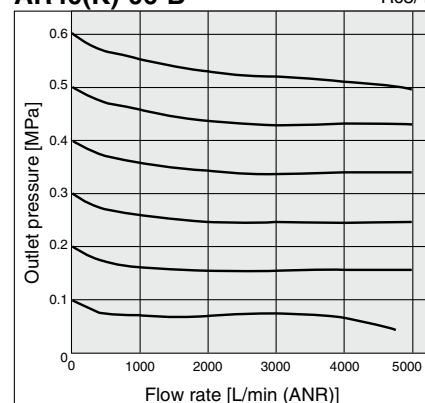
AR30(K)-B Rc3/8



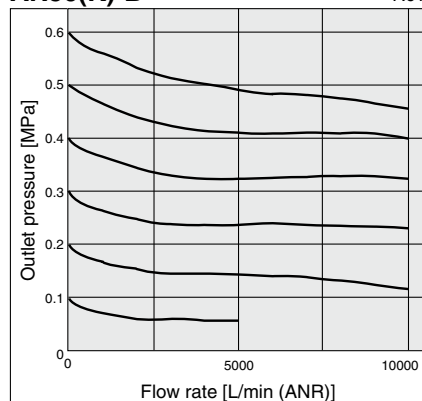
AR40(K)-B Rc1/2



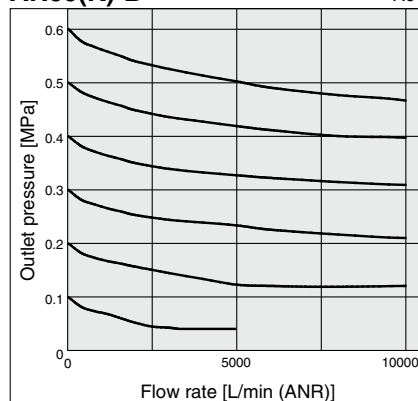
AR40(K)-06-B Rc3/4



AR50(K)-B Rc1



AR60(K)-B Rc1



AC

AF + AR + AL

AW + AL

AF + AR

AF + AFM + AR

AW + AFM

Attachment

AF

AFM / AFD

AR

AL

AW

AR10-A Series

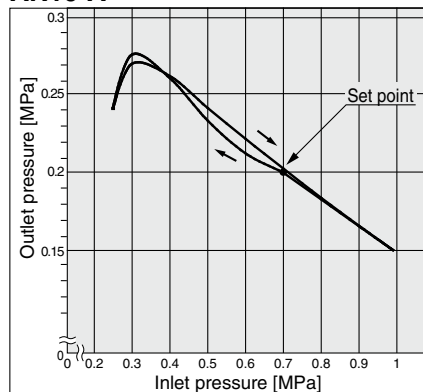
AR20-B to AR60-B Series

AR20K-B to AR60K-B Series

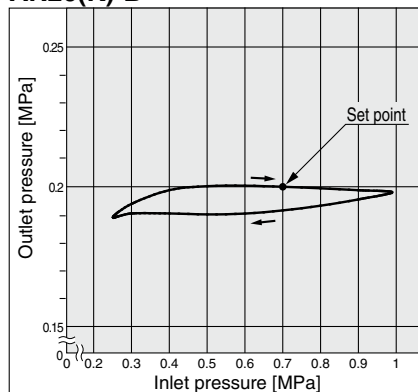
Pressure Characteristics (Representative values)

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

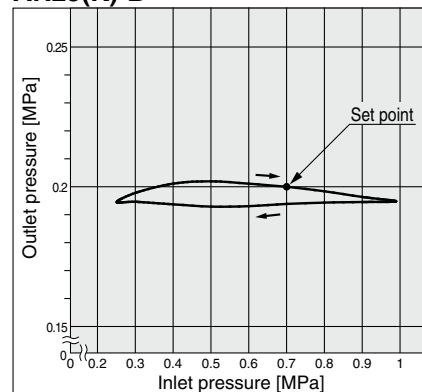
AR10-A



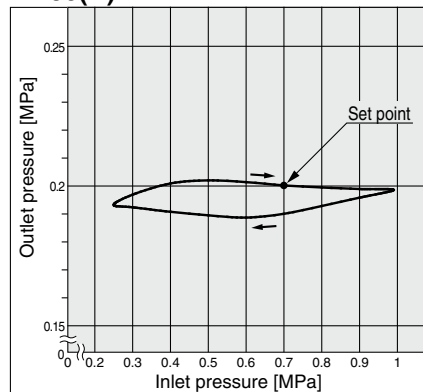
AR20(K)-B



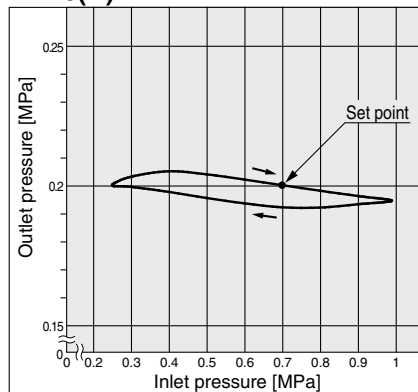
AR25(K)-B



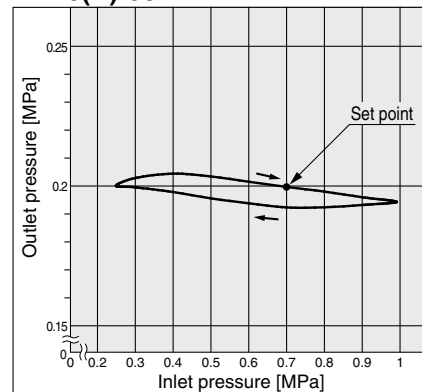
AR30(K)-B



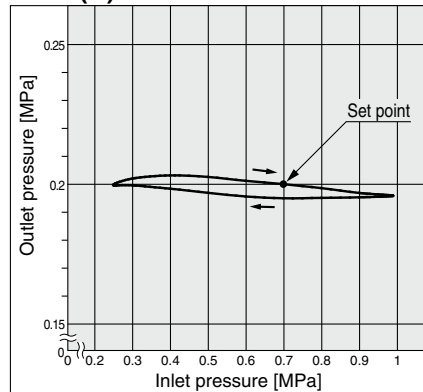
AR40(K)-B



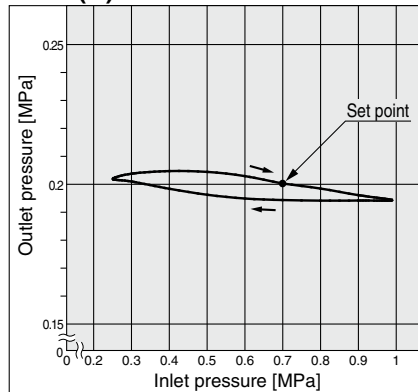
AR40(K)-06-B



AR50(K)-B



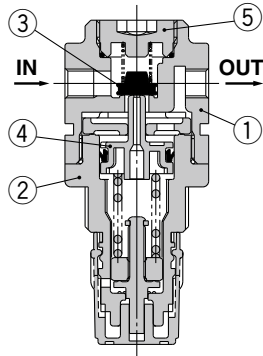
AR60(K)-B



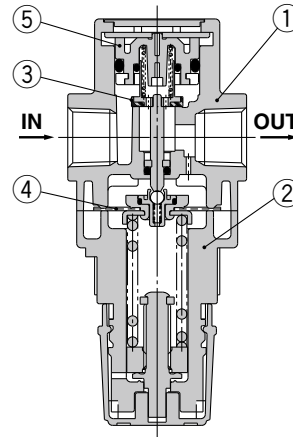
Regulator **AR10-A Series**
 Regulator **AR20-B to AR60-B Series**
 Regulator with Backflow Function **AR20K-B to AR60K-B Series**

Construction

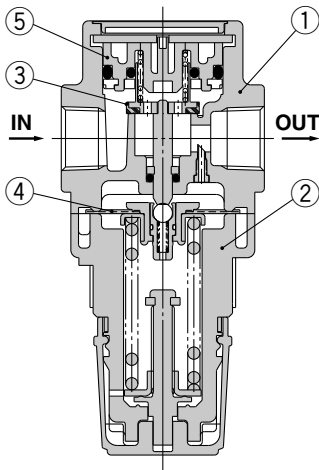
AR10-A



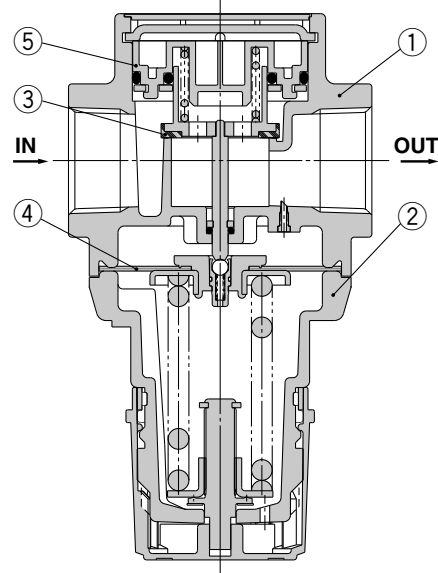
AR20(K)-B/AR25(K)-B



AR30(K)-B/AR40(K)-B



AR50(K)-B/AR60(K)-B



Component Parts

| No. | Description | Material | Model | Color |
|-----|-------------|-------------------|------------------------|-------|
| 1 | Body | Zinc die-cast | AR10-A | White |
| | | Aluminum die-cast | AR20(K)-B to AR60(K)-B | |
| 2 | Bonnet | Polyacetal | AR10-A | White |
| | | | AR20(K)-B to AR40(K)-B | |
| | | Aluminum die-cast | AR50(K)-B/AR60(K)-B | |

Replacement Parts [AR10-A]

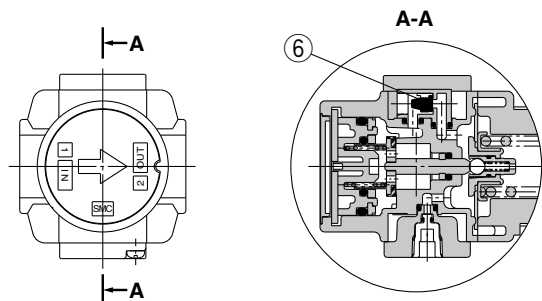
| No. | Description | Material | Part no. |
|-----|----------------------|------------|-------------|
| 3 | Valve | HNBR | AR10P-090S |
| 4 | Piston assembly | Polyacetal | AR10P-150AS |
| 5 | Valve guide assembly | Polyacetal | 131329 |

[AR20(K)-B to AR60(K)-B]

| No. | Description | Material | Part no. | | | | | | |
|-----|-------------------------|-----------------|--------------|-------------|-------------|-------------|--------------|-------------|-------------|
| | | | AR20(K)-B | AR25(K)-B | AR30(K)-B | AR40(K)-B | AR40(K)-06-B | AR50(K)-B | AR60(K)-B |
| 3 | Valve | Brass, HNBR | AR20P-410S | AR25P-410S | AR30P-410S | AR40P-410S | | AR50P-410S | AR60P-410S |
| 4 | Diaphragm assembly | Weatherable NBR | AR20P-150AS | AR25P-150AS | AR30P-150AS | AR40P-150AS | | AR50P-150AS | |
| 5 | Valve guide assembly | Polyacetal | AR20P-050AS | AR25P-050AS | AR30P-050AS | AR40P-050AS | | AR50P-050AS | AR60P-050AS |
| 6 | Check valve assembly *1 | — | AR23KP-020AS | | | | | | |

*1 Check valve assembly is applicable for a regulator with backflow function (AR20K-B to AR60K-B) only.
 Assembly of a check valve cover, check valve body assembly and 2 mounting screws

AR20K-B to AR60K-B (Regulator with Backflow Function)



AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

AR

AL

AW

AR10-A Series

AR20K-B to AR60K-B Series

Working Principle (Regulator with Backflow Function)

AR10-A

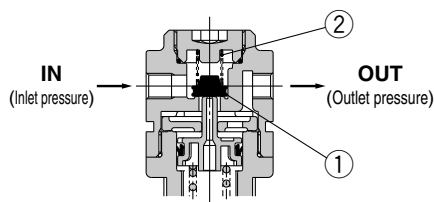


Figure 1

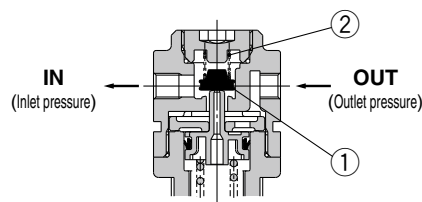


Figure 2

When the inlet pressure is higher than the regulating pressure, the check valve operates as a normal regulator (Figure 1). When the inlet pressure is shut off and exhausted, any inlet pressure applied to the valve ① will be lost. The force for seating the valve ① is the valve spring force ② only. When the valve ① is opened using the outlet force, the outlet pressure will be exhausted at the inlet side (Figure 2). When the set pressure is 0.15 MPa or less, the valve ① may not open due to the valve spring ② force.

AR20K-B to AR60K-B

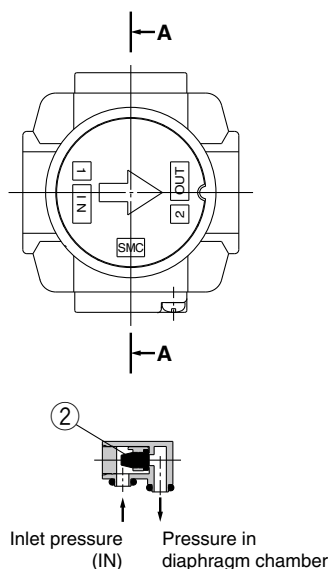


Figure 1 Normal

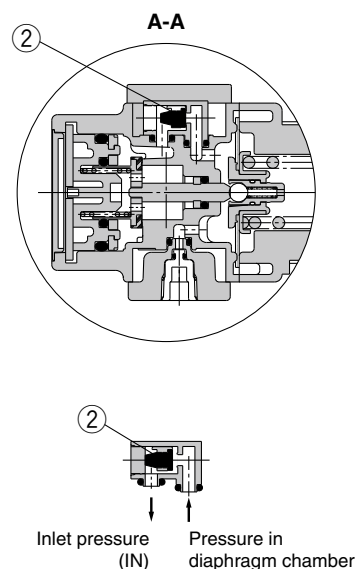


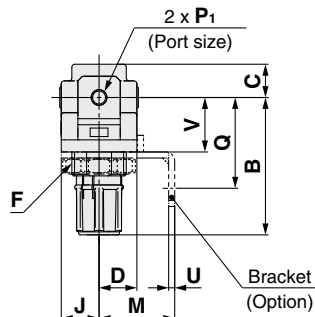
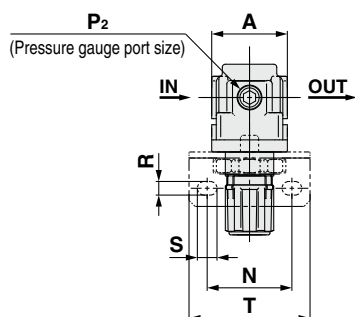
Figure 2 Backflow

When the inlet pressure is higher than the regulating pressure, the check valve ② closes and operates as a normal regulator (Figure 1). When the inlet pressure is shut off and released, the check valve ② opens and the pressure in the diaphragm chamber ① is released into the inlet side (Figure 2). This lowers the pressure in the diaphragm chamber ① and the force generated by the spring ③ lifts the diaphragm. The valve ④ opens through the stem, and the outlet pressure is released to the inlet side (Figure 2).

AR10-A Series AR20-B to AR60-B Series AR20K-B to AR60K-B Series

Dimensions

AR10-A



Panel mounting dimensions

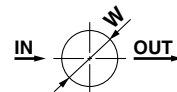
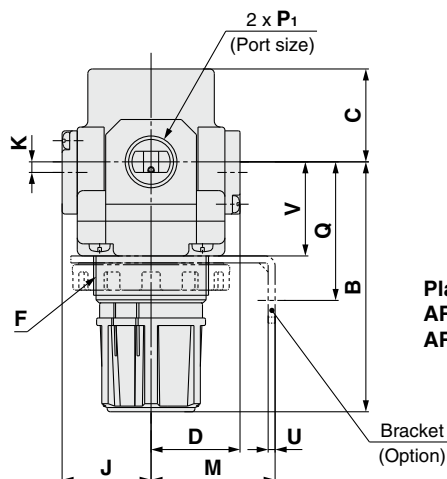
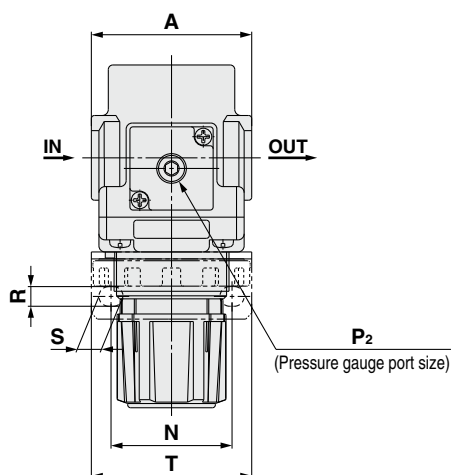


Plate thickness
AR10-A: Max. 3.5

AR20(K)-B to AR40(K)-06-B



Panel mounting dimensions

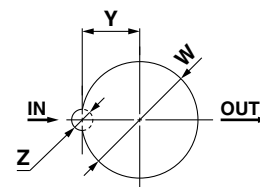
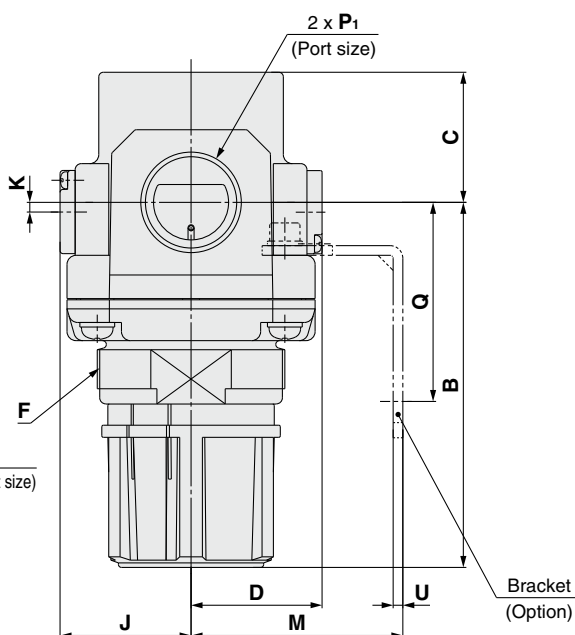
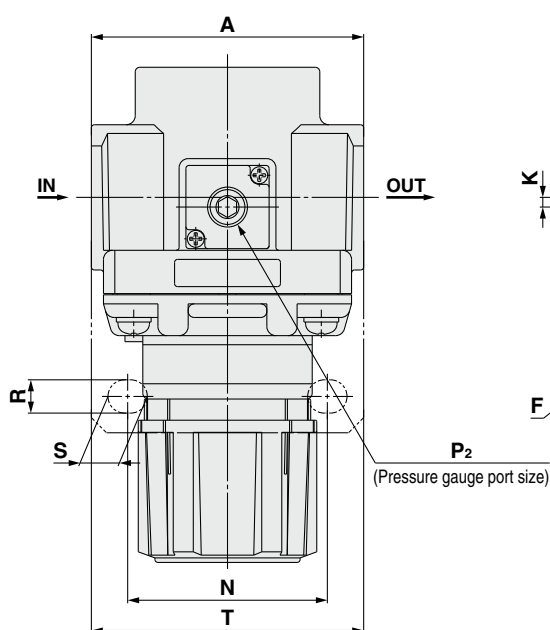
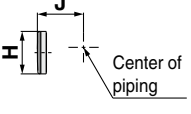
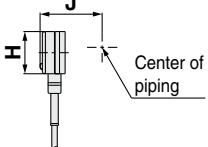
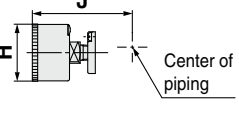


Plate thickness
AR20(K)-B to AR30(K)-B: Max. 3.5
AR40(K)-B : Max. 5

AR50(K)-B/AR60(K)-B



Regulator **AR10-A Series**
 Regulator **AR20-B to AR60-B Series**
 Regulator with Backflow Function **AR20K-B to AR60K-B Series**

| Option | Square embedded type pressure gauge | Digital pressure switch | Round type pressure gauge | Round type pressure gauge (with color zone) |
|------------|---|---|--|---|
| Dimensions |  |  |  | |

| Model | Standard specifications | | | | | | | | | Optional specifications | | | | | | | |
|--------------|-------------------------|----------------|----|-----------------|------|------|-----------|------|------------------|-------------------------------------|------|-------------------------|------|---------------------------|------|---|------|
| | P ₁ | P ₂ | A | B* ¹ | C | D | F | J | K | Square embedded type pressure gauge | | Digital pressure switch | | Round type pressure gauge | | Round type pressure gauge (with color zone) | |
| AR10-A | M5 x 0.8 | 1/16 | 25 | 47.4 | 11 | 12.5 | M18 x 1 | 12.5 | — | — | — | — | — | ø26 | 26 | — | — |
| AR20(K)-B | 1/8, 1/4 | 1/8 | 40 | 67.4 | 26.5 | 28.5 | M28 x 1 | 28.5 | 2 * ² | □28 | 29.5 | □27.8 | 40 | ø37.5 | 65 | ø37.5 | 66 |
| AR25(K)-B | 1/4, 3/8 | 1/8 | 53 | 71.9 | 28 | 27.5 | M32 x 1.5 | 27.5 | 0 | □28 | 28.5 | □27.8 | 39 | ø37.5 | 64 | ø37.5 | 65 |
| AR30(K)-B | 1/4, 3/8 | 1/8 | 53 | 85.6 | 30.7 | 29.4 | M38 x 1.5 | 29.4 | 3.5 | □28 | 30.4 | □27.8 | 40.9 | ø37.5 | 65.9 | ø37.5 | 66.9 |
| AR40(K)-B | 1/4, 3/8, 1/2 | 1/8 | 70 | 91.7 | 35.8 | 33.8 | M42 x 1.5 | 33.8 | 3.5 | □28 | 34.8 | □27.8 | 45.3 | ø42.5 | 71.3 | ø42.5 | 71.3 |
| AR40(K)-06-B | 3/4 | 1/8 | 75 | 93.2 | 35.8 | 33.8 | M42 x 1.5 | 33.8 | 3 | □28 | 34.8 | □27.8 | 45.3 | ø42.5 | 71.3 | ø42.5 | 71.3 |
| AR50(K)-B | 3/4, 1 | 1/8 | 90 | 125.2 | 43 | 43.3 | M62 x 1.5 | 43.3 | 3.2 | □28 | 44.3 | □27.8 | 54.8 | ø42.5 | 80.8 | ø42.5 | 80.8 |
| AR60(K)-B | 1 | 1/8 | 95 | 129.6 | 46 | 43.3 | M62 x 1.5 | 43.3 | 3.2 | □28 | 44.3 | □27.8 | 54.8 | ø42.5 | 80.8 | ø42.5 | 80.8 |

| Model | Optional specifications | | | | | | | | | | |
|--------------|-------------------------|----|------|-----|------|----|-----|-------------|------|----|---|
| | Bracket mount | | | | | | | Panel mount | | | |
| | M | N | Q | R | S | T | U | V | W | Y | Z |
| AR10-A | 25 | 28 | 30 | 4.5 | 6.5 | 40 | 2 | 18 | 18.5 | — | — |
| AR20(K)-B | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 24.7 | 28.5 | 14 | 6 |
| AR25(K)-B | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 25.7 | 32.5 | 16 | 6 |
| AR30(K)-B | 41 | 40 | 45.8 | 6.5 | 8 | 53 | 2.3 | 31.1 | 38.5 | 19 | 7 |
| AR40(K)-B | 50 | 54 | 54 | 8.5 | 10.5 | 70 | 2.3 | 35.5 | 42.5 | 21 | 7 |
| AR40(K)-06-B | 50 | 54 | 55.5 | 8.5 | 10.5 | 70 | 2.3 | 37 | 42.5 | 21 | 7 |
| AR50(K)-B | 70 | 66 | 65.8 | 11 | 13 | 90 | 3.2 | — | — | — | — |
| AR60(K)-B | 70 | 66 | 65.8 | 11 | 13 | 90 | 3.2 | — | — | — | — |

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

*2 For the AR20(K)-B only, the position of the pressure gauge is above the center of the piping.

AR20-B to AR60-B Regulator Made to Order

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



AR30-03-B-X430/440/425

① Special Temperature Environment

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

Specifications

| Made-to-order part no. | -X430 | -X440 |
|---------------------------------|---------------------------------|------------------|
| Environment | Low temperature | High temperature |
| Ambient temperature [°C] | -30 to 60 | -5 to 80 |
| Fluid temperature [°C] | -5 to 60 (with no freezing) | |
| Material | Rubber parts | Special NBR |
| | Main parts | FKM |
| | Metal (Aluminum die-cast, etc.) | |

Applicable Model

| Model | AR25-B | AR30-B | AR40-B | AR40-06-B | AR50-B | AR60-B |
|------------------|----------|----------|---------------|-----------|--------|--------|
| Port size | 1/4, 3/8 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |

AR 30 - 03 BG - - B - X430

1 2 3 4 5

- 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) AR30-03BG-1NR-B-X430

For high/low temperature

| | |
|-------------|------------------|
| X430 | Low temperature |
| X440 | High temperature |

| | | Symbol | Description | ① Body size | | | | | |
|---|------------------|--------|-------------------|-------------|--|-----|-----|-----|-----|
| | | | | 25 | 30 | 40 | 50 | 60 | |
| ② | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● | |
| | | N | NPT | ● | ● | ● | ● | ● | |
| | | F | G | ● | ● | ● | ● | ● | |
| ③ | Port size | + | | | | | | | |
| | | 02 | 1/4 | ● | ● | ● | — | — | |
| | | 03 | 3/8 | ● | ● | ● | — | — | |
| | | 04 | 1/2 | — | — | ● | — | — | |
| | | 06 | 3/4 | — | — | ● | ● | — | |
| ④ | Option *1 | + | | — | — | — | ● | ● | |
| | | a | Mounting | Nil | Without mounting option | ● | ● | ● | ● |
| | | | | B*2 | With bracket | ● | ● | ● | ● |
| | | | | H | With set nut (for panel mount) | ● | ● | — | — |
| ⑤ | Semi-standard | + | | ● | ● | ● | ● | ● | |
| | | b | Pressure gauge | G*3 | Round type pressure gauge (without limit indicator) | ● | ● | ● | ● |
| | | + | | ● | ● | ● | ● | ● | |
| | | c | Set pressure | Nil | 0.05 to 0.85 MPa setting | ● | ● | ● | ● |
| | | | | 1*4 | 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 | ● | ● | ● | ● |
| ⑤ | Semi-standard | | | R | Flow direction: Right to left | ● | ● | ● | ● |
| | | + | | ● | ● | ● | ● | ● | |
| | | f | Knob | Nil | Downward | ● | ● | ● | ● |
| | | | | Y | Upward | ● | ● | ● | ● |
| | | + | | ● | ● | ● | ● | ● | |
| | | g | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa | ● | ● | ● | ● |
| | | | | Z*5 | Name plate and pressure gauge in imperial units: psi | ○*6 | ○*6 | ○*6 | ○*6 |
| | | | | | | ○*6 | ○*6 | ○*6 | ○*6 |
| | | | | | | ○*6 | ○*6 | ○*6 | ○*6 |
| | | | | | | ○*6 | ○*6 | ○*6 | ○*6 |

- *1 Options B, G, H are not assembled and supplied loose at the time of shipment.
 *2 Assembly of a bracket and set nuts (AR25-B to AR40-B)
 Including 2 mounting screws for the AR50-B and AR60-B
 *3 Mounting thread for pressure gauge: 1/8, Pressure gauge type: G43
 *4 The only difference from the standard specifications is the spring for the regulator.
 It does not restrict the setting of 0.2 MPa or more. When the pressure gauge is attached, a 0.4 MPa pressure gauge will be fitted.
 *5 For 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.)
 *6 ○: For pipe thread type: NPT only

② High Pressure

Strong materials are used in the manufacturing of regulators intended for high pressure operation. Also, construction modification allows a wider set pressure range.

Specifications

| Made-to-order part no. | -X425 |
|---|-----------------------------|
| Proof pressure [MPa] | 3.0 |
| Maximum operating pressure [MPa] | 2.0 |
| Set pressure range [MPa] | 0.1 to 1.7 |
| Ambient and fluid temperature [°C] | -5 to 60 (with no freezing) |

Applicable Model

| Model | AR20-B | AR25-B | AR30-B | AR40-B | AR40-06-B | AR50-B | AR60-B |
|------------------|----------|----------|----------|---------------|-----------|--------|--------|
| Port size | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |

AR 30 - 03 BG - - B - X425

1 2 3 4 5

For high pressure

- 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) AR30-03BG-NR-B-X425

| | | Symbol | Description | ① Body size | | | | | |
|---|------------------|--------|-------------------|-------------|--|-----|-----|-----|-----|
| | | | | 20 | 25 | 30 | 40 | 50 | 60 |
| ② | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● | ● |
| | | N | NPT | ● | ● | ● | ● | ● | ● |
| | | F | G | ● | ● | ● | ● | ● | ● |
| ③ | Port size | + | | — | — | — | — | — | — |
| | | 01 | 1/8 | ● | — | — | — | — | — |
| | | 02 | 1/4 | ● | ● | ● | — | — | — |
| | | 03 | 3/8 | — | — | ● | — | — | — |
| | | 04 | 1/2 | — | — | ● | — | — | — |
| ④ | Option *1 | + | | — | — | — | — | — | — |
| | | a | Mounting | Nil | Without mounting option | ● | ● | ● | ● |
| | | | | B*2 | With bracket | ● | ● | ● | ● |
| | | | | H | With set nut (for panel mount) | ● | ● | — | — |
| ⑤ | Semi-standard | + | | ● | ● | ● | ● | ● | ● |
| | | b | Pressure gauge | G*3 | Round type pressure switch (with limit indicator) | ● | ● | ● | ● |
| | | + | | ● | ● | ● | ● | ● | ● |
| | | c | Exhaust mechanism | Nil | Relieving type | ● | ● | ● | ● |
| ⑤ | Semi-standard | | | 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 | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa | ● | ● | ● | ● |
| | | | | Z*4 | Name plate and pressure gauge in imperial units: psi | ○*5 | ○*5 | ○*5 | ○*5 |
| ⑤ | Semi-standard | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |
| | | | | | | ○*5 | ○*5 | ○*5 | ○*5 |

- *1 Options B, G, H are not assembled and supplied loose at the time of shipment.
 *2 Assembly of a bracket and set nuts (AR20-B to AR40-B)
 Including 2 mounting screws for the AR50-B and AR60-B
 *3 Mounting thread for pressure gauge: 1/8, Pressure gauge type: G46-20-□
 *4 For 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.)
 *5 ○: For pipe thread type: NPT only

AR10 Regulator Made to Order

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



③ 0.4 MPa Setting

The maximum set pressure is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.4 MPa.

Specifications

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

⚠ Caution

- The AR10 comes with a backflow function as a standard feature. When using the AR10 as with backflow function, backflow may not occur with the set pressure of 0.15 MPa or less.

Applicable Model

| | |
|-----------|------|
| Model | AR10 |
| Port size | M5 |

AR 10 - M5 - - A - X406

1
2
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) AR10-M5BG-NR-A-X406

| | | Symbol | Description | Body size | | |
|---|---------------|--------|-------------------|-----------|--|---|
| | | | | 10 | | |
| ① | Option #1 | a | Mounting | Nil | Without mounting option | ● |
| | | | | B*2 | With bracket | ● |
| | | | | H | With set nut (for panel mount) | ● |
| | | | | + | | |
| | | b | Pressure gauge *3 | Nil | Without pressure gauge | ● |
| | | | | G | Round type pressure gauge (without limit indicator) | ● |
| + | | | | | | |
| ② | 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 | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa | ● |
| | | | | Z#4 | Name plate and pressure gauge in imperial units: psi | ● |

*1 Options B, G, H are not assembled and supplied loose at the time of shipment.

*2 Assembly of a bracket and set nuts.

*3 A 1.0 MPa pressure gauge will be fitted.

*4 This product is for overseas use only according to the new Measurement Act. (The SI unit type is provided for use in Japan.)

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

AR

AL

AW

AR20-B to AR60-B Regulator AR20K-B to AR60K-B Regulator with Backflow Function Made to Order

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



③ 0.4 MPa Setting

The maximum set pressure is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.4 MPa.

Specifications

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

Applicable Model

| Model | AR20(K)-B | AR25(K)-B | AR30(K)-B | AR40(K)-B | AR40(K)-06-B | AR50(K)-B | AR60(K)-B |
|-----------|-----------|-----------|-----------|---------------|--------------|-----------|-----------|
| Port size | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 | 3/4, 1 | 1 |

AR 30 - 03 - - B - X406

1
2
3
4
5
6

• 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-B-X406

| | | Symbol | Description | ① Body size | | | | | |
|---|------------------------|-------------------------|---------------------------|--|-----|-----|-----|-----|-----|
| | | | | 20 | 25 | 30 | 40 | 50 | 60 |
| ② | With backflow function | Nil | Without backflow function | ● | ● | ● | ● | ● | ● |
| | | K*1 | With backflow function | ● | ● | ● | ● | ● | ● |
| ③ | Pipe thread type | Nil | Rc | ● | ● | ● | ● | ● | ● |
| | | N | NPT | ● | ● | ● | ● | ● | ● |
| | | F | G | ● | ● | ● | ● | ● | ● |
| | | + | | | | | | | |
| ④ | Port size | 01 | 1/8 | ● | — | — | — | — | — |
| | | 02 | 1/4 | ● | ● | ● | ● | — | — |
| | | 03 | 3/8 | — | ● | ● | ● | — | — |
| | | 04 | 1/2 | — | — | — | ● | — | — |
| | | 06 | 3/4 | — | — | — | ● | ● | — |
| | | 10 | 1 | — | — | — | — | ● | ● |
| ⑤ | 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) | ● | ● | ● | ● | ● |
| | | Digital pressure switch | E1*5 | Output: NPN output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | E2*5 | Output: NPN output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| | | | E3*5 | Output: PNP output, Electrical entry: Wiring bottom entry | ● | ● | ● | ● | ● |
| | | | E4*5 | Output: PNP output, Electrical entry: Wiring top entry | ● | ● | ● | ● | ● |
| ⑥ | 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 | Pressure unit | Nil | Name plate and pressure gauge in SI units: MPa | ● | ● | ● | ● | ● |
| | | | Z*6 | Name plate and pressure gauge in imperial units: psi | ○*8 | ○*8 | ○*8 | ○*8 | ○*8 |
| | | | ZA*7 | Digital pressure switch: With unit selection function | △*9 | △*9 | △*9 | △*9 | △*9 |
| | | | | | ○*8 | ○*8 | ○*8 | ○*8 | ○*8 |
| | | | | | △*9 | △*9 | △*9 | △*9 | △*9 |

*1 Please set the inlet pressure to at least 0.05 MPa higher than the set pressure.

*2 Options B, G, H are not assembled and supplied loose at the time of shipment.

*3 Assembly of a bracket and set nuts. (AR20(K)-B to AR40(K)-B). Including 2 mounting screws for the AR50(K)-B and AR60(K)-B

*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 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.) 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 is provided for use in Japan.)

*8 ○: For pipe thread type: NPT only

*9 △: Select with options: E1, E2, E3, E4.

AR20-B to AR60-B Regulator AR20K-B to AR60K-B Regulator with Backflow Function Made to Order

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



④ Clean Series

For details, refer to the Clean Series/Low Particle Generation section of the **Web Catalog**.

10 - Standard model no.

* Please contact SMC if a product with pressure gauge is desired.

- Clean series

⑤ Copper, Fluorine and Silicone-free + Low Particle Generation

For details, refer to the Clean Series/Low Particle Generation section of the **Web Catalog**.

21 - Standard model no.

- Copper, fluorine and silicone-free + Low particle generation

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

AR

AL

AW