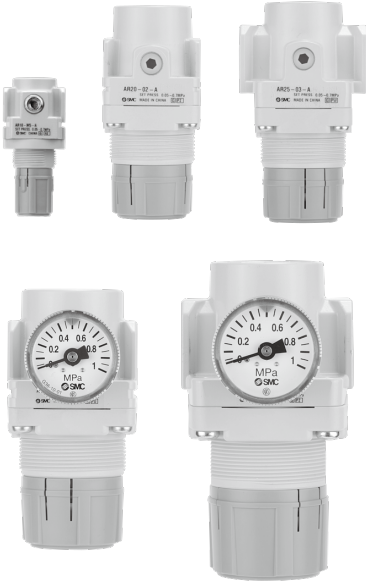


Modular Type Regulator *Series AR*

| Regulator Series AR | Model | Port size | Options |
|---|------------------|---------------|--|
|  <p data-bbox="165 1256 306 1290">P.55 to 62</p> | AR10-A | M5 x 0.8 | <p data-bbox="1190 752 1278 779">Bracket</p> <p data-bbox="1083 902 1382 929">Round type pressure gauge</p> <p data-bbox="1094 1039 1370 1066">Set nut (for panel mount)*</p> <p data-bbox="1062 1240 1410 1290">* The AR20-A to AR40-06-A are not compatible with existing AR series.</p> |
| | AR20-A | 1/8, 1/4 | |
| | AR25-A | 1/4, 3/8 | |
| | AR30-A | | |
| | AR40-A | 1/4, 3/8, 1/2 | |
| | AR40-06-A | 3/4 | |

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

AR

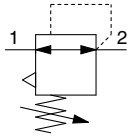
AL

AW

Regulator

AR10-A to AR40-A

Symbol Regulator



How to order

AR **30** - **03** **BG** - **A** - **1**

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-1N-A

• **Made to Order**
(Refer to pages 61 and 62 for details.)

| | Symbol | Description | ① Body size | | | | | |
|---------------------|-------------------------------------|--|---|-------------------------|----------------------|----------------------|----------------------|---|
| | | | 10 | 20 | 25 | 30 | 40 | |
| ② Pipe thread type | Nil N F | Metric thread (M5) | ● | — | — | — | — | |
| | | Rc | — | ● | ● | ● | ● | |
| | | NPT | — | ● | ● | ● | ● | |
| | | G | — | ● | ● | ● | ● | |
| + | | | | | | | | |
| ③ Port size | M5 01 02 03 04 06 | M5 | ● | — | — | — | — | |
| | | 1/8 | — | ● | — | — | — | |
| | | 1/4 | — | ● | ● | ● | ● | |
| | | 3/8 | — | — | ● | ● | ● | |
| | | 1/2 | — | — | — | — | ● | |
| | | 3/4 | — | — | — | — | ● | |
| + | | | | | | | | |
| ④ Option Note 1) | a Mounting | Nil | Without mounting option | ● | ● | ● | ● | ● |
| | | B ^{Note 2)} | With bracket | ● | ● | ● | ● | ● |
| | | H | With set nut (for panel mount) ^{Note 3)} | ● | ● | ● | ● | ● |
| | + | | | | | | | |
| | b Pressure gauge ^{Note 4)} | Nil G M | Without pressure gauge | ● | ● | ● | ● | ● |
| | | | Round type pressure gauge (without limit indicator) | ● | — | — | — | — |
| | | | Round type pressure gauge (with limit indicator) | — | ● | ● | ● | ● |
| | | | Round type pressure gauge (with color zone) | — | ● | ● | ● | ● |
| | + | | | | | | | |
| | ⑤ Semi-standard | c Set pressure ^{Note 5)} | Nil | 0.05 to 0.7 MPa setting | ● | ● | ● | ● |
| 1 | | | 0.02 to 0.2 MPa setting | ● | ● | ● | ● | ● |
| + | | | | | | | | |
| d Exhaust mechanism | | Nil N | Relieving type | ● | ● | ● | ● | ● |
| | | | Non-relieving type | ● | ● | ● | ● | ● |
| + | | | | | | | | |
| e Flow direction | | Nil R | Flow direction: Left to right | ● | ● | ● | ● | ● |
| | | | Flow direction: Right to left | ● | ● | ● | ● | ● |
| + | | | | | | | | |
| f Knob | | Nil Y | Downward | ● | ● | ● | ● | ● |
| | Upward | | ● | ● | ● | ● | ● | |
| + | | | | | | | | |
| g Pressure unit | Nil Z ^{Note 6)} | Name plate and pressure gauge in imperial units: MPa | ● | ● | ● | ● | ● | |
| | | Name plate and pressure gauge in imperial units: psi | ○ ^{Note 7)} | ○ ^{Note 7)} | ○ ^{Note 7)} | ○ ^{Note 7)} | ○ ^{Note 7)} | |

Note 1) Option B, G, H, M are not assembled and supplied loose at the time of shipment.

Note 2) Assembly of a bracket and set nuts

Note 3) Only for the AR20-A to 40-A

Note 4) When the pressure gauge is attached, a 1.0 MPa pressure gauge will be fitted for standard (0.7 MPa) type. 0.4 MPa pressure gauge for 0.2 MPa type (1.0 MPa pressure gauge only for the AR10-A).

Note 5) Pressure can be set higher than the specification pressure in some cases, but use pressure within the specification range.

Note 6) For pipe thread type: NPT

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

Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.

Note 7) ○: For pipe thread type: M5, NPT only

Standard Specifications

| Model | AR10-A | AR20-A | AR25-A | AR30-A | AR40-A | AR40-06-A |
|-------------------------------|--------------------------------|----------|----------|----------|---------------|-----------|
| Port size | M5 x 0.8 | 1/8, 1/4 | 1/4, 3/8 | 1/4, 3/8 | 1/4, 3/8, 1/2 | 3/4 |
| Pressure gauge port size | 1/16 ^(Note) | 1/8 | | | | |
| 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 | 0.17 | 0.19 | 0.34 | 0.58 | 0.60 |

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

Options/Part No.

| Optional specifications | | Model | | | | | |
|-------------------------------------|---|-------------------------|------------------------------|--------------|-------------|--------------|-------------|
| | | AR10-A | AR20-A | AR25-A | AR30-A | AR40-A | AR40-06-A |
| Bracket assembly ^{Note 1)} | | AR12P-270AS | AR22P-270AS | AR27P-270AS | AR32P-270AS | AR42P-270AS | AR42P-270AS |
| Set nut | | AR12P-260S | AR22P-260S | AR22P-260S | AR32P-260S | AR42P-260S | AR42P-260S |
| Pressure gauge | Round ^{Note 2)} type | Standard | G27-10-R1 | G36-10-□01 | | G46-10-□01 | |
| | | 0.02 to 0.2 MPa setting | G27-10-R1 ^{Note 3)} | G36-4-□01 | | G46-4-□01 | |
| | Round ^{Note 2)} 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 | |

Note 1) Assembly of a bracket and set nuts

Note 2) □ in round pressure gauge part numbers indicates a pipe thread type. No indication is necessary for R; however, indicate N for NPT.

Please contact SMC regarding the pipe thread type NPT and the supply of pressure gauge with psi unit display specifications.

Note 3) Standard pressure gauge

⚠ Specific Product Precautions

Be sure to read this before handling. Refer to the back cover for Safety Instructions, “Handling Precautions for SMC Products” and the Operation Manual for F.R.L. Precautions, <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. Use the regulator with backflow function.

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.

AC

AF+AR+AL

AW+AL

AF+AR

AF+AFM+AR

AW+AFM

Attachment

AF

AFM / AFD

AR

AL

AW

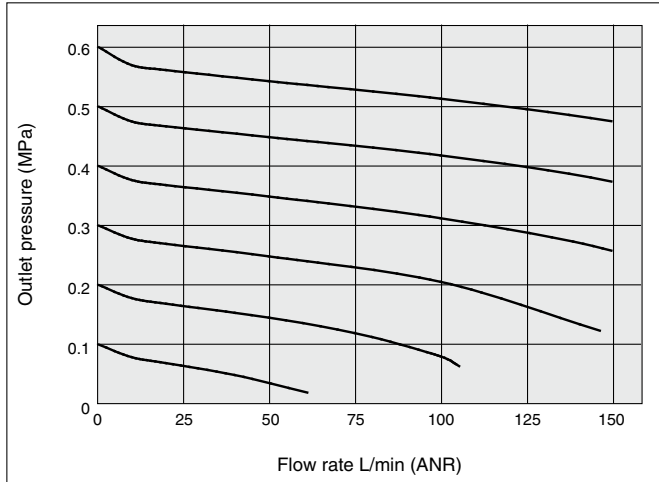
Series AR10-A to AR40-A

Flow-rate Characteristics (Representative values)

Condition: Inlet pressure 0.7 MPa

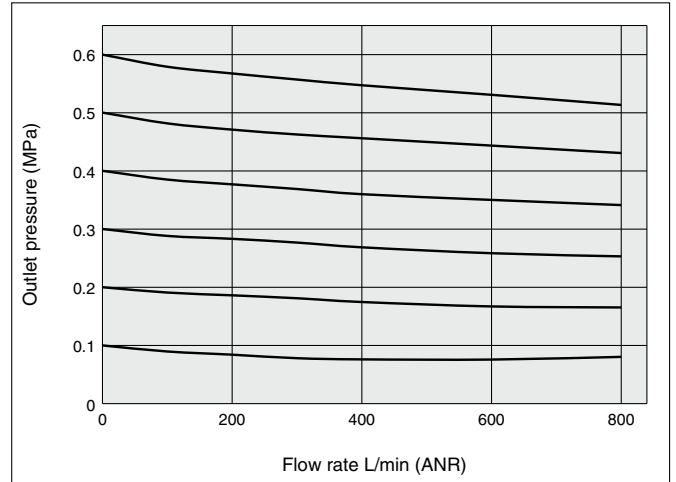
AR10-A

M5



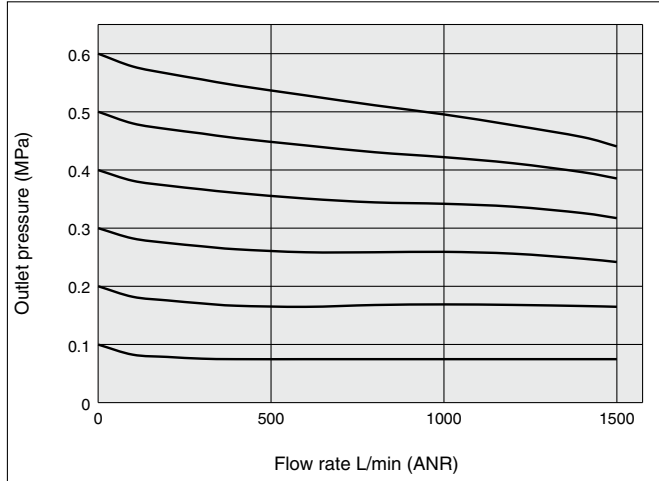
AR20-A

Rc1/4



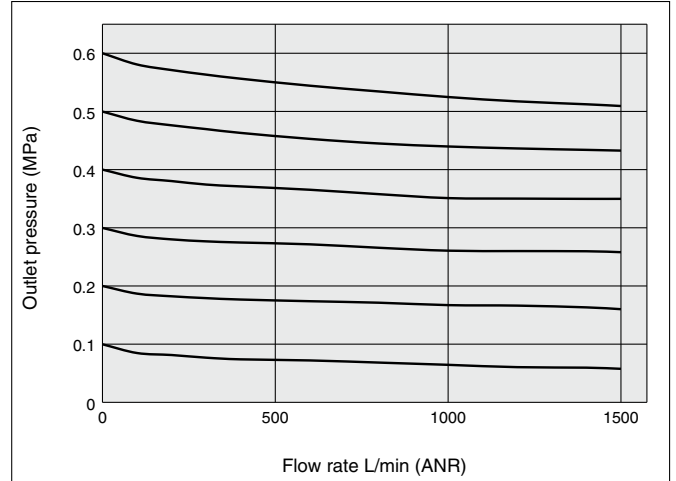
AR25-A

Rc3/8



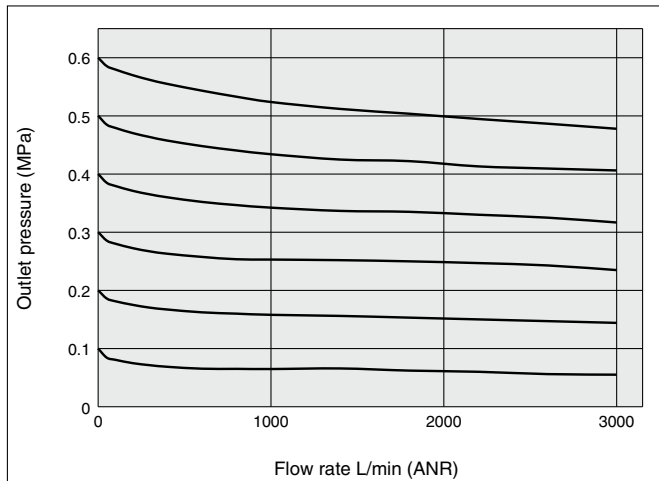
AR30-A

Rc3/8



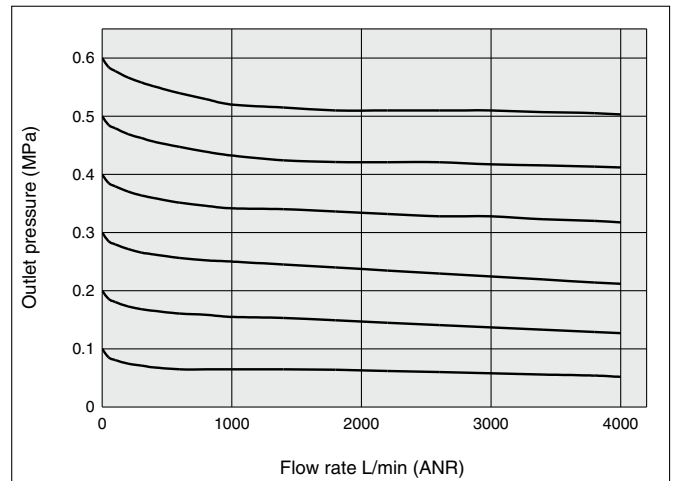
AR40-A

Rc1/2



AR40-06-A

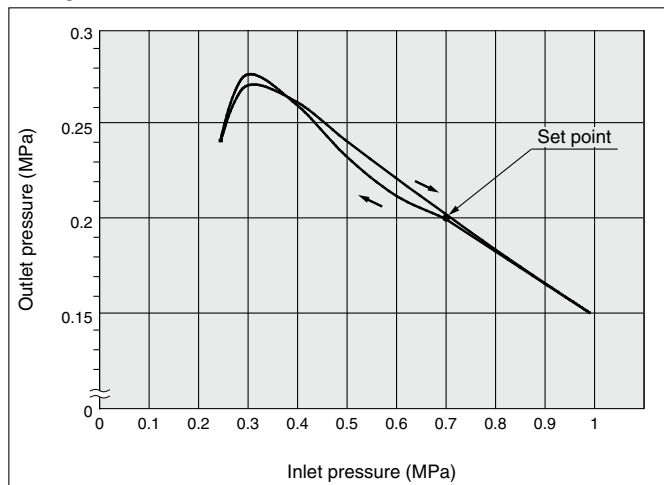
Rc3/4



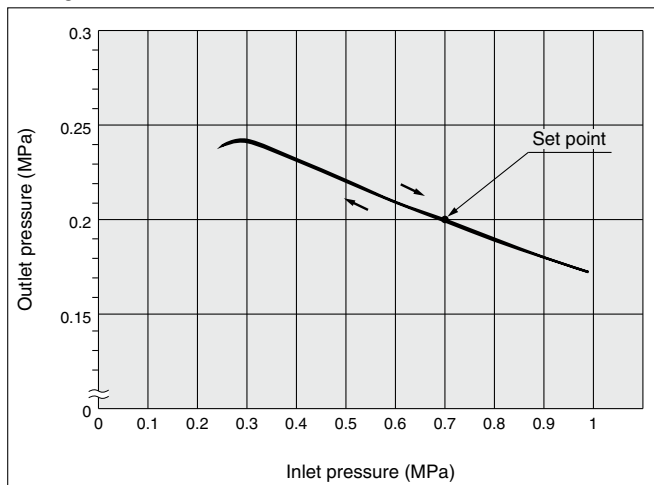
Pressure Characteristics (Representative values)

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

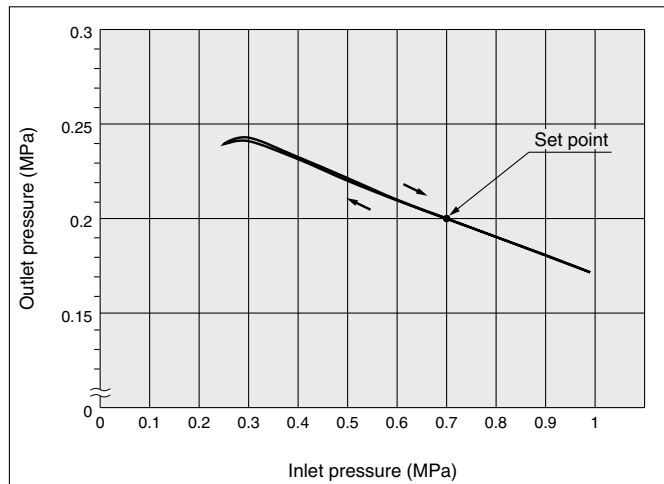
AR10-A



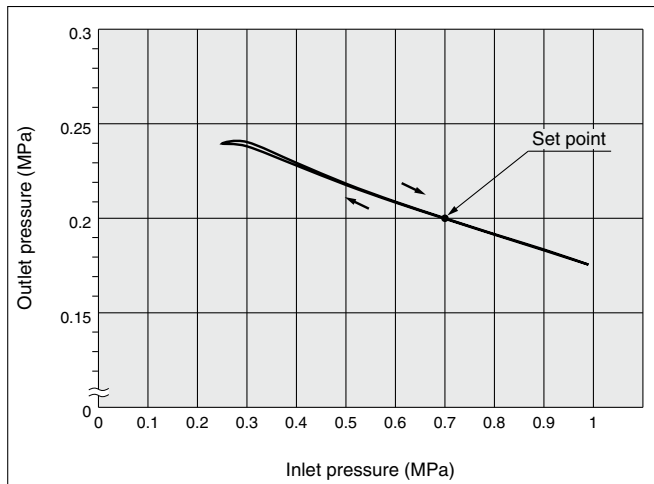
AR20-A



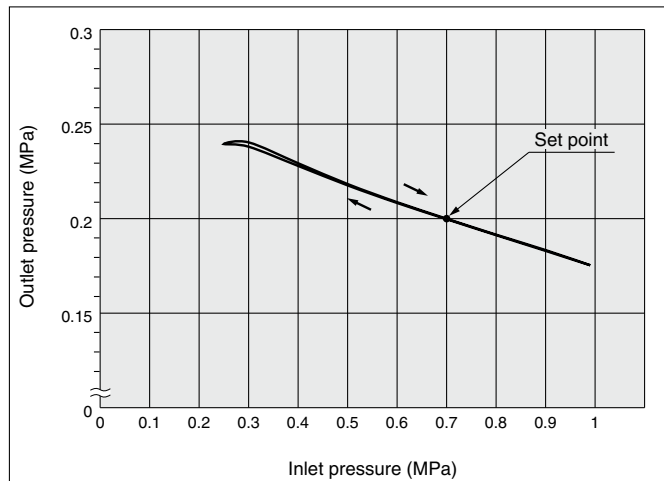
AR25-A



AR30-A



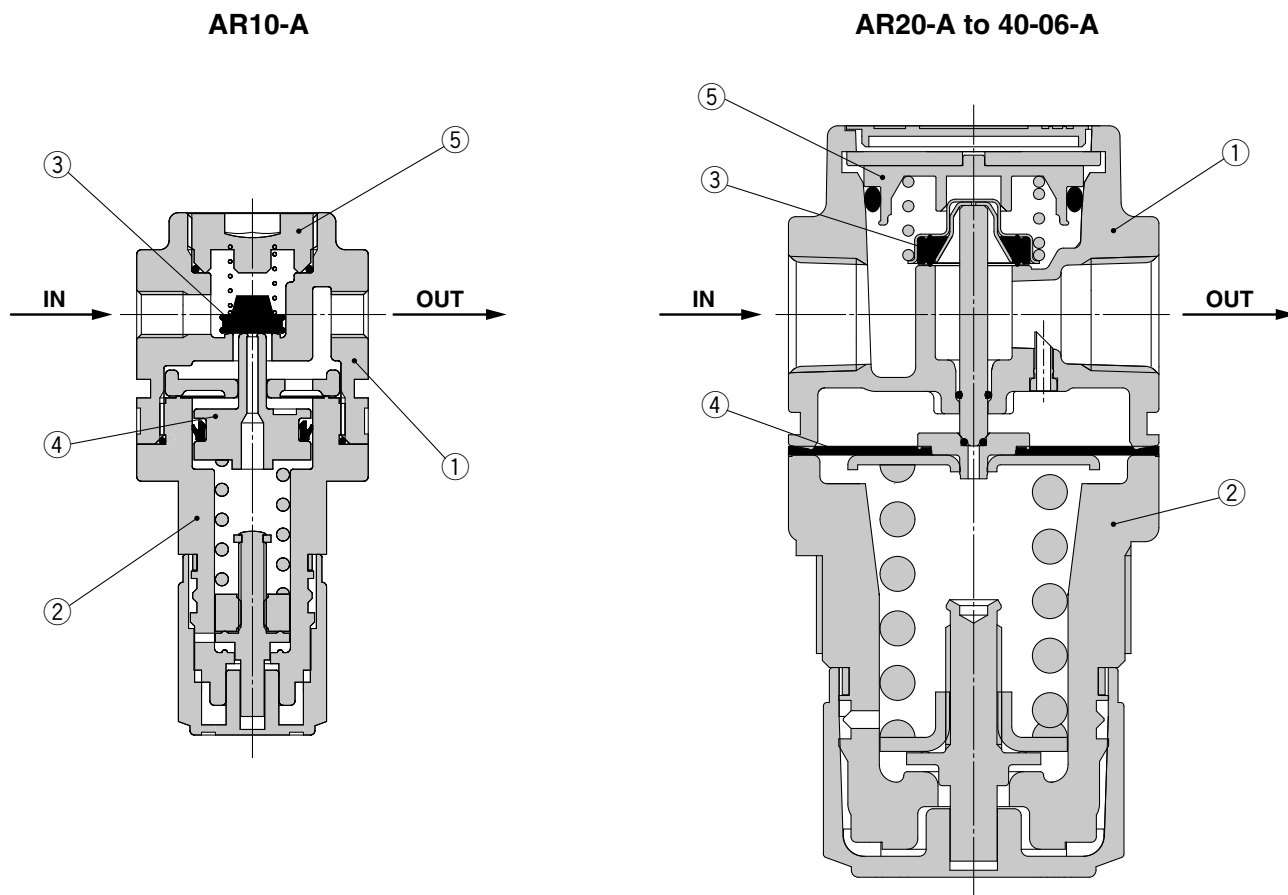
AR40-A/AR40-06-A



- AC
- AF+AR+AL
- AW+AL
- AF+AR
- AF+AFM+AR
- AW+AFM
- Attachment
- AF
- AFM / AFD
- AR
- AL
- AW

Series AR10-A to AR40-A

Construction



Component Parts

| No. | Description | Material | Model | Color |
|-----|-------------|-------------------|------------------|-------|
| 1 | Body | Zinc die-cast | AR10-A | White |
| | | Aluminum die-cast | AR20-A to AR40-A | |
| 2 | Bonnet | Polyacetal | AR10-A to AR40-A | White |

Replacement Parts

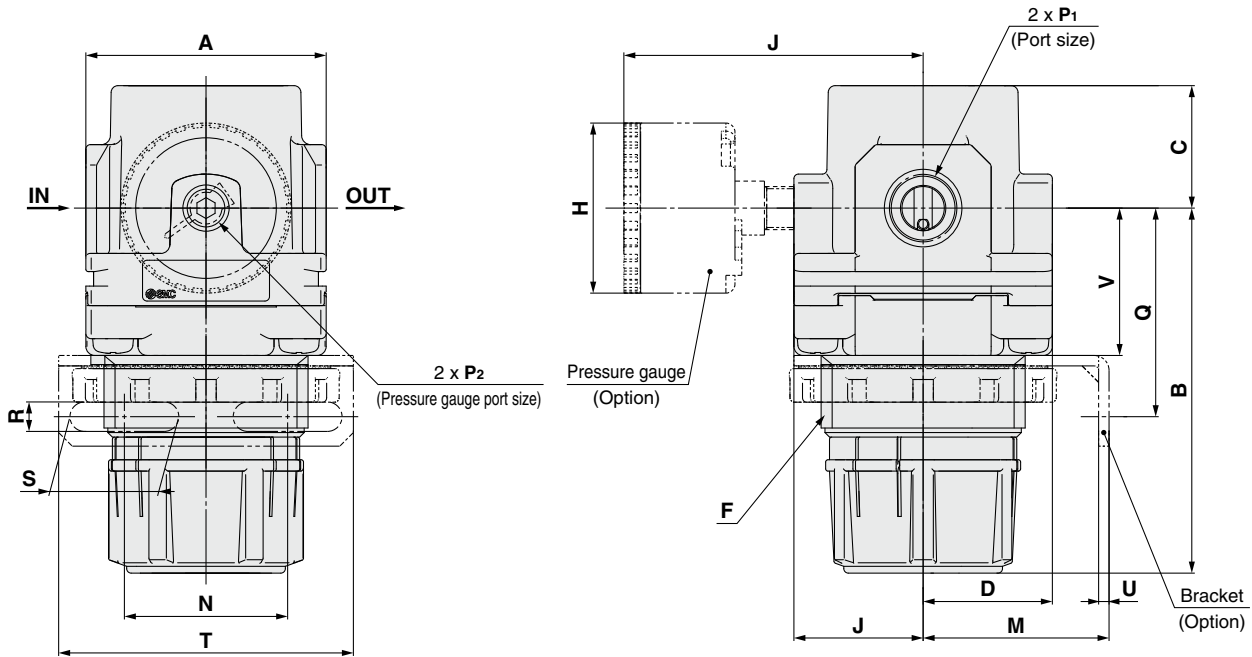
| No. | Description | Material | Part no. | | | | | |
|-----|----------------------|-----------------------|-------------------------------|-------------|--------|-------------|-------------|-----------|
| | | | AR10-A | AR20-A | AR25-A | AR30-A | AR40-A | AR40-06-A |
| 3 | Valve assembly | Stainless steel, HNBR | AR10P-090S | AR22P-060AS | | AR32P-060AS | AR42P-060AS | |
| 4 | Diaphragm assembly | Weatherable NBR | AR10P-150AS ^(Note) | AR22P-150AS | | AR32P-150AS | AR42P-150AS | |
| 5 | Valve guide assembly | Polyacetal | 131329 | AR22P-050AS | | AR32P-050AS | AR42P-050AS | |

(Note) The AR10-A is a piston type. Assembly of a piston and a seal (KSYP-13).

Regulator *Series AR10-A to AR40-A*

Dimensions

AR10-A to AR40-06-A



Panel fitting dimensions

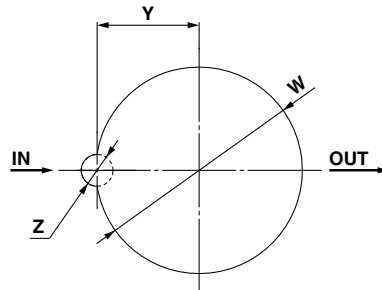


Plate thickness
 AR10-A : Max. 3.5
 AR20-A to AR25-A : Max. 4
 AR30-A to AR40-06-A : Max. 8

| Model | Standard specifications | | | | | | | | | | Optional specifications | | | | | | | | | | | | |
|-----------|-------------------------|----------------|----|----------|------|------|-----------|------|---------------------------|------|---|------|---------------|----|------|-----|------|----|-------------|------|------|------|---|
| | P ₁ | P ₂ | A | B (Note) | C | D | F | J | Round type pressure gauge | | Round type pressure gauge (with color zone) | | Bracket mount | | | | | | Panel mount | | | | |
| | | | | | | | | | H | J | H | J | M | N | Q | R | S | T | U | V | W | Y | Z |
| AR10-A | M5 x 0.8 | 1/16 | 25 | 47.4 | 11 | 12.5 | M18 x 1 | 12.5 | ø26 | 26 | — | — | 25 | 28 | 30 | 4.5 | 6.5 | 40 | 2 | 18 | 18.5 | — | — |
| AR20-A | 1/8, 1/4 | 1/8 | 40 | 67.4 | 23.5 | 22 | M36 x 1.5 | 22 | ø37.5 | 58.5 | ø37.5 | 59.5 | 30 | 34 | 43.9 | 5.4 | 15.4 | 55 | 2.3 | 27.3 | 36.5 | 17.5 | 6 |
| AR25-A | 1/4, 3/8 | 1/8 | 53 | 70.4 | 23.5 | 22 | M36 x 1.5 | 22 | ø37.5 | 58.5 | ø37.5 | 59.5 | 30 | 34 | 44.3 | 5.4 | 15.4 | 55 | 2.3 | 30.3 | 36.5 | 17.5 | 6 |
| AR30-A | 1/4, 3/8 | 1/8 | 53 | 83.5 | 27 | 28.5 | M45 x 1.5 | 28.5 | ø37.5 | 65 | ø37.5 | 66 | 41 | 36 | 46 | 6.5 | 24 | 65 | 2.3 | 32.5 | 45.5 | 22.5 | 7 |
| AR40-A | 1/4, 3/8, 1/2 | 1/8 | 70 | 100 | 33.5 | 34.5 | M52 x 1.5 | 34.5 | ø42.5 | 72 | ø42.5 | 72 | 50 | 38 | 54 | 8.5 | 26.5 | 70 | 2.3 | 38.4 | 52.5 | 26 | 7 |
| AR40-06-A | 3/4 | 1/8 | 75 | 101.5 | 33.5 | 34.5 | M52 x 1.5 | 34.5 | ø42.5 | 72 | ø42.5 | 72 | 50 | 38 | 55.5 | 8.5 | 26.5 | 70 | 2.3 | 39.9 | 52.5 | 26 | 7 |

Note) The dimension of B is the length when the filter regulator knob is unlocked.

AC
 AF+AR+AL
 AW+AL
 AF+AR
 AF+AFM+AR
 AW+AFM
 Attachment
 AF
 AFM / AFD
 AR
 AL
 AW

Regulator/AR20-A to AR40-06-A

Made to Order

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



① 0.4 MPa Setting

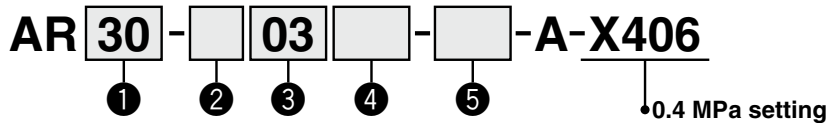
The maximum set pressure is 0.4 MPa. When a pressure gauge is included, the display will show a range from 0 to 0.7 MPa.

Specifications

| | |
|----------------------------|-----------------|
| Proof pressure | 1.5 MPa |
| Maximum operating pressure | 1.0 MPa |
| Set pressure range | 0.05 to 0.4 MPa |

Applicable Model

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



- Option/Semi-standard: Select one each for a to f.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AR30-03BG-NR-A-X406

| | | Symbol | Description | ① Body size | | | | |
|----------------------|------------------|-------------------|--|--|----------------------|----------------------|----------------------|---|
| | | | | 20 | 25 | 30 | 40 | |
| 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 | — | — | — | ● | |
| | | 06 | 3/4 | — | — | — | ● | |
| | | + | | | | | | |
| ④ | a | Mounting | Nil | Without mounting option | ● | ● | ● | ● |
| | | | B ^{Note 2)} | With bracket | ● | ● | ● | ● |
| | | | H | With set nut (for panel mount) ^{Note 3)} | ● | ● | ● | ● |
| | | | + | | | | | |
| | b | Pressure gauge | Nil | Without pressure gauge | ● | ● | ● | ● |
| | | | G | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● |
| M | | | Round type pressure gauge (with color zone) | ● | ● | ● | ● | |
| | | + | | | | | | |
| ⑤ | 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 caution plate for bowl in imperial units: MPa | ● | ● | ● | ● |
| Z ^{Note 4)} | | | Name plate and caution plate for bowl in imperial units: psi | ○ ^{Note 5)} | ○ ^{Note 5)} | ○ ^{Note 5)} | ○ ^{Note 5)} | |

Note 1) Option B, G, H, M are not assembled and supplied loose at the time of shipment.

Note 2) Assembly of a bracket and set nuts

Note 3) Only for the AR20-A to 40-A

Note 4) For pipe thread type: NPT

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

Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.

Note 5) ○: For pipe thread type: NPT only

Regulator/AR20-A to AR40-06-A

Made to Order

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



② 0.85 MPa Setting

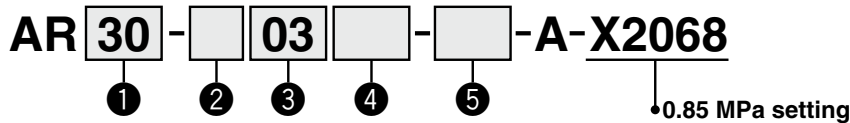
The maximum set pressure is 0.85 MPa. When a pressure gauge is included, the display will show a range from 0 to 1.0 MPa.

Specifications

| | |
|----------------------------|------------------|
| Proof pressure | 1.5 MPa |
| Maximum operating pressure | 1.0 MPa |
| Set pressure range | 0.05 to 0.85 MPa |

Applicable Model

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



- Option/Semi-standard: Select one each for a to f.
- Option/Semi-standard symbol: When more than one specification is required, indicate in alphanumeric order.
Example) AR30-03BG-NR-A-X2068

| | Symbol | Description | ① Body size | | | | |
|--------------------|---------------------|--|--|------------|------------|------------|---|
| | | | 20 | 25 | 30 | 40 | |
| 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 | — | — | — | ● | |
| | 06 | 3/4 | — | — | — | ● | |
| + | | | | | | | |
| ④ Option (Note 1) | a Mounting | Nil | Without mounting option | ● | ● | ● | ● |
| | | B (Note 2) | With bracket | ● | ● | ● | ● |
| | | H | With set nut (for panel mount) (Note 3) | ● | ● | ● | ● |
| | + | | | | | | |
| | b Pressure gauge | Nil | Without pressure gauge | ● | ● | ● | ● |
| | | G | Round type pressure gauge (with limit indicator) | ● | ● | ● | ● |
| M | | Round type pressure gauge (with color zone) | ● | ● | ● | ● | |
| + | | | | | | | |
| ⑤ 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 caution plate for bowl in imperial units: MPa | ● | ● | ● | ● |
| Z (Note 4) | | Name plate and caution plate for bowl in imperial units: psi | ○ (Note 5) | ○ (Note 5) | ○ (Note 5) | ○ (Note 5) | |

Note 1) Option B, G, H, M are not assembled and supplied loose at the time of shipment.

Note 2) Assembly of a bracket and set nuts

Note 3) Only for the AR20-A to 40-A

Note 4) For pipe thread type: NPT

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

Cannot be used with M: Round pressure gauge (with color zone). Available by request for special.

Note 5) ○: For pipe thread type: NPT only

AC
AF+AR+AL
AW+AL
AF+AR
AF+AFM+AR
AW+AFM
Attachment
AF
AFM/AFD
AR
AL
AW