

MR Unit (Regulator with Mist Separator)

AMR3000 to 6000 Series

Standard Specifications

| Model | AMR3000 | AMR4000 | AMR5000 | AMR6000 |
|---|--|---------------|----------|---------|
| Port size | 1/4, 3/8 | 1/4, 3/8, 1/2 | 1/2, 3/4 | 3/4, 1 |
| Fluid | Air | | | |
| Proof pressure | 1.5 MPa | | | |
| Max. operating pressure | 1.0 MPa | | | |
| Setting pressure range | 0.05 to 0.85 MPa | | | |
| Ambient and fluid temperature | -5 to 60°C (No freezing) | | | |
| Construction | Relieving type | | | |
| Filtration | 0.3 µm | | | |
| Oil mist density in the outlet side | Max. 1.0 mgf/Nm ³ (≅ 0.8 ppm) ⁽¹⁾⁽²⁾ | | | |
| Rated flow (L/min (ANR)) ⁽³⁾ | 750 | 1500 | 3500 | 6000 |
| Weight (kg) | 1.8 | 2.8 | 3.5 | 6.7 |

Note 1) Compressed air density: 30 mgf/Nm³.

Note 2) An element for the mist separator is included on the inlet side. Mineral grease is applied on the sliding parts inside the regulator. As such, improper use could cause run off of these lubricants to the outlet side. Please contact SMC if problems take place during operation.

Note 3) Inlet pressure: 0.7 MPa Use caution not to supply air more than the rated amount, otherwise oil may flow to the outlet side.

Accessory (Standard)/Part No.

| Model name | Model | AMR3000 | AMR4000 | AMR5000 | AMR6000 |
|----------------------------------|---------|------------|---------|------------|---------|
| Bracket | | 13576 | 13556 | 13587 | 13568 |
| Pressure gauge ⁽⁵⁾⁽⁶⁾ | 1.0 MPa | G36-10-□01 | | G46-10-□02 | |

Accessory (Option)/Part No.

| Model name | Model | AMR3000 | AMR4000 | AMR5000 | AMR6000 |
|---|-------|---|---|----------------------------|--------------------------|
| Adapter assembly ⁽⁷⁾ | | 1/4: E3-02□ 3/8: E3-03□ 1/2: E4-04□ | 1/4: E4-02□ 3/8: E4-03□ 1/2: E4-04□ | 1/2: E5-04□ 3/4: E5-06□ | 3/4: E6-06□ 1: E6-10□ |
| Float type auto drain (AMR □100) ⁽⁸⁾ | | AD33-X203 | AD33-X202 | AD33-X210 | AD33-X201 |
| Compact pressure switch | | IS10-01 (0.4 MPa setting) | | | |
| Elbow (R x Rc) ⁽⁹⁾ | | 135510 | | 135613 | |

Note 5) • □ in the gauge part number (e.g. G36-10-□01) indicates thread. Specify no symbol for "Rc", and "N" for "NPT".

• Please consult with SMC if "NPT" gauge is required.

Note 6) Use caution not to tighten excessively when mounting a pressure gauge, otherwise it may result in a breakdown. Use a sealant tape for sealing.

Note 7) Piping adapter, O-ring, Hexagon socket bolt, Hexagon socket bolt assembly. These are shipped together with products. "□" in the gauge part number indicates thread type. Specify no symbol for "Rc", "N" for "NPT", and "G" for "G".

Note 8) Min. operating pressure = 0.1 MPa

Note 9) If a compact pressure switch is mounted later on, an elbow (R x Rc) is necessary.

Mist separator and regulator are combined together.
Filtration 0.3 µm
Space-saving and easy piping.



AMR5100

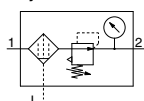
AMR4000

AMR3000

Compact Pressure Switch Specifications (For further information, refer to the Web Catalog.)

| Model | IS10-01 | | | |
|-----------------------------|-----------------|-------|-------|-------|
| Set pressure range (OFF) | 0.1 to 0.4 MPa | | | |
| Hysteresis | 0.08 MPa | | | |
| Contact point construction | 1a | | | |
| Max. contact point capacity | 2 VA AC, 2 W DC | | | |
| Voltage (AC, DC) | 12 V | 24 V | 48 V | 100 V |
| Max. current | 50 mA | 50 mA | 40 mA | 20 mA |

Symbol



Regulator with Mist Separator **AMR3000 to 6000 Series**

How to Order

AMR **4** **0** **00** - **03** - -

MR unit

Auto-drain
0 None
1 With auto drain

Body size
3 3/8
4 1/2
5 3/4
6 1

Thread type

| | |
|-----|-----|
| Nil | Rc |
| N | NPT |
| F | G |

Pressure gauge

| | |
|-----|----------------------|
| Nil | None |
| S | With pressure switch |

Port size

| Symbol | Port size |
|--------|-----------|
| 02 | 1/4 |
| 03 | 3/8 |
| 04 | 1/2 |
| 06 | 3/4 |
| 10 | 1 |

Pressure gauge mounting

| | |
|-----|-------------------------------|
| Nil | Flow direction: Left to right |
| R | Flow direction: Right to left |

Adapter assembly port size (2 pcs.)

| | |
|-----|------|
| Nil | None |
| E2 | 1/4 |
| E3 | 3/8 |
| E4 | 1/2 |
| E6 | 3/4 |
| E10 | 1 |

* The port size of adapter assembly is same as the port size of the body.

Adapter Assembly (Part number for one piece)

E **3** - **02** -

Applicable model
3 AMR3 □00-02 to 03
4 AMR4 □00-02 to 04
5 AMR5 □00-04 to 06
6 AMR6 □00-10

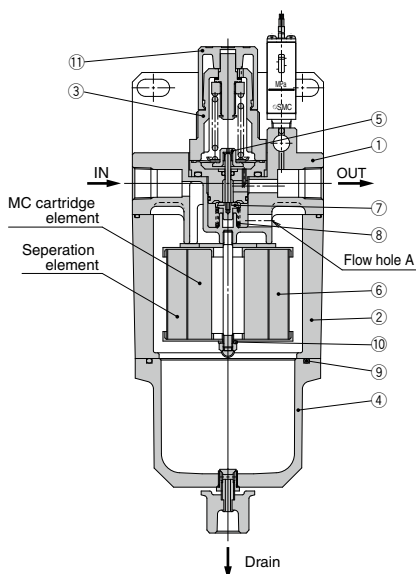
Port size

| | |
|----|-----|
| 02 | 1/4 |
| 03 | 3/8 |
| 04 | 1/2 |
| 06 | 3/4 |
| 10 | 1 |

Thread type

| | |
|-----|-----|
| Nil | Rc |
| N | NPT |
| G | G |

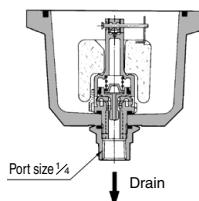
Construction



Working principle

The compressed air from the air source passes from the IN side through the top of element (6) and flows inward. The compressed air that flowed in passes through the MC cartridge element provided inside element (6), where all dust that is larger than 0.3 μm is removed. Then, the mist is arrested by inertial collision, direct interception, and dissipation through Brownian movement on the surface and the inside of the filtering fibers of the external separation element. The mist then coagulates to form a large drop, becomes separated from the compressed air, accumulates in case (4), and is discharged through the drain valve. Meanwhile, the clean compressed air in housing (2) passes through flow hole A of body (1), it is reduced to a specified pressure by the pressure reducing valve, and is discharged from the OUT.

Auto-drain type



Component Parts

| No. | Description | Model | | | |
|-----|-------------|---------------------|---------|---------|---------------------|
| | | AMR3000 | AMR4000 | AMR5000 | AMR6000 |
| 1 | Body | Aluminum die-casted | | | |
| 2 | Housing | Aluminum die-casted | | | |
| 3 | Bonnet | Polyacetal | | | Aluminum die-casted |
| 11 | Knob | Polyacetal | | | |

Replacement Parts

| No. | Description | Material | Qty | Part no. | | | |
|-----|--------------------|-----------------------|-----|----------|---------|---------|-----------|
| | | | | AMR3000 | AMR4000 | AMR5000 | AMR6000 |
| 4 | Bowl assembly | Aluminum die-casted | 1 | 13573A | 13553A | 13583A | 13563A |
| 5 | Diaphragm assembly | Weather resistant NBR | 1 | 1349161A | 131515A | 131515A | 131614A |
| 6 | Element (Note) | — | 1 | 13579 | 135511 | 13589 | 13569 |
| 7 | Valve assembly | Brass, HNBR | 1 | 135711A | 13154A | 135811A | 135614-1A |
| 8 | Valve spring | Stainless steel | 1 | 135011 | 131514 | 131613 | 135413 |
| 9 | O-ring | NBR | 1 | KA00064 | KA00466 | KA00452 | KA00455 |
| 10 | Gasket | Fiber | 1 | 135714 | 635327 | 635327 | 63555 |

Note) The MC cartridge element and the separation element are integrated.

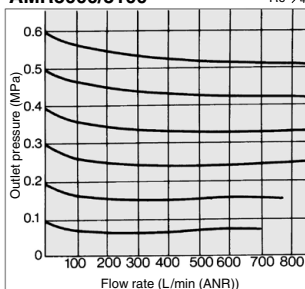
AMR3000 to 6000 Series

Flow Rate Characteristics (Representative values)

Inlet pressure: 0.7 MPa

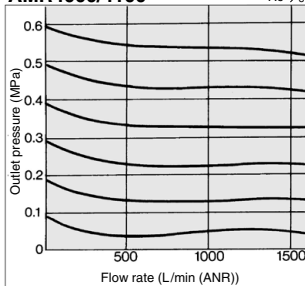
AMR3000/3100

Rc $\frac{1}{4}$



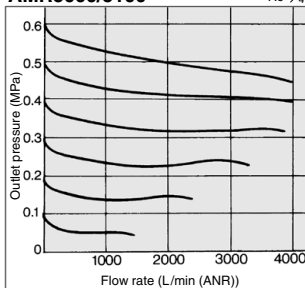
AMR4000/4100

Rc $\frac{3}{8}$



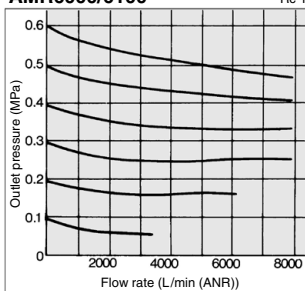
AMR5000/5100

Rc $\frac{3}{4}$



AMR6000/6100

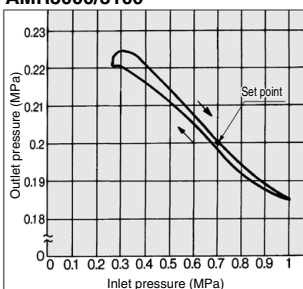
Rc 1



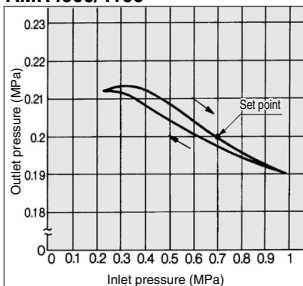
Pressure Characteristics (Representative values)

Inlet pressure: 0.7 MPa Outlet pressure: 0.2 MPa

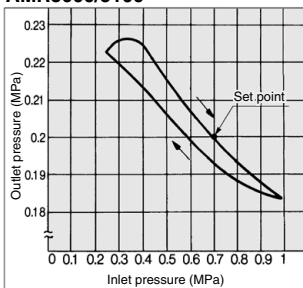
AMR3000/3100



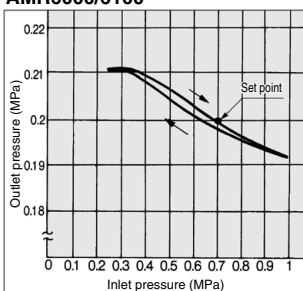
AMR4000/4100



AMR5000/5100



AMR6000/6100



⚠ Precautions

Be sure to read this before handling the products. Refer to page 9 for safety instructions and pages 13 to 17 for precautions on every series.

Mounting/Adjustment

⚠ Warning

1. Do not place a magnetic object near the pressure switch. Unintended operation may result.

⚠ Caution

1. Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the knob or cause the outlet pressure to fluctuate.
- 1) On the AMR3000 type, pull the adjustment knob to release the lock and push the knob to engage the lock. If it does not lock easily, turn the knob slightly clockwise or counterclockwise before pushing it.
- 2) On the AMR4000 to 6000 types, pull the adjustment knob to release the lock. (An orange colored line is provided at the bottom of the adjustment knob for visual checking.) Push the adjustment knob to engage the lock. If it does not locked easily, turn the knob slightly clockwise or counterclockwise; then, push it until the orange colored line is no longer visible.



Maintenance

⚠ Warning

1. Replace the filter element within 2 years of operation or before the pressure drop reaches 0.1 MPa. Failure to observe this precaution could damage the filter element.

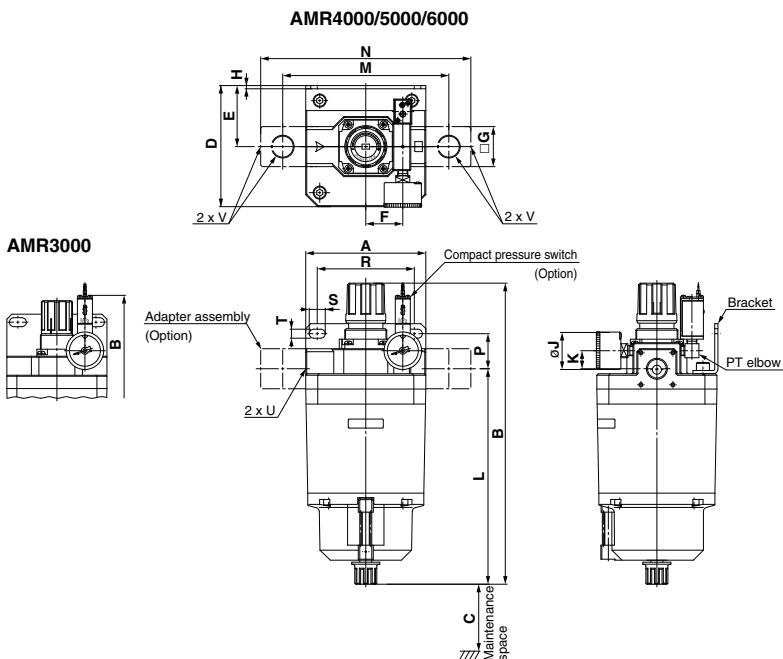
Selection

⚠ 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 the "Product Selection Guide."

Regulator with Mist Separator **AMR3000 to 6000 Series**

Dimensions



* For products with pressure gauge, pressure gauge is shipped together with product.

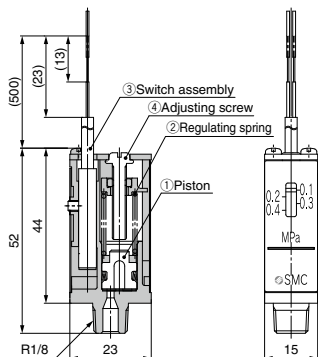
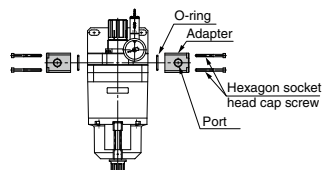
| Model | Port size | | A | B | C | D | E | F | G | H | J | K | L | M | N | Bracket dimensions | | | | With auto drain | |
|---------|---------------|---------------|-----|-----|----|-----|----|----|----|-----|----|------|-----|-----|-----|--------------------|-----|----|----|-----------------|-----|
| | U (Body) | V (Adapter) | | | | | | | | | | | | | | P | R | S | T | B | L |
| AMR3000 | 1/4, 3/8 | 1/4, 3/8 | 100 | 260 | 10 | 101 | 51 | 28 | 32 | 3.2 | 37 | 21.5 | 182 | 144 | 180 | 50 | 78 | 8 | 9 | 260 | 178 |
| AMR4000 | 1/4, 3/8, 1/2 | 1/4, 3/8, 1/2 | 120 | 302 | 10 | 121 | 61 | 37 | 40 | 3.2 | 37 | 18 | 215 | 166 | 210 | 35 | 97 | 16 | 9 | 298 | 211 |
| AMR5000 | 1/2, 3/4 | 1/2, 3/4 | 130 | 370 | 45 | 131 | 66 | 37 | 48 | 4.5 | 42 | 16 | 281 | 188 | 246 | 45 | 98 | 21 | 11 | 366 | 277 |
| AMR6000 | 3/4, 1 | 3/4, 1 | 160 | 440 | 70 | 161 | 81 | 44 | 56 | 4.5 | 42 | 18.5 | 325 | 230 | 290 | 46.5 | 115 | 26 | 11 | 436 | 321 |

Accessory/Compact Pressure Switch: IS10-01

* For details, refer to the Web Catalog.

Adapter Assembly Installation Procedure

1. Install the O-ring in the O-ring groove of the adapter.
2. Orient the adapter port to the desired direction.
3. Using a hexagon wrench, tighten the four hexagon socket head bolts to install an adapter.
4. Screw in the hexagon socket head cap into the unused port of the adapter.



Working principle

When the MR unit's OUT side pressure is applied to piston ①, piston ① moves until it balances with the force of pressure adjustment spring ②. The movement of piston ① is detected by switch assembly ③ and outputs ON and OFF signals.

The set pressure can be adjusted by turning adjustment screw ④, which adjusts the spring force.