### Mist Separator Regulator
#### AWM20 to AWM40

- The AWM series is made up of a regulator and a mist separator to provide optimum results in applications such as clean air blow operations. (Nominal filtration rating: 0.3 μm)

- The AWD series is made up of a regulator and a micro mist separator to provide optimum results in applications such as ultraclean air blow operations. (Nominal filtration rating: 0.01 μm)

#### How to Order

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Rc</td>
</tr>
<tr>
<td>N</td>
<td>NPT</td>
</tr>
<tr>
<td>E</td>
<td>G</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>1/8</td>
</tr>
<tr>
<td>02</td>
<td>1/4</td>
</tr>
<tr>
<td>03</td>
<td>3/8</td>
</tr>
<tr>
<td>04</td>
<td>1/2</td>
</tr>
<tr>
<td>a</td>
<td>Nil</td>
</tr>
<tr>
<td>B</td>
<td>Without mounting option</td>
</tr>
<tr>
<td>H</td>
<td>With bracket</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Nil</td>
</tr>
<tr>
<td>C</td>
<td>Float type auto drain (N.C.)</td>
</tr>
<tr>
<td>D</td>
<td>Float type auto drain (N.O.)</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Nil</td>
</tr>
<tr>
<td>E</td>
<td>Without pressure gauge</td>
</tr>
<tr>
<td>G</td>
<td>Square embedded type pressure gauge</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>Nil</td>
</tr>
<tr>
<td>1</td>
<td>0.05 to 0.85 MPa set</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Nil</td>
</tr>
<tr>
<td>2</td>
<td>Polycarbonate bowl</td>
</tr>
<tr>
<td>6</td>
<td>Metal bowl</td>
</tr>
<tr>
<td>8</td>
<td>Nylon bowl</td>
</tr>
<tr>
<td>C</td>
<td>Metal bowl with level gauge</td>
</tr>
<tr>
<td>6C</td>
<td>With bowl guard</td>
</tr>
<tr>
<td>+</td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Nil</td>
</tr>
<tr>
<td>J</td>
<td>With drain cock</td>
</tr>
<tr>
<td>W</td>
<td>Drain cock with barb fitting: For ø6 x ø4 nylon tube</td>
</tr>
</tbody>
</table>

#### Body size

<table>
<thead>
<tr>
<th>Body size</th>
<th>20</th>
<th>30</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AWD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Symbol
- **Mist Separator Regulator**
- **Micro Mist Separator Regulator**

#### Option / Semi-standard
- Select one each for a to i.
- Option / Semi-standard symbol: When more than one specification is required, indicate in ascending alphanumeric order. For example (AWM30-03BE-1N)
# Standard Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>AWM20</th>
<th>AWM20 to AWM40</th>
<th>AWM30 to AWM40</th>
<th>AWM40 to AWD40</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Port size</strong></td>
<td>1/8, 1/4</td>
<td>1/4, 3/8</td>
<td>1/4, 3/8, 1/2</td>
<td></td>
</tr>
<tr>
<td><strong>Fluid</strong></td>
<td>Air</td>
<td>Air</td>
<td>Air</td>
<td>Air</td>
</tr>
<tr>
<td><strong>Proof pressure</strong></td>
<td>1.5 MPa</td>
<td>1.0 MPa</td>
<td>1.0 MPa</td>
<td></td>
</tr>
<tr>
<td><strong>Maximum operating pressure</strong></td>
<td>1.0 MPa</td>
<td>0.05 to 0.85 MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Set pressure range</strong></td>
<td>0.05 to 0.85 MPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pressure gauge port size</strong></td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
<td>Note 1</td>
</tr>
<tr>
<td><strong>Ambient and fluid temperature</strong></td>
<td>Note 2</td>
<td>Note 2</td>
<td>Note 2</td>
<td>Note 2</td>
</tr>
<tr>
<td><strong>Nominal filtration rating</strong></td>
<td>AWM20 to AWM40</td>
<td>0.3 m (95% filtered particle size)</td>
<td>AWD20 to AWD40</td>
<td>0.01 m (95% filtered particle size)</td>
</tr>
<tr>
<td><strong>Outlet side oil mist concentration</strong></td>
<td>AWM20 to AWM40</td>
<td>Maximum 1.0 mg/m³ (AR) (0.8 ppm)</td>
<td>AWD20 to AWD40</td>
<td>Max. 0.1 mg/m³ (ANR) (Before saturated with 0.001 mg/m³ (ANR) or less 0.008 ppm)</td>
</tr>
<tr>
<td><strong>Rated flow (l/min (ANR))</strong></td>
<td>Note 5</td>
<td>AWM20 to AWM40</td>
<td>150</td>
<td>330</td>
</tr>
<tr>
<td><strong>Drain capacity (cm³)</strong></td>
<td>Note 6</td>
<td>8</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td><strong>Bowl material</strong></td>
<td>Polycarbonate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Bowl guard</strong></td>
<td>Semi-standard</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Regulator construction</strong></td>
<td>Relieving type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>Note 7</td>
<td>0.44</td>
<td>0.59</td>
<td>1.25</td>
</tr>
</tbody>
</table>

**Note 1:** Pressure gauge connection threads are not available for FRL unit with a square diffused type pressure gauge.  
**Note 2:** –5 to 50°C for the products with the Digital pressure switch.  
**Note 3:** When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, use of “wiring down entry” for the lead wire entry.  
**Note 4:** Use D (control valve) for the products with the Digital pressure switch.  
**Note 5:** When choosing with H (panel mount), the installation space for lead wires will not be secured. In this case, ensure that the wiring down entry is used for the lead wire entry.  
**Note 6:** The only difference from the standard specifications is the adjusting spring for the regulator. It does not restrict the setting of 0.2 MPa. When the pressure gauge is attached, a 0.2 MPa pressure gauge will be fitted.  
**Note 7:** Plug type auto drain. The combination between C and D is not available.  
**Note 8:** Without a valve for D.  
**Note 9:** Without a valve for E.  
**Note 10:** For thread type, NPT only.  
**Note 11:** For options: E1, E2, E3, E4. This product is for overseas use only according to the new Measurement Law. (The SI unit is provided for use in Japan.)  
**Note 12:** For thread type: NPT only.
# Specific Product Precautions

## Selection

### Warning

1. Residual pressure release (outlet pressure release) is not complete by releasing inlet pressure. Please contact SMC regarding residual pressure release.

## Air Supply

### Caution

1. Install an air filter (the AF series) as a preliminary filter on the inlet side of the mist separator regulator to prevent premature clogging.

## Maintenance

### Warning

1. Replace the element every 2 years or when the pressure drop becomes 0.1 MPa, whichever comes first, to prevent damage to the element.

### Mounting and Adjustment

#### Warning

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

2. The pressure gauge included with regulators for 0.02 to 0.2 MPa setting is for up to 0.2 MPa use only (except for the AR10). Exceeding 0.2 MPa of pressure can damage the gauge.

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

### Caution

1. Be sure to unlock the knob before adjusting the pressure and lock it after setting the pressure. Failure to follow this procedure can cause damage to the knob and the outlet pressure may fluctuate.

   - Pull the pressure regulator knob to unlock. (You can visually verify this with the "orange mark" that appears in the gap.)

   - Push the pressure regulator knob to lock. When the knob is not easily locked, turn it left and right a little and then push it (when the knob is locked, the "orange mark", i.e., the gap will disappear).

2. A knob cover is available to prevent careless operation of the knob. Refer to "Features 1" for details.

---

**Table: Option / Part No.**

<table>
<thead>
<tr>
<th>Option</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket assembly** (Note 1)**</td>
<td>AWM20-270AS</td>
</tr>
<tr>
<td></td>
<td>AWD20-260S</td>
</tr>
<tr>
<td>Set nut</td>
<td>AR20P-260S</td>
</tr>
<tr>
<td></td>
<td>AR30P-270AS</td>
</tr>
<tr>
<td></td>
<td>AR40P-270AS</td>
</tr>
<tr>
<td></td>
<td>AR40P-260S</td>
</tr>
</tbody>
</table>

**Note 1:** Assembly of a bracket and set nuts

**Note 2:** \(\square\) in part numbers for a round pressure gauge indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. Please contact SMC regarding the connection thread NPT and pressure gauge supply for PSI unit specifications.

**Note 3:** Including O-ring and 2 mounting screws. [ ]: Pressure gauge cover only

**Note 4:** Lead wire with connector (2 m), adaptor, lock pin, O-ring (1 pc.), mounting screw (2 pcs.) are attached. [ ]: Switch body only. Also, regarding how to order the digital pressure switch, please refer to page 73.

**Note 5:** Minimum operating pressure: N.O. type–0.1 MPa; N.C. type–0.1 MPa (AD27) and 0.15 MPa (AD37/47). Please contact SMC for PSI unit and F specifications.
### Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Model</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body</td>
<td>Zinc die-cast</td>
<td>AWM20, AWD20</td>
<td>Platinum silver</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aluminum die-cast</td>
<td>AWM30, AWM40, AWD30, AWD40</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bonnet</td>
<td>Polycetal</td>
<td>AWM20 to AWM40, AWD20 to AWD40</td>
<td>black</td>
</tr>
</tbody>
</table>

### Replacement Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Valve assembly</td>
<td>Brass, HNBR</td>
<td>AWM20P-090AS, AWM30P-090AS, AWM40P-090AS</td>
</tr>
<tr>
<td>4</td>
<td>Element assembly</td>
<td>AWM20 to AWM40</td>
<td>AFM20P-060AS, AFM30P-060AS, AFM40P-060AS</td>
</tr>
<tr>
<td>5</td>
<td>Diaphragm assembly</td>
<td>Weatherable NBR</td>
<td>AR20P-150AS, AR30P-150AS, AR40P-150AS</td>
</tr>
<tr>
<td>7</td>
<td>Bowl assembly</td>
<td>Polycarbonate</td>
<td>C2SF, C3SF-Note 2, C4SF-Note 2</td>
</tr>
</tbody>
</table>

---

**Note 1)** Including O-ring. Please contact SMC regarding the bowl assembly supply for PSI and F unit specifications.

**Note 2)** Bowl assembly for the AWM30, AWM40/AWD30, AWD40 comes with a bowl guard (steel band material).
## Dimensions

### AWM20, AWD20

<table>
<thead>
<tr>
<th>Model</th>
<th>P1</th>
<th>P2</th>
<th>A</th>
<th>B (mm)</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>J</th>
<th>K</th>
<th>Panel fitting dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWM20</td>
<td>1/8</td>
<td>1/8</td>
<td>1/8</td>
<td>40</td>
<td>160</td>
<td>73</td>
<td>26</td>
<td>—</td>
<td>40</td>
<td>26</td>
<td>5</td>
<td>OUT: AWM20/AWD20: Max. 3.5</td>
</tr>
<tr>
<td>AWD20</td>
<td>1/4</td>
<td>3/8</td>
<td>1/2</td>
<td>70</td>
<td>239</td>
<td>92</td>
<td>38</td>
<td>38</td>
<td>42</td>
<td>21</td>
<td>7</td>
<td>OUT: AWM30/AWD30: Max. 3.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AWM40/AWD40: Max. 5</td>
</tr>
</tbody>
</table>

### AWM30, AWM40, AWD30, AWD40

<table>
<thead>
<tr>
<th>Panel fitting dimension</th>
</tr>
</thead>
</table>

### Optional specifications

- With auto drain (N.C.)
- Metal bowl
- With drain guide
- With auto drain (N.O.C.)
- Metal bowl with level gauge
- With drain guide
- Drain cock with barb fitting

### Dimensions

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

### Model

<table>
<thead>
<tr>
<th>Model</th>
<th>Standard specifications</th>
<th>Optional specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Square type pressure gauge</td>
<td>Optional type pressure gauge</td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>Panel fitting dimension</td>
</tr>
</tbody>
</table>

### Applicable model

- AWM20, AWM40/AWD20 to AWD40

### Unit

- M5 x 0.8

### Panel fitting dimension

- IN: OUT

### Note

- The total length of B dimension is the length when the filter regulator handle is unlocked.
Options

Digital Pressure Switch

ISE35—N—25—MLA

1  2  3  4  5

Specifications

- Rated pressure range: 0 to 1 MPa
- Set pressure range: −0.1 to 1 MPa
- Withstand pressure: 1.5 MPa
- Set pressure resolution: 0.01 MPa
- Power supply voltage: 12 to 24 VDC, Ripple (p-p) 10% or less (with power supply polarity protection)
- Current consumption: 55 mA or less (at no load)
- Switch output: NPN or PNP open collector
  - Max. load current: 80 mA
  - Max. applied voltage: 30 V (with NPN output)
  - Residual voltage: 1 V or less (with load current of 80 mA)
  - Response time: 1 s
  - Anti-chattering function: (Response time selections: 0.25, 0.5, 2, 3)
  - Short circuit protection: With short circuit protection
- Repeatability: 1% F.S. or less
- Hysteresis: Variable (can be set from 0)
- Display: 3-digit, 7-segment indicator, 2-color display (Red/Green) can be interlocked with the switch output.
- Display accuracy: 2% F.S. 1 digit (at 25°C 3°C)
- Indication light: Illuminates when output is turned ON. (Green)
- Environmental resistance: IP40
- Lead wire with connector: ø3.4 3-wire 25AWG 2 m

Applicable Series

- F.R.L. unit: AC20, AC25, AC30, AC40, AC50, AC60
  - AC20A, AC30A, AC40A, AC50A, AC60A
  - AC25B, AC30B, AC40B, AC50B, AC60B
  - AC25C, V30C, AC40C
  - AC30D, AC30D, V40D
- Regulator: AR20, AR25, AR30, AR40, AR50, AR60
- Filter regulator: AW20, AW30, AW40, AW60
- Mist separator regulator: AW1M20, AW1M30, AW1M40
- Micro mist separator regulator: AW2D0, AW3D0, AW4D0

Diigital Pressure Switch Details

- NPN output
- PNP output
- With unit switching function
- Fixed SI unit
- Pressure unit: PSI (initial value) with unit display switching function
- Without lead wire
- Lead wire with connector
- With accessories (switch body only)
- With accessories (adapter, O-ring (1 pc.), mounting screw (2 pcs.), lock pin)

Note 1) This product is for overseas use only according to the new Measurement Law.
Note 2) Unit name plate is attached.
Note 3) Instruction manual is attached.
Note 4) When ordering the body only, select the symbol from N to R respectively.
Series AC
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "Caution", "Warning" or "Danger". To ensure safety, be sure to observe ISO 4414 ¹, JIS B 8370 ² and other safety practices.

■Explanation of the Labels

<table>
<thead>
<tr>
<th>Labels</th>
<th>Explanation of the labels</th>
</tr>
</thead>
<tbody>
<tr>
<td>⚠️ Danger</td>
<td>In extreme conditions, there is a possible result of serious injury or loss of life.</td>
</tr>
<tr>
<td>⚠️ Warning</td>
<td>Operator error could result in serious injury or loss of life.</td>
</tr>
<tr>
<td>🔄 Caution</td>
<td>Operator error could result in injury ³ or equipment damage ⁴</td>
</tr>
</tbody>
</table>

¹ ISO 4414: Pneumatic fluid power – General rules relating to systems
² JIS B 8370: General Rules for Pneumatic Equipment
³ Injury indicates light wounds, burns and electrical shocks that do not require hospitalization or hospital visits for long-term medical treatment.
⁴ Equipment damage refers to extensive damage to the equipment and surrounding devices.

■Selection/Handling/Applications

1. The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatic machinery and equipment.

Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of the systems using pneumatic equipment should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

3. Do not service the machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of the machinery/equipment should only be performed once measures to prevent falling or runaway of the driven objects have been confirmed.
2. If the equipment must be removed, confirm the safety process as mentioned above. Turn off the supply pressure for the equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
3. Before the machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. If the equipment will be used in the following conditions or environment, please contact SMC first and be sure to take all necessary safety precautions.

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■Exemption from Liability

1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.

2. SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

3. SMC is exempted from liability for any damages caused by operations not contained in the catalogs and/or instruction manuals, and operations outside of the specification range.

4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.
SMC’S GLOBAL MANUFACTURING, DISTRIBUTION AND SERVICE NETWORK

Akihabara UDX 15F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249   FAX: 03-5298-5362
URL http://www.smcworld.com
© 2006 SMC Corporation  All Rights Reserved
Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.

EUROPE
AUSTRIA
SMC Pneumatik GmbH
BELGIUM
SMC Pneumatics N.V./S.A.
BULGARIA
SMC Industrial Automation Bulgaria EOOD
CZECHIA
SMC Industrijska automatika d.o.o.
CZECH REPUBLIC
SMC Industrial Automation CZ s r o.
DENMARK
SMC Pneumatic A/S
ESTONIA
SMC Pneumatics Estonia OÜ
FINLAND
SMC Pneumatics Finland OY
FRANCE
SMC Pneumatique SA
GERMANY
SMC Pneumatik GmbH
HUNGARY
SMC Hungária Ipari Automatizálási Kft.
IRELAND
SMC Pneumatics (Ireland) Ltd.
ITALY
SMC Italia S.p.A.
LATVIA
SMC Pneumatics Latvia SIA
LITHUANIA
SMC Pneumatics Lietuva, UAB
NETHERLANDS
SMC Pneumatics BV

ASIA
CHINA
SMC (China) Co., Ltd.
HONG KONG
SMC Pneumatics (Hong Kong) Ltd.
INDIA
SMC Pneumatics (India) Pvt. Ltd.
INDONESIA
PT SMC Pneumatics Indonesia
MALAYSIA
PHILIPPINES
SHOKETSU-SMC Corporation
SINGAPORE
SMC Pneumatics (S.E.A.) Pte. Ltd.
SOUTH KOREA
SMC Pneumatics Korea Co., Ltd.
TAIWAN
SMC Pneumatics (Taiwan) Co., Ltd.
THAILAND
SMC Thailand Ltd.

NORTH AMERICA
CANADA
SMC Pneumatics (Canada), Ltd.
MEXICO
SMC Corporation (Mexico) S.A. de C.V.
USA
SMC Corporation of America

SOUTH AMERICA
ARGENTINA
SMC Argentina S.A.
BRAZIL
SMC Pneumaticos Do Brazil Ltda.
CHILE
SMC Pneumatics (Chile) S.A.
VENEZUELA
SMC Neumatica Venezuela S.A.

OCEANIA
AUSTRALIA
SMC Pneumatics (Australia) Pty. Ltd.
NEW ZEALAND
SMC Pneumatics (N.Z.) Ltd.

Safety Instructions: Be sure to read “Precautions for Handling Pneumatic Devices” (M-03-E3A) before using.

SMC Corporation
Akihabara JIJX 10F,
4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN
Phone: 03-5207-8249   FAX: 03-5298-5362
URL http://www.smcworld.com
© 2006 SMC Corporation  All Rights Reserved

This catalog is printed on recycled paper with concern for the global environment.