## Precision Regulator
### Series IR1000/2000/3000

<table>
<thead>
<tr>
<th>Series</th>
<th>Model</th>
<th>Set pressure range</th>
<th>Port size</th>
<th>AC</th>
<th>AV</th>
<th>AU</th>
<th>AF</th>
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<tr>
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### Basic

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<th>Port size</th>
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### Air Operated

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**Image Notes:**
- **Series IR1000/2000/3000**
- **Model:** IR1000, IR1010, IR1020, IR2000, IR2010, IR2020, IR3000, IR3010, IR3020, IR2120, IR3120
- **Set pressure range:**
  - Series IR1000:
    - IR1000: 0.005 to 0.2MPa
    - IR1010: 0.005 to 0.4MPa
    - IR1020: 0.005 to 0.8MPa
  - Series IR2000:
    - IR2000: 0.005 to 0.2MPa
    - IR2010: 0.005 to 0.4MPa
    - IR2020: 0.005 to 0.8MPa
  - Series IR3000:
    - IR3000: 0.01 to 0.2MPa
    - IR3010: 0.01 to 0.4MPa
    - IR3020: 0.01 to 0.8MPa
  - Series IR2000:
    - IR2120: 0.005 to 0.8MPa
  - Series IR3000:
    - IR3120: 0.01 to 0.8MPa
- **Port size:**
  - 1/8
  - 1/4
  - 1/4, 3/8, 1/2
Bracket and pressure gauge can be mounted from 2 directions
Mounting is possible on either the front or the back

Expanded regulating pressure range
The maximum set pressure has been expanded from the conventional 0.7MPa to 0.8MPa

Compact and light weight
IR1000 width 35mm weight 140g
(previously unavailable small size added)
IR2000 width 50mm weight 300g
▲ width 14%, weight ▲6% Compared to SMC IR200
IR3000 width 66mm weight 640g
▲ width 21%, weight ▲36% Compared to SMC IR400

2 air operated models
Air operated style added to series IR2000

Manifolding is possible
Made to order specifications (except series IR2120, IR3000)
Modular body introduced
Can be combined with AF (air filter) and AFM (mist separator).

Superior relief flow characteristics
Relief flow has been increased by nearly 5 times
(compared to SMC IR201, IR401)

Attachments such as a pressure switch can be mounted as accessories
Applicable modular sizes
IR1000: Modular 2000 type
IR2000: Modular 3000 type
IR3000: Modular 4000 type
(Refer to p.1.1-17 for types of attachments.)

Series Variations

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Model</th>
<th>Basic</th>
<th>Air operated</th>
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<tbody>
<tr>
<td>Maximum set pressure</td>
<td>IR10</td>
<td>IR100</td>
<td>IR1000</td>
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<tr>
<td>0.2MPa</td>
<td>•</td>
<td>•</td>
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<tr>
<td>0.4MPa</td>
<td>•</td>
<td>•</td>
<td>–</td>
</tr>
<tr>
<td>0.8MPa</td>
<td>•</td>
<td>•</td>
<td>–</td>
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<tr>
<td>Port size</td>
<td>IR20</td>
<td>IR200</td>
<td>IR2000</td>
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<tr>
<td>Rc(PT) 1/8</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Rc(PT) 1/4</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Rc(PT) 3/8</td>
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<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Rc(PT) 1/2</td>
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Available – Not available

Made to Order Specifications

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Specifications/Content</th>
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<tbody>
<tr>
<td>10–</td>
<td>Clean room specifications</td>
</tr>
<tr>
<td>20–</td>
<td>Copper-free specifications</td>
</tr>
<tr>
<td>80–</td>
<td>Ozone resistant specifications</td>
</tr>
<tr>
<td>–T</td>
<td>For high temperature</td>
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<tr>
<td>–L</td>
<td>For low temperature</td>
</tr>
<tr>
<td>–X1</td>
<td>Non-grease specifications</td>
</tr>
<tr>
<td>IRML</td>
<td>Manifold (except series IR2120, IR3000)</td>
</tr>
</tbody>
</table>

* Refer to p.1.6-11 for details.
**Constant fluid pressure**

- Since there is a large effective area for supply and exhaust, pressure setting can be done quickly.

**Balance and drive**
Accurate balance pressure setting

- Limits pressure fluctuation when driving a cylinder, maintaining excellent static and dynamic balance.

**Accurate pressure setting – Sensitivity within 0.2%F.S. (full span)**
Tension controller

**Contact pressure control**

- Adapts to the cylinder's piston displacement, maintaining a constant pressure.

**Multistage control of work piece pressing force (Wrapping machine)**

**Leak test circuit**
## Standard Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Basic style</th>
<th>Air operated style</th>
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<tbody>
<tr>
<td></td>
<td>Max. supply pressure</td>
<td>Minimum 1.0MPa</td>
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<tr>
<td></td>
<td>Min. supply pressure</td>
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</tr>
<tr>
<td>IR1000</td>
<td>IR2000</td>
<td>IR3000</td>
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</table>

### Set pressure range
- IR1000: 0.005 to 0.2MPa
- IR1010: 0.005 to 0.4MPa
- IR1020: 0.005 to 0.8MPa
- IR2000: 0.005 to 0.2MPa
- IR2010: 0.005 to 0.4MPa
- IR2020: 0.005 to 0.8MPa
- IR3000: 0.005 to 0.2MPa
- IR3010: 0.005 to 0.4MPa
- IR3020: 0.005 to 0.8MPa

### Input signal pressure
- IR1000: Maximum 1.0MPa
- IR2000: Maximum 1.0MPa
- IR3000: Maximum 1.0MPa

### Sensitivity
- IR1000: Within 0.2% of full span
- IR2000: Within ±0.5% of full span
- IR3000: Within ±1% of full span

### Repeatability
- IR1000: Within ±0.5% of full span
- IR2000: Within ±0.5% of full span
- IR3000: Within ±0.5% of full span

### Linearity
- IR1000: Within ±0.5% of full span
- IR2000: Within ±0.5% of full span
- IR3000: Within ±0.5% of full span

### Air consumption
- IR1000: 5l/min (ANR) or less (supply pressure: 1.0MPa)
- IR2000: 4l/min (ANR) or less (supply pressure: 1.0MPa)
- IR3000: 4l/min (ANR) or less (supply pressure: 1.0MPa)

### Pressure gauge port
- IR1000: Rc(PT) 1/8
- IR2000: Rc(PT) 1/4
- IR3000: Rc(PT) 1/4, 3/8, 1/2

### Which side to install the pressure gauge
- IR1000: Basic (handle)
- IR2000: Air operated (series IR2000/3000 only)
- IR3000: Air operated (series IR2000/3000 only)

### Notes:
1. With the condition of no flow on the output side. Together with the set pressure, be sure to maintain a minimum differential pressure of 0.05MPa for models IR1000 and IR2000, and 0.1MPa for model IR3000.
2. Applicable only to air operated styles IR2120 and IR3120. The basic style is excepted.
3. Indicates the linearity of the output pressure with respect to the input signal pressure.
4. Air is normally being discharged to the atmosphere.

### How to Order

#### Body size
- 1: IR1000
- 2: IR2000
- 3: IR3000

#### Set pressure range
- For series IR1000/2000
  - 0: 0.005 to 0.2MPa
  - 1: 0.005 to 0.4MPa
  - 2: 0.005 to 0.8MPa
- For series IR3000
  - 0: 0.01 to 0.2MPa
  - 1: 0.01 to 0.4MPa
  - 2: 0.01 to 0.8MPa

#### Type of setting
- 0: Basic (handle)
- 1: Air operated (series IR2000/3000 only)

#### Port size
- Symbol: Size
- IR1000: 1/8
- IR2000: 1/4
- IR3000: 3/8
- Note: The air operated style is model IR2120 only.

#### Accessories
- None
- B: With bracket
- G: With pressure gauge

#### Thread style
- N: NPT
- F: G(PF)

### JIS symbol
- Precision regulator
- Series IR1000/2000/3000
- Basic style
- Air operated style
- Note) Pressure gauge mounted on reverse side
### Series IR1000/2000/3000

#### Specification Combinations

- **Standard specifications**: Set pressure max. 0.2MPa, Set pressure max. 0.4MPa, Set pressure max. 0.8MPa, Connection Rc(PT) 1/8, Connection Rc(PT) 1/4, Connection Rc(PT) 3/8, Connection Rc(PT) 1/2
- **Optional specifications**
  - Pressure gauge
  - Pressure gauge reverse mounted

<table>
<thead>
<tr>
<th>Specifications</th>
<th>IR1000</th>
<th>IR1010</th>
<th>IR1020</th>
<th>IR2000</th>
<th>IR2010</th>
<th>IR2020</th>
<th>IR2120</th>
<th>IR3000</th>
<th>IR3010</th>
<th>IR3020</th>
<th>IR3120</th>
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#### Modular Products and Accessory Combinations

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<th>Description</th>
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<tr>
<td>Air filter</td>
<td>IR10:00</td>
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<tr>
<td>Mist separator</td>
<td>IR20:00/IR2120</td>
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### Accessories (Optional)

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<td>IR3020 / 3120</td>
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</table>

* Accuracy ±3% (full span)
When the setting knob is turned, the nozzle is closed by the flapper allowing the supply air that flows in from the upstream side to pass through the fixed orifice and to act on diaphragm B as nozzle back pressure, the main valve is pushed down by the generated force and the supply pressure flows out to the downstream side. The air pressure that flows in acts on diaphragm C and while opposing the force generated by diaphragm B, it also acts on diaphragm A opposing the compression force of the setting spring and becomes the set pressure. If the set pressure rises too high, diaphragm A is pushed up, the interval between the flapper and the nozzle widens, the nozzle back pressure drops, the balance of diaphragms B and C is broken, the main valve closes, the exhaust valve opens and the excess pressure from the downstream side is discharged to the atmosphere. In this way fine pressure variations are detected by the nozzle/flapper style pilot mechanism, and precise pressure adjustment is performed.

### Operating Principles (for IR2000)
When the setting knob is turned, the nozzle is closed by the flapper allowing the supply air that flows in from the upstream side to pass through the fixed orifice and to act on diaphragm B as nozzle back pressure, the main valve is pushed down by the generated force and the supply pressure flows out to the downstream side. The air pressure that flows in acts on diaphragm C and while opposing the force generated by diaphragm B, it also acts on diaphragm A opposing the compression force of the setting spring and becomes the set pressure. If the set pressure rises too high, diaphragm A is pushed up, the interval between the flapper and the nozzle widens, the nozzle back pressure drops, the balance of diaphragms B and C is broken, the main valve closes, the exhaust valve opens and the excess pressure from the downstream side is discharged to the atmosphere. In this way fine pressure variations are detected by the nozzle/flapper style pilot mechanism, and precise pressure adjustment is performed.

### Replacement Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Material</th>
<th>IR1000</th>
<th>IR2000</th>
<th>IR3000</th>
<th>IR120</th>
<th>IR1320</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Diaphragm assembly</td>
<td>NBR, other</td>
<td>P362010-1</td>
<td>P362020-2</td>
<td>P362020-5</td>
<td>P362020-13</td>
<td>P362020-13</td>
</tr>
<tr>
<td>3</td>
<td>Diaphragm assembly</td>
<td>NBR, other</td>
<td>P362020-15</td>
<td>P362020-15</td>
<td>P362020-15</td>
<td>P362020-15</td>
<td>P362020-15</td>
</tr>
<tr>
<td>4</td>
<td>Valve</td>
<td>Stainless steel, NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>5</td>
<td>Valve</td>
<td>Brass, NBR</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
</tr>
<tr>
<td>6</td>
<td>Valve</td>
<td>Brass, NBR</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
<td>P362030-1</td>
</tr>
<tr>
<td>7</td>
<td>Damper</td>
<td>Stainless steel, NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>8</td>
<td>O ring</td>
<td>NBR, other</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
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<tr>
<td>9</td>
<td>O ring</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
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<td>P362020-1</td>
<td>P362020-1</td>
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<tr>
<td>10</td>
<td>O ring</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
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<tr>
<td>11</td>
<td>O ring</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>12</td>
<td>O ring</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>13</td>
<td>Seal (A)</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>14</td>
<td>Seal (B)</td>
<td>NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
<tr>
<td>15</td>
<td>Fixed orifice</td>
<td>Stainless steel, NBR</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
<td>P362020-1</td>
</tr>
</tbody>
</table>

### Service Parts Kit No. (Set of above items 1 through 14)

- KT-IR1000 (IR1000)
- KT-IR2000 (IR2000)
- KT-IR3000 (IR3000)
- KT-IR1200 (IR1200)
- KT-IR1320 (IR1320)

---

**Note 1)** IR1000 uses P36201020-1 and IR1010/1020 use P36201020.  
**Note 2)** Use mini-flick style.  
**Note 3)** IR1000 uses KT-IR1000 and IR1010/1020 use KT-IR1010.
Series IR1000/2000/3000

Dimensions

IR10-0-01

IR20-0-02

IR30-0-0

IR2120-02

IR3120-0

IR3120-0

SMC OUT

SMC OUT}

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)

Panel mounting hole

Mounting hole

Bracket (optional)

Pressure gauge (optional)
Flow characteristics

* Testing methods conform to JIS B8372.

**IR1000-01**
- Conditions: Supply pressure 0.5MPa
- Conditions: Back pressure 0.7MPa
- Conditions: Back pressure 1.0MPa
- Flow rate 0 l/min (ANR)

**IR1010-01**
- Conditions: Supply pressure 0.7MPa
- Conditions: Supply pressure 1.0MPa

**IR1020-01**
- Conditions: Supply pressure 1.0MPa

Relief characteristics

**IR1000-01**
- Conditions: Back pressure 0.5MPa

**IR1010-01**
- Conditions: Back pressure 0.7MPa

**IR1020-01**
- Conditions: Back pressure 1.0MPa

Pressure characteristics

**IR1000-01**
- Conditions: Supply pressure 0.7MPa
- Set pressure 0.2MPa
- Flow rate 0 l/min (ANR)

**IR1010-01**
- Conditions: Supply pressure 0.7MPa

**IR1020-01**
- Conditions: Supply pressure 0.7MPa

Series IR1000/2000/3000
### Flow characteristics

* Testing methods conform to JIS B8372.

**IR2000-02**
- Conditions: Supply pressure 0.5MPa

**IR2010-02**
- Conditions: Supply pressure 0.7MPa

**IR2020-02**
- Conditions: Supply pressure 1.0MPa

**IR2120-02**
- Conditions: Supply pressure 1.9MPa

### Relief characteristics

**IR2000-02**
- Conditions: Back pressure 0.5MPa

**IR2010-02**
- Conditions: Back pressure 0.7MPa

**IR2020-02**
- Conditions: Back pressure 1.0MPa

### Pressure characteristics

**IR2000-02**
- Supply pressure $P_1$ (MPa)
- Set pressure $P_2$ (MPa)

**IR2010-02**
- Supply pressure $P_1$ (MPa)
- Set pressure $P_2$ (MPa)

**IR2020-02**
- Supply pressure $P_1$ (MPa)
- Set pressure $P_2$ (MPa)
Flow characteristics

* Testing methods conform to JIS B8372.

IR3000-03 Conditions: Supply pressure 0.5MPa

IR3000-03 Conditions: Back pressure 0.5MPa

IR3010-03 Conditions: Supply pressure 0.7MPa

IR3010-03 Conditions: Back pressure 0.7MPa

IR3020-03 Conditions: Supply pressure 1.0MPa

IR3020-03 Conditions: Back pressure 1.0MPa

IR3120-03 Conditions: Supply pressure 1.0MPa

IR3120-03 Conditions: Back pressure 1.0MPa

Relief characteristics

IR3000-03 Conditions: Supply pressure 0.5MPa

IR3000-03 Conditions: Back pressure 0.5MPa

IR3010-03 Conditions: Supply pressure 0.7MPa

IR3010-03 Conditions: Back pressure 0.7MPa

IR3020-03 Conditions: Supply pressure 1.0MPa

IR3020-03 Conditions: Back pressure 1.0MPa

IR3120-03 Conditions: Supply pressure 1.0MPa

IR3120-03 Conditions: Back pressure 1.0MPa

Pressure characteristics

IR3000-03 Conditions: Supply pressure 0.7MPa

IR3000-03 Conditions: Back pressure 0.5MPa

IR3010-03 Conditions: Supply pressure 0.7MPa

IR3010-03 Conditions: Back pressure 0.7MPa

IR3020-03 Conditions: Supply pressure 1.0MPa

IR3020-03 Conditions: Back pressure 1.0MPa

IR3120-03 Conditions: Supply pressure 1.0MPa

IR3120-03 Conditions: Back pressure 1.0MPa
Series IR1000/2000/3000
Made to Order Specifications
Contact SMC for detailed dimensions, specifications and delivery times.

1. Clean Room

- Standard model number

- Clean room specifications

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Cleanliness</th>
<th>Class 10000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleed port</td>
<td>With M5 fitting (applicable tube O.D. ø6)</td>
<td></td>
</tr>
<tr>
<td>EXH port</td>
<td>IR1000/2000: M5 fitting (applicable tube O.D. ø6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IR3000: Rc(PT) 1/2 female thread</td>
<td></td>
</tr>
<tr>
<td>Grease</td>
<td>Teflon® grease</td>
<td></td>
</tr>
</tbody>
</table>

2. Copper-free

- Standard model number

- Copper-free specifications

External and internal copper parts are changed to stainless steel or aluminum.

3. Ozone Resistant

- Standard model number

- Ozone resistant specifications

Fluoro rubber is used for rubber seal materials.

4. For High and Low Temperature Environments

- Standard model number

- For high/low temperature environments

<table>
<thead>
<tr>
<th>Specifications</th>
<th>T</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symbol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment</td>
<td>For high temp. environments</td>
<td>For low temp. environments</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-5 to 100°C</td>
<td>-30 to 60°C</td>
</tr>
<tr>
<td>Rubber material</td>
<td>Fluoro rubber</td>
<td>Special NBR or silicon rubber</td>
</tr>
</tbody>
</table>

5. Non-Grease

- Standard model number

- Non-grease specifications

Assembly is performed in an ordinary environment without using grease. However, since parts are not washed, they are not completely oil-free.

6. Manifold (except type IR2120 and series IR3000)

- Standard model number

- Manifold style regulator

2 to 8 station manifold style regulators. (Contact SMC regarding 9 or more stations.)

<table>
<thead>
<tr>
<th>IRM 10 3 G</th>
</tr>
</thead>
<tbody>
<tr>
<td>G33-01 (IR1000), G43-01 (IR2000)</td>
</tr>
</tbody>
</table>

- Set pressure and quantity

Example 1) 0.4MPa setting with 6 stations
IRM10-6G-16
Example 2) 0.2MPa setting 2 pcs., 0.4MPa setting 2 pcs., 0.8MPa setting 1 pc. with 5 stations
IRM20-5G-021221

- Accessory (pressure gauge)

<table>
<thead>
<tr>
<th>G</th>
<th>IR1000: G33-01, IR2000: G43-01</th>
</tr>
</thead>
</table>

- Stations

<table>
<thead>
<tr>
<th>2</th>
<th>2 stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>8 stations</td>
</tr>
</tbody>
</table>

- Body size

<table>
<thead>
<tr>
<th>10</th>
<th>IR1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>IR2000</td>
</tr>
</tbody>
</table>

- Manifold style regulator

Note 1) Regulators to be manifolded are counted starting from station 1 on the left side with the OUT ports in front.

Note 2) When regulators with a different set pressure range are manifolded, viewing OUT ports from front the low pressure range is installed on the left side and the high pressure range is on the right side. In case of the "Example 2)" above mentioned, stations 1 and 2 are of 0.2MPa setting, stations 3 and 4 are of 0.4MPa setting, and station 5 is of 0.8MPa setting.

Note 3) Consult SMC when a blank plate is needed.

Teflon® is a registered tradename of DuPont.

1.6-12
## Air Supply

**Caution**
1. If the supply pressure line contains drainage or dirt, etc., the fixed throttle can become clogged leading to malfunction, and therefore, in addition to an air filter (SMC Series AF) be sure to use a mist separator (SMC Series AM, AFM). Refer to SMC's "Compressed Air Cleaning Systems" catalogue regarding air quality.
2. Never use a lubricator on the supply side of the regulator, as this will positively cause the fixed throttle to become clogged and lead to malfunction. If lubrication is required for terminal devices, connect a lubricator on the output side of the regulator.

## Maintenance

**Warning**
1. When the valve guide (refer to construction drawing on p.1.6-6) is to be removed during maintenance, first reduce the set pressure to "0" and completely shut off the supply pressure.
2. When a pressure gauge is to be mounted, remove the plug after reducing the set pressure to "0".

**Caution**
1. Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)
2. When mounting is performed, make connections while confirming port indications.

## Operation

**Caution**
1. If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the supply side of the regulator and repeatedly switched ON and OFF, wear of the nozzle/flapper section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the supply side. In the event a directional switching valve will be used, install it on the output side of the regulator.
2. Air is normally discharged from the bleed port (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.
3. Be sure to tighten the lock nut after pressure adjustment.

**Precautions for IR30□0, IR3120 only**

**Warning**
1. The supply pressure is relatively high (approx. 0.5MPa or more), the set pressure is low (approx. 0.1MPa or less), and when operated with the output side released to the atmosphere, there may be pulsations in the setting side pressure. In this kind of situation, operate with the supply pressure reduced as much as possible, or increase the set pressure somewhat and restrict the output line (add and adjust a stop valve, etc.).
2. The capacity of the output side is large, and when used for the purpose of a relief function, the exhaust sound will be loud when being relieved. Therefore, operate with a silencer (SMC Series AN) mounted on the exhaust port (EXH port). The connection is Rc(PT) 1/2.

**Caution**
1. Since the output of types IR2120 and IR3120 is the same pressure as the input signal pressure, select a type of regulator (general purpose or precision type) for input signal pressure adjustment according to the application.
2. The screw on the topmost section is a zero point adjustment screw which is locked at the factory and requires no adjustment for operation.
1. Screw piping together with the recommended proper torque while holding the side with female threads. Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive. Furthermore, if the side with the female threads is not held while tightening, excessive force will be applied directly to piping brackets, etc. causing damage or other problems.

2. Do not allow twisting or bending moment to be applied other than the weight of the equipment itself. Provide separate support for external piping, as damage may otherwise occur.

3. Since excessive moment loads and the propagation of vibrations, etc. can easily result from inflexible piping made of steel, etc., avoid these problems by using flexible tubing for intermediate connections.

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>1/8</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque</td>
<td>7 to 9</td>
<td>12 to 14</td>
<td>22 to 24</td>
<td>28 to 30</td>
</tr>
</tbody>
</table>

2. Do not operate in locations having an atmosphere of corrosive gases, chemicals, sea water, water or steam, or where there will be contact with the same.

2. Do not operate in locations where vibration or impact occurs.

3. Do not use compressed air which includes chemicals, synthetic oils containing organic solvents, salt, or corrosive gases, etc., as this can cause damage or malfunction.

3. If drainage is not removed from air filters and mist separators, it can flow out to the downstream side and lead to the malfunction of pneumatic equipment. In cases where the management of drainage removal will be difficult, the use of filters with auto drains is recommended.