Precision Regulator

IR1000-A/2000-A/3000-A Series

Reduced by
Up to approx. **90%**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 or less</td>
<td>4.4</td>
<td>IR1000-A/IR2000-A</td>
</tr>
<tr>
<td>1 or less</td>
<td>11.5</td>
<td>IR3000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000/3000 Series

Up to approx. **twice**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
<td>320</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>1900</td>
<td>940</td>
<td>IR2000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000 Series

Reduced by up to approx. **27%**

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.13</td>
<td>0.14</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>0.23</td>
<td>0.30</td>
<td>IR2000-A</td>
</tr>
<tr>
<td>0.47</td>
<td>0.64</td>
<td>IR3000-A</td>
</tr>
</tbody>
</table>

* Compared with the current IR1000/2000 Series

Sensitivity: **0.2%** (Full span)
Repeatability: **±0.5%** (Full span)

Space saving
New structure without fixed throttle does not require a mist separator.

Reduced by **71 mm**

Digital pressure switch standardized

789
**Reduction in air consumption**

Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.

**Annual cost reduction effect**

Comparison between IR3000-A and the current IR3000

- When 20 units are used:
  - 91% reduction
  - 117,000 yen reduction

Comparison between IR1000-A/IR2000-A and the current IR1000/IR2000

- When 20 units are used:
  - 77% reduction
  - 38,000 yen reduction

**No fixed throttle in the new design.**

- Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to “Air Preparation Equipment Model Selection Guide” (pages 2 and 3) for air quality.

**Flow rate: Up to approx. twice**

(Compared to the current SMC product)

<table>
<thead>
<tr>
<th>IR</th>
<th>Current model</th>
<th>Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
<td>320</td>
<td>IR1000-A</td>
</tr>
<tr>
<td>1900</td>
<td>940</td>
<td>IR2000-A</td>
</tr>
</tbody>
</table>

Supply pressure: 0.7 MPa
Exhaust (EXH) directions can be selected. (IR3000-A series)
Bottom and front exhaust added.

- Sensitivity: 0.2% (Full span)
- Repeatability: ±0.5% (Full span)

Mounting is interchangeable with the current SMC model.

Hexagon panel nut mounting
- Interchangeable with the current SMC product

Pressure gauge

New IR can be used between a cylinder and solenoid valve.

Note) The set pressure may vary depending on the elapsed time and change in ambient temperature after pressure setting. If the setting value varies, adjust the pressure with the knob.
**Application Examples**

**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)
  - Contact pressure control
  - Multistage control of pressing force for workpiece (Wrapping machine)
    - Adapts to the cylinder's piston displacement, maintaining a constant pressure.

**Residual pressure relief**
- Ex.) Backflow from the tank
  - Residual pressure is exhausted by relief function.

**Leak test circuit**

**Usage between a cylinder and solenoid valve**
- Ex.) Between a cylinder and solenoid valve
  - It can be used between a cylinder and solenoid valve. (Refer to the Specific Product Precautions on page 806.)
### Series Variations

<table>
<thead>
<tr>
<th>Series</th>
<th>Model</th>
<th>Set pressure range (MPa)</th>
<th>Port size</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR1000-A</td>
<td>IR1000-A</td>
<td>0.005 to 0.2</td>
<td>1/8</td>
</tr>
<tr>
<td></td>
<td>IR1010-A</td>
<td>0.01 to 0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IR1020-A</td>
<td>0.01 to 0.8</td>
<td></td>
</tr>
<tr>
<td>IR2000-A</td>
<td>IR2000-A</td>
<td>0.005 to 0.2</td>
<td>1/4</td>
</tr>
<tr>
<td></td>
<td>IR2010-A</td>
<td>0.01 to 0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IR2020-A</td>
<td>0.01 to 0.8</td>
<td></td>
</tr>
<tr>
<td>IR3000-A</td>
<td>IR3000-A</td>
<td>0.01 to 0.2</td>
<td>1/4, 3/8, 1/2</td>
</tr>
<tr>
<td></td>
<td>IR3010-A</td>
<td>0.01 to 0.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IR3020-A</td>
<td>0.01 to 0.8</td>
<td></td>
</tr>
</tbody>
</table>

*Outlet pressure is less affected by fluctuation of inlet pressure. New IR offers consistent pressure control.*

Note: The set pressure may vary depending on the elapsed time and change in ambient temperature after pressure setting. If the setting value varies, adjust the pressure with the knob.
Standard Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>IR1000-A</th>
<th>IR2000-A</th>
<th>IR3000-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid</td>
<td>Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proof pressure</td>
<td>1.5 MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. supply pressure</td>
<td>1.0 MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. supply pressure Note 1)</td>
<td>IR1000-A: 0.005 to 0.2 MPa</td>
<td>IR2000-A: 0.005 to 0.2 MPa</td>
<td>IR3000-A: 0.01 to 0.2 MPa</td>
</tr>
<tr>
<td>Set pressure range</td>
<td>IR1010-A: 0.01 to 0.4 MPa</td>
<td>IR2010-A: 0.01 to 0.4 MPa</td>
<td>IR3010-A: 0.01 to 0.4 MPa</td>
</tr>
<tr>
<td></td>
<td>IR1020-A: 0.01 to 0.8 MPa</td>
<td>IR2020-A: 0.01 to 0.8 MPa</td>
<td>IR3020-A: 0.01 to 0.8 MPa</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>Within 0.2% of full span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability Note 2)</td>
<td>Within ±0.5% of full span</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air consumption Note 3)</td>
<td>1 L/min (ANR) or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port size</td>
<td>1/8</td>
<td>1/4</td>
<td>1/4, 3/8, 1/2</td>
</tr>
<tr>
<td>Pressure gauge port</td>
<td>1/8 (2 locations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient and fluid temperature Note 4)</td>
<td>−5 to 60°C (No freezing)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>0.13</td>
<td>0.23</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Note 1) When there is no flow rate on the outlet.
Note 2) Other characteristics such as aging deterioration and temperature characteristics are not included.
Note 3) Measuring conditions: supply pressure 1.0 MPa, set pressure 0.2 MPa.
Note 4) 0 to 50°C for the products with the digital pressure switch.
Note 5) Without accessories.

Accessories (Option)/Part No.

<table>
<thead>
<tr>
<th>Description Note 1)</th>
<th>IR1000-A</th>
<th>IR2000-A</th>
<th>IR3000-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket assembly</td>
<td>IR10P-501AS</td>
<td>IR20P-501AS</td>
<td>IR30P-501AS</td>
</tr>
<tr>
<td>Hexagon panel nut</td>
<td>IR10P-600S</td>
<td>IR20P-600S</td>
<td>IR20P-600S</td>
</tr>
<tr>
<td>Round type pressure gauge Note 2)</td>
<td>G33-2-□□01</td>
<td>G43-2-□□01</td>
<td>G43-2-□□01</td>
</tr>
<tr>
<td>0.4 MPa setting</td>
<td>G33-4-□□01</td>
<td>G43-4-□□01</td>
<td>G43-4-□□01</td>
</tr>
<tr>
<td>0.8 MPa setting</td>
<td>G33-10-□□01</td>
<td>G43-10-□□01</td>
<td>G43-10-□□01</td>
</tr>
<tr>
<td>Digital pressure switch Note 3)</td>
<td>NPN 1 output</td>
<td>ISE30A-□□01-N-ML</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PNP 1 output</td>
<td>ISE30A-□□01-P-ML</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NPN 1 output/ Voltage output</td>
<td>ISE30A-□□01-C-ML</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NPN 1 output/ Current output</td>
<td>ISE30A-□□01-D-ML</td>
<td></td>
</tr>
</tbody>
</table>

Note 1) This is an assembly of the bracket and set nut.
Note 2) □ in part numbers for a round type pressure gauge indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. A 1.0 MPa pressure gauge is fitted for 0.8 MPa setting. Please contact SMC regarding the supply of pressure gauge with psi unit specifications.
Note 3) □ in part numbers for a digital pressure switch indicates a type of connection thread. No indication is necessary for R; however, indicate N for NPT. For details on handling digital pressure switch and specifications, refer to the Best Pneumatics No. 8. Please contact SMC regarding the supply of digital pressure switch with unit conversion function.

Modular Products and Accessories

<table>
<thead>
<tr>
<th>Applicable products and accessories</th>
<th>IR1000-A series</th>
<th>IR2000-A series</th>
<th>IR3000-A series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filter</td>
<td>AF20-A</td>
<td>AF30-A</td>
<td>AF40-A</td>
</tr>
<tr>
<td>Spacer</td>
<td>Y200-A</td>
<td>Y300-A</td>
<td>Y400-A</td>
</tr>
<tr>
<td>Spacer with bracket</td>
<td>Y200T-A</td>
<td>Y300T-A</td>
<td>Y400T-A</td>
</tr>
</tbody>
</table>

Refer to pages 427 and 430 for details of the modular applicable products and accessories. The former modular and mounting brackets can be used.

© SMC
## How to Order

**IR1000-A/2000-A/3000-A Series**

### Symbol Description

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Body size</td>
</tr>
<tr>
<td>2</td>
<td>Set pressure range:</td>
</tr>
<tr>
<td>3</td>
<td>Exhaust direction:</td>
</tr>
<tr>
<td>4</td>
<td>Pipe thread type:</td>
</tr>
<tr>
<td>5</td>
<td>Port size:</td>
</tr>
<tr>
<td>6</td>
<td>Mounting:</td>
</tr>
<tr>
<td>7</td>
<td>Pressure gauge:</td>
</tr>
<tr>
<td>8</td>
<td>Option:</td>
</tr>
<tr>
<td>9</td>
<td>Option/Semi-standard:</td>
</tr>
</tbody>
</table>

### Made to Order (Refer to page 804-1)

**Symbol** | **Specifications/Content**
---|---
10- | Clean series
25A- | Secondary battery compatible
-X1155 | Fluororubber specification
-X1 | Non-grease specifications
IRM- | Manifold specifications

**Option/Semi-standard:** Select one each for a to e.
**Option/Semi-standard symbol:** When more than one specification is required, indicate in alphanumeric order.

### Symbol Specifications/Content

- **10- Clean series**
- **25A- Secondary battery compatible**
- **-X1155 Fluororubber specification**
- **-X1 Non-grease specifications**
- **IRM- Manifold specifications**

### Pipe thread type

- **Nil**
- **Rc**
- **NPT**
- **G**

### Port size

- **01** 1/8
- **02** 1/4
- **03** 3/8
- **04** 1/2

### Mounting

- **Nil** Without mounting option
- **B** With bracket
- **H** With hexagon panel nut (for panel mount)

### Pressure gauge

- **Nil** Without pressure gauge
- **G** Round type pressure gauge

### With digital pressure switch

- **EA** NPN open collector 1 output
- **EB** PNP open collector 1 output
- **EC** NPN open collector 1 output + Analog voltage output
- **ED** NPN open collector 1 output + Analog current output

### Flow direction

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

### Knob

- **Nil** Upward
- **V** Downward

### Pressure unit

- **Nil** Name plate and pressure gauge in imperial units: psi
- **Z** Name plate and pressure gauge in imperial units: psi
- **ZA** Digital pressure switch: With unit conversion function

### Notes:

1. Options are shipped together with the product, but not assembled. B and H cannot be selected at the same time. The current bracket cannot be used for this product.
2. Assembly of a bracket and set nuts.
3. See pressure unit table below.
4. For pipe thread type: NPT
5. For options: EA, EB, EC, ED
6. According to the new Measurement Law, only the SI unit type is provided for use in Japan.

### Pressure unit table below.

<table>
<thead>
<tr>
<th>Pipe thread type</th>
<th>Name plate in imperial units</th>
<th>Pressure gauge in imperial units</th>
<th>Sales Note 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>Rc</td>
<td>MPa</td>
<td>Japan, Overseas</td>
</tr>
<tr>
<td></td>
<td>NPT</td>
<td>—</td>
<td>Only overseas</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>—</td>
<td>Only overseas</td>
</tr>
<tr>
<td>Z Note 4</td>
<td>Rc</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>NPT</td>
<td>psi</td>
<td>Only overseas</td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>—</td>
<td>Only overseas</td>
</tr>
<tr>
<td>ZA Note 5</td>
<td>Rc</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>NPT</td>
<td>—</td>
<td>Only overseas</td>
</tr>
</tbody>
</table>

Note 4) For pipe thread type: NPT
Note 5) For options: EA, EB, EC, ED
Note 6) According to the new Measurement Law, only the SI unit type is provided for use in Japan.
**IR1000-A/2000-A/3000-A Series**

---

**Flow Rate Characteristics**

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

![Flow rate characteristics graph](image)

---

**Relief Characteristics**

**IR1020-01-A**
Back pressure: 0.7 MPa

![Relief characteristics graph](image)

---

**Pressure Characteristics**

**IR1000-A**
Supply pressure: 0.3 to 1.0 MPa
Set pressure: 0.2 MPa
Flow rate: 0 L/min (ANR)

![Pressure characteristics graph](image)

---

**IR1020-A**
Supply pressure: 0.3 to 1.0 MPa
Set pressure: 0.2 MPa
Flow rate: 0 L/min (ANR)

![Pressure characteristics graph](image)

---

**IR1010-A**
Supply pressure: 0.3 to 1.0 MPa
Set pressure: 0.2 MPa
Flow rate: 0 L/min (ANR)

![Pressure characteristics graph](image)

---

*The data shown below are representative values, and are not guaranteed.*
Precision Regulator **IR1000-A/2000-A/3000-A Series**

**IR2000-A Series**
- The data shown below are representative values, and are not guaranteed.

### Flow Rate Characteristics
**IR2020-02-A**
- Supply pressure: 0.7 MPa

### Relief Characteristics
**IR2020-02-A**
- Back pressure: 0.7 MPa

### Pressure Characteristics
**IR2000-A**
- Supply pressure: 0.3 to 1.0 MPa
- Set pressure: 0.2 MPa
- Flow rate: 0 L/min (ANR)

**IR2010-A**
- Supply pressure: 0.3 to 1.0 MPa
- Set pressure: 0.2 MPa
- Flow rate: 0 L/min (ANR)

---

**IR2000-A**
- IR2000-A
- IR2020-02-A
- Supply pressure: 0.7 MPa
- Back pressure: 0.7 MPa

**IR2020-A**
- IR2000-A
- IR2020-02-A
- Supply pressure: 0.3 to 1.0 MPa
- Set pressure: 0.2 MPa
- Flow rate: 0 L/min (ANR)
**IR1000-A/2000-A/3000-A Series**

**IR3000-A Series**

* The data shown below are representative values, and are not guaranteed.

### Flow Rate Characteristics

**IR3020-04-A**  
Supply pressure: 0.7 MPa

![Flow Rate Characteristic Graph](image)

### Relief Characteristics

**IR3020-04-A**  
Back pressure: 0.7 MPa

![Relief Characteristic Graph](image)

### Pressure Characteristics

**IR3000-A**  
Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)

![Pressure Characteristic Graph](image)

**IR3020-A**  
Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)

![Pressure Characteristic Graph](image)

**IR3010-A**  
Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)

![Pressure Characteristic Graph](image)
Precision Regulator IR1000-A/2000-A/3000-A Series

Construction

Basic type (Knob): IR20□0-A

![Diagram of Precision Regulator]

Working principle
When the knob is rotated, the flapper is pushed through the spring, and a gap is generated between the nozzle and flapper. The supply pressure flows to the inlet passes through the path between the nozzle and flapper and acts on the supply diaphragm as nozzle back pressure. The force generated by the diaphragm pushes down the valve, and the supply pressure flows to the outlet. The discharged air pressure acts on the exhaust diaphragm, and counteracts against the force generated by the supply diaphragm. The air pressure acts on the nozzle diaphragm at the same time, and counteracts against the compression force of the spring to adjust the set pressure. When the set pressure increases too much, the nozzle diaphragm is pushed up, and a gap is generated between the flapper and nozzle diaphragm after the flapper is closed. The balance of the supply diaphragm and exhaust diaphragm is lost when the nozzle back pressure flows into the atmosphere. The exhaust valve is open after the valve is closed, and excess pressure on the outlet is released to the air. Due to this pilot mechanism, fine pressure variations are detected and precise pressure adjustment is possible.

Component Parts

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>IR1000-A</th>
<th>IR2000-A</th>
<th>IR3000-A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bonnet</td>
<td>Aluminum die-casted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Nozzle diaphragm assembly</td>
<td>Aluminum, Weather resistant NBR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Seal</td>
<td>HNBR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Seal</td>
<td>NBR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Diaphragm spacer</td>
<td>Weather resistant NBR</td>
<td>Polycetal</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Supply diaphragm</td>
<td>Steel, Aluminum, Weather resistant NBR</td>
<td>Aluminum, Weather resistant NBR, HNBR</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Exhaust diaphragm assembly</td>
<td>Stainless steel, Aluminum, HNBR</td>
<td>Aluminum, HNBR</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Valve assembly</td>
<td>Stainless steel, Aluminum, HNBR</td>
<td>Aluminum, HNBR</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Body</td>
<td>Aluminum die-casted</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Construction**

**Basic type (Knob): IR100-A**

**Basic type (Knob): IR300-A**

**Basic type (Knob): IR300-A**
Dimensions

Basic type (Knob): IR10□0-□01□-A

When connecting to the EXH port, contact your SMC sales representative separately.

With digital pressure switch: IR10□0-□01□E-□-A
**IR1000-A/2000-A/3000-A Series**

**Dimensions**

Basic type (Knob): IR20□0-□02□-A

Mounting hole for hexagon panel nut

Bracket (Option)

Pressure gauge (Option)

When connecting to the EXH port, contact your SMC sales representative separately.

**With digital pressure switch: IR20□0-□02□E□-A**
Precision Regulator IR1000-A/2000-A/3000-A Series

Dimensions

Basic type (Knob): IR30□0-□0□□-A

With digital pressure switch: IR30□0-□0□□E□-A
IR1000-A/2000-A/3000-A Series

Dimensions

Basic type (Knob): IR30□□□□□□□□-A

With digital pressure switch: IR30□□□□□□□□-E-A
**IR1000-A/2000-A/3000-A Series**

**Made to Order**

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

---

**1 Clean Series**

10 — IR 0 0 — — A

- Clean series

**Specifications**

<table>
<thead>
<tr>
<th>Cleanliness</th>
<th>ISO Class 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bleed hole</td>
<td>With M5 fitting (Applicable tubing O.D. ø6)</td>
</tr>
<tr>
<td>EXH port</td>
<td>IR1000-A series: With M5 fitting (Applicable tubing O.D. ø6)</td>
</tr>
<tr>
<td></td>
<td>IR2000-A series: With R1/8 fitting (Applicable tubing O.D. ø6)</td>
</tr>
<tr>
<td></td>
<td>IR3000-A series: 1/2 female thread</td>
</tr>
<tr>
<td>Pressure gauge</td>
<td>Oil-free + Stud parts nickle plated</td>
</tr>
<tr>
<td>Grease</td>
<td>Fluorine grease</td>
</tr>
</tbody>
</table>

---

**2 Secondary Battery Compatible**

25A — IR 0 0 — — A

- Secondary battery compatible

**Specifications**

<table>
<thead>
<tr>
<th>Parts material</th>
<th>Material mainly composed of copper or zinc is not used.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parts surface treatment</td>
<td>Zinc chromate or copper-based plating is not used.</td>
</tr>
<tr>
<td>Grease</td>
<td>Grease compatible with low dew point</td>
</tr>
</tbody>
</table>

Note 1) Electroless nickel plating is used.

Note 2) Combinations with the pressure gauge are not available.

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**3 Fluororubber Specification**

Fluororubber is used for rubber seal materials.

IR 0 0 — — A — X1155

- Fluororubber specification

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**4 Non-grease Specifications**

IR 0 0 — — — A — X1

- Non-grease specifications

---

**5 Manifold Specifications**

2 to 8 station manifold type regulators.

(Please contact SMC regarding 9 or more stations.)

**Specifications**

<table>
<thead>
<tr>
<th>Stations</th>
<th>2 to 8 stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port</td>
<td>IR1000-A series: 1/4, IR2000-A series: 1/2</td>
</tr>
<tr>
<td></td>
<td>IR1000-A series: 1/8, IR2000-A series: 1/4</td>
</tr>
<tr>
<td>Individual EXH (From IR body)</td>
<td>0.2 MPa, 0.4 MPa and 0.8 MPa settings can be combined.</td>
</tr>
<tr>
<td>Accessory (Pressure gauge)</td>
<td>G33□-01(IR1000-A series), G43□-01(IR2000-A series)</td>
</tr>
</tbody>
</table>

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

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

Note 3) For the model with pressure gauge (G), the pressure gauge is shipped together, but not assembled.
**IR1000-A/2000-A/3000-A Series**

**Specific Product Precautions 1**

Be sure to read this before handling the products.
Refer to back page 50 for Safety Instructions and pages 387 to 391 for F.R.L. Precautions.

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### Piping

**Warning**

1. Screw piping together with the recommended proper torque while holding the side with the 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.

### Recommended Proper Torque

<table>
<thead>
<tr>
<th>Connection thread</th>
<th>1/8</th>
<th>1/4</th>
<th>3/8</th>
<th>1/2 (Note)</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>

Note) Tightening force for connecting to the EXH port of IR30□□□□□-A is 8 to 10 N·m.

2. Do not allow twisting or bending moment to be applied other than the weight of the equipment.

Provide separate support for external piping, as damage may otherwise occur.

3. Piping materials without flexibility such as steel tube piping are prone to be effected by excess moment load and vibration from the piping side. Use flexible tubing in between to avoid such an effect.

### Caution

1. Preparation before piping

Before piping is connected, it should be thoroughly blown out with air (flushing) or washed to remove chips, cutting oil and other debris from inside the pipe.

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### Operating Environment

**Warning**

1. Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.

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

3. In locations which receive direct sunlight, provide a protective cover, etc.

4. In locations near heat sources, block off any radiated heat.

5. In locations where there is contact with spatter from water, oil or solder, etc., implement suitable protective measures.

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### Air Supply

**Warning**

1. Please consult with SMC when using the product in applications other than compressed air.

2. 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 condensate in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensate to enter the outlet side. This will cause a malfunction of pneumatic equipment.

When removing drain is difficult, use of a filter with an auto drain is recommended.

**Caution**

1. Condensate or dust, etc. in the supply pressure line can cause malfunctions. In addition to an air filter (SMC AF series, etc.), please use a mist separator (SMC AM, AFM series) depending on the conditions. Refer to “Air Preparation Equipment Model Selection Guide” (pages 2 and 3) for air quality.

2. When a lubricator is used at the supply side of the product, it can cause malfunctions. Do not use a lubricator at the supply side of the product. If lubrication is required for terminal devices, connect a lubricator on the output side of the regulator.
**Warning**

1. When the product is removed for maintenance, reduce the set pressure to “0” and shut off the supply pressure completely beforehand.
2. When a pressure gauge is to be mounted, remove the plug after reducing the set pressure to “0”.
3. 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.

**Caution**

1. When the precision regulator with pressure gauge is used, do not apply impact to the product by dropping it, etc. during transportation or installation. This may cause misalignment of the pressure gauge pointer.

**Operation**

4. After pressure adjustment, be sure to tighten the lock nut. When tightening the nut, tighten so that the knob does not move due to friction caused by tightening.

**Warning**

5. When pressure is applied to the inlet of a regulator, make sure that the output is connected to the circuit. Air blow occurs from the outlet and it depends on the operating conditions.
6. The set pressure may vary depending on the elapsed time and change in ambient temperature after pressure setting. If the setting value varies, adjust with the knob.
7. If the directional control valve (solenoid valve, mechanical valve, etc.) is mounted and ON-OFF is repeated for a long time, the set pressure may vary. If the setting value varies, adjust with the knob.
8. There may be pulsation or noise depending on the pressure conditions, piping conditions and ambient environment. In this case, it is possible to improve the problem by changing the pressure conditions and piping conditions. If the problem is not improved, contact your SMC sales representative.
9. 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 AN series, etc.) mounted on the exhaust port (EXH port).
10. When installing a pressure gauge to the product, do not apply pressure more than the maximum display pressure. This will cause a malfunction.
11. When using a precision regulator between a solenoid valve and cylinder, caution should be taken regarding the following points.
   · The residual pressure of the cylinder will be exhausted from the regulator's exhaust port. (Depending on the conditions, partial backflow may occur.)
   · When holding pressure at the intermediate position of a closed center solenoid valve, due to reduced pilot pressure the pressure inside the cylinder will not be able to be held because the regulator will perform an exhaust operation. If it is necessary for the pressure inside the cylinder to be held, please consider using in combination with a separate shut-off valve.
   · When releasing pressure at the intermediate position of an exhaust center solenoid valve, depending on the conditions, vacuum pressure may remain inside the cylinder. If the introduction of atmospheric pressure is required, please consider using in combination with a separate atmospheric pressure introduction valve.

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**Recommended Proper Torque (N·m)**

<table>
<thead>
<tr>
<th>Product</th>
<th>Set Nut (for Bracket)</th>
<th>Hexagon Panel Nut (for Knob Type Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR10-A</td>
<td>2.0±0.2</td>
<td>3.5±0.5</td>
</tr>
</tbody>
</table>