

# Series 10-IR1000/2000/3000

Precision Regulator

RoHS

## How to Order

Clean series ↑

10-IR 2 0 0 0 — [ ] 02 [ ] — R

Precision regulator ↓

Body size

1	IR1000 type
2	IR2000 type
3	IR3000 type

Type of setting

0	Basic (Knob)
1	Air operated (Only for IR 2000/3000)

Set pressure range

10-IR1000/2000

0	0.005 to 0.2 MPa
1	0.01 to 0.4 MPa
2	0.01 to 0.8 MPa

(Note) Air operated type is IR2120 only.

10-IR3000

0	0.01 to 0.2 MPa
1	0.01 to 0.4 MPa
2	0.01 to 0.8 MPa

(Note) Air operated type is IR3120 only.

Suffix

Nil	—
R (Note)	Bracket, Name plate, Mounting on the opposite side

(Note) The standard mounting position of the name plate is on the front when viewing the regulator with the SUP side to the left and OUT side to the right. The bracket is attached to the back.

Port size

Symbol	Port size	Application		
		10-IR1000	10-IR2000	10-IR3000
01	1/8	●		
02	1/4		●	●
03	3/8			●
04	1/2			●

Thread type

Nil	Rc
N* (Note)	NPT
F*	G

\* Semi-standard

(Note) For 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.)

Accessory

Nil	None
B	With bracket
G	With pressure gauge <sup>†</sup>

<sup>†</sup> Pressure gauge is included, (but not assembled).

## Standard Specifications

Model	Basic type			Air operated type	
	10-IR10□0	10-IR20□0	10-IR30□0	10-IR2120	10-IR3120
Max. supply pressure	Max. 1.0 MPa				
Min. supply pressure (Note 1)	Set pressure + 0.05 MPa		Set pressure + 0.1 MPa	Set pressure + 0.05 MPa	Set pressure + 0.1 MPa
Set pressure range	<b>10-IR1000:</b> 0.005 to 0.2 MPa <b>10-IR1010:</b> 0.01 to 0.4 MPa <b>10-IR1020:</b> 0.01 to 0.8 MPa	<b>10-IR2000:</b> 0.005 to 0.2 MPa <b>10-IR2010:</b> 0.01 to 0.4 MPa <b>10-IR2020:</b> 0.01 to 0.8 MPa	<b>10-IR3000:</b> 0.01 to 0.2 MPa <b>10-IR3010:</b> 0.01 to 0.4 MPa <b>10-IR3020:</b> 0.01 to 0.8 MPa	0.01 to 0.8 MPa	0.01 to 0.8 MPa
Input signal pressure (Note 2)	—			0.01 to 0.8 MPa	0.01 to 0.8 MPa
Sensitivity (Note 3)	Within 0.2% of full span				
Repeatability (Note 3)	Within ±0.5% of full span				
Linearity (Note 4)	—			Within ±1% of full span	
Air consumption (Note 5) (Supply pressure: 1.0 MPa)	Within 4.4 L/min (ANR)	Within 4.4 L/min (ANR)	Within 11.5 L/min (ANR)	Within 4.4 L/min (ANR)	Within 11.5 L/min (ANR)
Port sizes	Rc1/8	Rc1/4	Rc1/4, 3/8, 1/2	Rc1/4	Rc1/4, 3/8, 1/2
Pressure gauge port	Rc1/8 (2 positions)				
Ambient & fluid temperatures	-5 to 60°C (with no freezing)				
Weight (kg)	0.16	0.32	0.66	0.37	0.73
Cleanliness class (ISO class)	Class 3				
Bleed port	With M5 fitting (applicable tubing O.D. ø6)				
EXH port	With M5 fitting (applicable tubing O.D. ø6)	Rc1/2 female thread	With M5 fitting (applicable tubing O.D. ø6)	Rc1/2 female thread	Rc1/2 female thread
Grease	Fluorine grease				

(Note 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 0.05 MPa for models IR1000 and IR2000, and 0.1 MPa for model IR3000.

(Note 2) Applicable only to air operated types IR2120 and IR3120. The basic type is excepted.

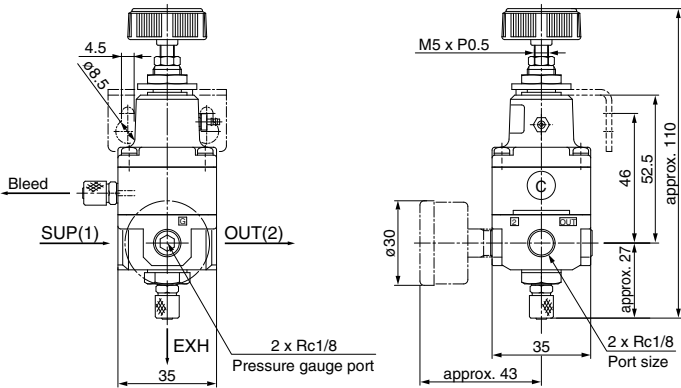
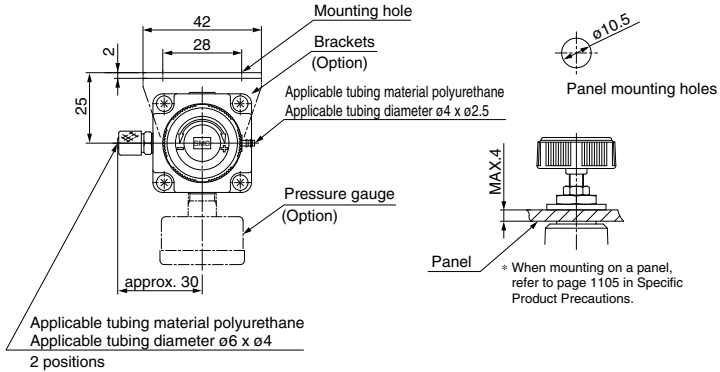
(Note 3) Characteristic values do not contain any secular change and temperature change.

(Note 4) Indicates the linearity of the output pressure with respect to the input signal pressure.

(Note 5) Air is normally being discharged to the atmosphere.

**Dimensions**

**10-IR10□0-01□**



Directional Control Valves

Air Cylinders

Rotary Actuators

Air Grippers

Air Preparation Equipment

Modular F. R.

Pressure Control Equipment

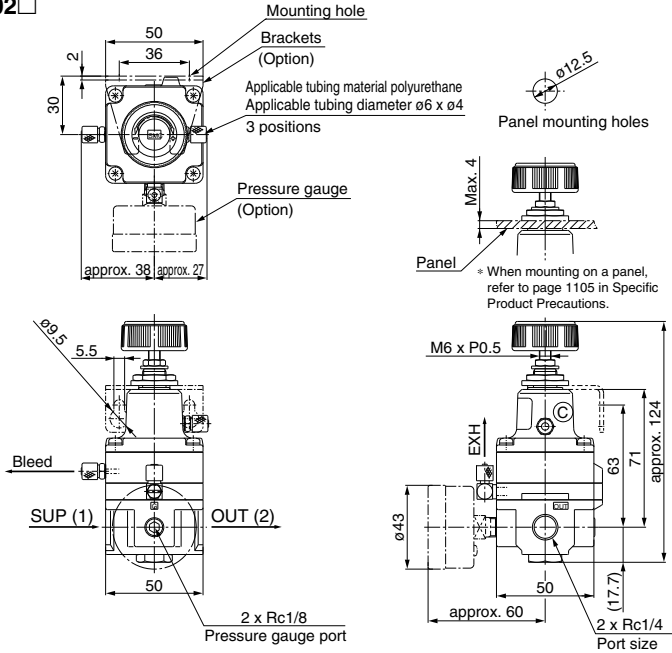
Fittings & Tubing

Flow Control Equipment

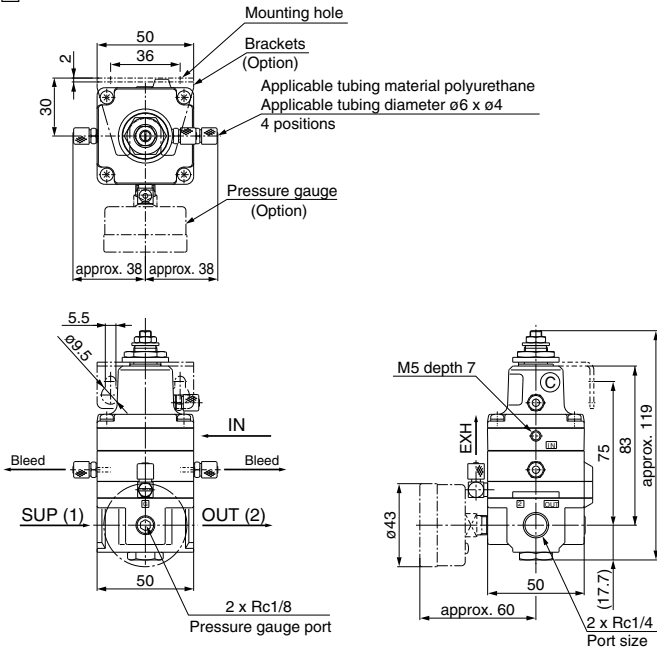
Pressure Switches/  
Pressure Sensors

**Dimensions**

**10-IR20□0-02□**

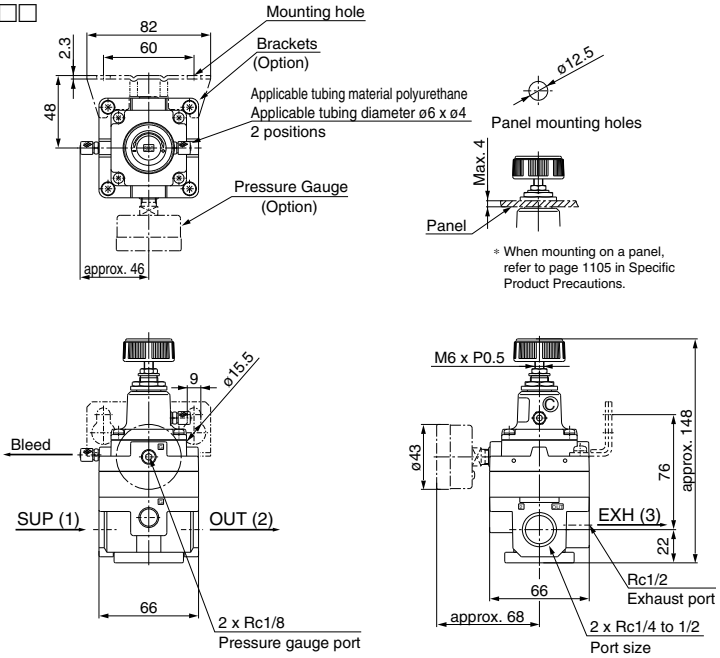


**10-IR2120-02□**

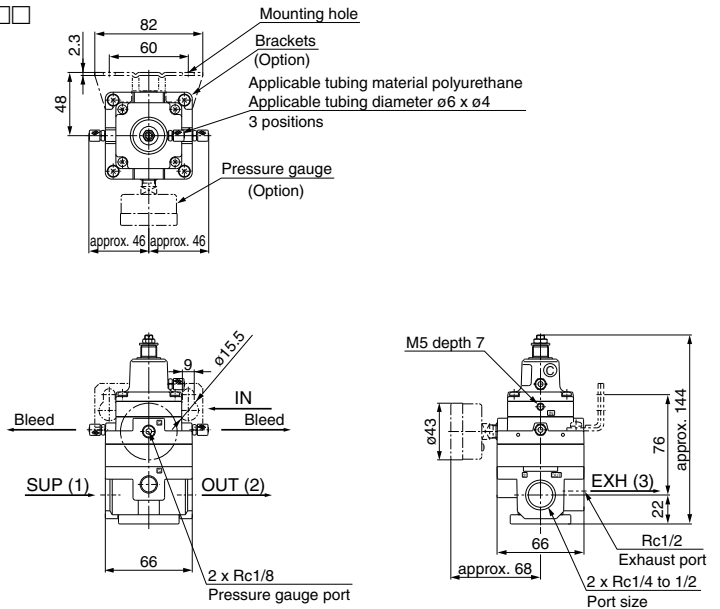


Dimensions

10-IR30□0-0□□



10-IR3120-0□□



Directional Control Valves
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## ⚠ Specific Product Precautions

### Air Supply

#### ⚠ Warning

1. If the drain removal from air filter and mist separator is missed, drain will be blown out to the outlet side and may result in a malfunction of the pneumatic equipment.

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

#### ⚠ Caution

1. If the supply pressure line contains drain or particulate, etc., the fixed throttle can become clogged, leading to malfunction\*, and therefore, in addition to an air filter (SMC's AF series), be sure to use a mist separator (SMC's AM and AFM series).

Refer to SMC's Best Pneumatics catalog vol. 14 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 result in a malfunction\*. If lubrication is required for terminal devices, connect a lubricator on the output side of the regulator.

\* The following may occur if the fixed throttle is clogged.

- No output
- Set pressure drops.
- Set pressure is unstable.
- Outlet pressure slowly rises.

### Maintenance

#### ⚠ Warning

1. When the valve guide 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".

#### Precautions for 10-IR10□□ only

#### ⚠ Warning

1. When remounting the valve guide after removing it for maintenance, use a tightening torque of 0.6Nm or smaller.

Since the valve guide on this product is made of resin, there is a danger of damage if tightened with a torque exceeding the prescribed range.

### Handling

#### ⚠ Caution

1. Do not apply force when transferring, mounting and dropping the regulator with a pressure gauge. This may cause misalignment of the pressure gauge pointer.

### Operation

#### ⚠ Caution

1. Do not use a precision regulator outside of the specifications range as this can cause failure. (Refer to specifications.)

### Operation

#### ⚠ Caution

2. When mounting is performed, make connections while confirming port indications.
3. Screw a panel nut with the recommended proper torque when mounting onto a panel. Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will occur if the torque is excessive.

#### Recommended Proper Torque [N·m]

10-IR1000	10-IR2000	10-IR3000
12.5	21	21

4. 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.
5. The accessory pressure gauge is supplied with the regulator in the unassembled status. Before using the regulator, be sure to install the pressure gauge at the gauge port of the regulator. At this time, the recommended tightening torque of the pressure gauge is 7 to 9 N·m.
6. Air is normally released 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.
7. When connecting the tubing to the M5 fitting, a buzzing noise may be generated from the regulator depending on the operating conditions. However, this does not affect the characteristics.
8. Make sure to tighten the lock nut after pressure adjustment.

#### Precautions for 10-IR30□□ and IR3120 only

#### ⚠ Caution

1. When the supply pressure is relatively high (approx. 0.5 MPa or more), the set pressure is low (approx. 0.1MPa or less), and operated with the output side released to the atmosphere, there may be pulsations in the setting 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. If the product is used for a relief function with a large capacity on the output side, there will be a large exhaust sound at the time of relief. Therefore, install a silencer (SMC AN series) on the exhaust port (EXH). The connection is Rc1/2.

#### Precautions for 10-IR2120 and IR3120 (air-operated types) only

#### ⚠ Caution

1. Since the output types of IR2120 and IR3120 are 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.