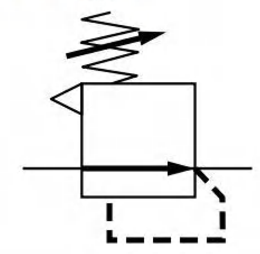
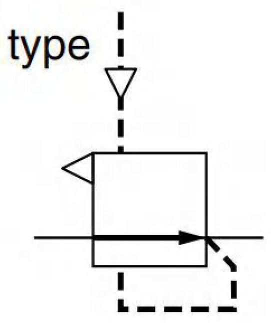
Precision Regulator
IR1000/2000/3000 Series

Symbol

Basic type



Air operated type



Standard Specifications

The precision regulator IR series has been remodeled.
Please select the **new IR□-A series** instead.

Model	Basic type			Air operated type	
	IR10□0	**IR20□0**	**IR30□0**	**IR2120**	**IR3120**
Fiuid	Air				
Max. supply pressure	Max. 1.0 MPa				
Min. supply pressure (1)	Set pressure + 0.05 MPa		Set pressure + 0.1 MPa	Set pressure + 0.05 MPa	Set pressure + 0.1 MPa
Set pressure range	**IR1000:** 0.005 to 0.2 MPa **IR1010:** 0.01 to 0.4 MPa **IR1020:** 0.01 to 0.8 MPa	**IR2000:** 0.005 to 0.2 MPa **IR2010:** 0.01 to 0.4 MPa **IR2020:** 0.01 to 0.8 MPa	**IR3000:** 0.01 to 0.2 MPa **IR3010:** 0.01 to 0.4 MPa **IR3020:** 0.01 to 0.8 MPa	0.01 to 0.8 MPa	0.01 to 0.8 MPa
Input signal (2) **pressure**	———			0.01 to 0.8 MPa	0.01 to 0.8 MPa
Sensitivity (3)	Within 0.2% of full span				
Repeatability (3)	Within ±0.5% of full span				
Linearity (4)	———			Within ±1% of full span	
Air consumption (5) (At supply pressure of 1.0 MPa)	4.4 L/min (ANR) or less	4.4 L/min (ANR) or less	11.5 L/min (ANR) or less	4.4 L/min (ANR) or less	11.5 L/min (ANR) or less
Port size	Rc 1/8	Rc 1/4	Rc 1/4, 3/8, 1/2	Rc 1/4	Rc 1/4, 3/8, 1/2
Pressure gauge port	Rc 1/8 (2 locations)				
Ambient and fluid temperature	–5 to 60°C (No freezing)				
Weight (kg)	0.14	0.30	0.64	0.35	0.71

Note 1) With the condition of no flow on the output side. Together with the set pressure, be sure to maintain a minimum differntial pressure of 0.05 MPa for IR1000 and IR2000 series, and 0.1 MPa for IR3000 series.
Note 2) Applicable only to air operated types IR2120 and IR3120. The basic type is excepted.
Note 3) Characteristic values are subject to conditions where other characteristics, such as secular change and temperature change, are not included.
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 from a bleed hole or an exhaust port.

IR3000 series

IR2000 series

IR1000 series

Specification Combinations

◎: Standard specifications ○: Combination possible ▭: Combination not possible

Specifications		Symbol	Applicable model				
			IR1000 IR1010 IR1020	**IR2000 IR2010 IR2020**	**IR2120**	**IR3000 IR3010 IR3020**	**IR3120**
Standard specifications	**Set pressure Max. 0.2 MPa**	0	◎	◎		◎	
	Set pressure Max. 0.4 MPa	1	◎	◎		◎	
	Set pressure Max. 0.8 MPa	2	◎	◎	◎	◎	◎
	Connection Rc 1/8	01	◎				
	Connection Rc 1/4	02		◎	◎	◎	◎
	Connection Rc 3/8	03				◎	◎
	Connection Rc 1/2	04				◎	◎
Accessory	**Bracket**	B	○	○	○	○	○
	Pressure gauge	G	○	○	○	○	○
Semi-standard specifications	**Bracket, name plate reverse mounted**	R	○	○	○	○	○
	Connection NPT 1/8	N01	○				
	Connection NPT 1/4	N02		○	○	○	○
	Connection NPT 3/8	N03				○	○
	Connection NPT 1/2	N04				○	○
	Connection G 1/8	F01	○				
	Connection G 1/4	F02		○	○	○	○
	Connection G 3/8	F03				○	○
	Connection G 1/2	F04				○	○

∗ Photos are when a pressure gauge is mounted. Pressure gauge is shipped together, but not assembled.

How to Order

IR [2] [0] [0] 0 – [ ] [02] [ ] – [ ] – [ ] – [ ]

Precision regulator

Body size

1	IR1000 series
2	IR2000 series
3	IR3000 series

Type of setting

0	Basic type (Knob)
1 Note 1)	Air operated type

Set pressure range

For IR1000/2000 series

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

For IR3000 series

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

Thread type

Nil	Rc
N Note 2)	NPT*
F	G*

* Semi-standard

Port size

Symbol	Size	Application		
		IR1000	IR2000	IR3000
01	1/8	●		
02	1/4		●	●
03	3/8			●
04	1/2			●

Accessory

Nil	None
B	With bracket
G Note 3)	With pressure gauge

Suffix 1

Nil	—
T Note 4)	For high temp. environments (–5 to 100°C)
L Note 5), 6)	For low temp. environments (–30 to 60°C)

Suffix 2

Nil	—
R Note 7)	Bracket, Name plate, Mounting on the opposite side

Made to Order Note 8)

Symbol	Specifications
X1	Non-grease specifications
X170	Compatible with modular connection brackets (With modular adapter)
X465□	With digital pressure switch (ISE30A)

Note 1) Air operated type is IR2120 and IR3120 only.
Note 2) 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.)
Note 3) For the model with pressure gauge (G), the pressure gauge is shipped together, but not assembled.
Note 4) Max. 80°C for the high temperature environment specification T with pressure gauge (G)
Note 5) For the low temperature environment specification L, combinations with the pressure gauge (G) are not available.
Note 6) The low temperature environment specification L is not available for the IR1000 series.
Note 7) The standard mounting position of the name plate is on the front when viewing the precision regulator with the SUP side to the left and OUT side to the right. The bracket is attached to the back.
Note 8) Refer to pages 819 to 821 for details on the Made-to-Order specifications and whether the combination of multiple specifications is possible. In addition, the product for the following specifications is also available:
- Prefix (10-): Clean series
- Prefix (25A-): Secondary battery compatible
- Prefix (80-): Ozone resistant (Fluororubber specification)
- IRM□□: Manifold specifications (For IR1000 and IR2000 series only. Except air operated type and IR3000 series)

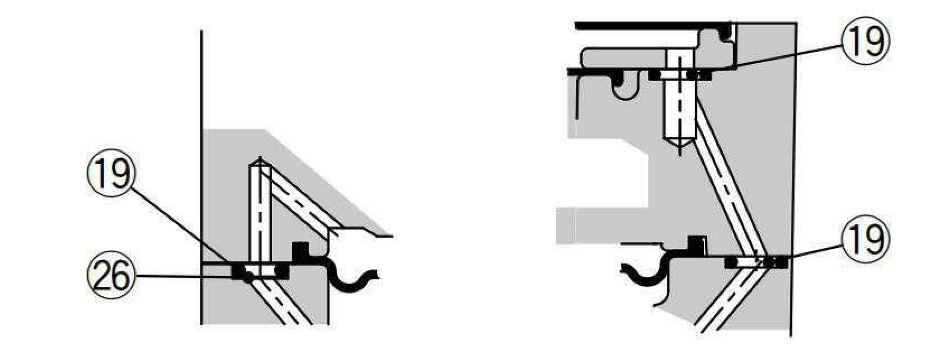
Accessory (Option)/Part No.

Description	Part no.								
	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020/2120	IR3000	IR3010	IR3020/3120
Bracket	P36201023			P36202028			P362030-20*1		
Pressure gauge *2*3*4	G33-2-01	G33-4-01	G33-10-01	G43-2-01	G43-4-01	G43-10-01	G43-2-01	G43-4-01	G43-10-01

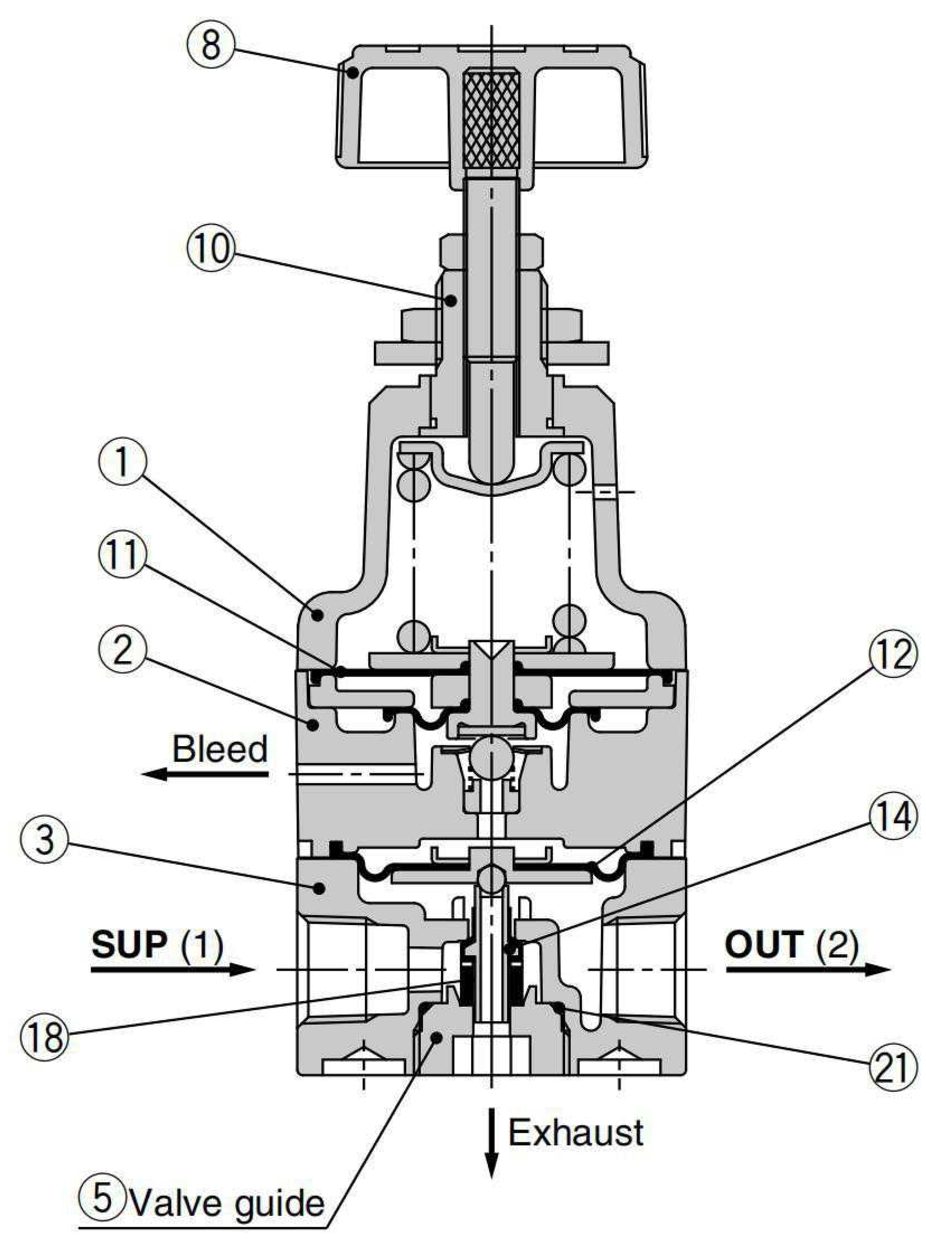
*1 A bracket and two mounting screws (M5 x 35)
To mount the bracket, remove two body screws (M5 x 30) on the name plate on the opposite side and replace the attached two bracket mounting screws (M5 x 35).
*2 Accuracy ±3% (Full span), Accuracy guarantee temperature range: 23±5°C
*3 When ordering this pressure gauge individually, the sealant is not applied to the connection male thread. So, apply the sealing tape or sealant to the screw thread before use.
*4 For handling of the pressure gauge and the detailed specifications, refer to “Pressure Gauges” in Best Pneumatics No. 7.

Construction

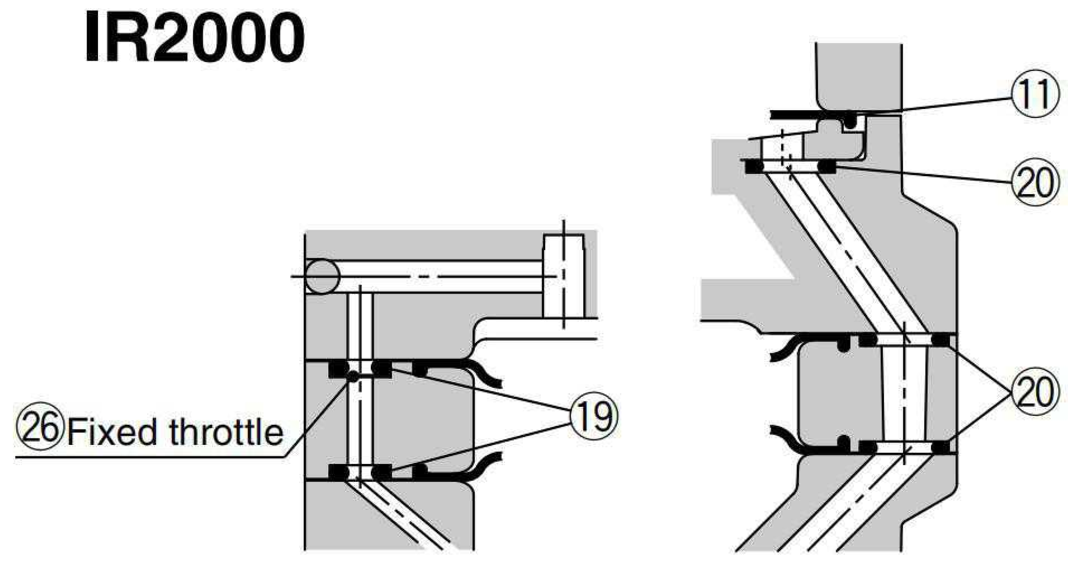
IR1000



SUP side passage OUT side passage



IR2000



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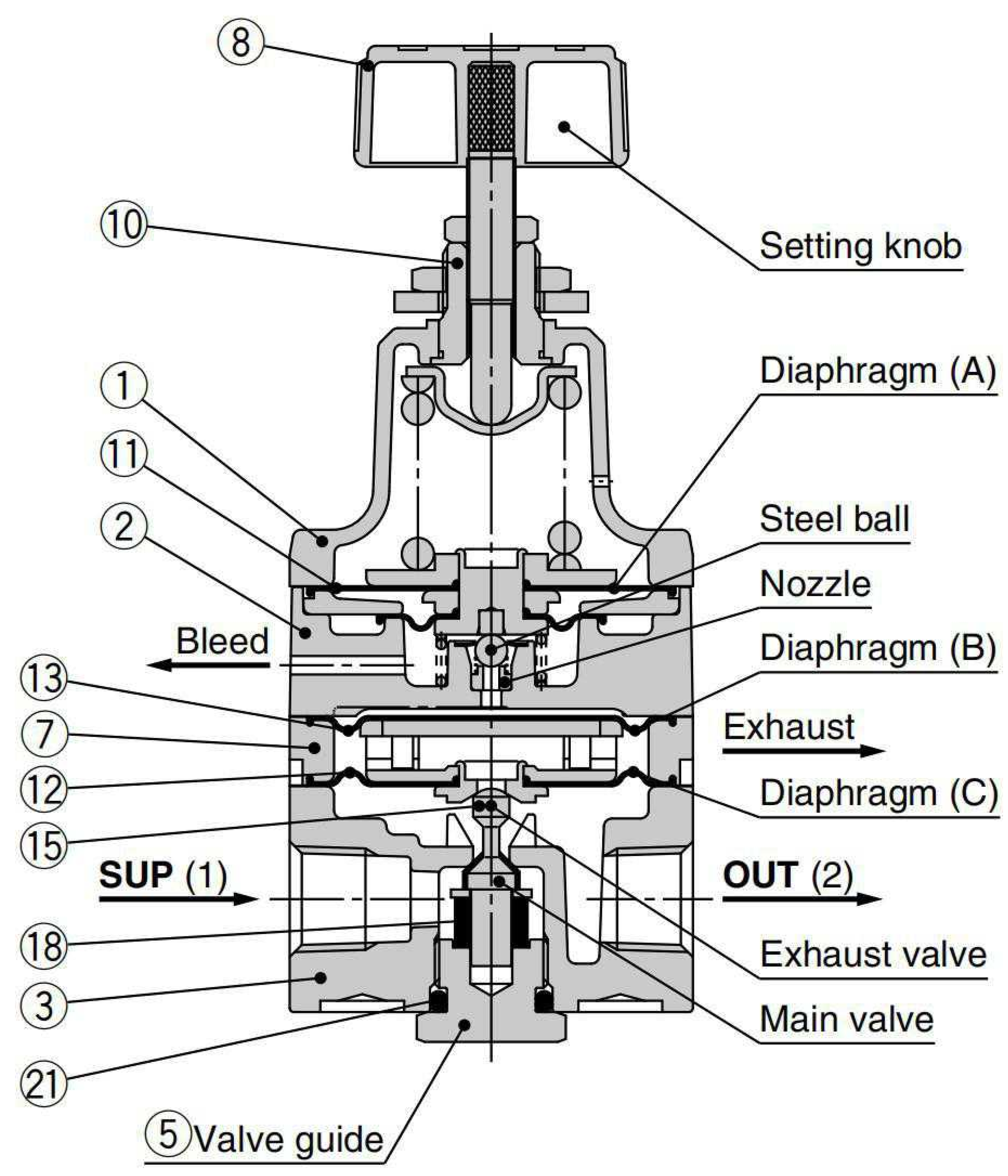
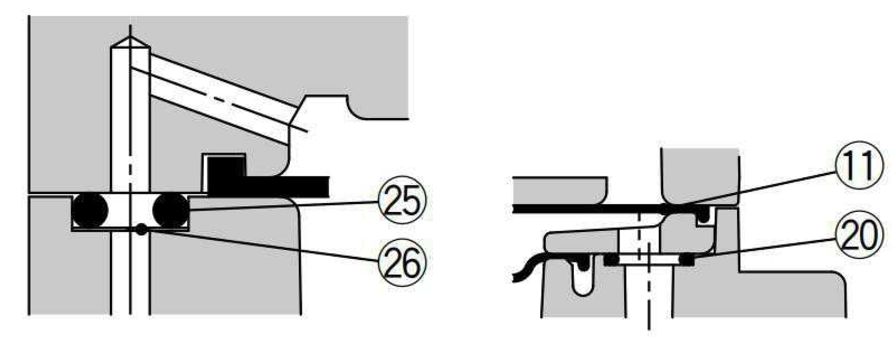
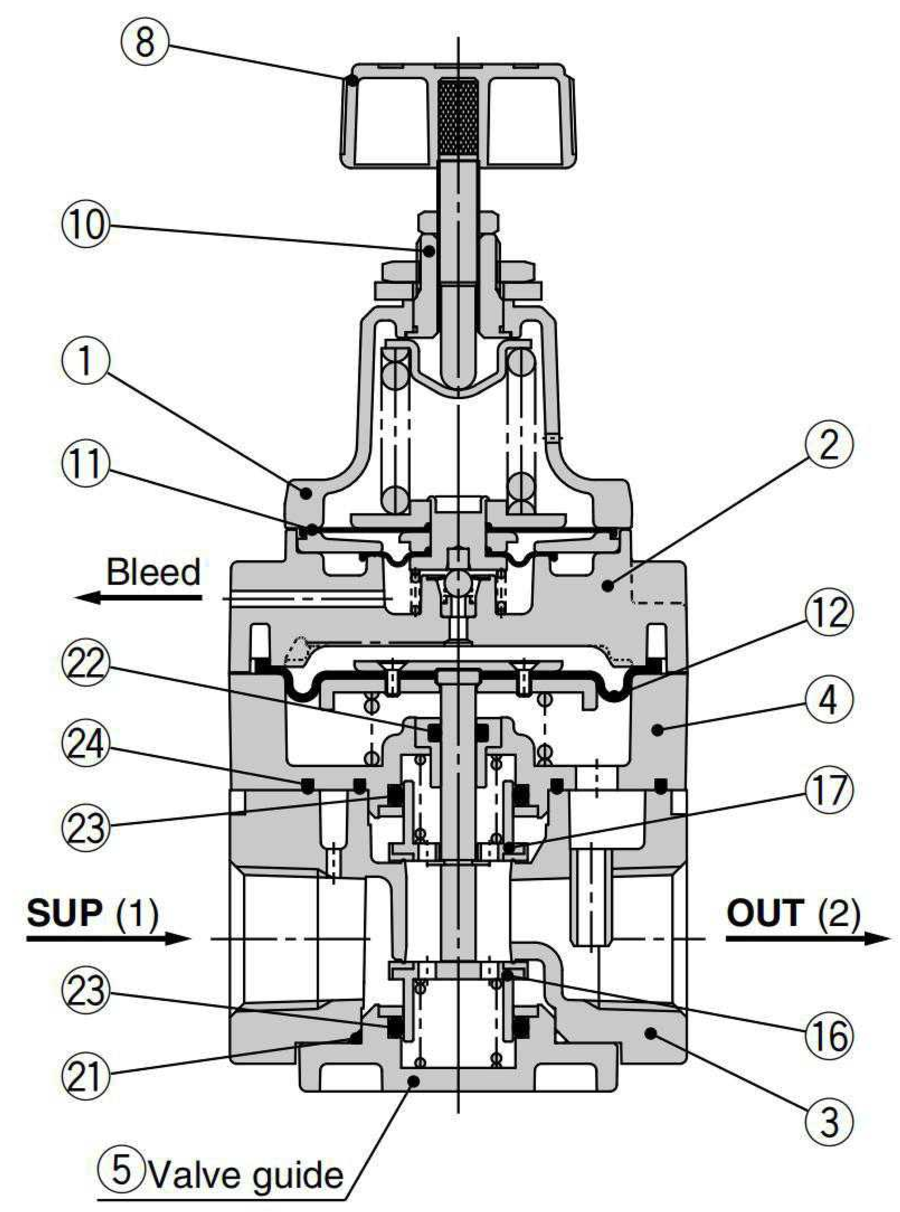


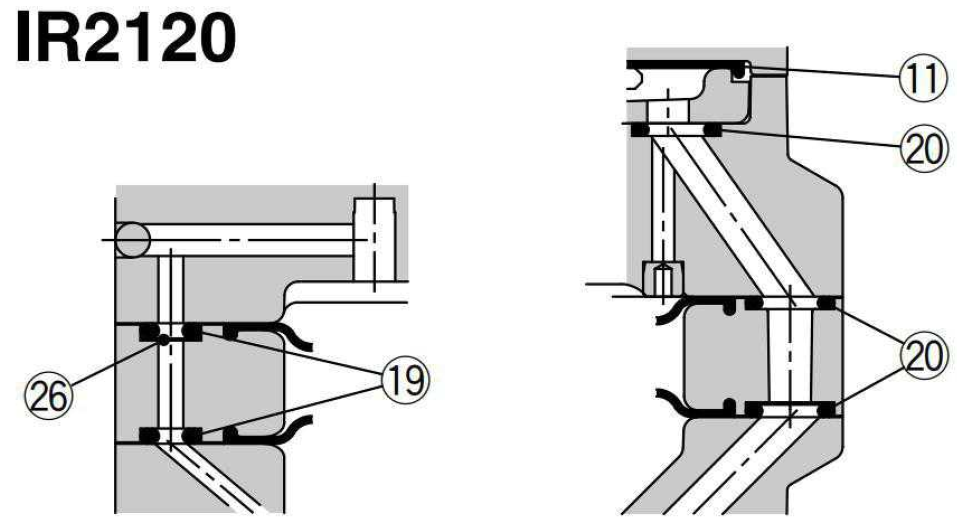
IR3000



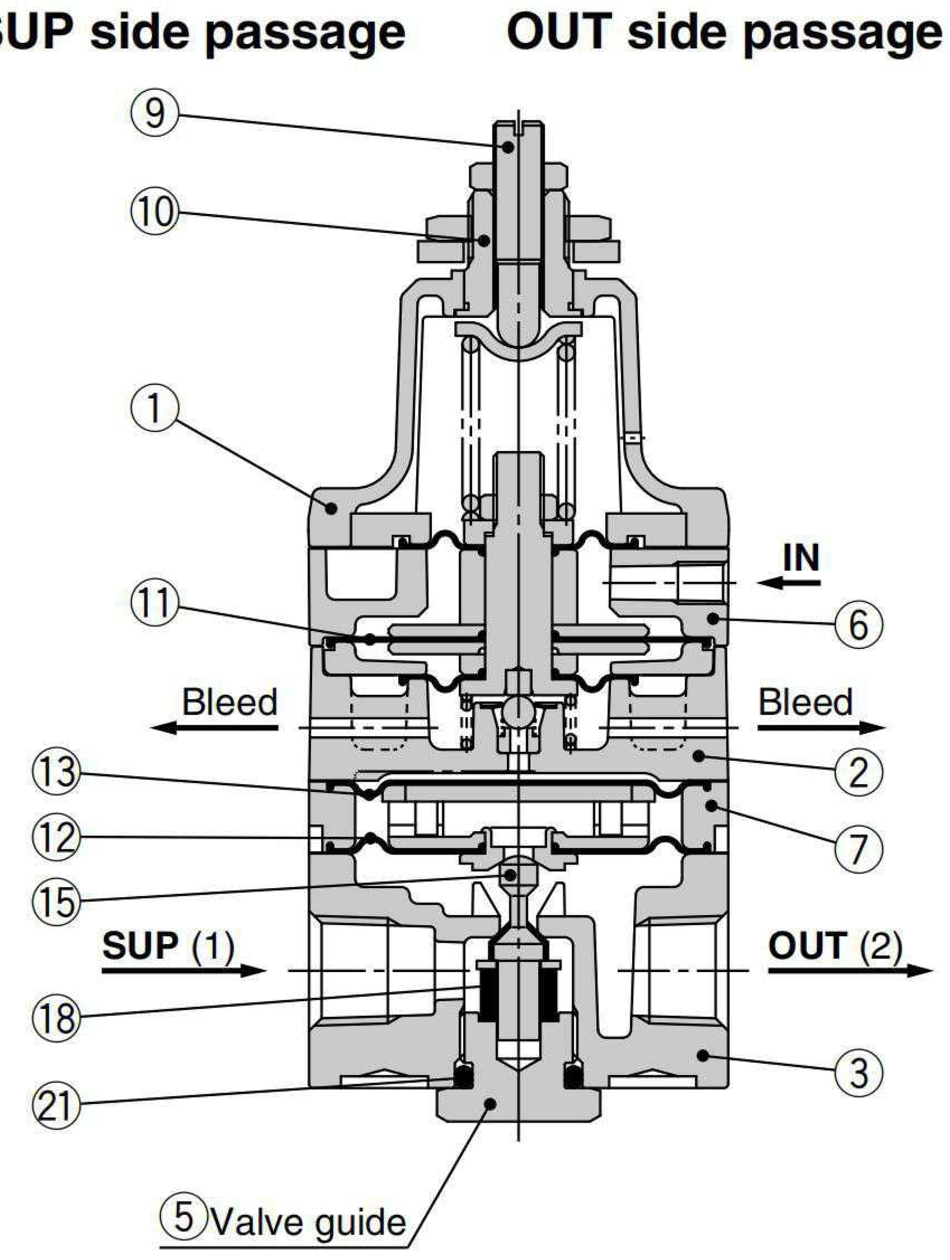
SUP side passage OUT side passage



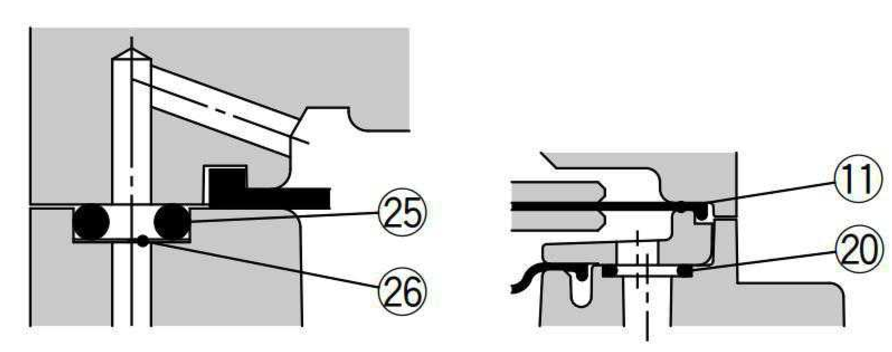
IR2120



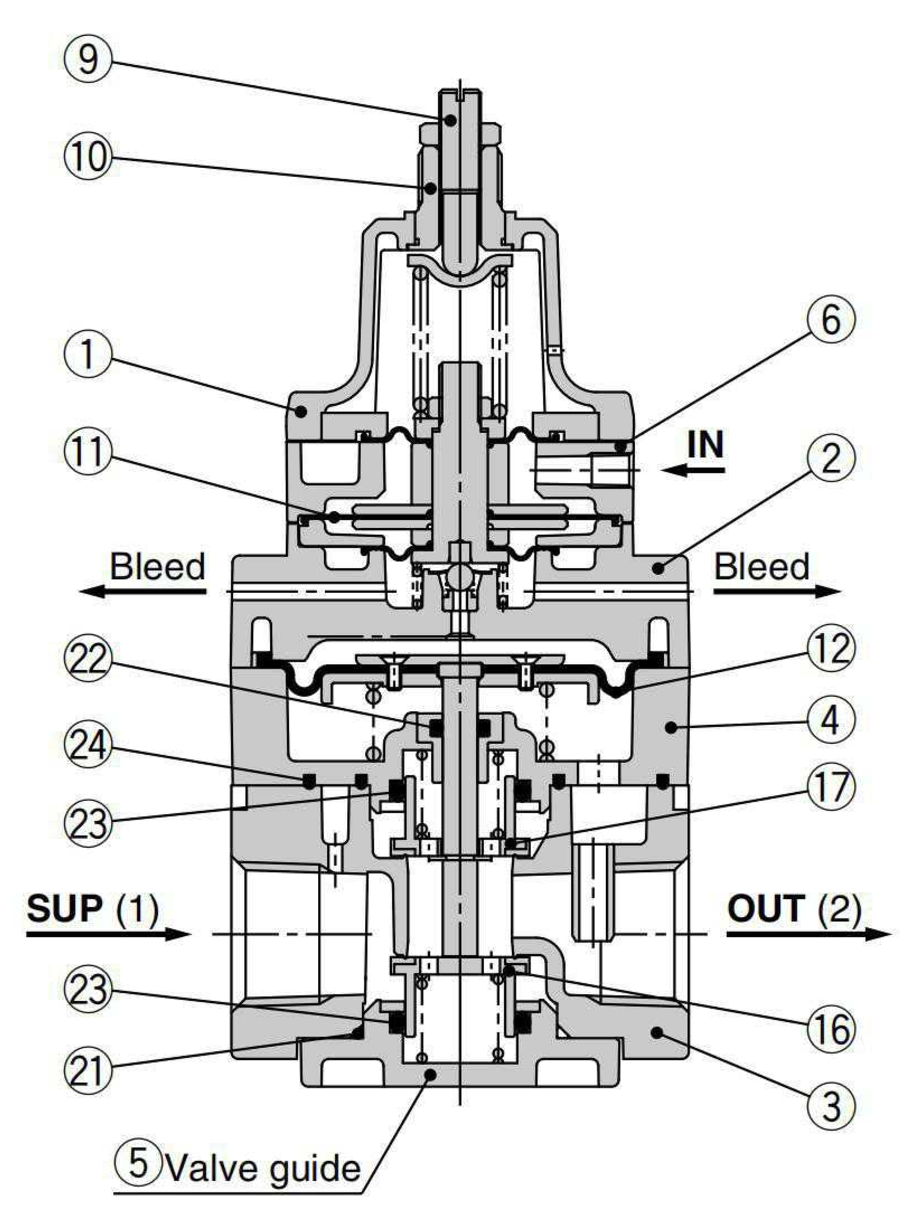
SUP side passage OUT side passage



IR3120



SUP side passage OUT side passage

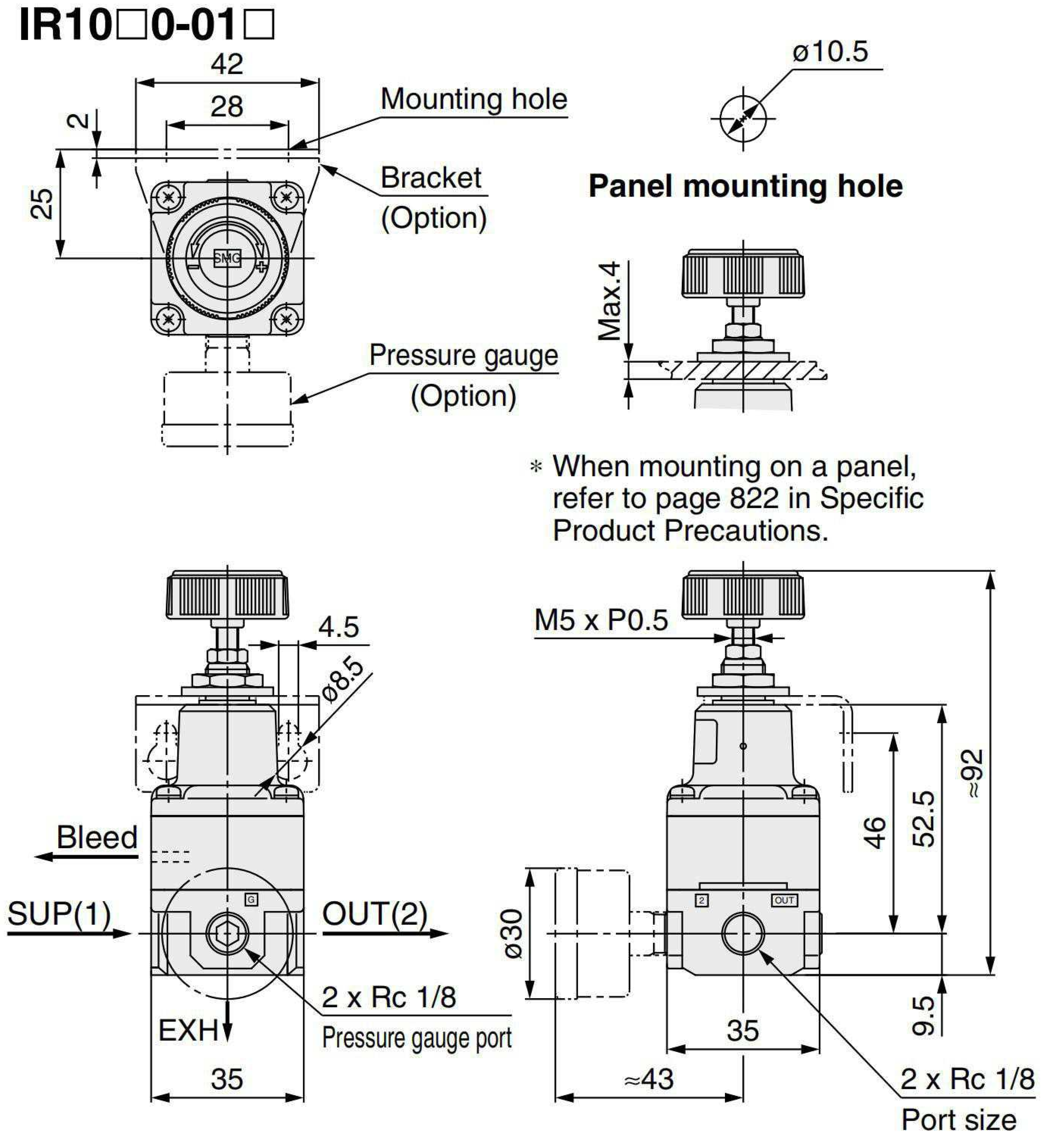


Working principle (For IR2000)

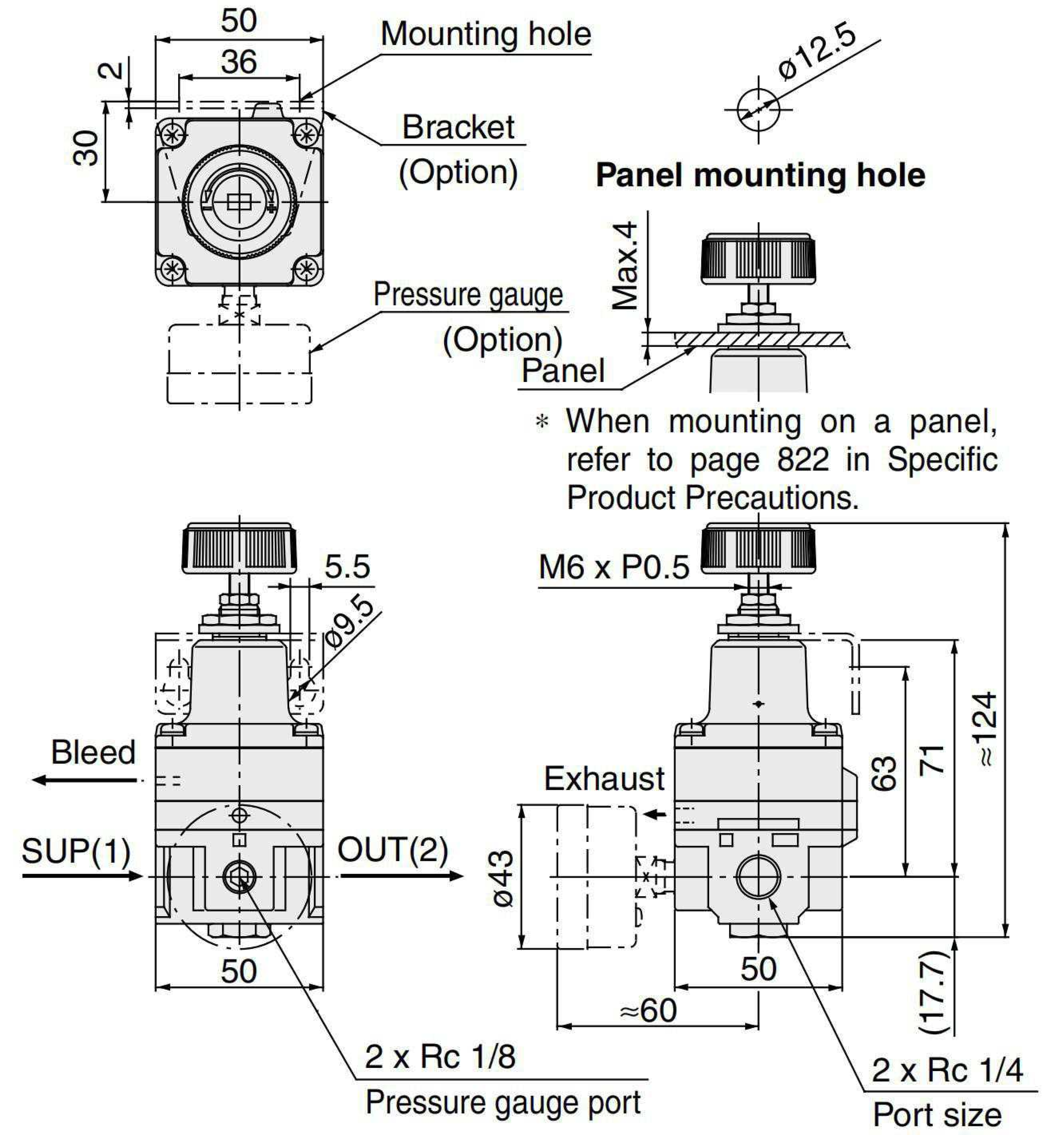
When the setting knob is turned, the nozzle is closed by the flapper allowing the supply air that flows in from the upstream side to pass through the fixed throttle. It then acts on diaphragm B as nozzle back pressure, the main valve is pushed down by the generated force, and the supply pressure flows out to the downstream side. The air pressure that flows in acts on diaphragm C. 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 type pilot mechanism, and precise pressure adjustment is performed.

Dimensions

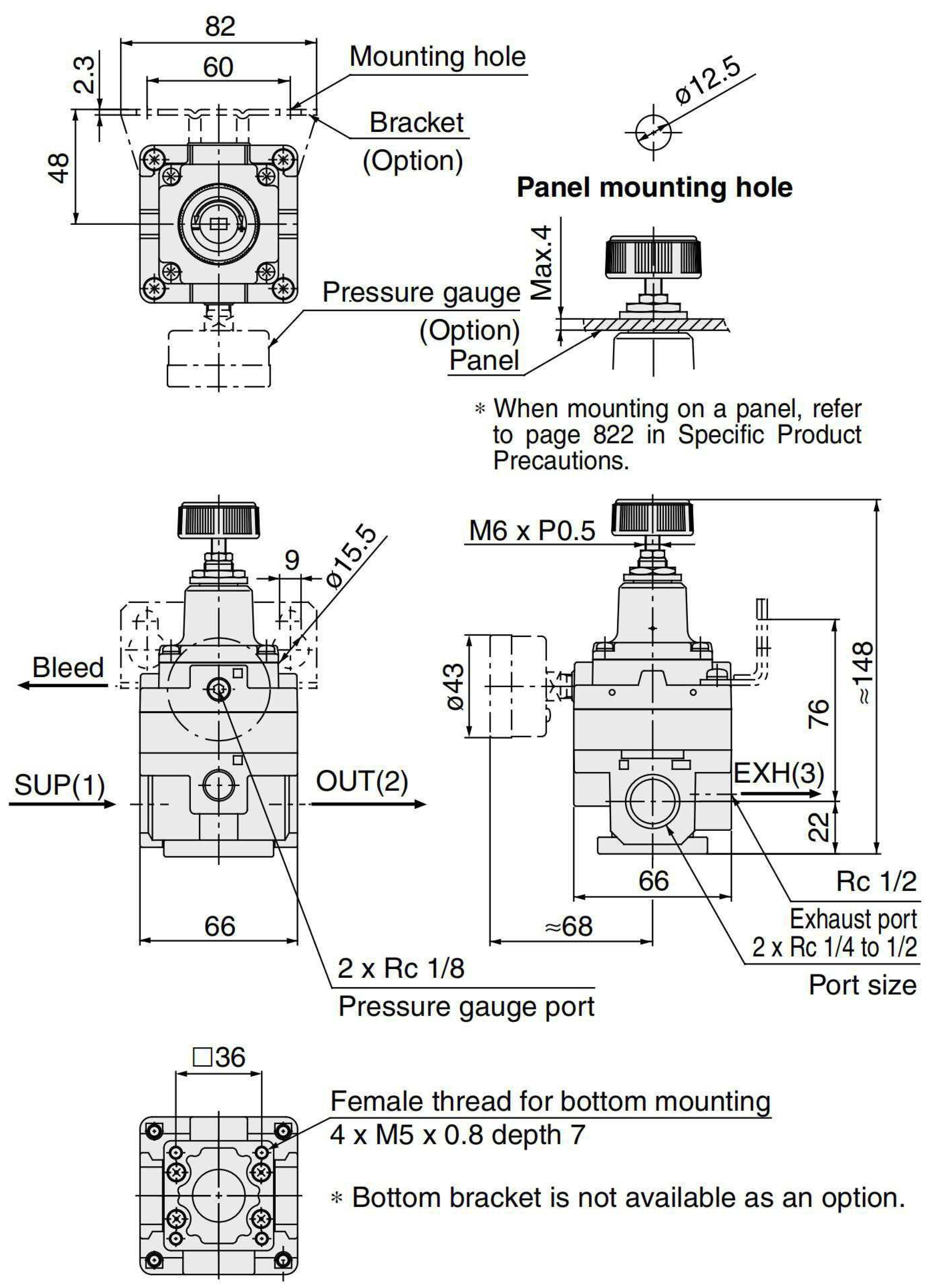
IR10□0-01□



IR20□0-02□

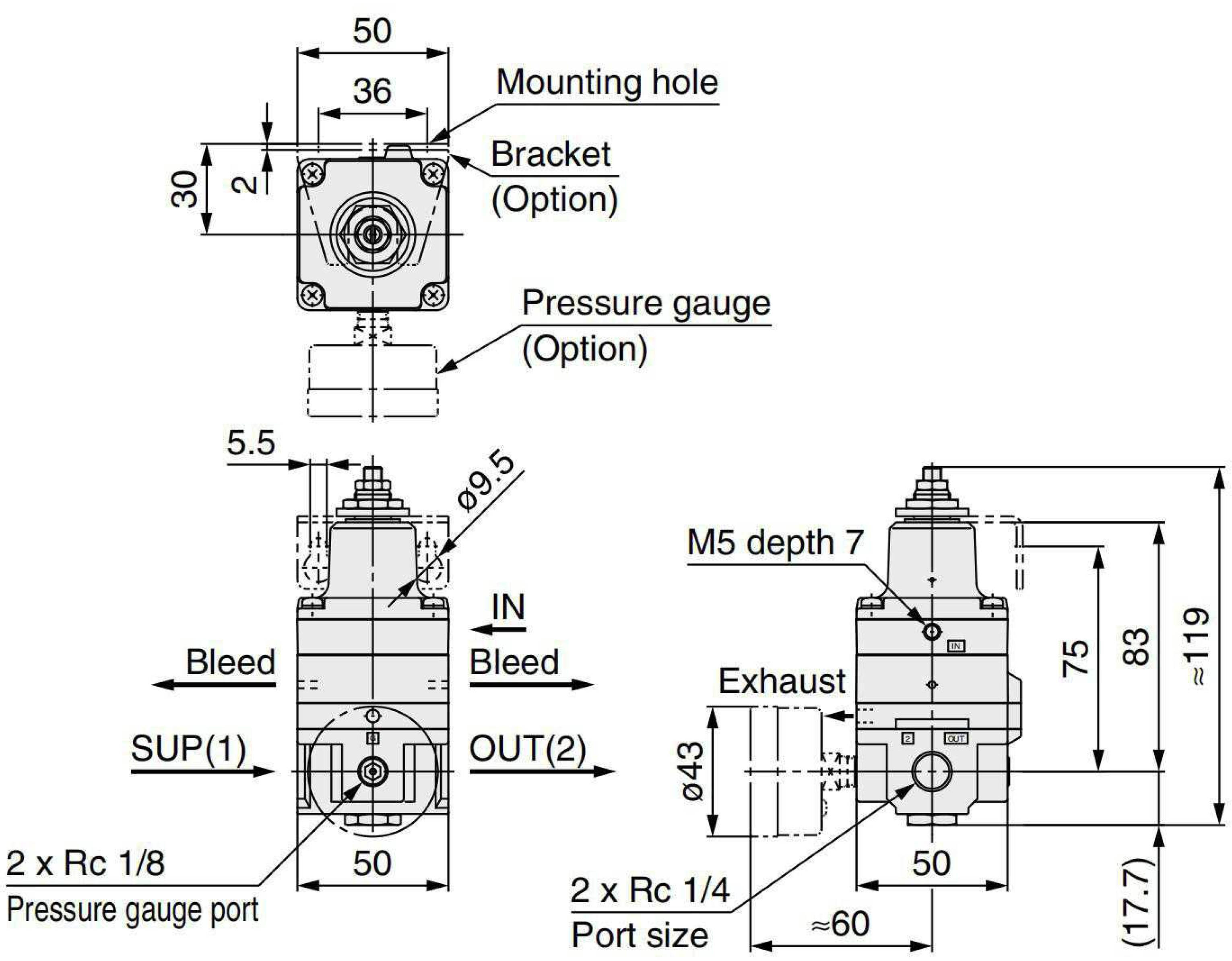


IR30□0-0□□



Dimensions

IR2120-02□



IR3120-0□□