

Предназначен для понижения давления сжатого воздуха и поддержания его на заданном уровне с высокой точностью

- Обладает высокой скоростью деаэрации
- Точная установка давления
- Модификации с пилотным управлением и возможностью монтажа на плите поставляются по запросу
- Пригоден для модульного монтажа

### Технические характеристики

Типоразмер	1000			2000			3000		
Серия	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020	IR3000	IR3010	IR3020
Рабочая среда	Сжатый воздух, отфильтрованный 5 мкм, содержание масла не более 1 мг/м <sup>3</sup>								
Номинальный расход воздуха (норм. л/мин)	200	300	350	600	800	1000	3000	4000	5000
Присоединительная резьба	G1/8			G1/4			G3/8, G1/2		
Резьба для присоединения манометра	G1/8								
Присоединительная резьба порта деаэрации (EXH)	-						G1/2		
Макс. рабочее давление (МПа)	1.0								
Мин. рабочее давление (МПа)	Давление на выходе + 0.05						Давление на выходе + 0.1		
Диапазон регулирования (МПа)	0.005~	0.01~	0.01~	0.005~	0.01~	0.01~	0.01~	0.01~	0.01~
	0.2	0.4	0.8	0.2	0.4	0.8	0.2	0.4	0.8
Чувствительность	0.2% (от диапазона регулирования)								
Точность воспроизводимости	±0.5% (от диапазона регулирования)								
Расход воздуха на собственные нужды	≤ 5 норм. л/мин при макс. давлении на выходе			≤ 4 норм. л/мин при макс. давлении на выходе			≤ 9.5 норм. л/мин при макс. давлении на выходе		
Диапазон рабочих температур* (°C)	-5 ~ +60								
Вес (кг)	0.14			0.3			0.64		

\*При низких температурах применять сухой воздух.

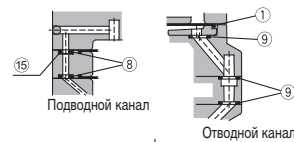
### Спецификация

Поз.	Обозначение	Материал
1	Мембрана	NBR
2	Мембрана	NBR
3	Мембрана	NBR
4	Клапан	Нерж. сталь/NBR
5	Клапан	Латунь/NBR
6	Клапан	Латунь/NBR
7	Демпфер	NBR
8	Кольцевая прокладка	NBR
9	Кольцевая прокладка	NBR
10	Кольцевая прокладка	NBR
11	Кольцевая прокладка	NBR
12	Кольцевая прокладка	NBR
13	Уплотнение	NBR
14	Уплотнение	NBR

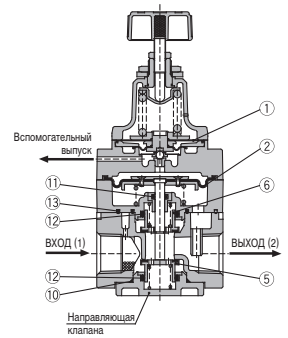
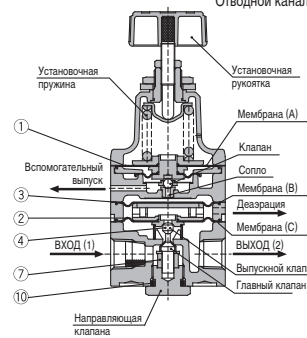
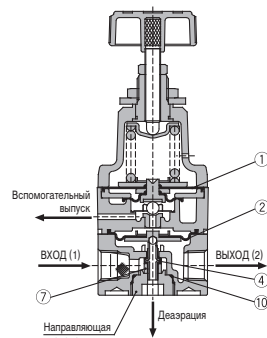
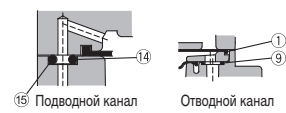
### IR1000



### IR2000

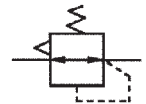


### IR3000



### Принадлежности (заказываются отдельно)

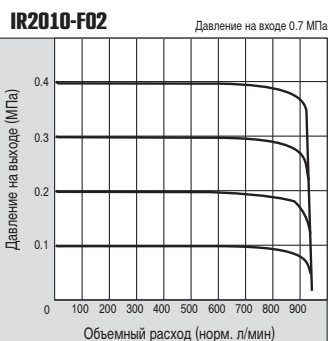
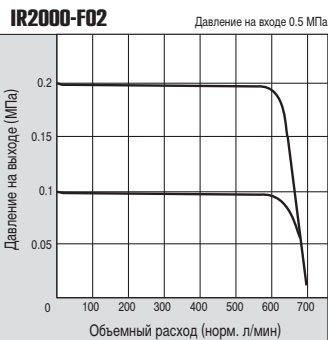
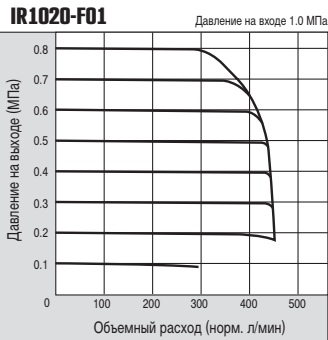
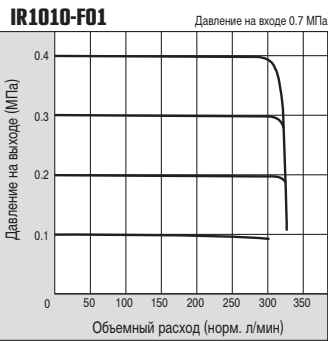
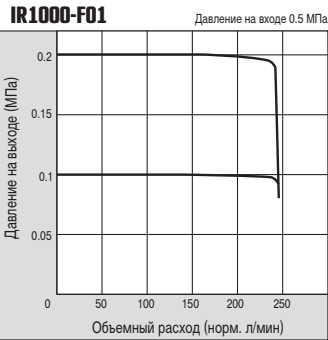
Типоразмер	1000			2000			3000		
Серия	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020	IR3000	IR3010	IR3020
Крепежный угольник	P36201023			P36202028			P362030-20		
Манометр	K8-2,5-40	K8-4-40	K8-10-40	K8-2,5-40	K8-4-40	K8-10-40	K8-2,5-50	K8-4-50	K8-10-50
Пневмоглушитель	-						AN400-04		
Ремкомплект	KT-IR1000	KT-IR1010		KT-IR2000			KT-IR3000		
Фильтр	AF20-F01			AF30-F02			G3/8	AF40-F03	
							G1/2	AF40-F04	
Микрофильтр	AFM20-F01			AFM30-F02			G3/8	AFM40-F03	
							G1/2	AFM40-F04	
Вар-ты крепежа для модульного монтажа	Y20			Y30			Y40		
	Y20T			Y30T			Y40T		



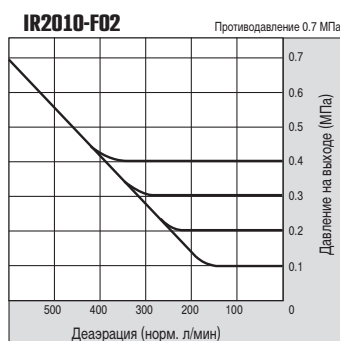
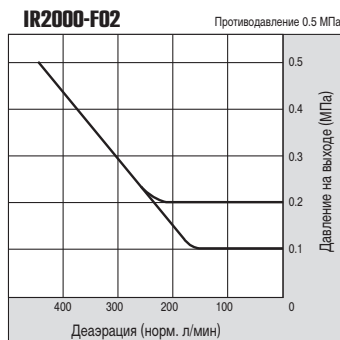
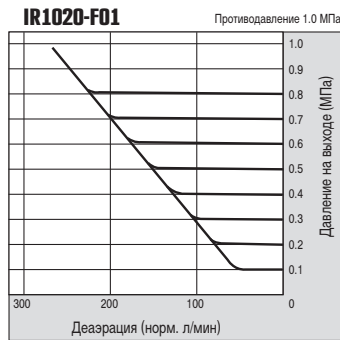
# Прецизионный регулятор давления IR1000-3000

## Характеристики

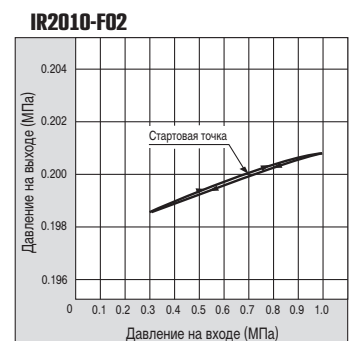
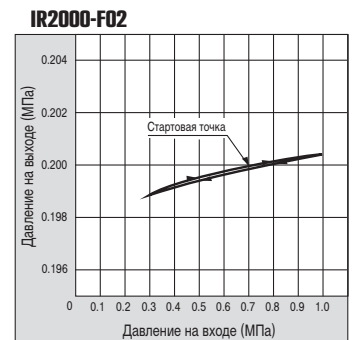
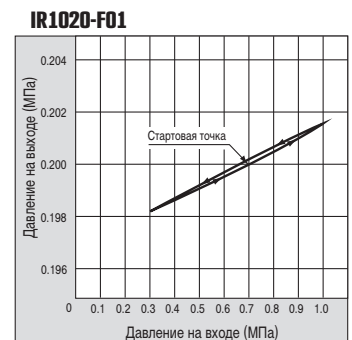
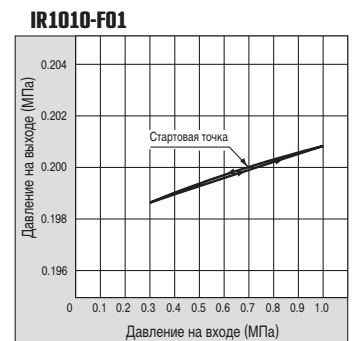
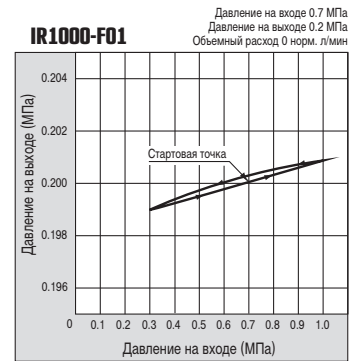
### Характеристики расхода



### Характеристики деаэрации

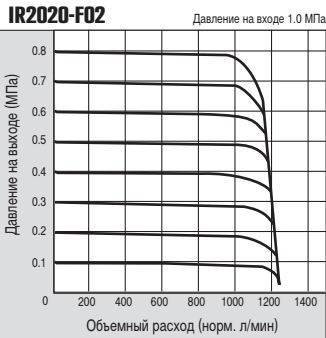


### Характеристики давления



## Характеристики

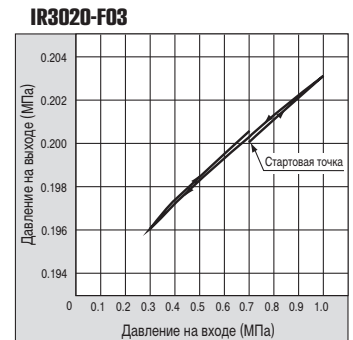
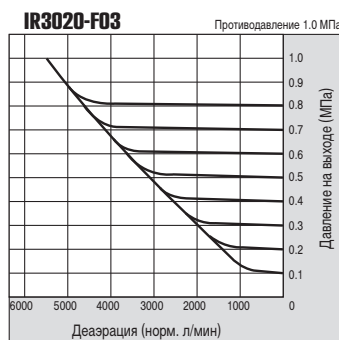
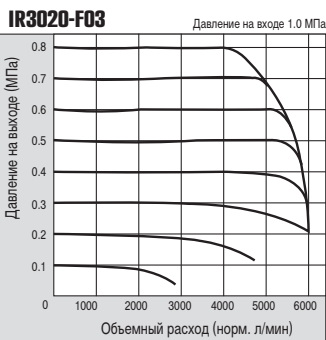
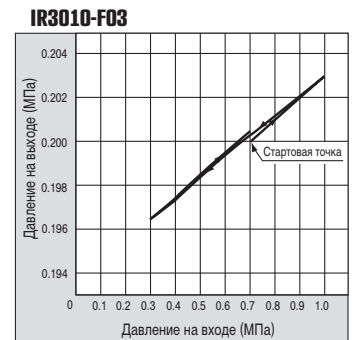
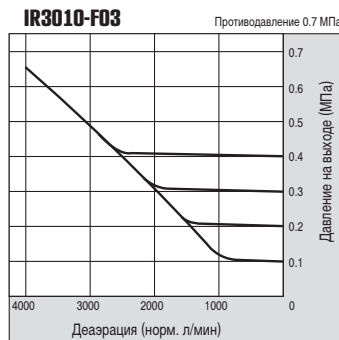
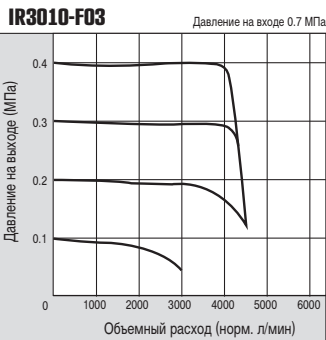
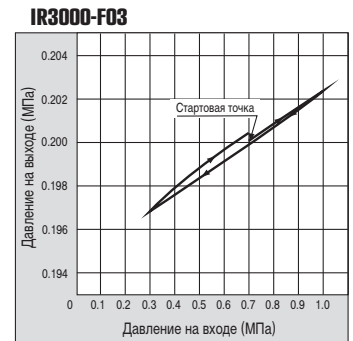
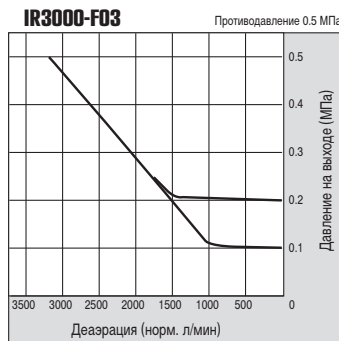
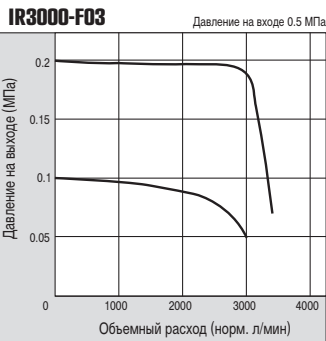
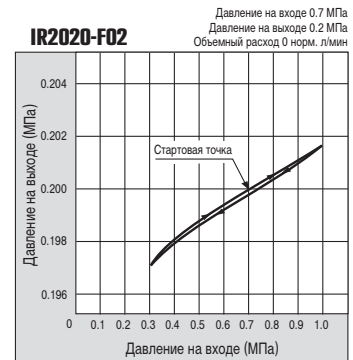
### Характеристики расхода



### Характеристики деаэрации



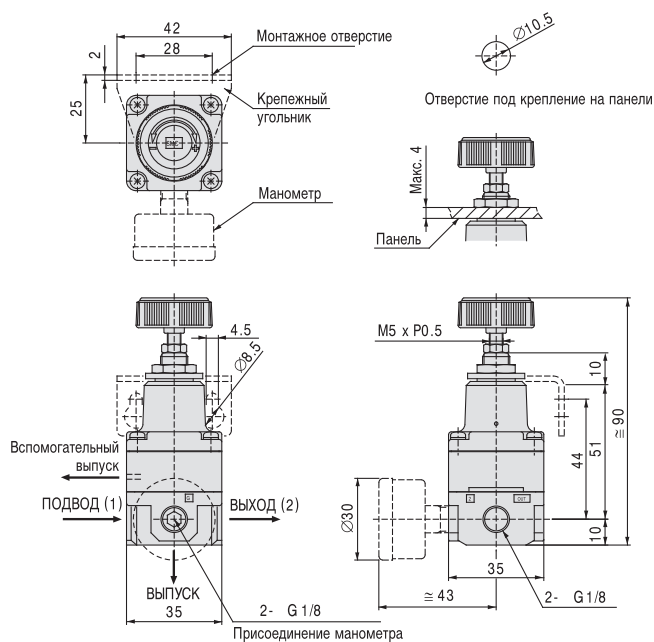
### Характеристики давления



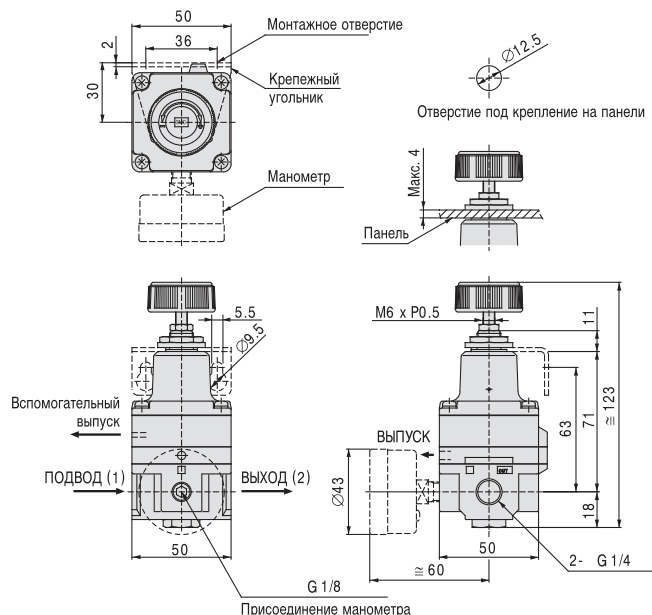
# Прецизионный регулятор давления IR1000-3000

## Размеры

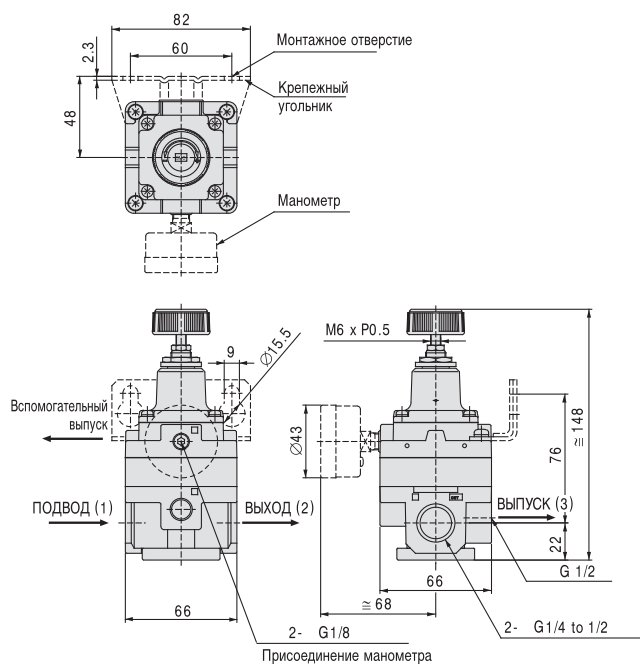
### IR1000



### IR2000



### IR3000



Типоразмер	Присоединительная резьба	Типоразмер для модульного монтажа	Диапазон регулирования	Номер для заказа
1000	G 1/8	2000	0.005 ~ 0.2 МПа	IR1000-F01
			0.005 ~ 0.4 МПа	IR1010-F01
			0.005 ~ 0.8 МПа	IR1020-F01
2000	G 1/4	3000	0.005 ~ 0.2 МПа	IR2000-F02
			0.005 ~ 0.4 МПа	IR2010-F02
			0.005 ~ 0.8 МПа	IR2020-F02
3000	G 3/8	4000	0.01 ~ 0.2 МПа	IR3000-F03
			0.01 ~ 0.4 МПа	IR3010-F03
			0.01 ~ 0.8 МПа	IR3020-F03
	G 1/2		0.01 ~ 0.2 МПа	IR3000-F04
			0.01 ~ 0.8 МПа	IR3020-F04

# Precision Regulator

New

RoHS

Air consumption

Reduced by **Up to approx. 90%**\*  
[L/min (ANR)]

New IR	Current model	Series
1 or less	4.4	IR1000-A/IR2000-A
1 or less	11.5	IR3000-A

\* Compared with the current IR1000/2000/3000

High flow rate

Up to approx. **twice**\*  
[L/min (ANR)]

New IR	Current model	Series
720	320	IR1000-A
1900	940	IR2000-A

\* Compared with the current IR1000/2000

Lightweight

Reduced by up to approx. **27%**\*  
[kg]

New IR	Current model	Series
0.13	0.14	IR1000-A
0.23	0.30	IR2000-A
0.47	0.64	IR3000-A

\* Compared with the current IR1000/2000/3000

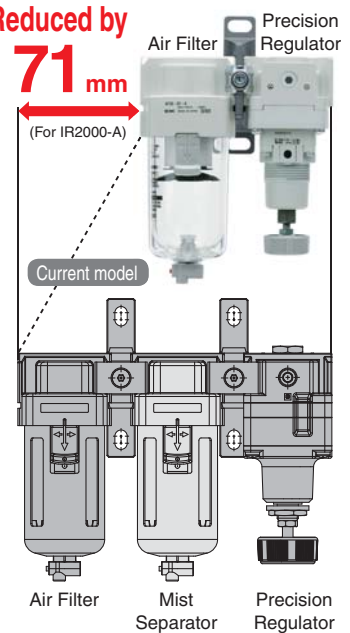
Sensitivity: **0.2%** (Full span)

Repeatability: **±0.5%** (Full span)

## Space saving

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

Reduced by **71 mm**  
(For IR2000-A)



Digital pressure switch standardized

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

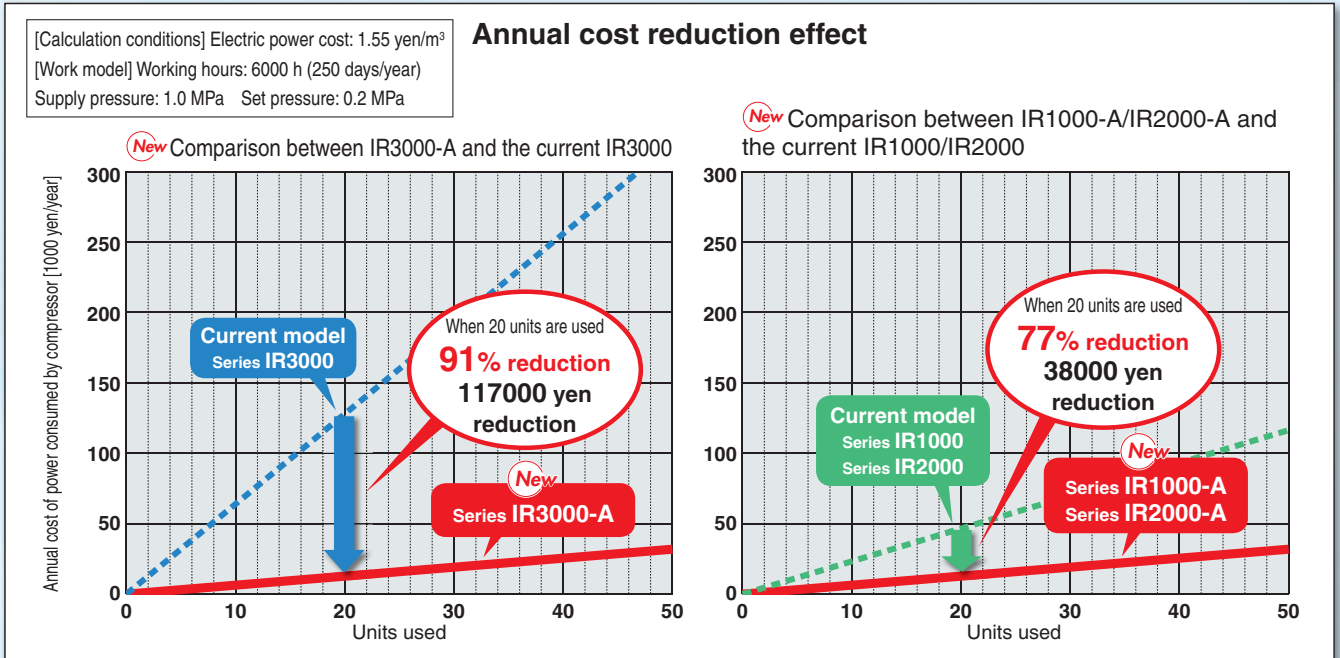


CAT.ES60-22A

# Reduction in air consumption

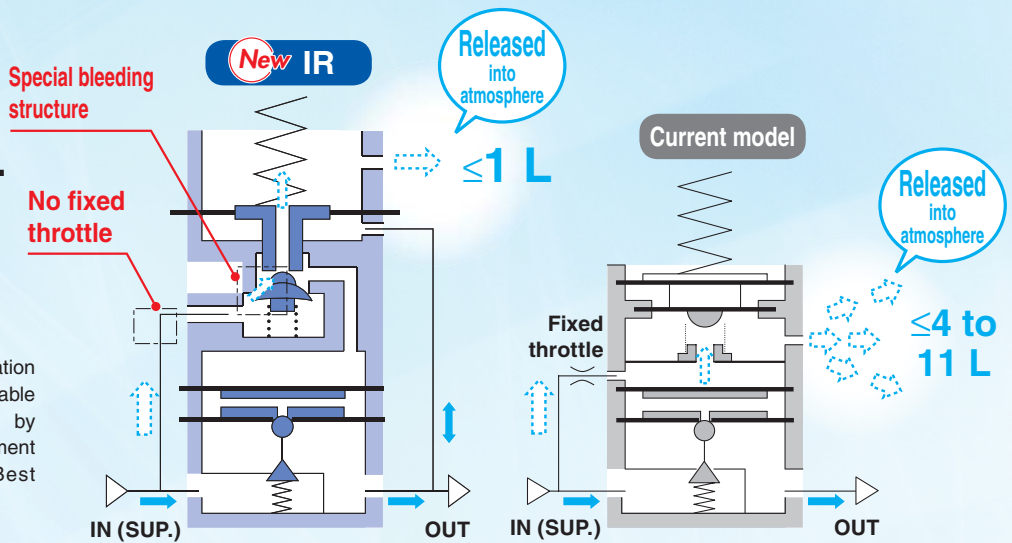
## ● Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.



## ● 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" (Best Pneumatics No. 5) for air quality.

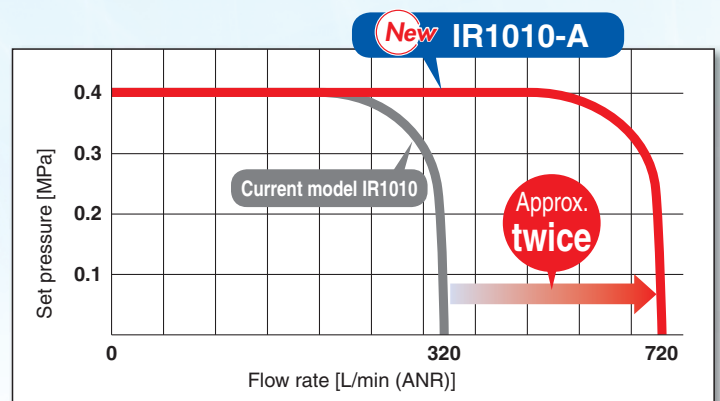


## ● Flow rate: Up to approx. twice

(Compared to the current SMC product) [L/min(ANR)]

New IR	Current model	Series
720	320	IR1000-A
1900	940	IR2000-A

Supply pressure: 0.7 MPa



Supply pressure: 0.7 MPa

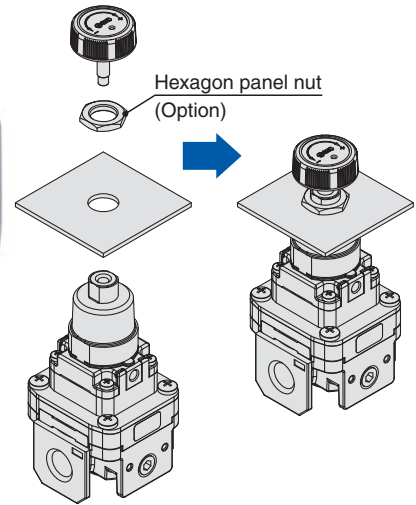
### Weight

Reduced by up to approx. **27%** [kg]

New IR	Current model	Series
0.13	0.14	IR1000-A
0.23	0.30	IR2000-A
0.47	0.64	IR3000-A

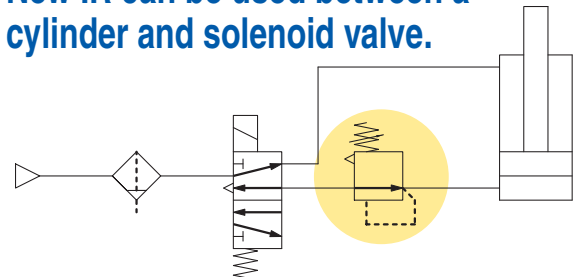
### Hexagon panel nut mounting

\* Interchangeable with the current SMC product



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

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

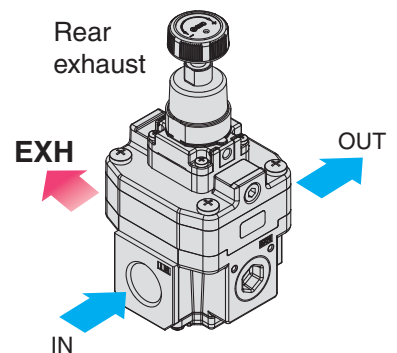
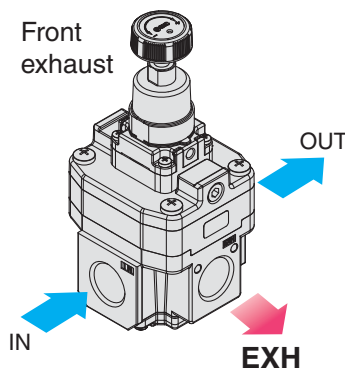
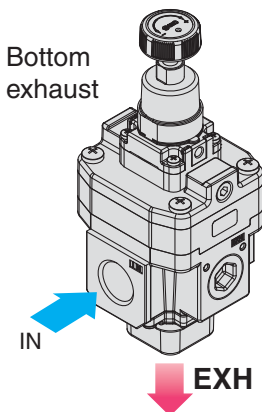


Note) The set pressure may vary depending on the elapsed time and change in ambient temperature after pressure setting. If the setting value varies, adjust the pressure with the knob.

Mounting is interchangeable with the current SMC model.

### Exhaust (EXH) directions can be selected. (Series IR3000-A)

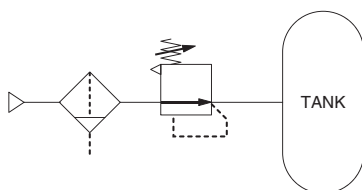
**New** Bottom and front exhaust added.



## Application Examples

### Constant fluid pressure

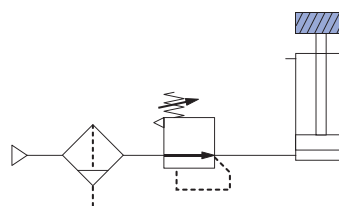
Note)



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

### Balance and drive Accurate balance pressure setting

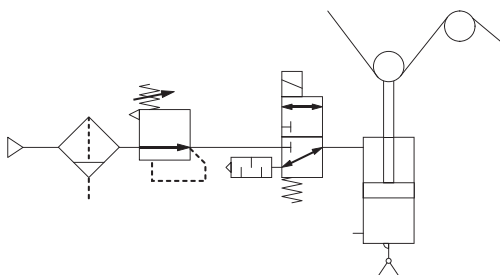
Note)



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

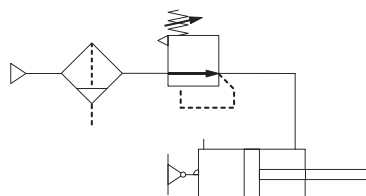
### Accurate pressure setting Sensitivity within 0.2% F.S. (Full Span) Tension control

Note)



### Contact pressure control

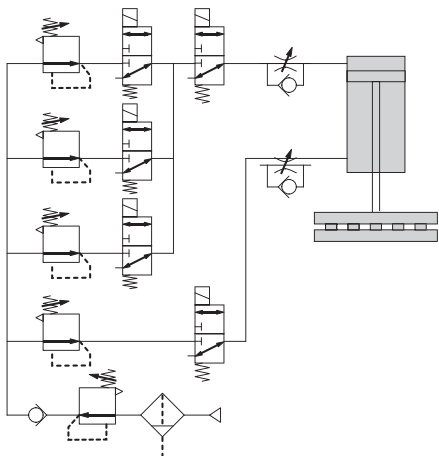
Note)



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

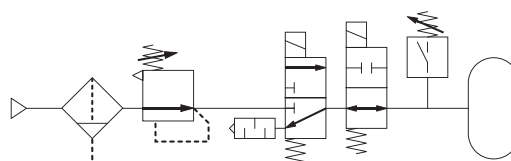
### Multistage control of pressing force for workpiece (Wrapping machine)

Note)



### Leak test circuit

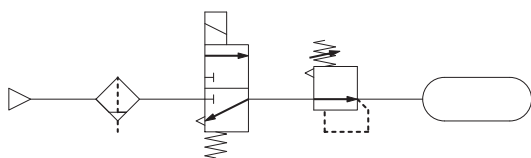
Note)



### Residual pressure relief

Note)

Ex.) Backflow from the tank

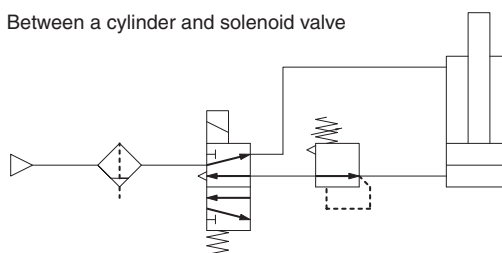


- Residual pressure is exhausted by relief function.

### Usage between a cylinder and solenoid valve

Note)

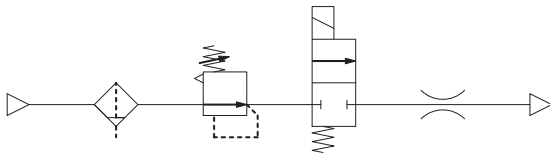
Ex.) Between a cylinder and solenoid valve



- It can be used between a cylinder and solenoid valve.



**Adjustment of blow-line pressure** (Note)





- 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.



**Series Variations**

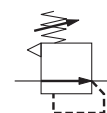
	Series	Model	Set pressure range (MPa)	Port size
Basic Type (Knob)	 IR1000-A	IR1000-A	0.005 to 0.2	1/8
		IR1010-A	0.01 to 0.4	
		IR1020-A	0.01 to 0.8	
	 IR2000-A	IR2000-A	0.005 to 0.2	1/4
		IR2010-A	0.01 to 0.4	
		IR2020-A	0.01 to 0.8	
	 IR3000-A	IR3000-A	0.01 to 0.2	1/4, 3/8, 1/2
		IR3010-A	0.01 to 0.4	
		IR3020-A	0.01 to 0.8	

# Precision Regulator



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

Symbol



Basic type  
(Knob)

### Standard Specifications

Model	Basic type (Knob)		
	IR10□0-A	IR20□0-A	IR30□0-A
Fluid	Air		
Proof pressure	1.5 MPa		
Max. supply pressure	1.0 MPa		
Min. supply pressure <sup>Note 1)</sup>	Set pressure + 0.05 MPa		Set pressure + 0.1 MPa
Set pressure range	IR1000-A: 0.005 to 0.2 MPa	IR2000-A: 0.005 to 0.2 MPa	IR3000-A: 0.01 to 0.2 MPa
	IR1010-A: 0.01 to 0.4 MPa	IR2010-A: 0.01 to 0.4 MPa	IR3010-A: 0.01 to 0.4 MPa
	IR1020-A: 0.01 to 0.8 MPa	IR2020-A: 0.01 to 0.8 MPa	IR3020-A: 0.01 to 0.8 MPa
Sensitivity	Within 0.2% of full span		
Repeatability <sup>Note 2)</sup>	Within ±0.5% of full span		
Air consumption <sup>Note 3)</sup>	1 L/min (ANR) or less		
Port size	1/8	1/4	1/4, 3/8, 1/2
Pressure gauge port	1/8 (2 locations)		
Ambient and fluid temperature <sup>Note 4)</sup>	-5 to 60°C (No freezing)		
Weight (kg) <sup>Note 5)</sup>	0.13	0.23	0.47

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) -5 to 50°C for the products with the digital pressure switch

Note 5) Without accessories

### Accessories (Option)/Part No.

Description	IR10□0-A	IR20□0-A	IR30□0-A
Bracket assembly <sup>Note 1)</sup>	IR10P-501AS	IR20P-501AS	IR30P-501AS
Hexagon panel nut	IR10P-600S	IR20P-600S	IR20P-600S
Round type pressure gauge <sup>Note 2)</sup>	0.2 MPa setting	G33-2-□01	G43-2-□01
	0.4 MPa setting	G33-4-□01	G43-4-□01
	0.8 MPa setting	G33-10-□01	G43-10-□01
Digital pressure switch <sup>Note 3)</sup>	NPN 1 output	ISE30A-□01-N-ML	
	PNP 1 output	ISE30A-□01-P-ML	
	NPN 1 output/ Voltage output	ISE30A-□01-C-ML	
	NPN 1 output/ Current output	ISE30A-□01-D-ML	

Note 1) This is an assembly of the bracket and resin panel 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 **WEB catalog** or the Best Pneumatics No. 6.

Please contact SMC regarding the supply of digital pressure switch with unit conversion function.

### Modular Products and Accessories

Applicable products and accessories	Applicable size		
	Series IR1000-A	Series IR2000-A	Series IR3000-A
Filter	AF20-A	AF30-A	AF40-A
Spacer	Y200-A	Y300-A	Y400-A
Spacer with bracket	Y200T-A	Y300T-A	Y400T-A

Refer to the **WEB catalog** for details of the modular applicable products and accessories. The former modular and mounting brackets can be used.

# Precision Regulator *Series IR1000-A/2000-A/3000-A*

## How to Order

IR 1 0 0 0 -   01 BG -   - A

1  
 2  
 3  
 4  
 5  
 6  
 7



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

	Symbol	Description	①				
			Body size				
			1	2	3		
②	Set pressure range	0	0.005 to 0.2 MPa	●	●	—	
		1	0.01 to 0.2 MPa	—	—	●	
		2	0.01 to 0.4 MPa	●	●	●	
		2	0.01 to 0.8 MPa	●	●	●	
+							
③	Exhaust direction	0	Bottom exhaust	●	●	●	
		1	Front exhaust	—	—	●	
		2	Rear exhaust	—	—	●	
+							
④	Pipe thread type	Nil	Rc	●	●	●	
		N	NPT	●	●	●	
		F	G	●	●	●	
+							
⑤	Port size	01	1/8	●	—	—	
		02	1/4	—	●	●	
		03	3/8	—	—	●	
		04	1/2	—	—	●	
+							
⑥	a	Mounting	Nil	Without mounting option	●	●	●
			B <sup>Note 2)</sup>	With bracket	●	●	●
			H	With hexagon panel nut (for panel mount)	●	●	●
	+						
	b	Pressure gauge	Nil	Without pressure gauge	●	●	●
			G	Round type pressure gauge	●	●	●
	c	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	●	●	●
	+						
	d	Flow direction	Nil	Flow direction: Left to right	●	●	●
R			Flow direction: Right to left	●	●	●	
+							
e	Knob	Nil	Upward	●	●	●	
		V	Downward	●	●	●	
+							
f	Pressure unit <sup>Note 3)</sup>	Nil	Name plate and pressure gauge in imperial units: MPa	●	●	●	
		Z	Name plate and pressure gauge in imperial units: psi	●	●	●	
		ZA	Digital pressure switch: With unit conversion function	●	●	●	

Note 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.

Note 2) Assembly of a bracket and set nuts.

Note 3) See pressure unit table below.

	Pipe thread type	Name plate in imperial units	Pressure gauge in imperial units		Sales <sup>Note 6)</sup>
			G	EA, EB, EC, ED	
Nil	Rc	MPa	MPa	Fixed SI unit	Japan, Overseas
	NPT				
	G				
Z <sup>Note 4)</sup>	Rc	—	—	—	Only overseas
	NPT	psi	psi	With unit conversion function (Initial value psi)	
	G	—	—	—	
ZA <sup>Note 5)</sup>	Rc	MPa	—	With unit conversion function	Only overseas
	NPT				
	G				

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.

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

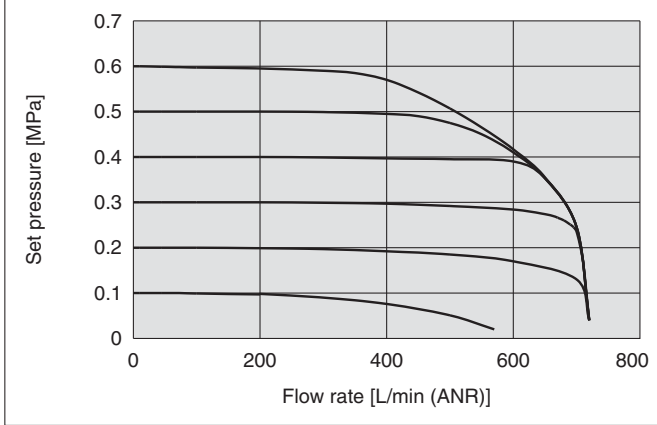
## Series IR1000-A

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

### Flow-rate Characteristics

#### IR1020-01-A

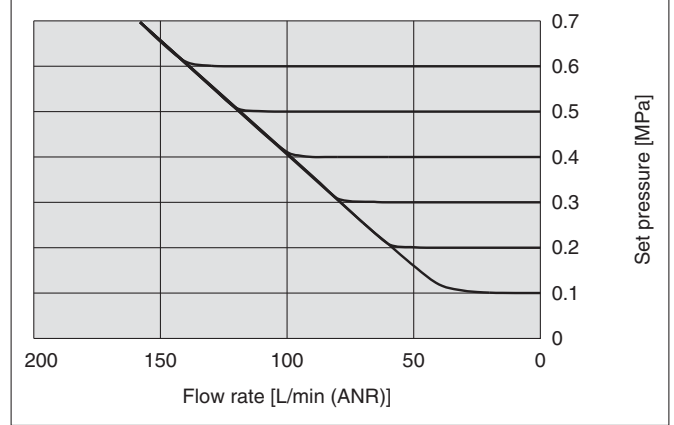
Supply pressure: 0.7 MPa



### Relief Characteristics

#### IR1020-01-A

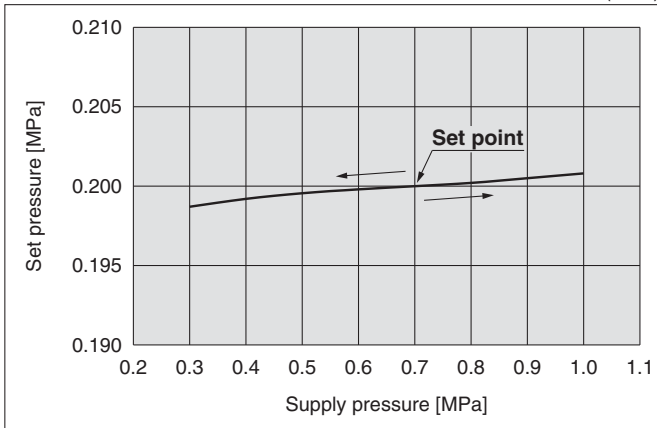
Back pressure: 0.7 MPa



### Pressure Characteristics

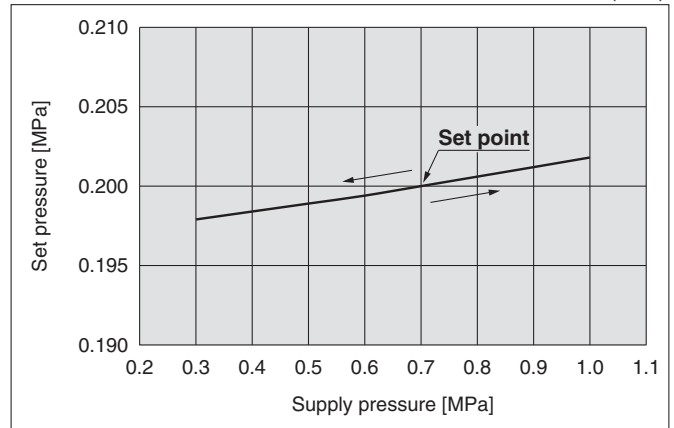
#### IR1000-A

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



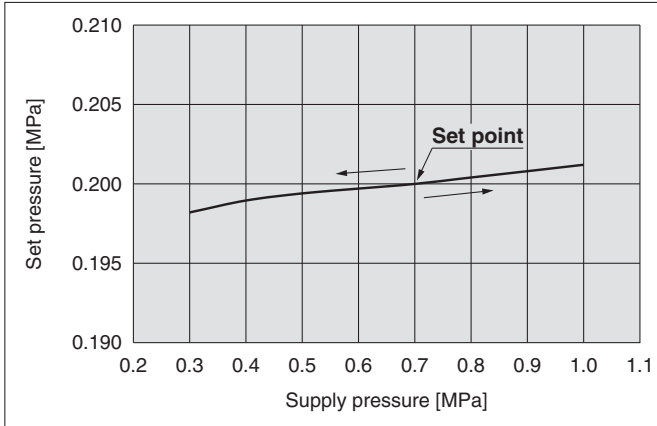
#### IR1020-A

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



#### IR1010-A

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



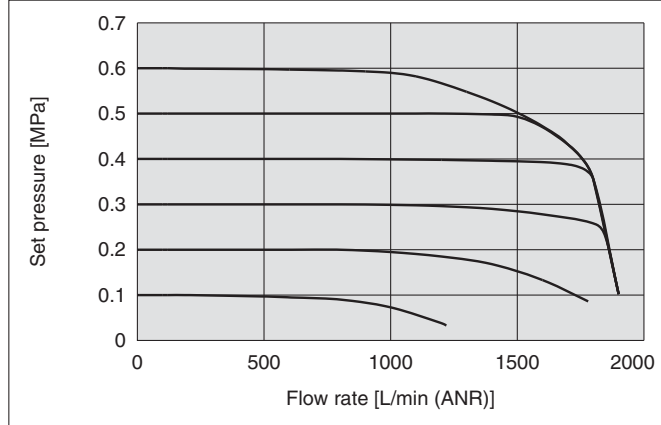
# Precision Regulator *Series IR1000-A/2000-A/3000-A*

## Series IR2000-A

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

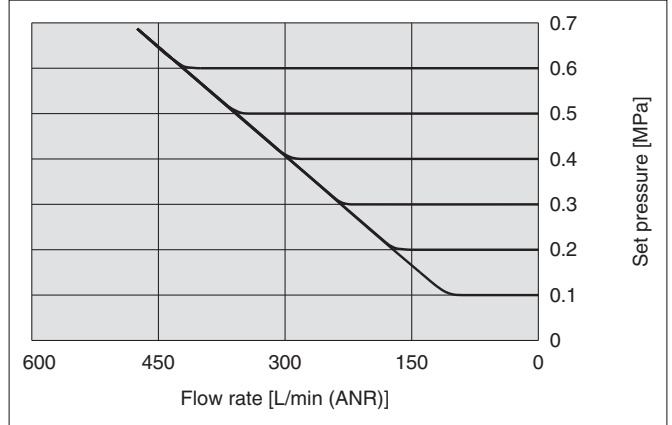
### Flow-rate Characteristics

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



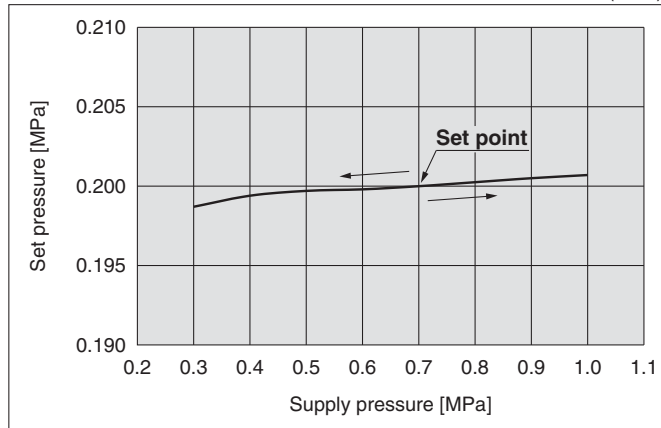
### Relief Characteristics

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

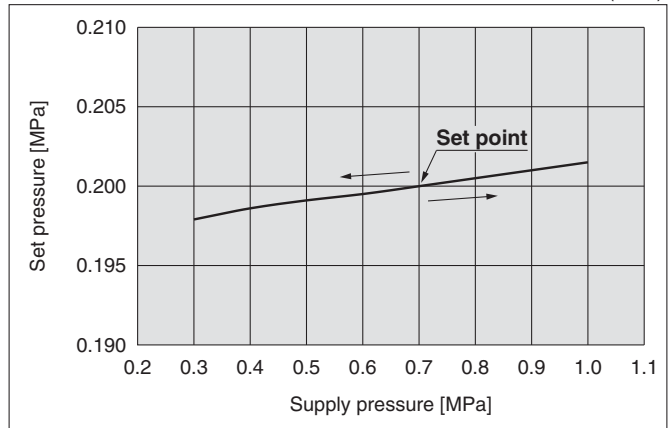


### Pressure Characteristics

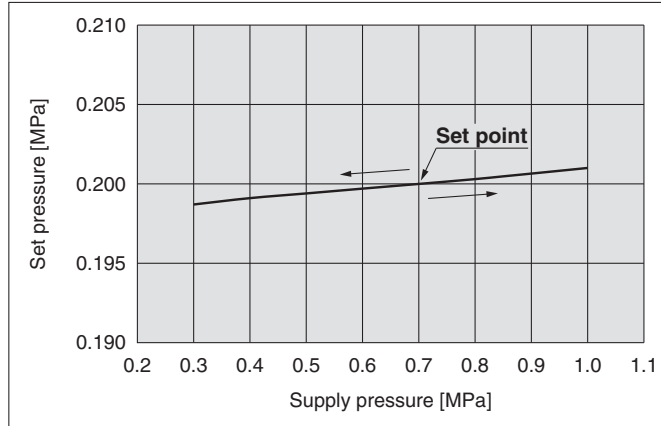
**IR2000-A** Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)



**IR2020-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)



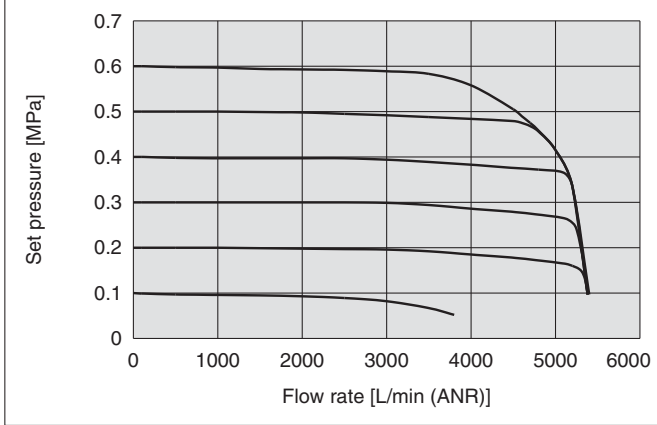
# Series IR1000-A/2000-A/3000-A

## Series IR3000-A

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

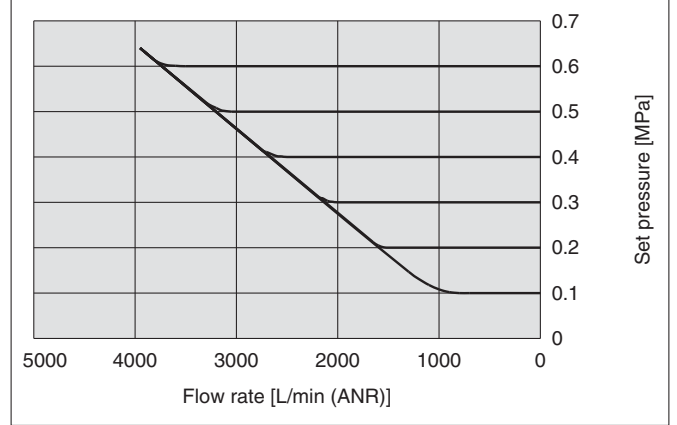
### Flow-rate Characteristics

IR3020-04-A Supply pressure: 0.7 MPa



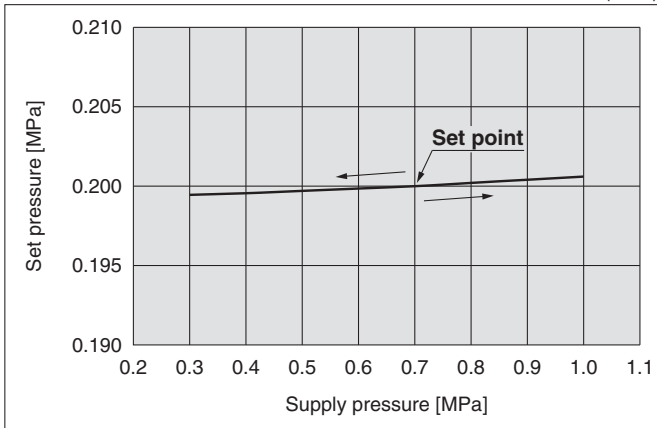
### Relief Characteristics

IR3020-04-A Back pressure: 0.7 MPa

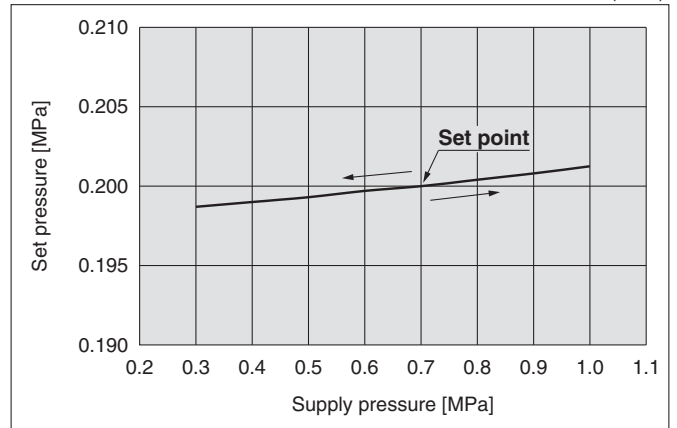


### Pressure Characteristics

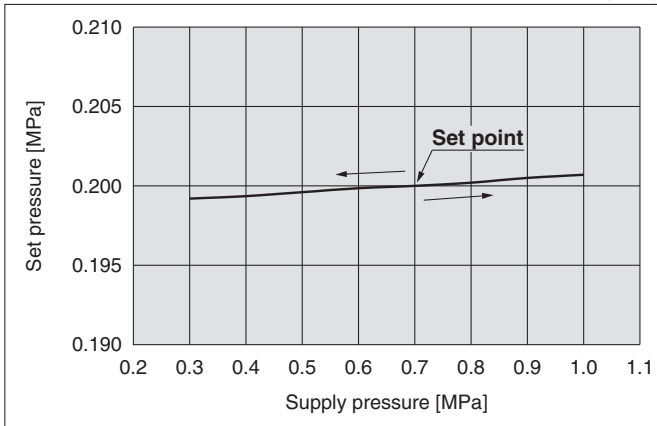
IR3000-A Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)



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

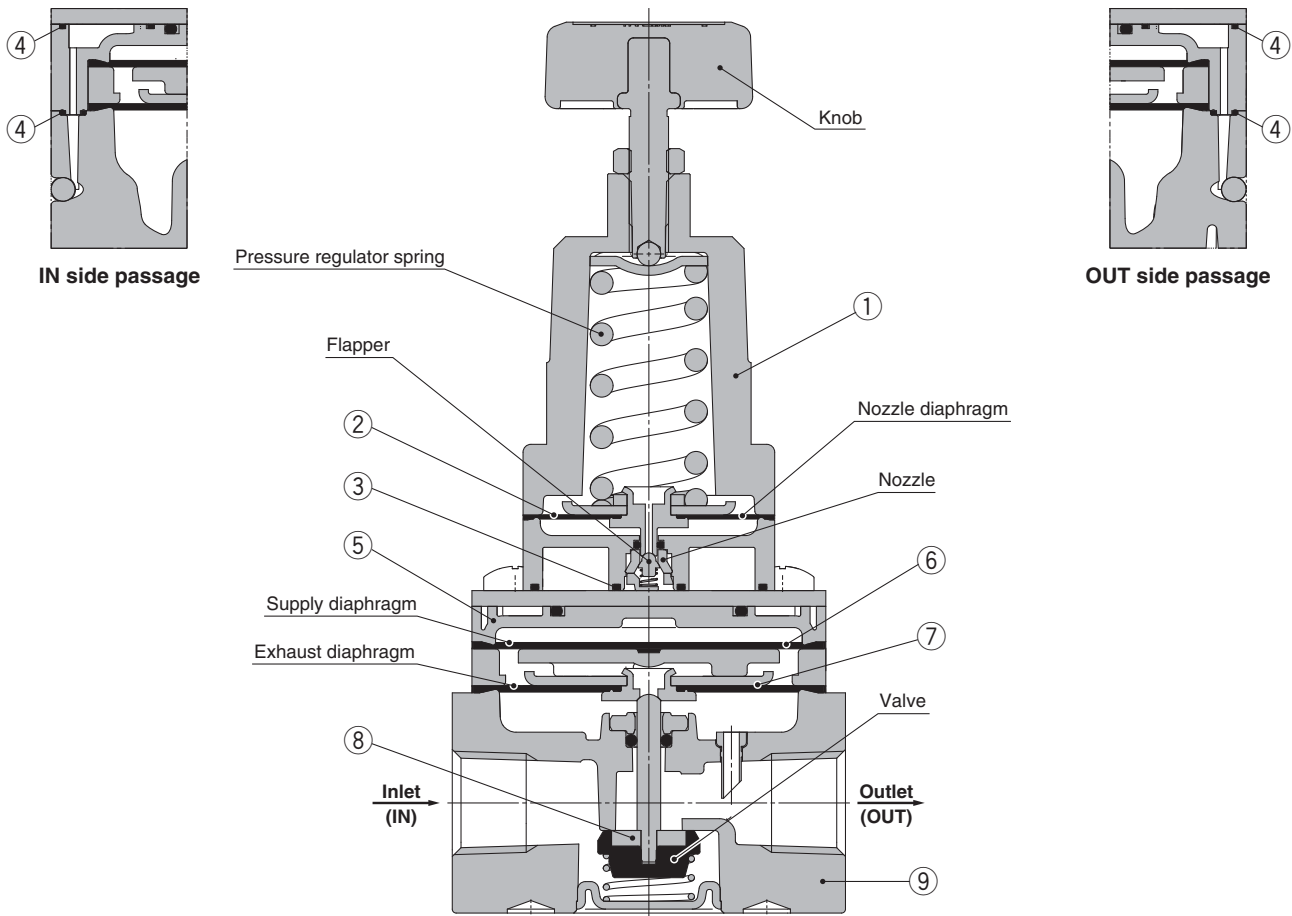


IR3010-A Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 0 L/min (ANR)



## Construction

### Basic type (Knob): IR20□0-A



## 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.

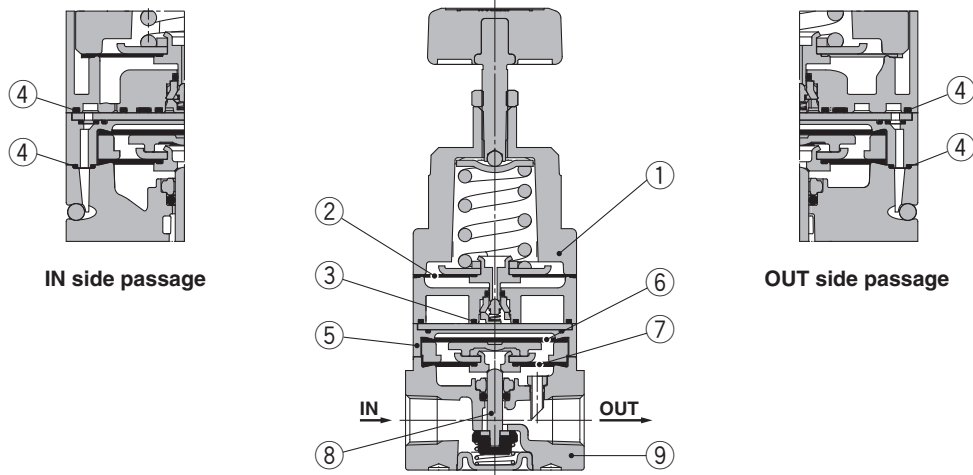
## Component Parts

No.	Description	Material		
		IR1000-A	IR2000-A	IR3000-A
1	Bonnet	Aluminum die-casted		
2	Nozzle diaphragm assembly	Aluminum, Weather resistant NBR		
3	Seal	HNBR		
4	Seal	NBR		
5	Diaphragm spacer	Polyacetal		
6	Supply diaphragm	Weather resistant NBR		—
7	Exhaust diaphragm assembly	Steel, Aluminum, Weather resistant NBR		Aluminum, Weather resistant NBR, HNBR
8	Valve assembly	Stainless steel, Aluminum, HNBR		Aluminum, HNBR
9	Body	Aluminum die-casted		

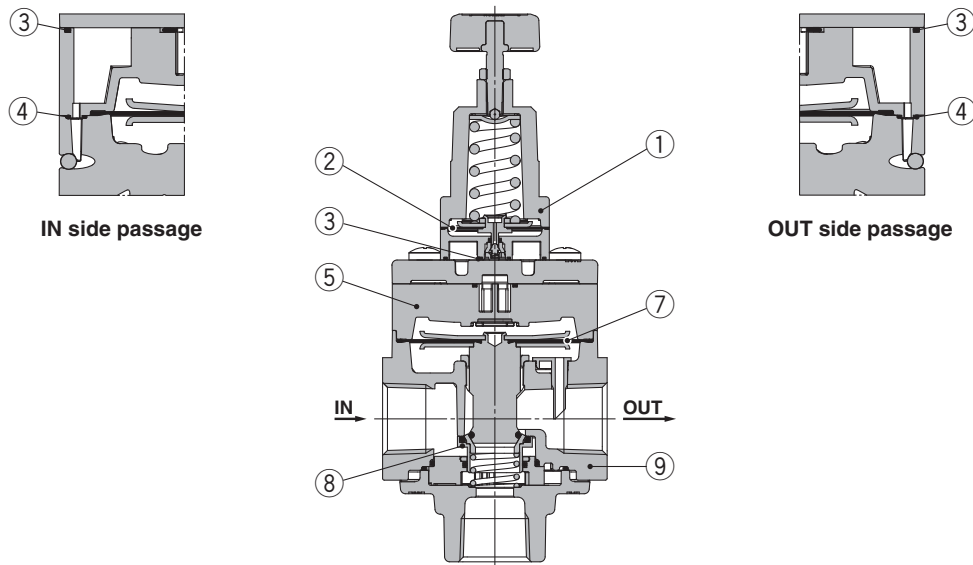
# Series IR1000-A/2000-A/3000-A

## Construction

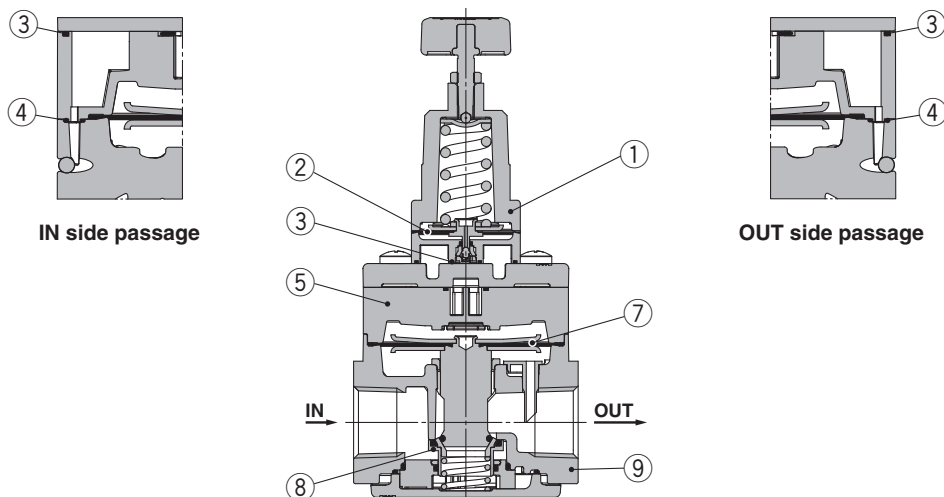
### Basic type (Knob): IR10□0-A



### Basic type (Knob): IR30□0-A



### Basic type (Knob): IR30□<sup>1</sup>/<sub>2</sub>-A



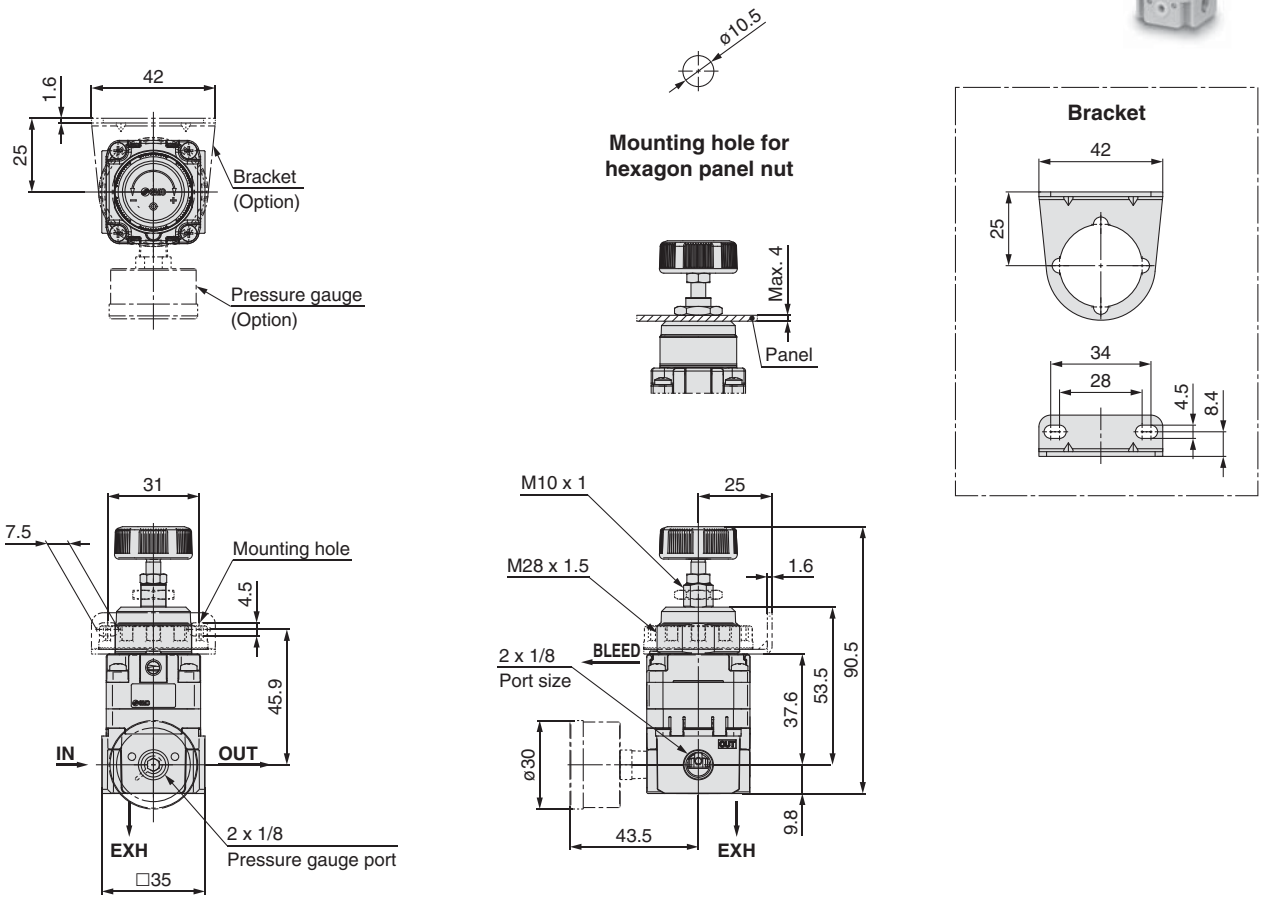


# Precision Regulator *Series IR1000-A/2000-A/3000-A*



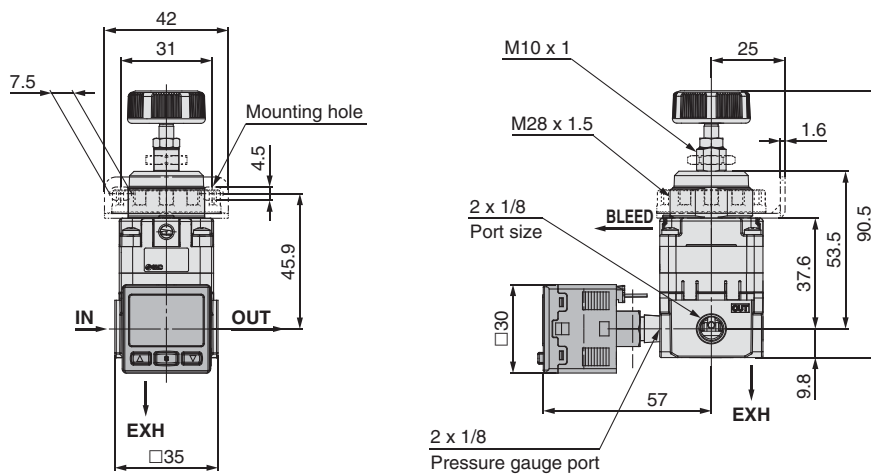
## Dimensions

Basic type (Knob): IR10□0-01□-A



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

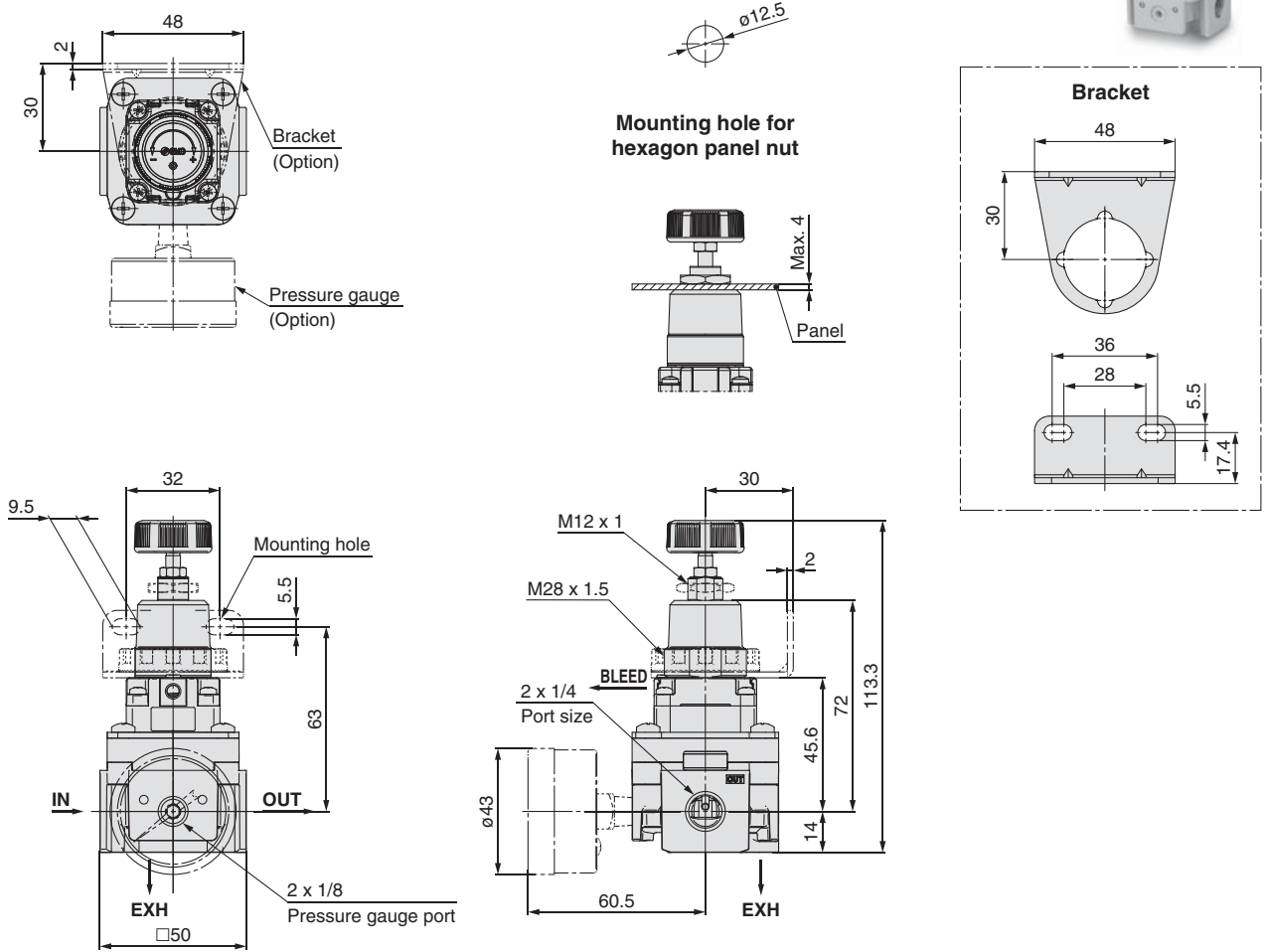
With digital pressure switch: IR10□0-01□E□-A



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

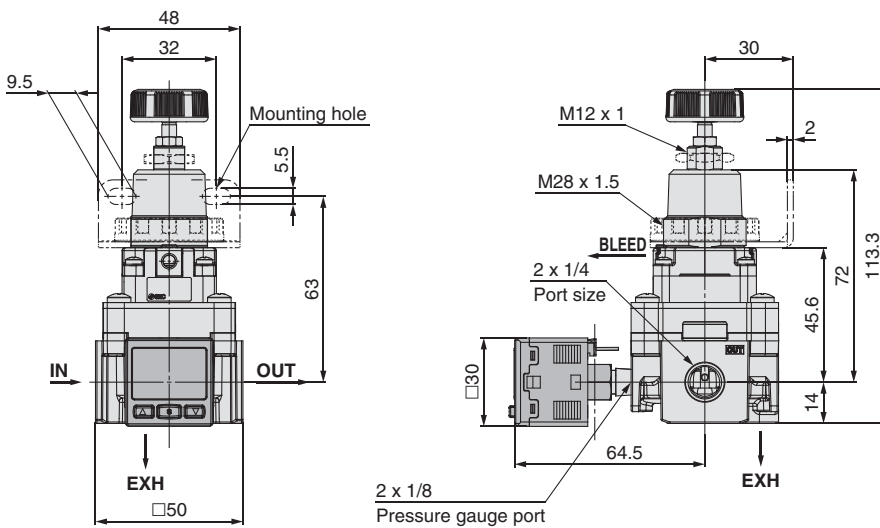
## Dimensions

Basic type (Knob): IR20□0-02□-A



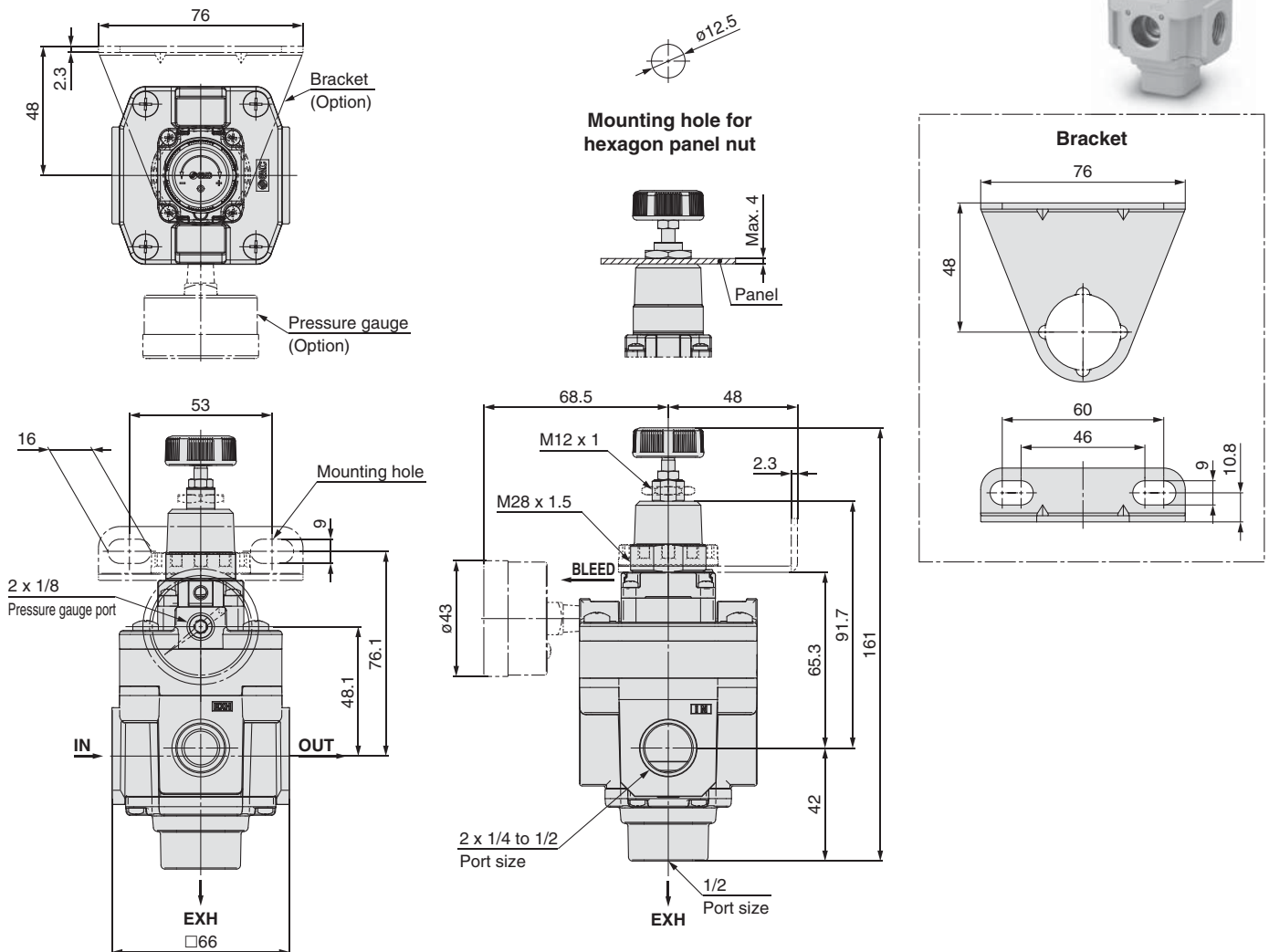
When connecting to the EXH port, contact your SMC sales representative separately.

With digital pressure switch: IR20□0-02□E□-A

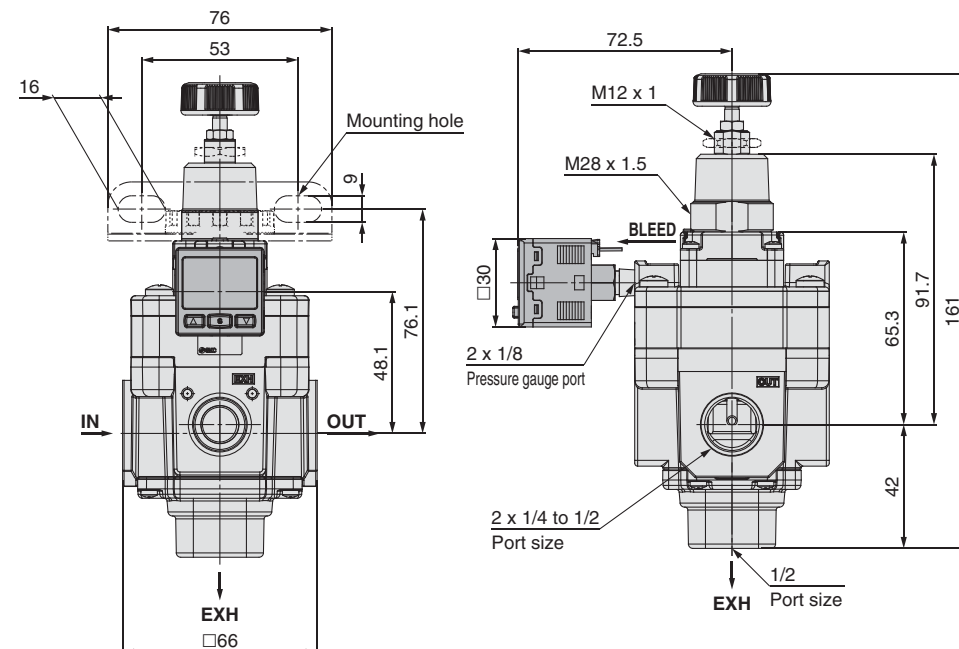


## Dimensions

### Basic type (Knob): IR30□0-0□□-A



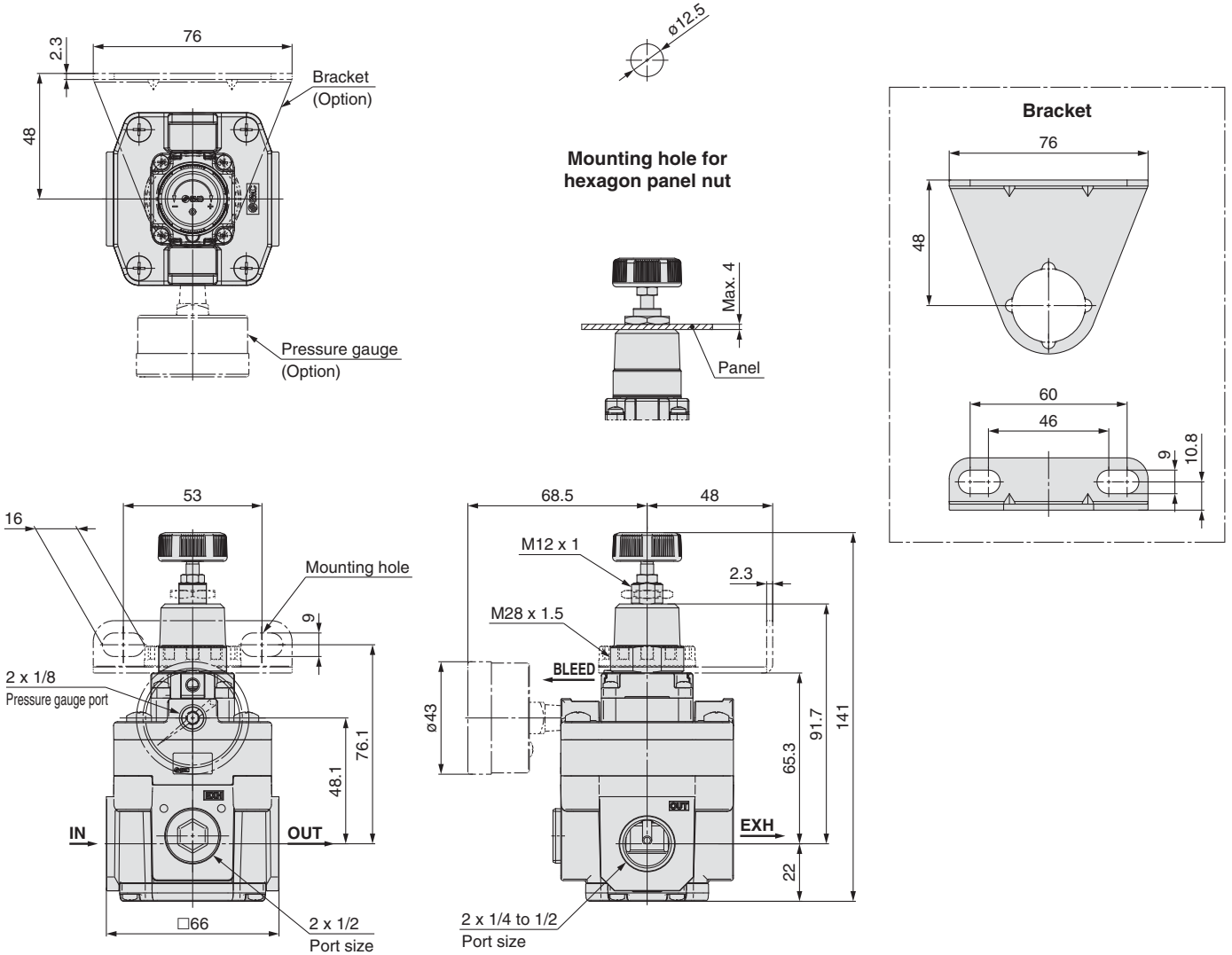
### With digital pressure switch: IR30□0-0□□E□-A



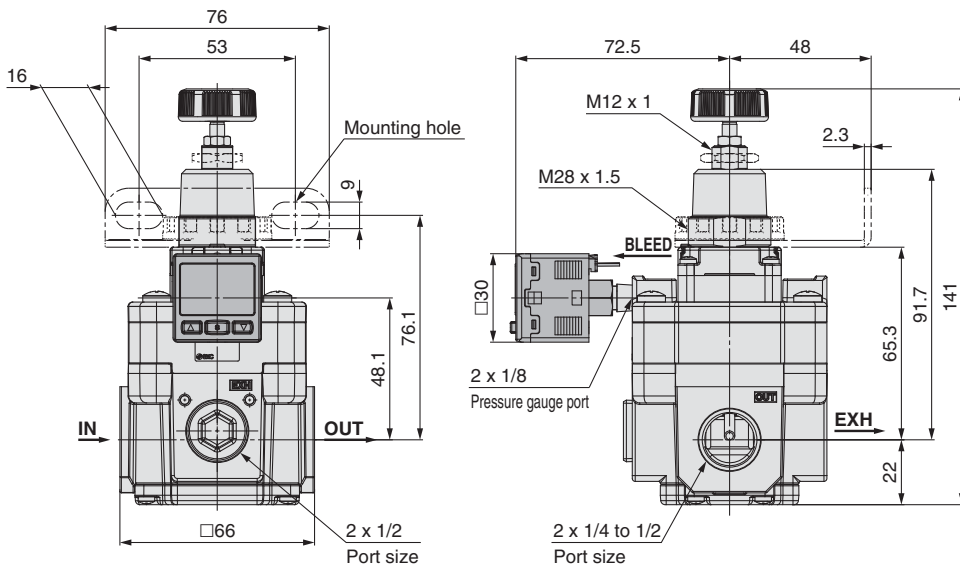
# Series IR1000-A/2000-A/3000-A

## Dimensions

Basic type (Knob): IR30□<sup>1</sup>/<sub>2</sub>-0□□-A



With digital pressure switch: IR30□<sup>1</sup>/<sub>2</sub>-0□□E□-A



# Regulator

New

RoHS

Air consumption

Bleed air "0"

Lightweight

Reduced by up to approx. 27%\*

[kg]

New IR	Current model	Series
0.13	0.14	IR1200-A
0.23	0.30	IR2200-A
0.47	0.64	IR3200-A

\* Compared with the current IR1000/2000/3000

High flow rate

Up to approx. twice\*

[L/min (ANR)]

New IR	Current model	Series
720	320	IR1200-A
1900	940	IR2200-A
5000	4000	IR3200-A

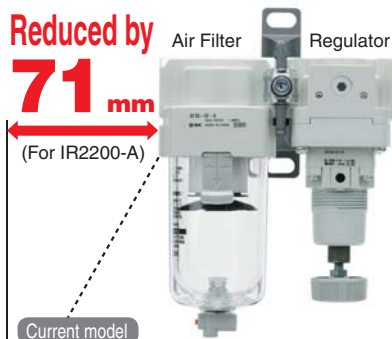
\* Compared with the current IR1000/2000/3000

## Space saving

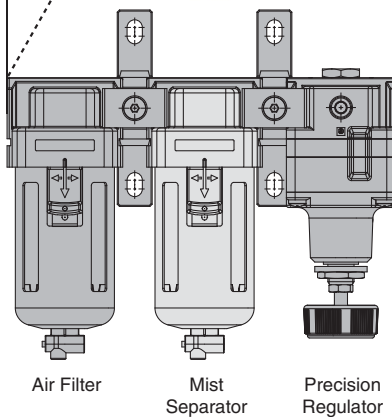
New structure without fixed throttle does not require a mist separator.

Reduced by 71 mm

(For IR2200-A)



Current model



Air Filter

Mist Separator

Precision Regulator

Digital pressure switch standardized



Series IR1200-A/2200-A/3200-A

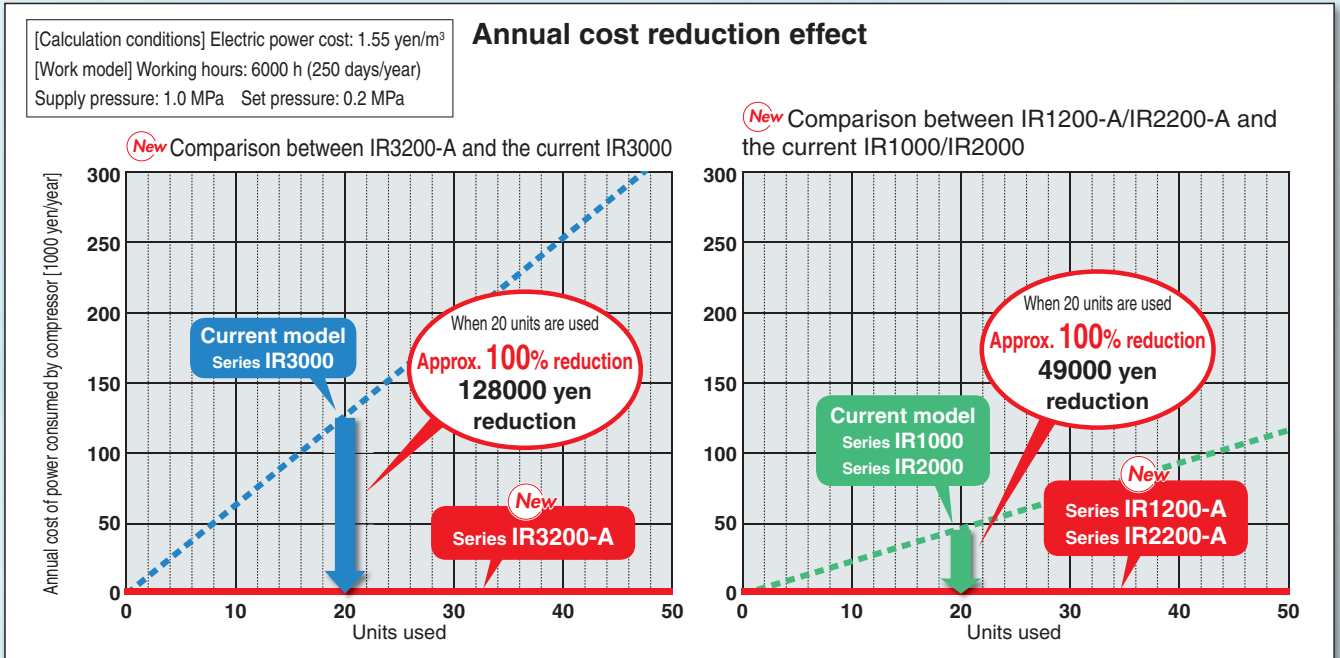


CAT.ES60-24A

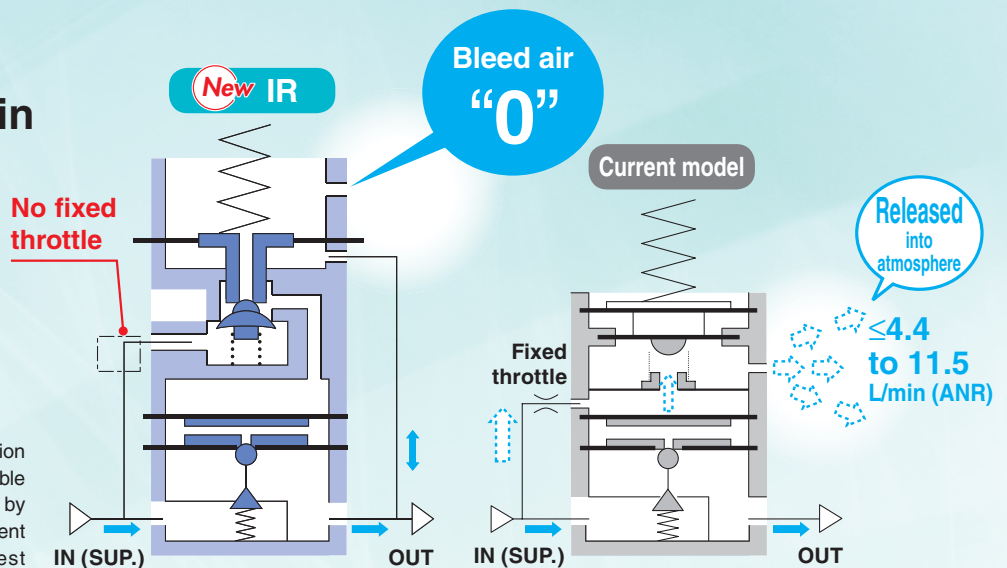
# Reduction in air consumption

## ● Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.



## ● No fixed throttle in the new design.



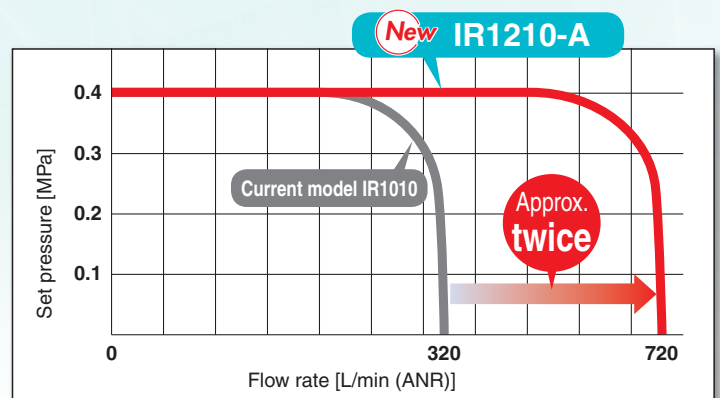
\* Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to "Air Preparation Equipment Model Selection Guide" (Best Pneumatics No. 5) for air quality.

## ● Flow rate: Up to approx. twice

(Compared to the current SMC product) [L/min (ANR)]

New IR	Current model	Series
720	320	IR1200-A
1900	940	IR2200-A
5000	4000	IR3200-A

Supply pressure: 0.7 MPa



Supply pressure: 0.7 MPa

### Weight

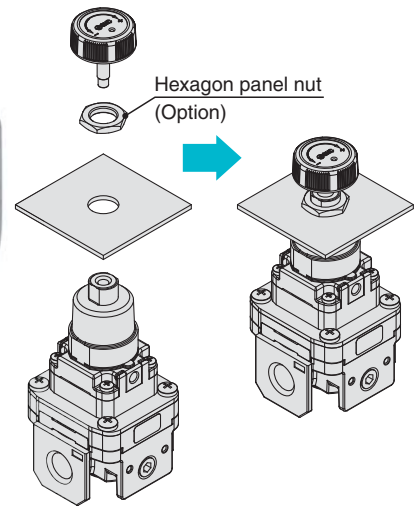
Reduced by up to approx. **27%** [kg]

New IR	Current model	Series
0.13	0.14	IR1200-A
0.23	0.30	IR2200-A
0.47	0.64	IR3200-A



### Hexagon panel nut mounting

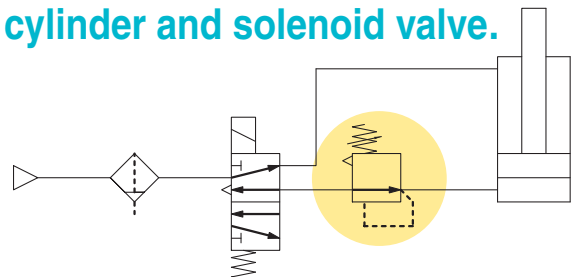
\* Interchangeable with the current SMC product



Repeatability:  $\pm 1\%$  (Full span)

Mounting is interchangeable with the current SMC model.

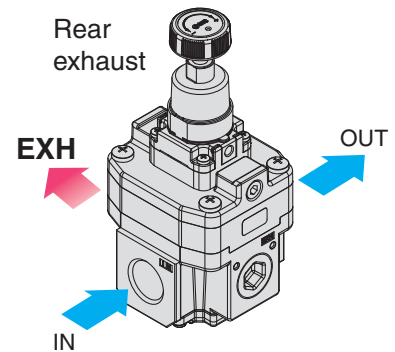
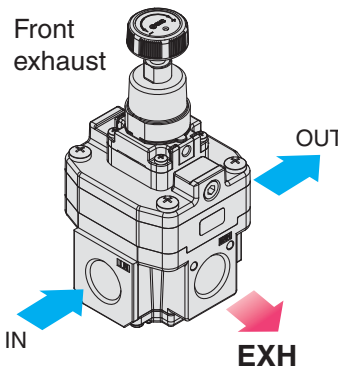
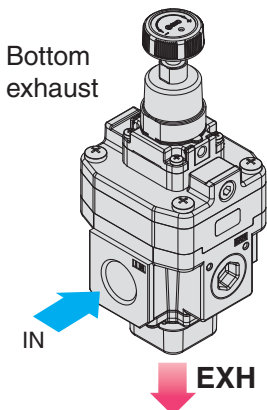
### New IR can be used between a cylinder and solenoid valve.



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.

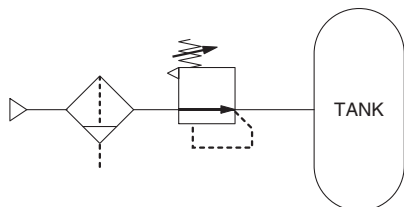
### Exhaust (EXH) directions can be selected. (Series IR3200-A)

**New** Bottom and front exhaust added.



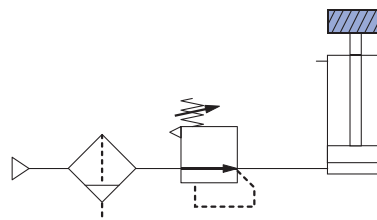
## Application Examples

### Constant fluid pressure Note)



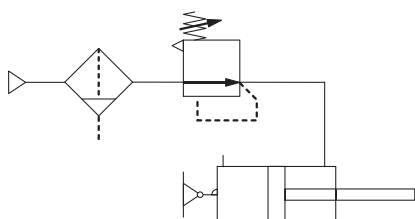
- Since there is a large effective area for supply and exhaust pressure, setting can be done quickly.

### Balance and drive Note) Accurate balance pressure setting



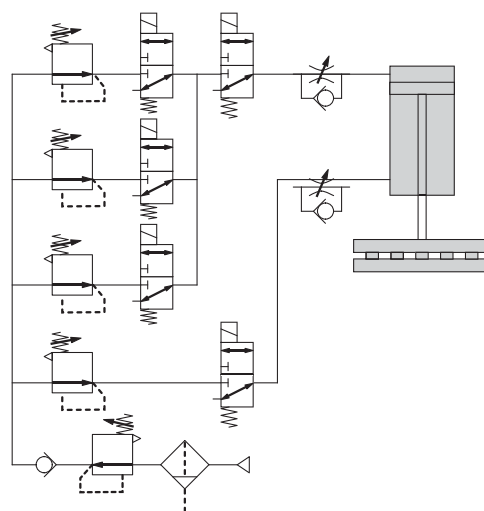
- Limits pressure fluctuation when driving a cylinder, maintaining excellent static and dynamic balance.

### Contact pressure control Note)



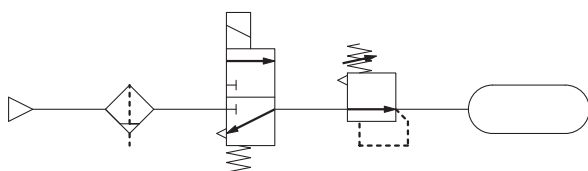
- Adapts to the cylinder's piston displacement, maintaining a constant pressure.

### Multistage control of pressing force for workpiece Note) (Wrapping machine)



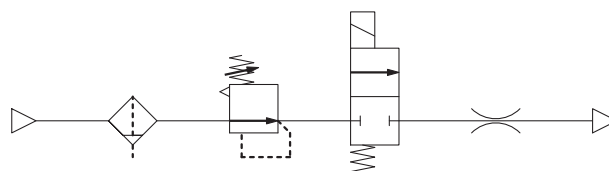
### Residual pressure relief Note)

Ex.) Backflow from the tank



- Residual pressure is exhausted by relief function.
- It can be used between a cylinder and solenoid valve.

### Adjustment of blow-line pressure Note)




- 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.



## Series Variations

Basic Type (Knob)	Series	Model	Set pressure range (MPa)	Port size
		IR1200-A	0.02 to 0.2	1/8
		IR1210-A	0.02 to 0.4	
		IR1220-A	0.02 to 0.8	
		IR2200-A	0.02 to 0.2	1/4
		IR2210-A	0.02 to 0.4	
		IR2220-A	0.02 to 0.8	
		IR3200-A	0.02 to 0.2	1/4, 3/8, 1/2
		IR3210-A	0.02 to 0.4	
		IR3220-A	0.02 to 0.8	

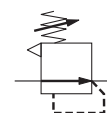


# Regulator



## Series IR1200-A/2200-A/3200-A

Symbol



Basic type  
(Knob)

### Standard Specifications

Model	Basic type (Knob)		
	IR12□0-A	IR22□0-A	IR32□0-A
Fluid	Air		
Proof pressure	1.5 MPa		
Max. supply pressure	1.0 MPa		
Min. supply pressure <sup>Note 1)</sup>	Set pressure + 0.05 MPa		Set pressure + 0.1 MPa
Set pressure range	IR1200-A: 0.02 to 0.2 MPa	IR2200-A: 0.02 to 0.2 MPa	IR3200-A: 0.02 to 0.2 MPa
	IR1210-A: 0.02 to 0.4 MPa	IR2210-A: 0.02 to 0.4 MPa	IR3210-A: 0.02 to 0.4 MPa
	IR1220-A: 0.02 to 0.8 MPa	IR2220-A: 0.02 to 0.8 MPa	IR3220-A: 0.02 to 0.8 MPa
Repeatability <sup>Note 2)</sup>	Within ±1% of full span		
Port size	1/8	1/4	1/4, 3/8, 1/2
Pressure gauge port	1/8 (2 locations)		
Ambient and fluid temperature <sup>Note 3)</sup>	-5 to 60°C (No freezing)		
Weight (kg) <sup>Note 4)</sup>	0.13	0.23	0.47

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) -5 to 50°C for the products with the digital pressure switch

Note 4) Without accessories

### Accessories (Option)/Part No.

Description	IR12□0-A	IR22□0-A	IR32□0-A
Bracket assembly <sup>Note 1)</sup>	IR10P-501AS	IR20P-501AS	IR30P-501AS
Hexagon panel nut	IR10P-600S	IR20P-600S	IR20P-600S
Round type pressure gauge <sup>Note 2)</sup>	0.2 MPa setting	G33-2-□01	G43-2-□01
	0.4 MPa setting	G33-4-□01	G43-4-□01
	0.8 MPa setting	G33-10-□01	G43-10-□01
Digital pressure switch <sup>Note 3)</sup>	NPN 1 output	ISE30A-□01-N-ML	
	PNP 1 output	ISE30A-□01-P-ML	
	NPN 1 output/ Voltage output	ISE30A-□01-C-ML	
	NPN 1 output/ Current output	ISE30A-□01-D-ML	

Note 1) This is an assembly of the bracket and resin panel 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 **WEB catalog** or the Best Pneumatics No. 6.

Please contact SMC regarding the supply of digital pressure switch with unit conversion function.

### Modular Products and Accessories

Applicable products and accessories	Applicable size		
	Series IR1200-A	Series IR2200-A	Series IR3200-A
Filter	AF20-A	AF30-A	AF40-A
Spacer	Y200-A	Y300-A	Y400-A
Spacer with bracket	Y200T-A	Y300T-A	Y400T-A

Refer to the **WEB catalog** for details of the modular applicable products and accessories. The former modular and mounting brackets can be used.

# Regulator Series IR1200-A/2200-A/3200-A

## How to Order

IR **1** **2** **0** **0** - **01** **BG** - **0** - **A**

① ② ③ ④ ⑤ ⑥ ⑦



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

	Symbol	Description	①			
			Body size			
			1	2	3	
② Set pressure range	0	0.02 to 0.2 MPa	●	●	●	
	1	0.02 to 0.4 MPa	●	●	●	
	2	0.02 to 0.8 MPa	●	●	●	
+						
③ Exhaust direction	0	Bottom exhaust	●	●	●	
	1	Front exhaust	—	—	●	
	2	Rear exhaust	—	—	●	
+						
④ Pipe thread type	Nil	Rc	●	●	●	
	N	NPT	●	●	●	
	F	G	●	●	●	
+						
⑤ Port size	01	1/8	●	—	—	
	02	1/4	—	●	●	
	03	3/8	—	—	●	
	04	1/2	—	—	●	
+						
⑥ Option (Note 1)	a Mounting	Nil	Without mounting option	●	●	●
		B (Note 2)	With bracket	●	●	●
		H	With hexagon panel nut (for panel mount)	●	●	●
	+					
	b Pressure gauge	Nil	Without pressure gauge	●	●	●
		G	Round type pressure gauge	●	●	●
	c 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	●	●	●
+						
⑦ Semi-standard	d Flow direction	Nil	Flow direction: Left to right	●	●	●
		R	Flow direction: Right to left	●	●	●
	+					
e Knob	Nil	Upward	●	●	●	
	V	Downward	●	●	●	
+						
f Pressure unit (Note 3)	Nil	Name plate and pressure gauge in imperial units: MPa	●	●	●	
	Z	Name plate and pressure gauge in imperial units: psi	●	●	●	
	ZA	Digital pressure switch: With unit conversion function	●	●	●	

Note 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.

Note 2) Assembly of a bracket and set nuts.

Note 3) See pressure unit table below.

	Pipe thread type	Name plate in imperial units	Pressure gauge in imperial units		Sales (Note 6)
			G	EA, EB, EC, ED	
Nil	Rc	MPa	MPa	Fixed SI unit	Japan, Overseas
	NPT				
	G				
Z (Note 4)	Rc	psi	psi	With unit conversion function (Initial value psi)	Only overseas
	NPT				
	G				
ZA (Note 5)	Rc	MPa	—	With unit conversion function	Only overseas
	NPT				
	G				

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.

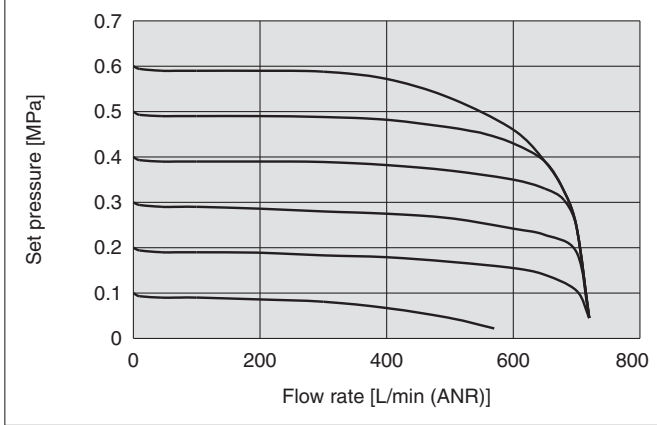
# Series IR1200-A/2200-A/3200-A

## Series IR1200-A

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

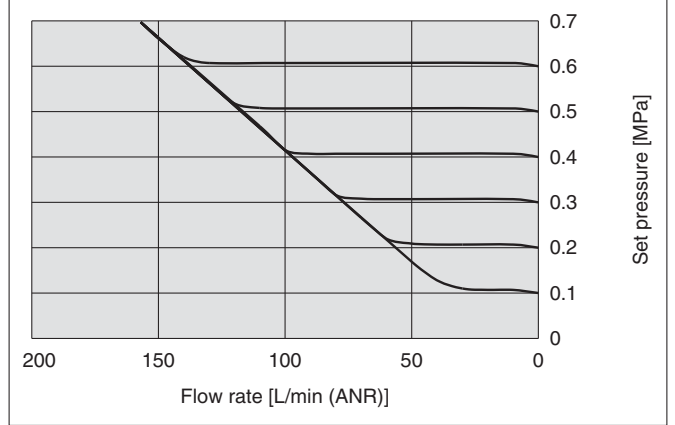
### Flow-rate Characteristics

IR1220-01-A Supply pressure: 0.7 MPa



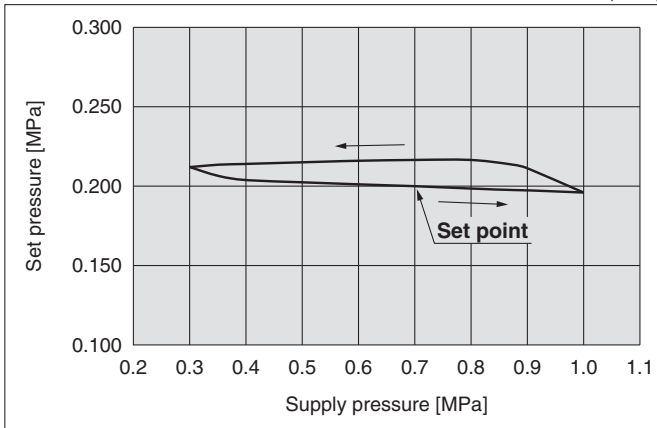
### Relief Characteristics

IR1220-01-A Back pressure: 0.7 MPa

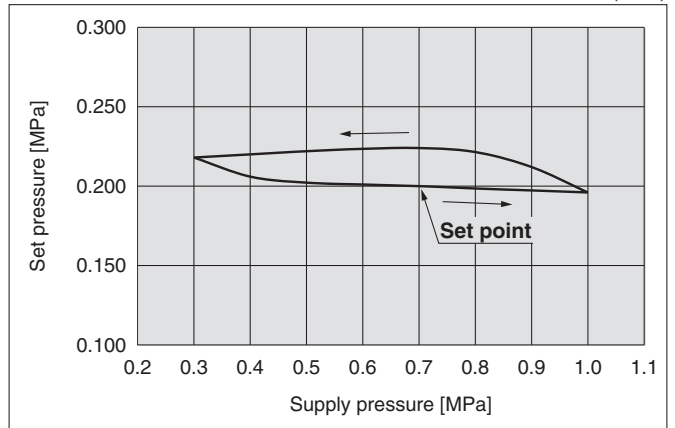


### Pressure Characteristics

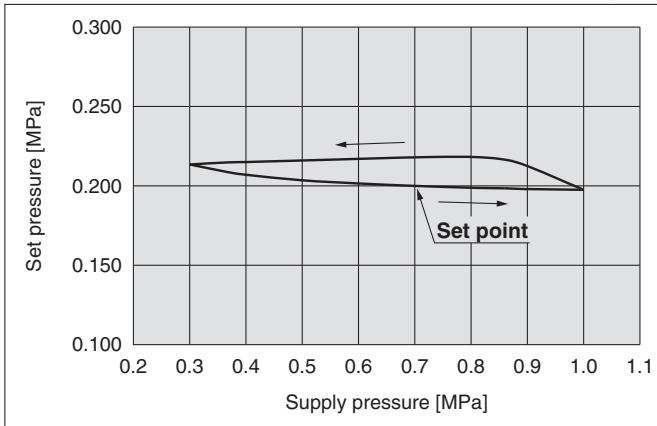
IR1200-A Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



IR1220-A Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



IR1210-A Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



# Regulator Series IR1200-A/2200-A/3200-A

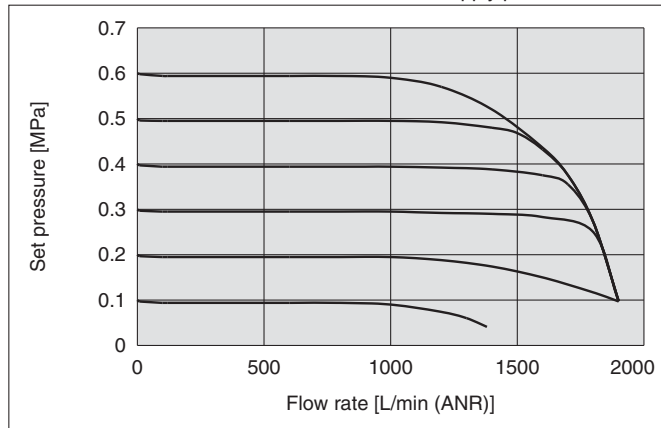
## Series IR2200-A

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

### Flow-rate Characteristics

#### IR2220-02-A

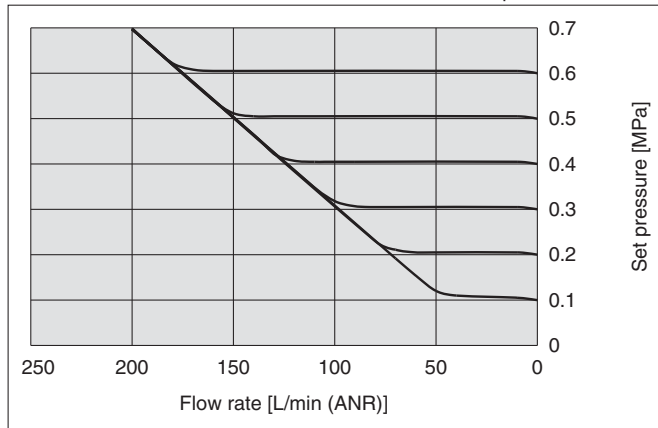
Supply pressure: 0.7 MPa



### Relief Characteristics

#### IR2220-02-A

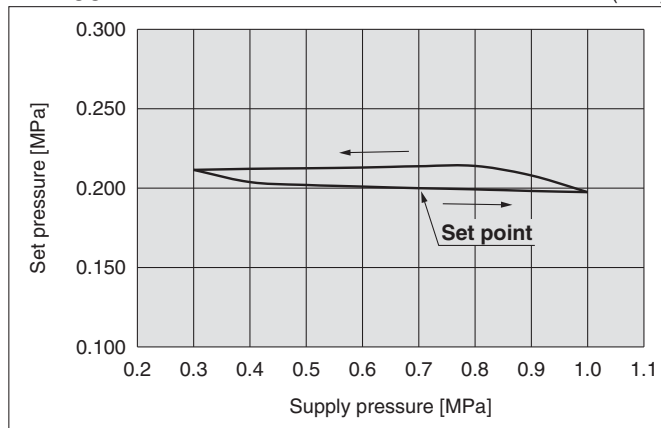
Back pressure: 0.7 MPa



### Pressure Characteristics

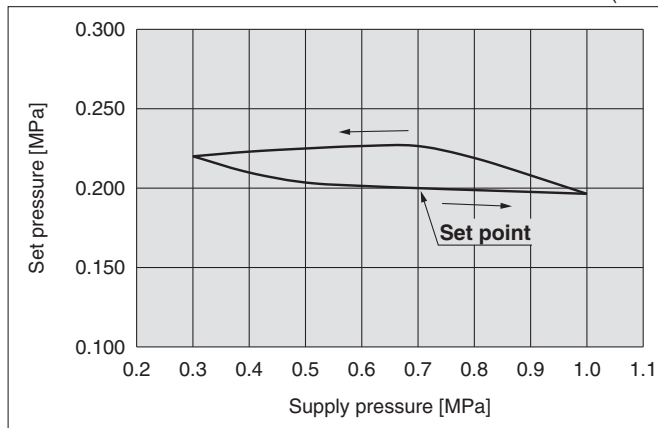
#### IR2200-A

Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



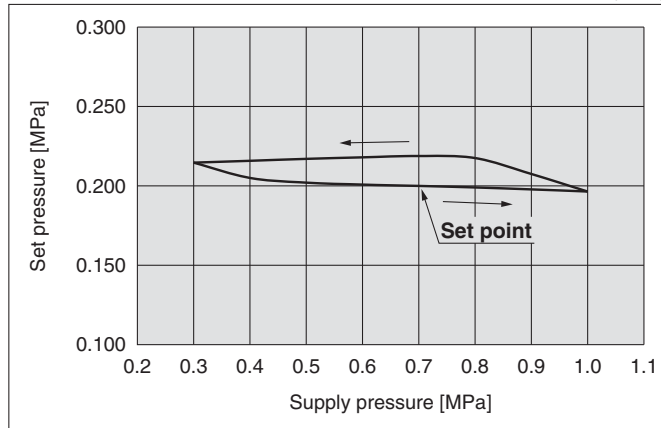
#### IR2220-A

Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



#### IR2210-A

Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



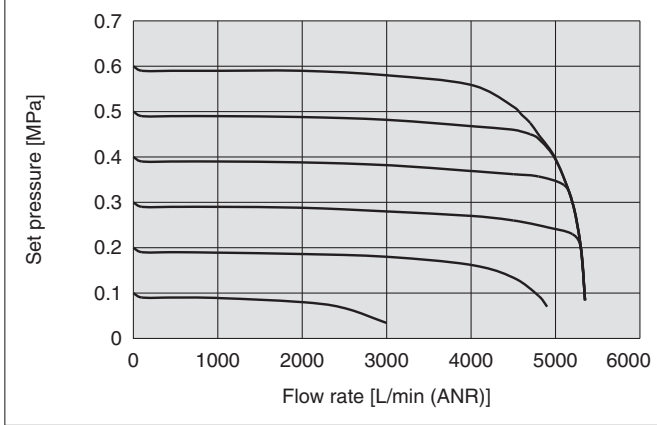
# Series IR1200-A/2200-A/3200-A

## Series IR3200-A

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

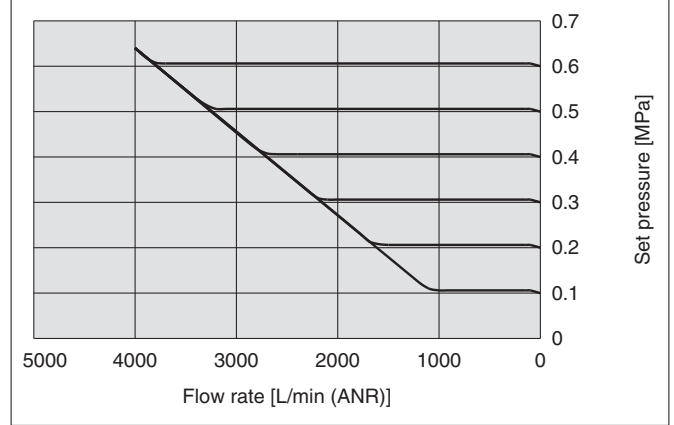
### Flow-rate Characteristics

**IR3220-04-A** Supply pressure: 0.7 MPa



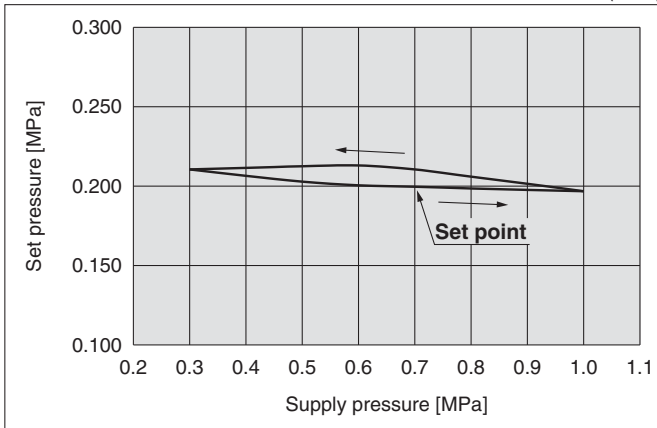
### Relief Characteristics

**IR3220-04-A** Back pressure: 0.7 MPa

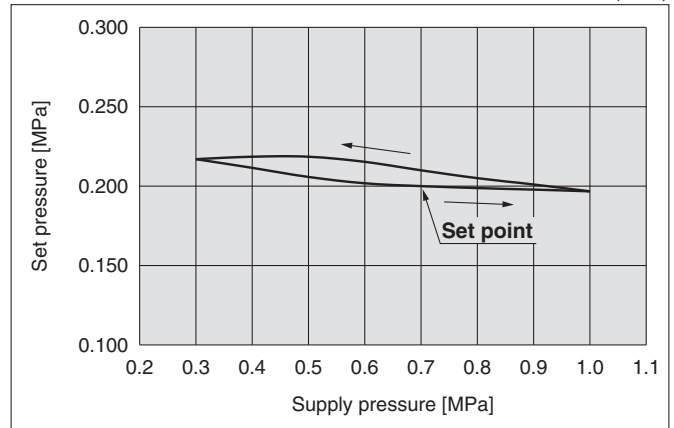


### Pressure Characteristics

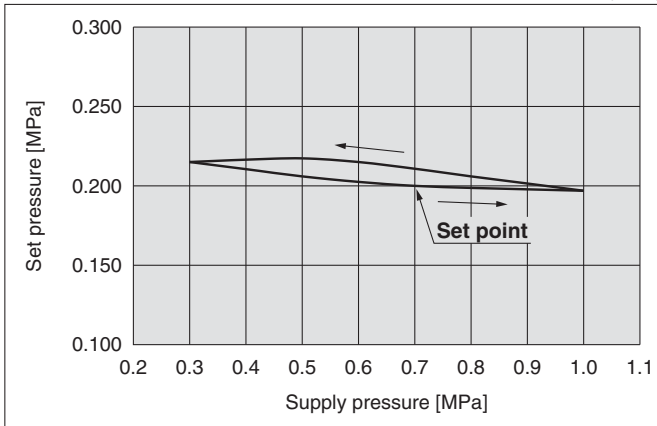
**IR3200-A** Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



**IR3220-A** Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)

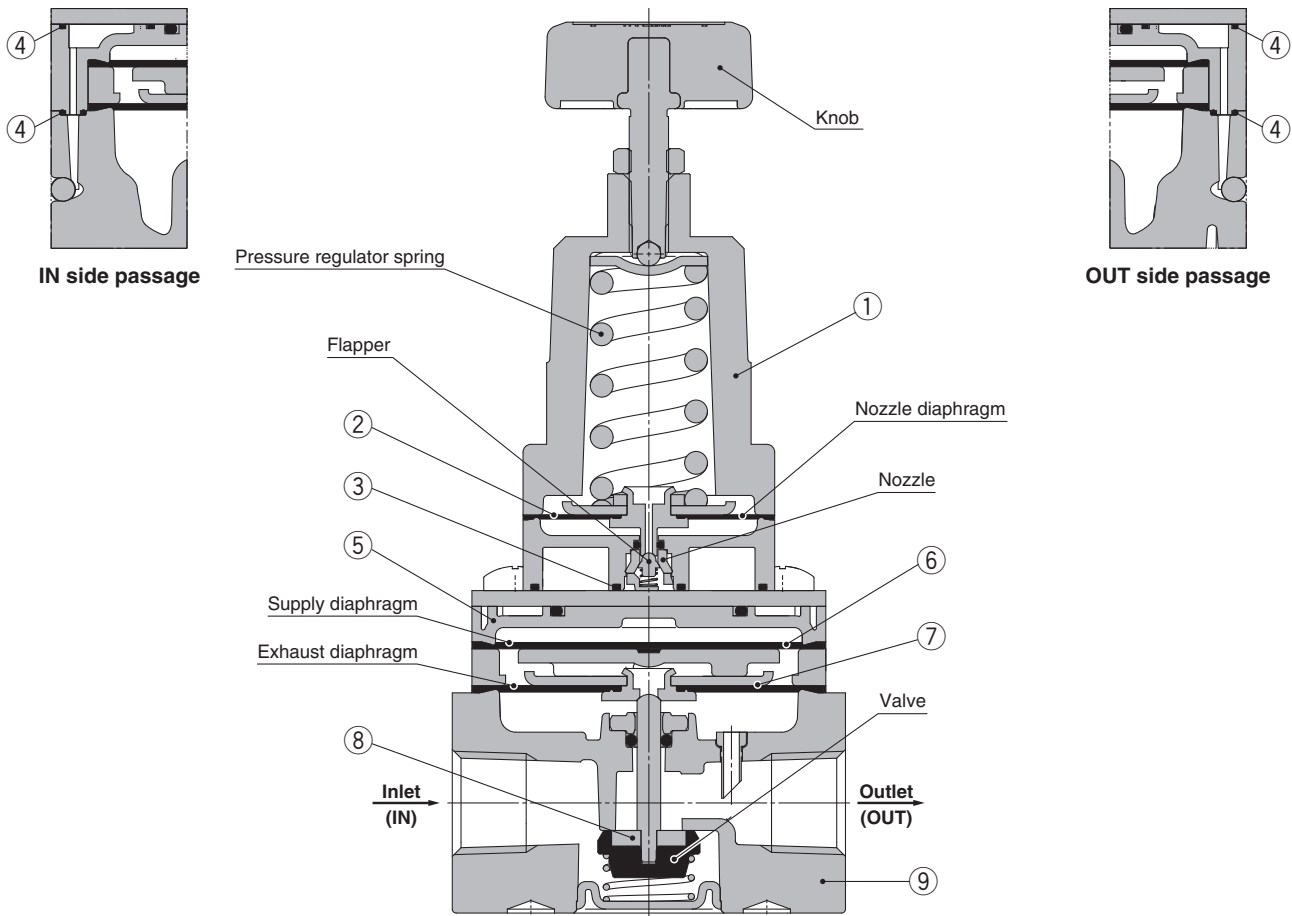


**IR3210-A** Supply pressure: 0.3 to 1.0 MPa  
Set pressure: 0.2 MPa  
Flow rate: 20 L/min (ANR)



## Construction

### Basic type (Knob): IR22□0-A



### 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, pressure variations are detected and pressure adjustment is possible.

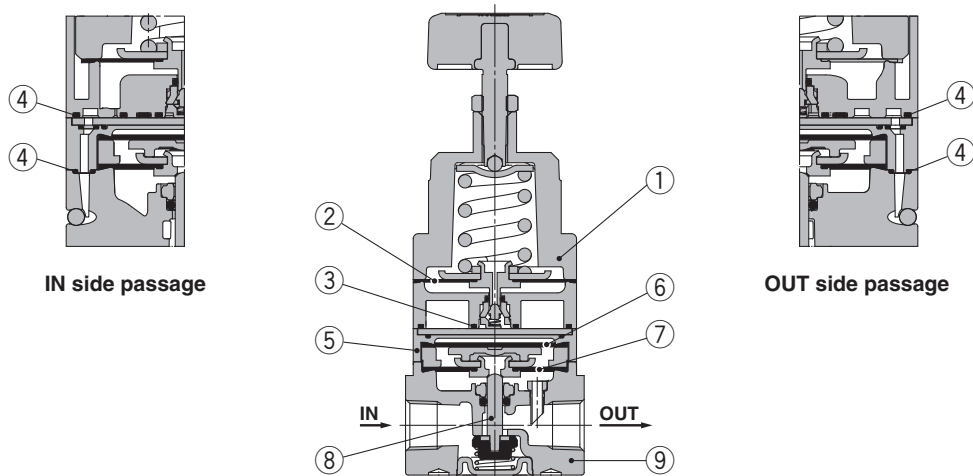
### Component Parts

No.	Description	Material		
		IR1200-A	IR2200-A	IR3200-A
1	Bonnet	Aluminum die-casted		
2	Nozzle diaphragm assembly	Aluminum, Weather resistant NBR		
3	Seal	HNBR		
4	Seal	NBR		
5	Diaphragm spacer	Polyacetal		
6	Supply diaphragm	Weather resistant NBR		—
7	Exhaust diaphragm assembly	Steel, Aluminum, Weather resistant NBR		Aluminum, Weather resistant NBR, HNBR
8	Valve assembly	Stainless steel, Aluminum, HNBR		Aluminum, HNBR
9	Body	Aluminum die-casted		

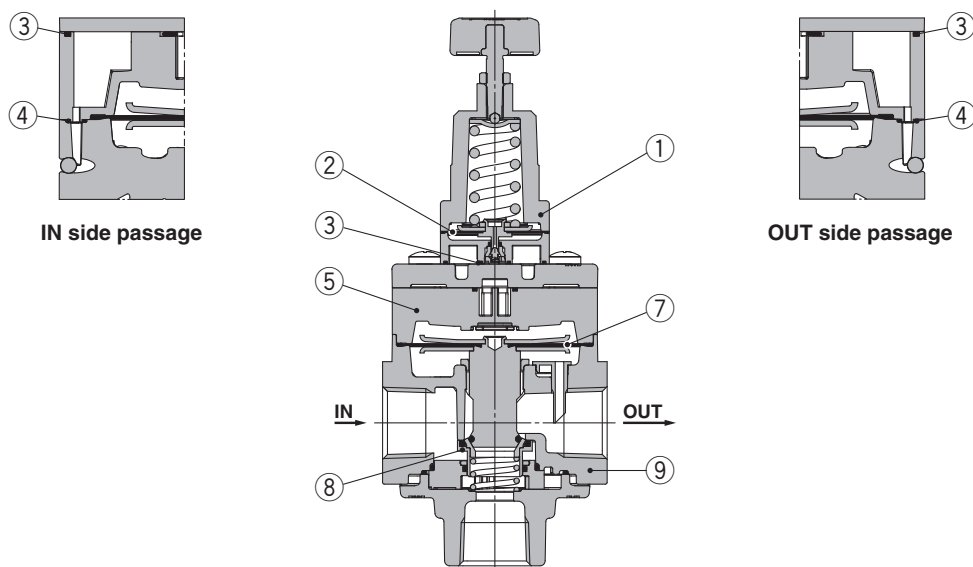
# Series IR1200-A/2200-A/3200-A

## Construction

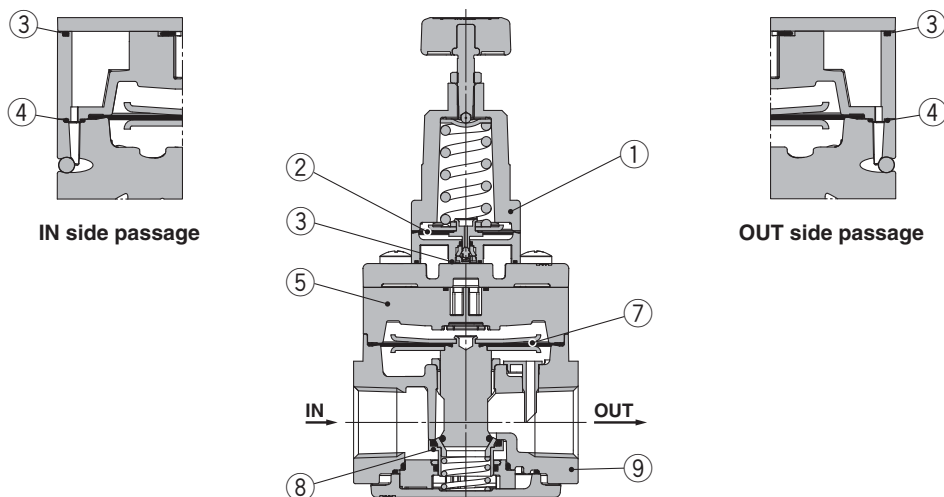
### Basic type (Knob): IR12□0-A



### Basic type (Knob): IR32□0-A



### Basic type (Knob): IR32□<sup>1</sup>/<sub>2</sub>-A

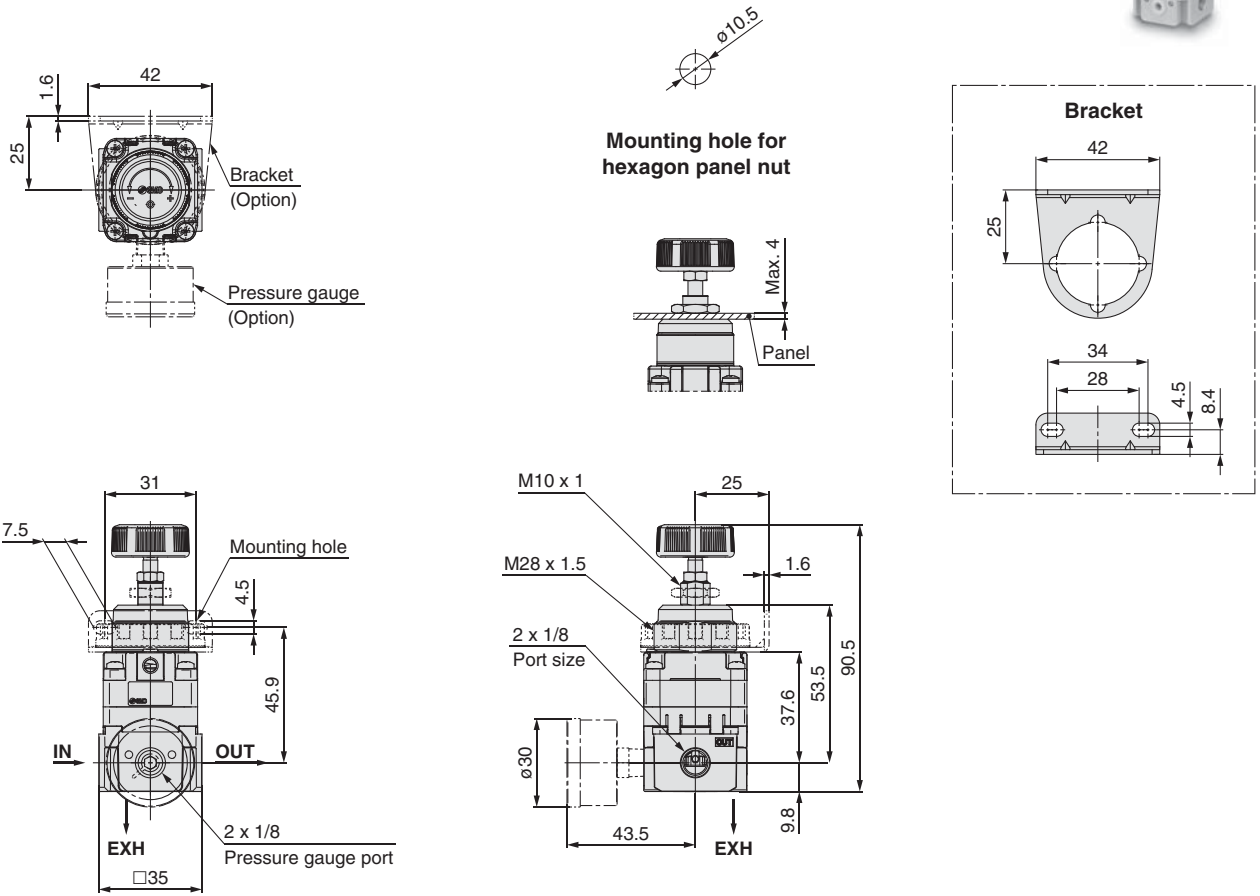






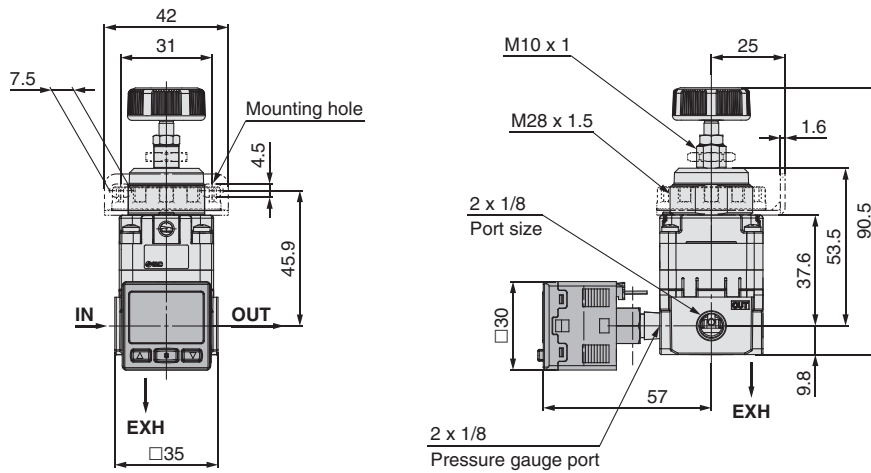
## Dimensions

Basic type (Knob): IR12□0-01□-A



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

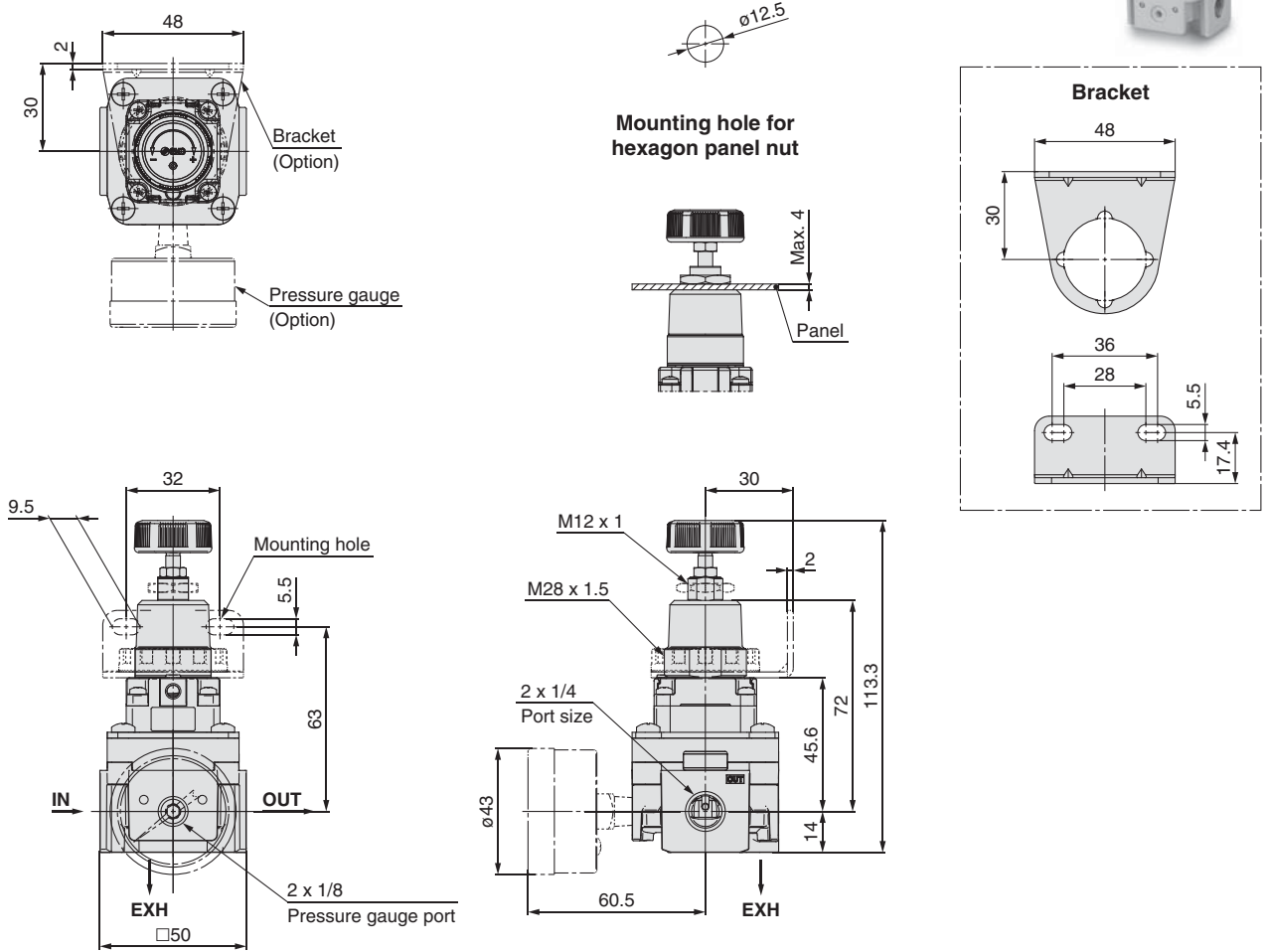
With digital pressure switch: IR12□0-01□E□-A



# Series IR1200-A/2200-A/3200-A

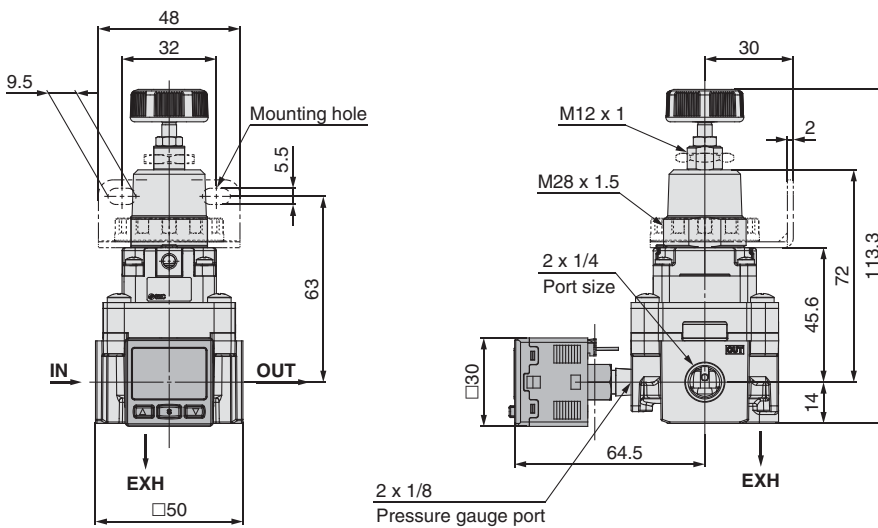
## Dimensions

Basic type (Knob): IR22□0-02□-A



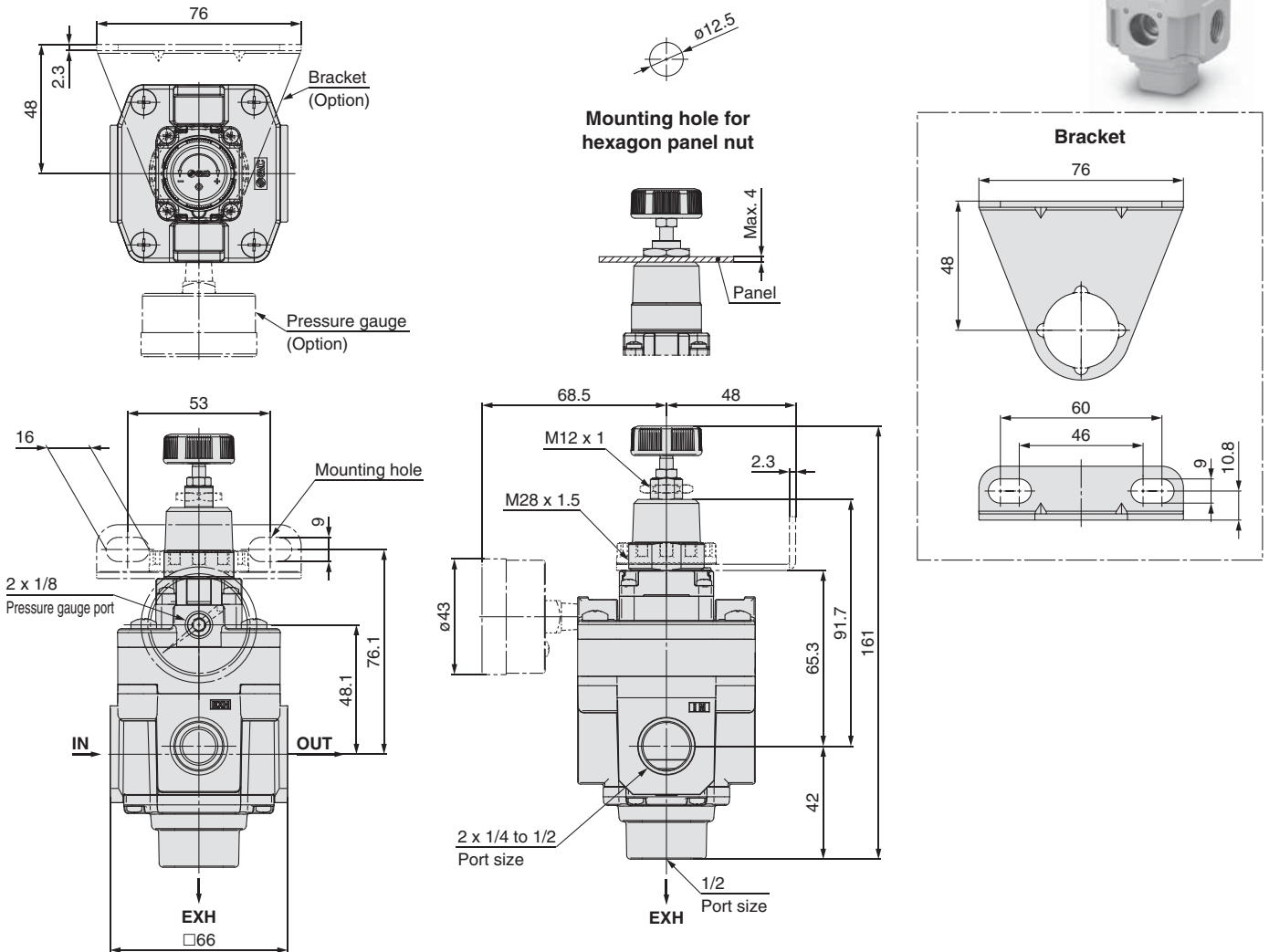
When connecting to the EXH port, contact your SMC sales representative separately.

With digital pressure switch: IR22□0-02□E□-A

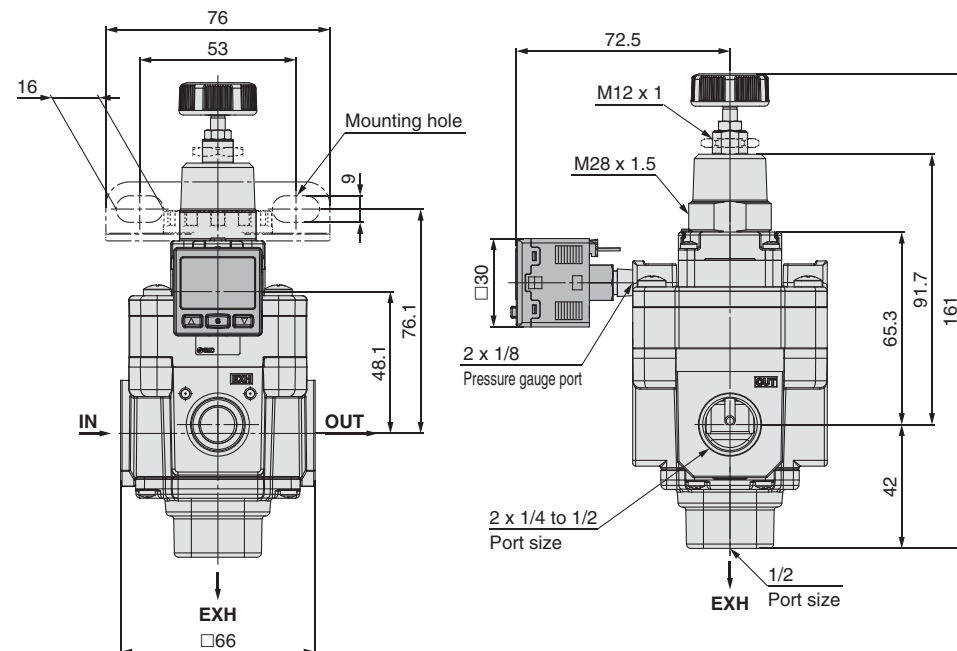


## Dimensions

### Basic type (Knob): IR32□0-0□□-A



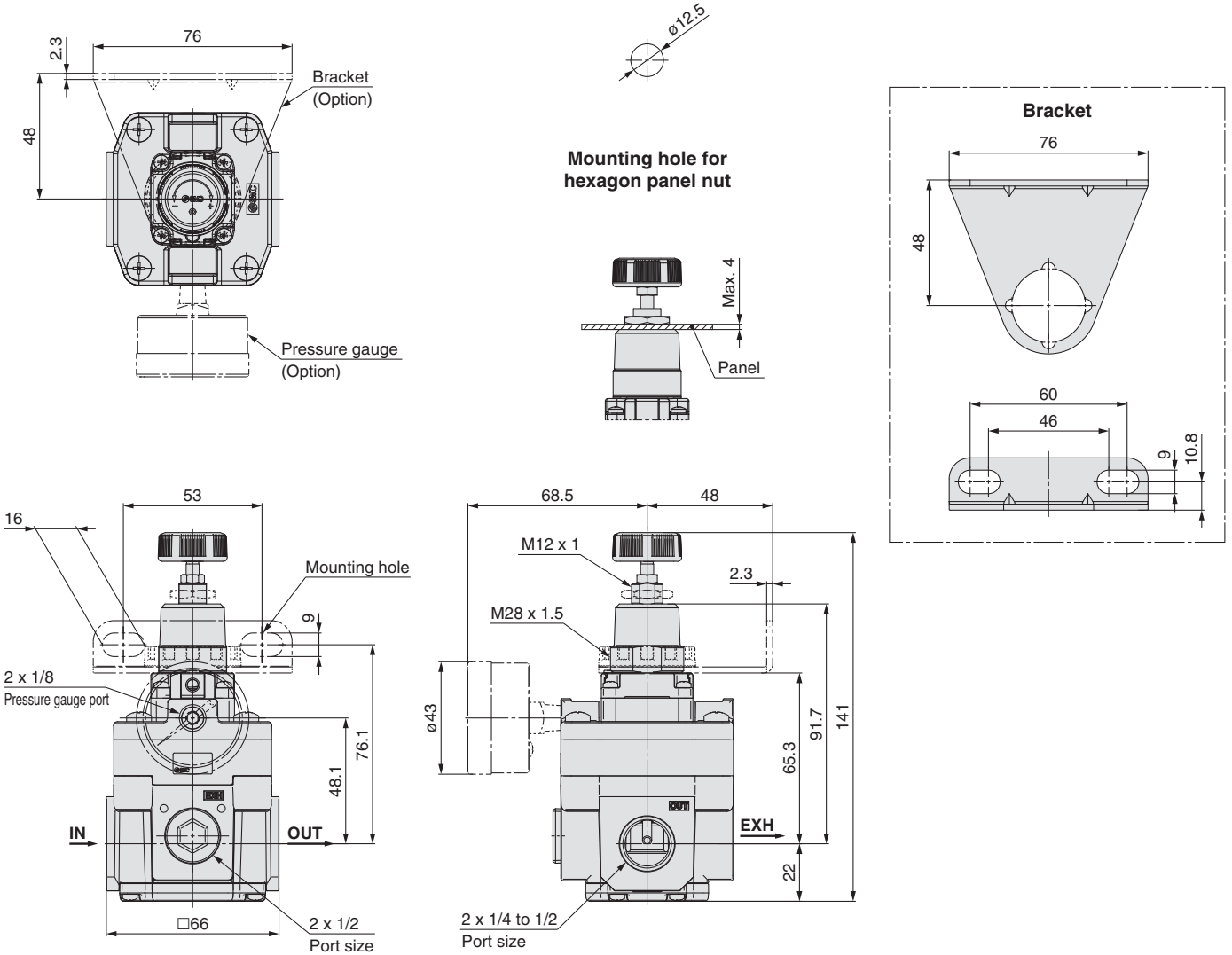
### With digital pressure switch: IR32□0-0□□E□-A



# Series IR1200-A/2200-A/3200-A

## Dimensions

Basic type (Knob): IR32□ $\frac{1}{2}$ -0□□-A



With digital pressure switch: IR32□ $\frac{1}{2}$ -0□□E□-A

