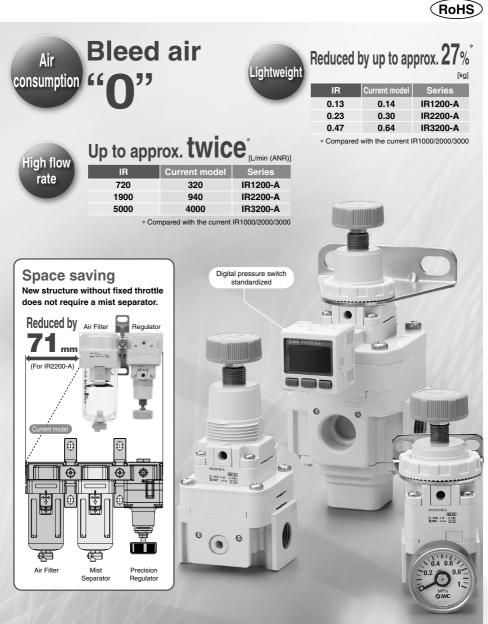
Regulator

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



ARJ

AR425 to 935

AMR ARM

ARP

R■-A

IRV VEX

SRH

SRP SRF

ITV IC

ITVH

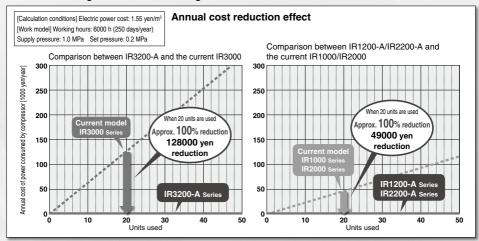
PVQ VY1

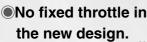
VBA VBAT AP100

Reduction in air consumption

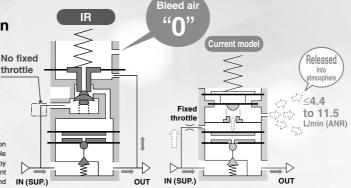
Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.





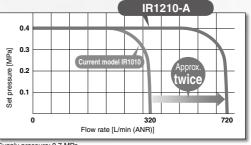
* Poor quality of air may cause operation failure. Select a model that is suitable for the desired air cleanliness by referring to "Air Preparation Equipment Model Selection Guide" (pages 2 and 3) for air quality.



Flow rate: Up to approx. twice

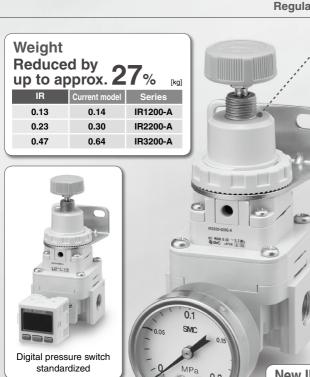
(Compared to the	(Compared to the current SMC product)	
IR	Current model	Series
720	320	IR1200-A
1900	940	IR2200-A
5000	4000	IR3200-A

Supply pressure: 0.7 MPa



Supply pressure: 0.7 MPa





Hexagon panel nut mounting

* Interchangeable with the current SMC product

Hexagon panel nut
(Option)

ARX AMR

ARP

ARJ

AR425 to 935

IR IRV

VEX

SRP

ITV

IC ITVH

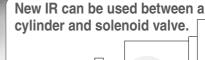
PVQ

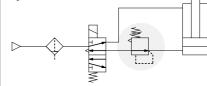
VY1

VBA VBAT

Repeatability: ±1% (Full span)

Mounting is interchangeable with the current SMC model.

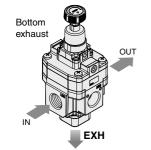


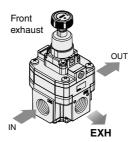


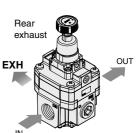
Note) The set pressure may vary depending on the elapsed time and change in ambient temperature after pressure setting. If the setting value varies, adjust the pressure with the knob.

Exhaust (EXH) directions can be selected. (IR3200-A series) Bottom and front exhaust added.

Pressure gauge

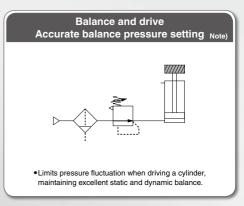


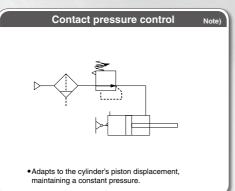


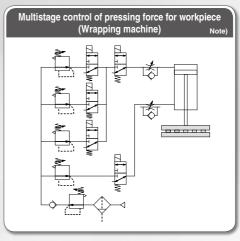


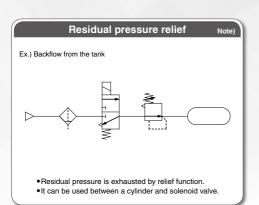
Application Examples

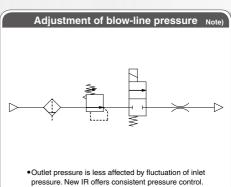
Constant fluid pressure Note) TANK Since there is a large effective area for supply and exhaust pressure, setting can be done quickly.











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.

ARJ AR425 to 935 ARX AMR ARM ARP IR□-A IR IRV VEX SRH SRP SRF ITV IC ITVH ITVX PVQ VY1 VBA VBAT AP100

Series Variations

		Series	Model	Set pressure range (MPa)	Port size
	IR1200-A	9	IR1200-A	0.02 to 0.2	
		G PO	IR1210-A	0.02 to 0.4	1/8
(qo			IR1220-A	0.02 to 0.8	
e (Knob)	IR2200-A		IR2200-A	0.02 to 0.2	
Тур		G win	IR2210-A	0.02 to 0.4	1/4
Basic Type			IR2220-A	0.02 to 0.8	
	IR3200-A		IR3200-A	0.02 to 0.2	
		Way.	IR3210-A	0.02 to 0.4	1/4, 3/8, 1/2
			IR3220-A	0.02 to 0.8	





Symbol



Basic type (Knob)

Standard Specifications

Mandal	Basic type (Knob)			
Model	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 Note 1)	Set pressure	e + 0.05 MPa	Set pressure + 0.1 MPa	
	IR1200-A: 0.02 to 0.2 MPa	IR2200-A: 0.02 to 0.2 MPa	IR3200-A: 0.02 to 0.2 MPa	
Set pressure range	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 Note 2)	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 Note 3)	−5 to 60°C (No freezing)			
Weight (kg) Note 4)	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.

De	scription	IR12□0-A	IR22□0-A	IR32□0-A	
Bracket as	sembly Note 1)	IR10P-501AS	IR20P-501AS	IR30P-501AS	
Hexagon	panel nut	IR10P-600S	IR20P-600S	IR20P-600S	
Round type	0.2 MPa setting	G33-2-□01	G43-2-□01	G43-2-□01	
pressure	0.4 MPa setting	G33-4-□01	G43-4-□01	G43-4-□01	
gauge Note 2)	0.8 MPa setting	G33-10-□01	G43-10-□01	G43-10-□01	
NPN 1 output ISE30A-□01-N-		E30A-□01-N-N	/L		
Digital pressure	PNP 1 output	ISE30A-□01-P-ML			
switch Note 3)	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 Best Pneumatics No. 8. Please contact SMC regarding the supply of digital pressure switch with unit conversion function.

Modular Products and Accessories

Applicable products	Applicable size			
and accessories	IR1200-A series	IR2200-A series	IR3200-A series	
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 pages 427 and 430 for details of the modular applicable products and accessories. The former modular and mounting brackets can be used.



ARJ

AR425

to 935

• 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 Description Body size 1 2 3
Set pressure range
Set pressure range
Set pressure range
Column From the second F
Exhaust direction 0
Exhaust direction 1
Exhaust direction
Pipe thread type
Nil
Pripe thread type
Pipe thread type
Port size
Port size Description Pressure gauge Pressure gauge Pressure gauge Pressure switch Pressu
Port size
Port size
Port size 03 3/8
O O O O O O O O O O
A Nil Without mounting option
a Mounting Nil Without mounting option
a Mounting B Note 2) With bracket H With hexagon panel nut (for panel mount) + Nil Without pressure gauge G Round type pressure gauge EA NPN open collector 1 output B 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 + Nil Flow direction: Left to right R Flow direction: Right to left
H With hexagon panel nut (for panel mount) + With hexagon panel nut (for panel mount) + Pressure gauge G Round type pressure gauge G Round type pressure gauge EA NPN open collector 1 output B PNP open collector 1 output ED NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog current output + Nil Flow direction: Left to right R Flow direction: Right to left
Pressure gauge Nil Without pressure gauge
With digital pressure switch EC NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog current output + c Flow direction R Flow direction: Right to left
With digital pressure switch EC NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog current output + Nil Flow direction: Left to right R Flow direction: Right to left
With digital pressure switch EC NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog current output + Nil Flow direction: Left to right R Flow direction: Right to left
With digital pressure switch EC NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog voltage output ED NPN open collector 1 output + Analog current output + Nil Flow direction: Left to right R Flow direction: Right to left
With digital pressure switch C
ED NPN open collector 1 output + Analog current output + + Nil Flow direction: Left to right R Flow direction: Right to left
+ Nil Flow direction: Left to right
c Flow direction Nil Flow direction: Left to right • • • R Flow direction: Right to left • • •
c Flow direction R Flow direction: Right to left
d Knob V Downward
d Knob NII Upward
미었다 V Downward
 +
Nil Name plate and pressure gauge in imperial units: MPa

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.

Digital pressure switch: With unit conversion function

Note 2) Assembly of a bracket and set nuts.

Note 3) See pressure unit table below

Note 3) See pressure unit table below.					
	Pipe thread	Name plate	Pressure gauge	in imperial units	Sales Note 6)
	type	in imperial units	G	EA, EB, EC, ED	Sales (4016 0)
	Rc				Japan,
Nil	NPT	MPa	MPa	Fixed SI unit	Overseas
	G				Overseas
	Rc	_	_	_	
Z Note 4)	NPT	psi	psi	With unit conversion function (Initial value psi)	Only overseas
	G	_	_	_	
	Rc			With unit conversion	
ZA Note 5)	NPT	MPa	_	function	Only overseas
	G			IGNORION	

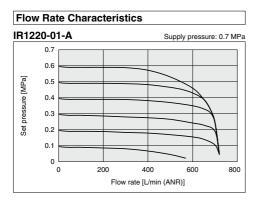
Note 4) For pipe thread type: NPT

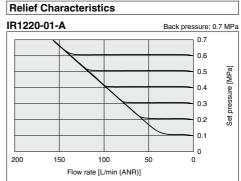
Note 5) For options: EA, EB, EC, ED

Note 6) According to the new Measurement Law, only the SI unit type is provided for use in Japan.

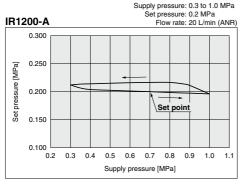
IR1200-A Series

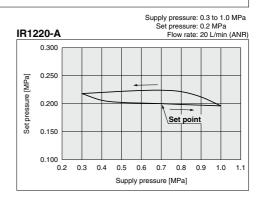
* The data shown below are representative values, and are not guaranteed.

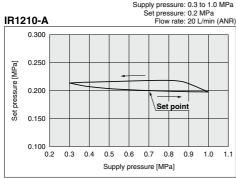




Pressure Characteristics

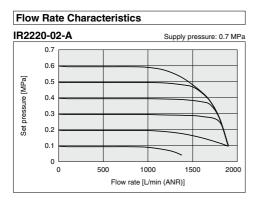


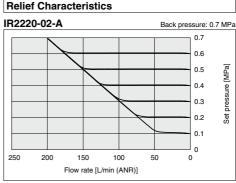




IR2200-A Series

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





ARJ RAR425 to 935 ARX AMR ARM ARP

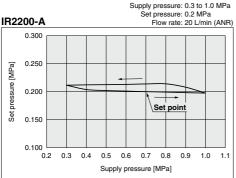
IR IRV

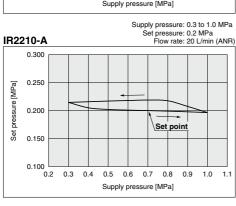
VY1

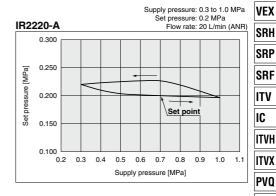
VBA VBAT

AP100

Pressure Characteristics



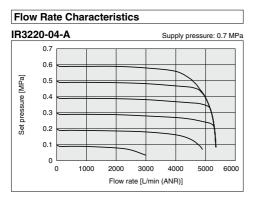


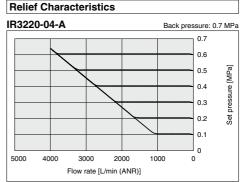


779

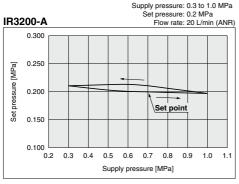
IR3200-A Series

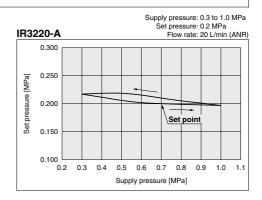
* The data shown below are representative values, and are not guaranteed.

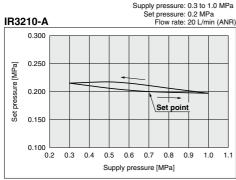




Pressure Characteristics

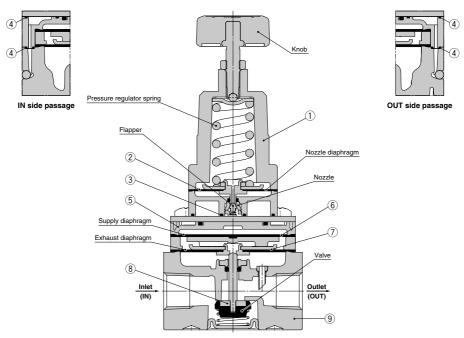






Construction

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		
INO.	Description	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, Weat		Aluminum, Weather resistant NBR, HNBR
8	Valve assembly	Stainless steel, Aluminum, HNBR Aluminum, HNBR		Aluminum, HNBR
9	Body	Aluminum die-casted		

AR425 to 935

ARX AMR

ARM ARP

R∎-A IR

IRV VEX

SRH

SRF

ITV IC

ITVH

ITVX PVQ

VY1

VBA VBAT

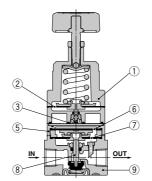
-

Construction

Basic type (Knob): IR12□0-A



IN side passage



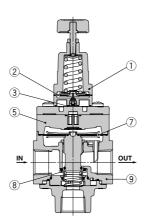


OUT side passage

Basic type (Knob): IR32□0-A



IN side passage



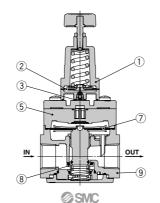


OUT side passage

Basic type (Knob): IR32□2-A



IN side passage

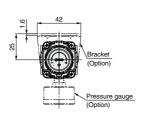




OUT side passage

Dimensions

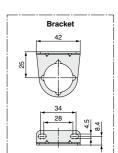
Basic type (Knob): IR12□0-01□-A

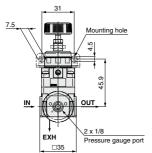


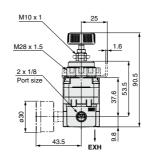


Mounting hole for hexagon panel nut









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

IR IRV

ARJ

AR425 to 935

ARX AMR

ARM ARP

VEX SRH

SRP

SRF

ITV

...

IC

ITVH

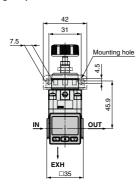
ITVX

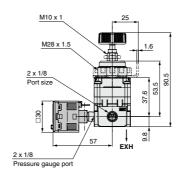
PVQ

VY1 VBA VBAT

AP100

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





Dimensions Basic type (Knob): IR22□0-02□-A ø12.5 Bracket Mounting hole for Bracket hexagon panel nut (Option) Pressure gauge (Option) Panel ATTA 32 M12 x 1 Mounting hole M28 x 1.5 2 x 1/4 63 Port size 45.6 OUT

60.5

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

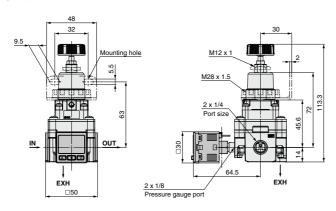
EXH

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

EXH

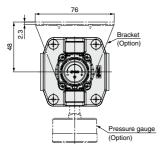
2 x 1/8

Pressure gauge port



Dimensions

Basic type (Knob): IR32□0-0□□-A

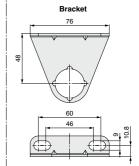


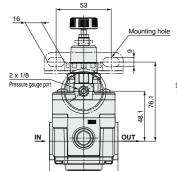






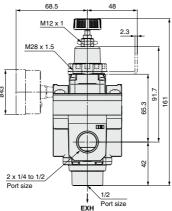






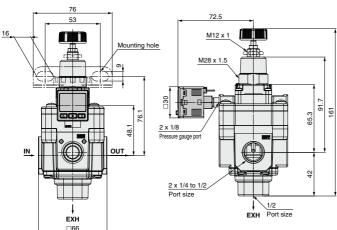
EXH

□66



SMC

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



ARJ AR425 to 935

ARX AMR

ARM

ARP

IR□-A IR

IRV VEX

SRH

SRP SRF

ITV IC

ITVH

ITVX PVQ

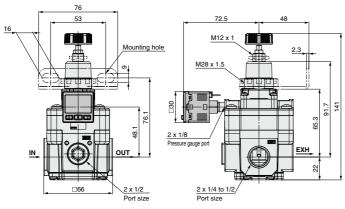
VY1 VBA VBAT

AP100

Dimensions

Basic type (Knob): IR32□2-0□-A 76 Bracket (Option) Bracket 76 Mounting hole for hexagon panel nut 8 Pressure gauge (Option) 60 68.5 48 M12 x 1 Mounting hole 2.3 M28 x 1.5 2 x 1/8 Pressure gauge por 91.7 141 .92 65.3 48.1 IN. 22 2 x 1/4 to 1/2 □66 2 x 1/2 Port size Port size

With digital pressure switch: IR32□1-0□□E□-A





IR1200-A/2200-A/3200-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.

Piping

⚠ Warning

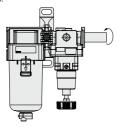
 Screw piping together with the recommended proper torque while holding the side with the female threads.

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.

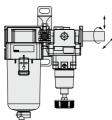
Recommended Proper Torque [N·m]				
Connection thread	1/8	1/4	3/8	1/2 Note)
Torque	7 to 9	12 to 14	22 to 24	28 to 30

Note) Tightening force for connecting to the EXH port of IR32 \square^1_2 -A is 8 to 10 N·m.



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.



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.

Piping

∧ Caution

2. Winding of sealant tape

When screwing piping or fittings into ports, ensure that metal chips from the pipe threads or sealing material do not enter the piping. Also, when the sealant tape is used, leave 1.5 to 2 thread ridges exposed at the end of the threads.



Operating Environment

- 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.
- In locations which receive direct sunlight, provide a protective cover, etc.
- In locations near heat sources, block off any radiated heat.
- In locations where there is contact with spatter from water, oil or solder, etc., implement suitable protective measures.

Air Supply

⚠ Warning

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

- 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.
- 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.



ARJ AR425

to 935

AMR

ARP R∎-A

IR

IRV VEX

SRH

, SRP , SRF

ITV

IC ITVH

ITVX

PVQ

VY1

AP100



IR1200-A/2200-A/3200-A Series Specific Product Precautions 2

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.

Maintenance

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

Handling

 When the 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

- Do not use a regulator outside the range of its specifications as this can cause failure. (Refer to the specifications.)
- When mounting is performed, make connections while confirming port indications.
- When mounting the bracket or tightening the hexagon panel nut on the panel, tighten them to the recommended proper torque.

Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

Recommended Proper Torque (N·m)

Set nut (for bracket)

Cet nut (ici biucket)				
IR12□0-A	IR22□0-A	IR32□□-A		

Hexagon panel nut (for knob type only)

IR12□0-A	IR22□0-A	IR32□□-A

Operation

∧ Caution

- 4. To set the pressure using the knob, turn the knob in the direction that increases pressure and be sure to tighten the lock nut after the pressure is adjusted. When tightening the nut, tighten so that the knob does not move due to friction caused by tightening.
- 5. If the pressure is set in the direction that decreases pressure, the pressure may drop from the original set pressure. Turning the knob clockwise increases the outlet pressure, and turning it counterclockwise reduces the pressure.
- 6. 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.
- 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.
- 8. 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.
- 9. 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.

10. 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).

When using the IR1200-A and 2200-A series, contact your SMC sales representative.

11. When installing a pressure gauge to the product, do not apply pressure more than the maximum display pressure. This will cause a malfunction.