RoHS



Reduction in air consumption

Air consumption is reduced with a new original structure.

With this new original structure, running costs are reduced.





Flow rate: Up to approx. twice

(Compared to the current SMC product)

(Compared to the	/ [L/min (ANR)]	
IR	IR Current model	
720	320	IR1200-A
1900	940	IR2200-A
5000	4000	IR3200-A

Supply pressure: 0.7 MPa



Supply pressure: 0.7 MPa

@SMC





Application Examples



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	Model	Set pressure range (MPa)	Port size
	IR1200-A	7	IR1200-A	0.02 to 0.2	
			IR1210-A	0.02 to 0.4	1/8
(do		0.0	IR1220-A	0.02 to 0.8	
e (Kn	IR2200-A		IR2200-A	0.02 to 0.2	
с Тур		C WEB C	IR2210-A	0.02 to 0.4	1/4
Basid			IR2220-A	0.02 to 0.8	
	IR3200-A		IR3200-A	0.02 to 0.2	
		. With	IR3210-A	0.02 to 0.4	1/4, 3/8, 1/2
			IR3220-A	0.02 to 0.8	

Series Variations





(Knob)

Standard Specifications

Mardal	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)	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 of	on the outlet. (Refer to Operation 14 on	Note 3) –5 to 50°C for the product	ts with the digital pressure switch		

Note 1) When there is no flow rate on the outlet. (Refer to Operation (4) on page 1073.)

Note 2) Other characteristics such as aging deterioration and temperature characteristics are not included.

Note 4) Without accessories

Accessories (Option)/Part No.

Description		IR12□0-A	IR22□0-A	IR32□0-A
Bracket assembly Note 1) Hexagon panel nut		IR10P-501AS	IR20P-501AS	IR30P-501AS
		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	ISE20-N-M-D01-L		
Digital	PNP 1 output	ISE20-P-M-D01-L		
switch Note 3)	NPN 2 outputs/ Voltage output	ISE20A-R-M-D01-J		
	NPN 2 outputs/	ISE20A-S-M-□01-J		

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.

Under the New Measurement Law, sales of switches with the unit switching function are not allowed for use in Japan.

Modular Products and Accessories

Applicable products and	Applicable size				
accessories (AD-D series)	IR1200-A series	IR2200-A series	IR3200-A series		
Air filter (AF-D series)	AF20-D	AF30-D			
Spacer (AC-D series)	Y200-D	Y300-D	Note 1)		
Spacer with bracket (AC-D series)	Y200T-D	Y300T-D			

Note 1) The IR3200-A series regulator does not support modular connection with A-D series products. In order to modularly connect to an AD-D series product, a modular adapter must be ordered separately. For details, refer to the modular adapter (E210/310/410 series)

catalog.



					How to Order	<u> </u>		
		IF	1 2 0	00	01 BG - A			
• Op	tion	/Sen	ni-standard: Selec	t one eac	h for a to e .		<i></i>	
• Op	tion	/Sen	ni-standard symbo	ol: When r	nore than one specification is required, indicate in	Made to Orde	r (Refer to page	10/1)
aip	nan	ume	nc order.			10-	Clear	series
						-X1	Non-grease	specifications
						IRM□-	Manifold s	pecifications
\sim	~						•	
	_	<u> </u>		Symbol	Description			
				Symbol	Description		Body size	
				J			2	3
_				0	0.02 to 0.2 MPa		•	•
2	S	et p	ressure range	1	0.02 to 0.4 MPa	•	•	•
				2	0.02 to 0.8 MPa		•	•
				+				
				0	Bottom exhaust		•	•
9		Exha	aust direction	1	Front exhaust			•
				2	Rear exhaust			•
				+			-	
		D ¹			HC NDT		•••••	•
4	Pipe thread type			NPI		-	•	
				F	G	•	•	•
				+ 01	1/8			
_				02	1/8			-
6			Port size	02	3/8			
				04	1/2			
				+	172			•
				Nil	Without mounting option	•	•	•
		а	Mounting	B Note 2)	With bracket	•	•	•
				н	With hexagon panel nut (for panel mount)	•	•	•
	te 1)			+	<u> </u>			
6	²		Proceuro gougo	Nil	Without pressure gauge			•
U	tio		r lessure gauge	G	Round type pressure gauge		•	•
	ð	h		EA	NPN open collector 1 output	•	•	•
			With digital	EB	PNP open collector 1 output	•	•	•
			pressure switch	EC	NPN open collector 2 outputs + Analog voltage output	•	•	•
				ED	NPN open collector 2 outputs + Analog current output			
				+	The second s		_	_
		с	Flow direction		Flow direction: Left to right	•	•	•
	σ			н	Flow direction: Right to left			
	dar			+	loward			
0	tan	d	Knob	V	Downward			
	i-s	<u> </u>		+	Dominiaia	• •		
	Sen			Nil	Name plate and pressure gauge in imperial units: MPa	•	•	•
	55	е	Pressure unit Note 3)	Z	Name plate and pressure gauge in imperial units: nsi	Ĭ	•	ě
				ZA	Digital pressure switch: With unit conversion function	•	•	•
Note	1) (Ontio	ns are shinned toget	ther with the	e product, but not assembled. B and H cannot be selected at the same	time. The current	bracket cannot be	used for this product

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	Name plate	Pressure gauge	Pressure gauge in imperial units		1
	type	in imperial units	G	EA, EB, EC, ED	Sales Hole of	
	Rc				lanan	1
Nil	NPT	MPa	MPa	Fixed SI unit	Overseas	
	G				01010000	
	Rc	—	—	—		1
Z Note 4)	NPT	psi	psi	With unit conversion function (Initial value psi)	Only overseas	
	G	—	—	—		L
	Rc					1
ZA Note 5)	NPT	MPa	—	function	Only overseas	
	G			Turiction		

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.





Pressure Characteristics







IR3200-A Series

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



Relief Characteristics



Pressure Characteristics







Construction

4

(4)

Basic type (Knob): IR22D0-A





OUT side passage

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 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

Nie	Description		Material		
INO.		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 re	sistant NBR	—	
7	Exhaust diaphragm assembly	Steel, Aluminum, We	Steel, Aluminum, Weather resistant NBR		
8	Valve assembly	Stainless steel, A	Aluminum, HNBR	Aluminum, HNBR	
9	Body	Aluminum die-casted			

Construction

Basic type (Knob): IR12D0-A



IN side passage





OUT side passage

Basic type (Knob): IR32D0-A



IN side passage





OUT side passage

Basic type (Knob): IR32







OUT side passage

Dimensions



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

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



Dimensions

Basic type (Knob): IR2200-020-A

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

With digital pressure switch: IR2200-020ED-A

With digital pressure switch: IR3200-00 ED-A

SMC

Dimensions

Basic type (Knob): IR32 - OO - A

With digital pressure switch: IR32 2-00 E-A

IR1200-A/2200-A/3200-A Series Made to Order

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

1 Clean Series

Clean series

	Specification	S
	ISO Class 3	
	Bleed hole	With M5 fitting (Applicable tubing O.D. ø6)
		IR1200-A series: With M5 fitting (Applicable tubing O.D. ø6)
	EXH port	IR2200-A series: With R1/8 fitting (Applicable tubing O.D. ø6)
		IR3200-A series: 1/2 female thread
	Pressure gauge	Oil-free + Stud parts nickle plated
	Grease	Fluorine grease

Note 1) Assembly is performed in a general assembly environment. Note 2) Parts are not washed.

Note 3) Fluorine grease is used on some of the wetted parts (sliding parts) and non-wetted parts (threaded part on the setting knob).

Specifications

Stations	2 to 8 stations			
	Common SUP	IR1200-A series: 1/4, IR2200-A series: 1/2		
Port	Individual OUT	IR1200-A series: 1/8, IR2200-A series: 1/4		
	Individual EXH (From IR body)			
Set pressure	0.2 MPa, 0.4 MPa and 0.8 MPa settings can be combined			
Accessory (Pressure gauge)	G33-□-01(IR1200-A series), G43-□-01(IR2200-A series			

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

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

Note 3) For the model with pressure gauge (G), the pressure gauge is shipped together, but not assembled.

IR1200-A/2200-A/3200-A Series Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

Piping

MWarning

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

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

Furthermore, if the side with the female threads is not held while tightening, excessive force will be applied directly to piping brackets, etc., causing damage or other problems.

[N·m]

Recommended Proper Torque

	[]			
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 IR32¹/₂-A is 8 to 10 N·m.

2. Do not allow twisting or bending moment to be applied other than the weight of the equipment. Provide separate support for external piping, as damage may otherwise occur.

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

▲Caution

1. Preparation before piping

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

A Warning

- Do not use in an atmosphere having corrosive gases, chemicals, sea water, water, water steam, or where there is direct contact with any of these.
- 2. Do not operate in locations where vibration or impact occurs.
- 3. In locations which receive direct sunlight, provide a protective cover, etc.
- 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

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

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

Be sure to read this before handling the products. Refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: https://www.smcworld.com

Maintenance

Marning

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

Caution

1. 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

≜Caution

- 1. Do not use a regulator outside the range of its specifications as this can cause failure. (Refer to the specifications.)
- 2. When mounting is performed, make connections while confirming port indications.
- 3. 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)

- 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.

Operation

▲Caution

- 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.
- 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.
- 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).

The exhaust ports of the IR1200-A and IR2200-A series standard products are not machined for threads. Contact SMC if a silencer mounted on the exhaust port is required.

- 11. When installing a pressure gauge to the product, do not apply pressure more than the maximum display pressure. This will cause a malfunction.
- When using a regulator between a solenoid valve and cylinder, caution should be taken regarding the following points.
 - The residual pressure of the cylinder will be exhausted from the regulator's exhaust port. (Depending on the conditions, partial backflow may occur.)
 - When holding pressure at the intermediate position of a closed center solenoid valve, due to reduced pilot pressure the pressure inside the cylinder will not be able to be held because the regulator will perform an exhaust operation. If it is necessary for the pressure inside the cylinder to be held, please consider using in combination with a separate shut-off valve.

 When releasing pressure at the intermediate position of an exhaust center solenoid valve, depending on the conditions, vacuum pressure may remain inside the cylinder. If the introduction of atmospheric pressure is required, please consider using in combination with a separate atmospheric pressure introduction valve.

- 13. When using the IR3200-A series in balancing applications, abnormal noises may occur depending on the pressure and circuit conditions. In such cases, the noise will often cease if changes are made to the pressure or piping conditions or if a high noise reduction type silencer (such as SMC's ANA1 series, etc.) is installed.
- 14. The min. supply pressure is the min. required supply pressure for when there is no flow on the output side. If flow is to be used, or if the volume on the outlet side is large, supply pressure with sufficient margins in regards to the set pressure if responsiveness is required.
- 15. When a regulator is used in applications in which back pressure is frequently applied or when it is used in environments where vibration is present or pulsations are present in the set pressure, wear of the exhaust valve may be accelerated, resulting in increased premature exhaust leakage.