

Miniature Regulator

Series ARJ210

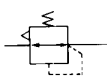
- Lightweight body made of aluminum (60 g)
- Two styles of piping connections provided for the IN side: 1/8 (male thread) and M5 (female thread)



ARJ210-M5

ARJ210-M5BG

JIS Symbol



Standard Specifications

Model		ARJ210-M5
Port size	IN side	1/8 (Male thread), M5 x 0.8 (Female thread)
	OUT side	M5 x 0.8 (Female thread 2 pcs.)
Fluid		Air
Proof pressure		1.2 MPa
Maximum operating pressure		0.8 MPa
Regulating pressure range		0.2 to 0.7 MPa
		0.2 MPa setting 0.05 to 0.2 MPa
Pressure gauge port size		M5 x 0.8 (Female thread)
Ambient and fluid temperature		-5 to 60°C (No freezing)
Weight (kg)		0.06

Accessory (Option)/Part No.

Bracket	134856
Pressure gauge (Note)	G27-10-M5-X201

Note) If ordering the pressure gauge, M-5N (nipple) is required. Part number of the pressure gauge with a nipple assembled is G27-10-M5-X215.

How to Order

ARJ 2 10 - M5 BG - 1

Miniature regulator

Body size

Option

1	0.2 MPa setting
S	With seal

Note 1) Compared with standard specifications, its adjusting spring has only been changed. It is not the product which does not allow the pressure more than 0.2 MPa. Adjusting spring is not replaceable.

Accessory

Symbol	Description
Nil	—
B	With bracket
G	With pressure gauge

Port size

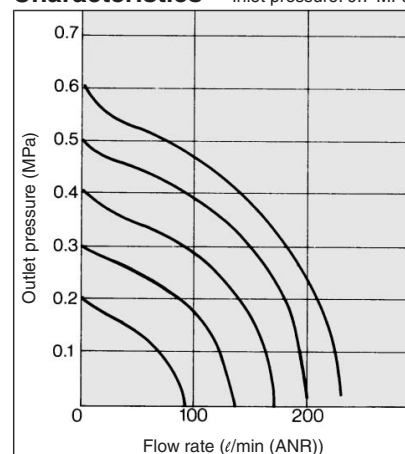
M5	IN	OUT
	1/8 (Male thread)	M5 x 0.8 (Female thread)
	M5 x 0.8 (Female thread)	M5 x 0.8 (Female thread)

Model

1	Relieving type (Standard)
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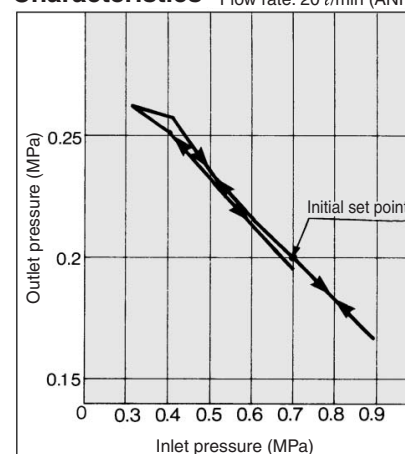
Flow Characteristics

Inlet pressure: 0.7 MPa

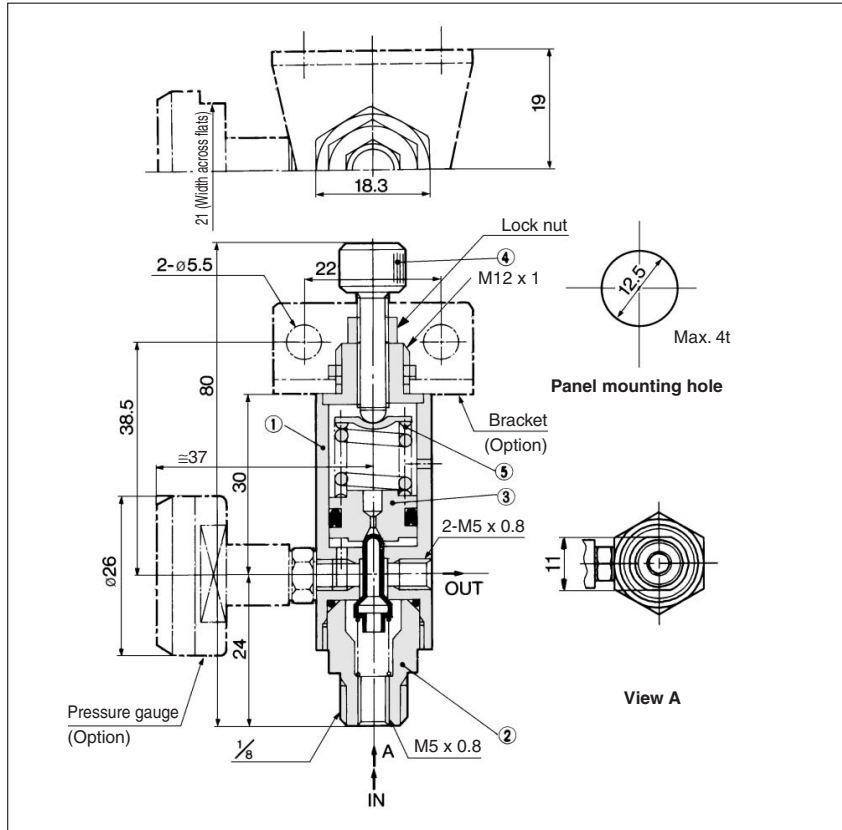


Pressure Characteristics

(Initial setting)
Inlet pressure: 0.7 MPa
Outlet pressure: 0.2 MPa
Flow rate: 20 l/min (ANR)



Construction/Dimensions



No.	Description	Material	Note
①	Body	Aluminum alloy	Black anodized
②	Valve guide	Brass	Electroless nickel plated
③	Piston	Brass	
④	Adjusting screw	Brass	Electroless nickel plated
⑤	Adjusting spring	Steel wire	Zinc chromated

⚠ Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Selection

⚠ Warning

1. This product cannot be used as a check regulator by installing it between solenoid valve and actuator. Doing so could lead to equipment damage.
2. When connecting a pipe to the IN side, hold the valve guide at its wrench flats (opposite side 11), and when connecting to the OUT side, hold the body at its hexagon portion and tighten it to the recommended torque. (M5: 1.5 to 2 N·m, R 1/8: 7 to 9 N·m.) Excessive torque or holding it other than at the specified area could lead to equipment damage.

Mounting/Adjustment

⚠ Warning

1. Set up the regulator while verifying the pressure that is indicated on the inlet and the outlet pressure gauges. Turning the handle excessively could damage the internal parts.

⚠ Caution

1. Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the outlet pressure to fluctuate. <Lock operating method> Loosen the lock nut to unlock it, and tighten it to lock it.
2. This product cannot be used as a check regulator by installing it between solenoid valve and actuator.
3. Port with a pressure gauge or a plug can be used as an OUT port.

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Miniature Regulator

Series ARJ1020F

■ Compact and lightweight (16 g)

■ Low cracking pressure 0.02 MPa
Standard model equipped with backflow function



ARJ1020F-M5-04

ARJ1020F-M5-06

Standard Specifications

Model		ARJ1020F	
Port size	IN side	M5 (Male thread)	
	OUT side (Applicable tubing O.D.)	ø4	ø6
Fluid		Air	
Proof pressure		1.2 MPa	
Maximum operating pressure		0.8 MPa	
Regulating pressure range		0.1 to 0.7 MPa	
		0.2 MPa setting 0.05 to 0.2 MPa	
Ambient and fluid temperature		-5 to 60°C (No freezing)	
Construction		Relieving type	
Weight (kg)		0.015	0.016
Cracking pressure (Valve)		0.02 MPa	
Max. effective area (OUT → IN)		1.8 mm ²	
Applicable tubing material ^{Note)}		Nylon, Soft nylon, Polyurethane	

Note) Be sure to note the maximum operating pressure for soft nylon and polyurethane. (Refer to Best Pneumatics Vol. 15.)

Accessory (Option)/Part No.

Description	Part no.
Manifold base	ARJM10-4, -6, -10

How to Order

ARJ 10 20 F - M5 - 04 - 1

Miniature regulator

Body size

10	M5
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Port size

M5	M5 x 0.8
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With One-touch fitting

Piping

20	Elbow type
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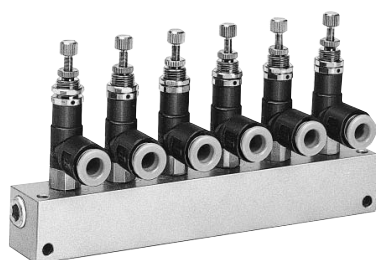
Option

1	0.2 MPa setting
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Note 1) Compared with standard specifications, its adjusting spring has only been changed. It is not the product which does not allow the pressure more than 0.2 MPa. Adjusting spring is not replaceable.

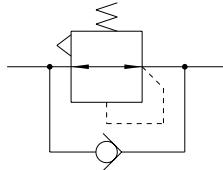
Applicable tubing O.D.

04	4 mm
06	6 mm

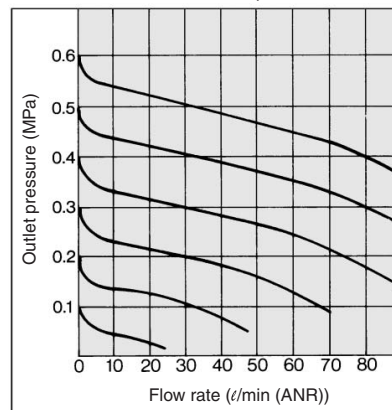


ARJM10-6

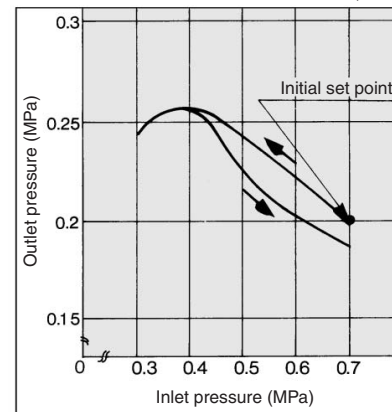
JIS Symbol



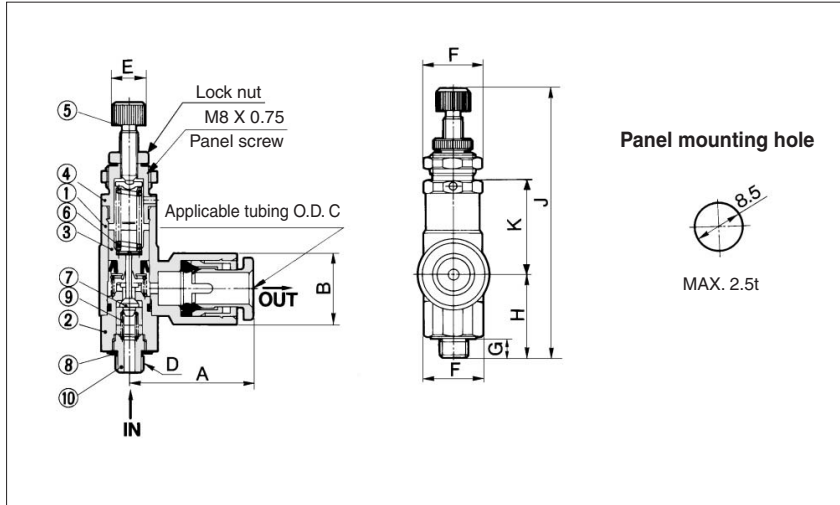
Flow Characteristics Inlet pressure: 0.7 MPa



Pressure Characteristics Conditions (Initial setting)
Inlet pressure: 0.7 MPa
Outlet pressure: 0.2 MPa
Flow rate: 10 l/min (ANR)



Construction/Dimensions



Component Parts

No.	Description	Material	Note
①	Body	PBT	
②	Valve guide	Brass	Electroless nickel plated
③	Piston	Polyacetal	
④	Bonnet	Brass	Electroless nickel plated
⑤	Handle	Brass	Electroless nickel plated
⑥	Adjusting spring	Steel wire	Zinc chromated
⑦	Valve	Brass	Rubber lining
⑩	Nipple	Brass	Electroless nickel plated

Replacement Parts

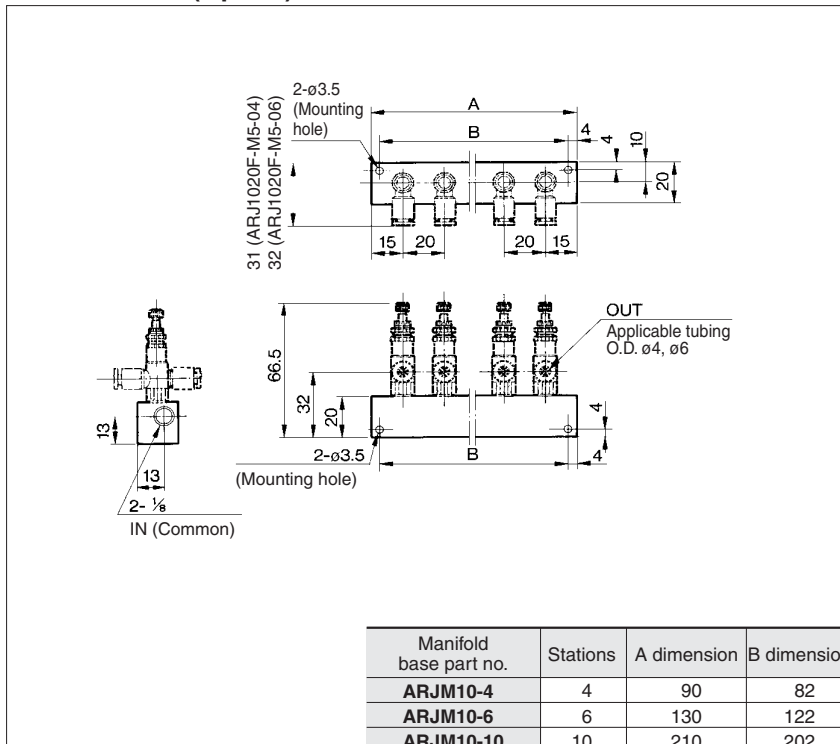
No.	Description	Material	Part no.
⑦	Valve	Brass, HNBR	13434-30
⑧	Gasket	Stainless steel NBR	P233014-04
⑨	Spring	Stainless steel	134313

* When replacing valves and springs, remove nipple first. Note that adhesive is applied to the nipple portion.

Dimensions

Model	A	B	C	D	E	F	G	H	J	K
ARJ1020F-M5-04	21	10.4	4	M5 x 0.8	6	10.6 (Width across flats: 10)	3.5	15.5	50	17.2
ARJ1020F-M5-06	22	12.8	6							

Manifold Base (Option)/Dimensions



⚠ Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Piping

⚠ Warning

- To connect the IN side, hold the valve guide at its wrench flats (opposite side 10) and tighten it at the recommended torque of 1.5 to 2 N·m. Excessive torque or holding it at an area other than the specified portion may result in a malfunction.
- While piping to products or operating the handle, ensure that an excess bending moment should not be applied to a product, because it may result in damage.

Mounting/Adjustment

⚠ Warning

- Set up the regulator while verifying the pressure that is indicated on the inlet and the outlet pressure gauges. Turning the handle excessively could damage the internal parts.

⚠ Caution

- Release the lock to adjust the pressure. After the adjustment, engage the lock. Failure to observe this procedure could damage the handle or cause the outlet pressure to fluctuate.
<Lock operating method>
Loosen the lock nut to unlock it, and tighten it to lock it.
- This product cannot be used as a check regulator by installing it between solenoid valve and actuator.

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Miniature Regulator Series ARJ310

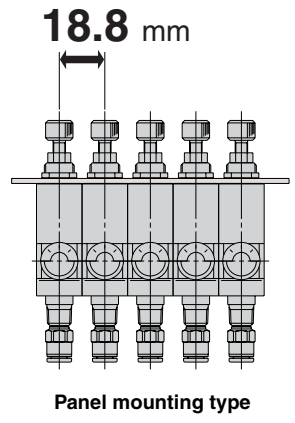
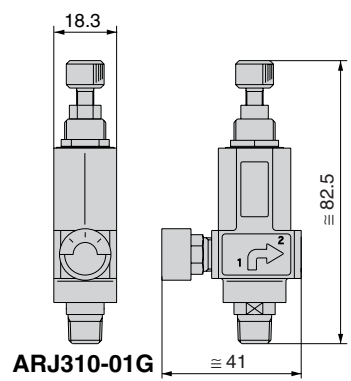


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Improved flow characteristics

Flow rate (ℓ/min (ANR))	ARJ310-01 Outlet pressure (MPa)	ARJ210-M5 Outlet pressure (MPa)
0	0.5	0.5
100	0.45	0.4
200	0.4	0.1
300	0.35	-
400	0.3	-
500	0.2	-

- **Compact and lightweight (Main body 65 g)**
- **Allows smaller mounting pitch**



- **Accommodates two types of threads**
 Inside: Female thread (M5 x 0.8)
 Outside: Male thread (1/8)
- **One-touch fitting feature introduced to series**
 ø4, ø6 (Metric size)
 ø5/32", ø1/4" (Inch size)

Precautions

Be sure to read before handling. Refer to pages 14-21-3 to 14-21-4 for Safety Instructions and Common Precautions.

Design and Selection


Warning

1. This product cannot be used as a check regulator by installing it between solenoid valve and actuator. It can result in causing breakdown and malfunction.
2. When piping, tighten the regulator with the recommended proper tightening torque (M5: 1.5 to 2 N·m, R 1/8: 7 to 9 N·m) while holding the wrench flats (width 11) of the valve guide for IN port and holding the hexagonal section of the body for the OUT port. Excessive tightening or holding a part other than those specified can cause damage.
3. While piping to products or operating the handle, ensure that an excess bending moment should not be applied to a product, because it may result in damage.

Mounting

Caution

To set the correct pressure

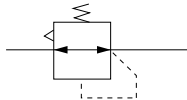
1. Make connections after confirming the  mark which indicates the air inlet. Reversed connections can cause malfunction.

Miniature Regulator

Series ARJ310



JIS Symbol



Standard Specifications

Pressure gauge port size	Rc 1/8, NPT 1/8 (Female thread)
Fluid	Air
Proof pressure	1.2 MPa
Maximum operating pressure	0.8 MPa
Regulating pressure range	Standard: 0.2 to 0.7 MPa, Low pressure use (0.2 MPa setting): 0.05 to 0.2 MPa
Ambient and operating temperature range	-5 to 60°C (With no freezing)
Weight	Approx. 65 g

Model

Model	Port size	
	IN *	OUT
ARJ310-01	R 1/8, M5 x 0.8	Rc 1/8
ARJ310-N01	NPT 1/8, M5 x 0.8	NPT 1/8
ARJ310F-01-04	R 1/8, M5 x 0.8	ø4 One-touch fitting
ARJ310F-01-06		ø6 One-touch fitting
ARJ310F-N01-03	NPT 1/8, M5 x 0.8	ø5/32" One-touch fitting
ARJ310F-N01-07		ø1/4" One-touch fitting

* M5 x 0.8 female thread is cut inside the pipe.

Accessory (Option) Part No.

Bracket	134856
Pressure gauge ^{Note}	G15-10-01 (Rc 1/8)/G15-P10-N01 (NPT 1/8)

Note) Pressure gauges (G15) for 0.2 MPa are not available.

How to Order

Port size (IN, OUT)

01	IN	1/8 (Male thread), M5 x 0.8 (Female thread)
	OUT	1/8 (Female thread)

ARJ 3 10 — **01** **BG**

ARJ 3 10 F — **01** **BG** — **04**

With One-touch fitting

Body size

Model

10	Relieving type
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With One-touch fitting

Thread type

Nil	R, Rc
N	NPT

Port size (IN)

01	1/8 (Male thread), M5 x 0.8 (Female thread)
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Accessory

Nil	None
B	Bracket
G	Pressure gauge

Note 2) For products with pressure gauge, pressure gauge is shipped together with product.

Option

Nil	0.7 MPa setting (Standard)
1	0.2 MPa setting ⁽¹⁾
S	With seal

Note 1) Compared with standard specifications, its adjusting spring has been only changed for 0.2 MPa. It is not the product which does not allow the pressure more than 0.2 MPa. Adjusting spring is not replaceable. Besides, in the case with the pressure gauge, the pressure gauge will be the one for 1 MPa.

Applicable tubing O.D. (OUT)

Metric size

04	4 mm	ARJ310-01
06	6 mm	

Inch size

03	5/32"	ARJ310F-N01
07	1/4"	

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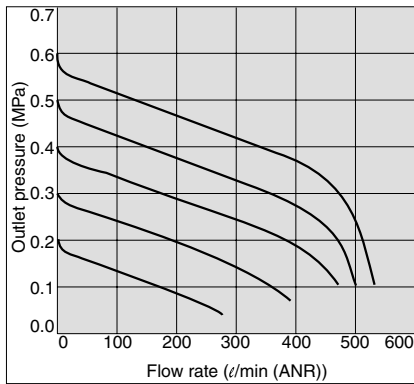
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Series ARJ310

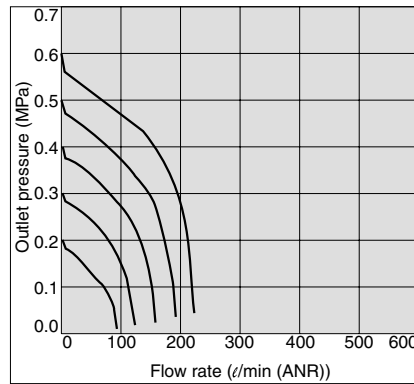
Flow Characteristics

Inlet pressure: 0.7 MPa

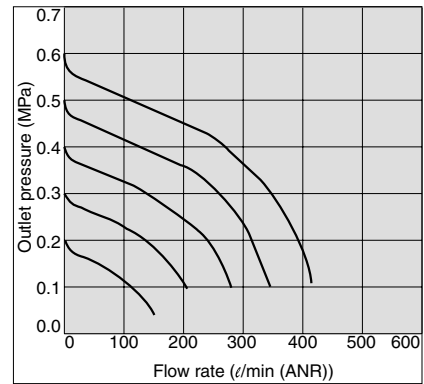
ARJ310-01



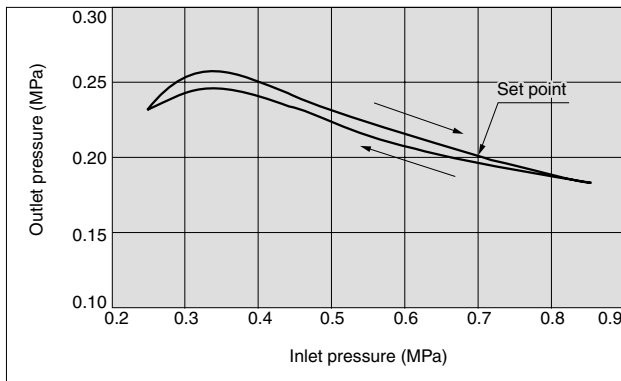
ARJ310F-01-04



ARJ310F-01-06



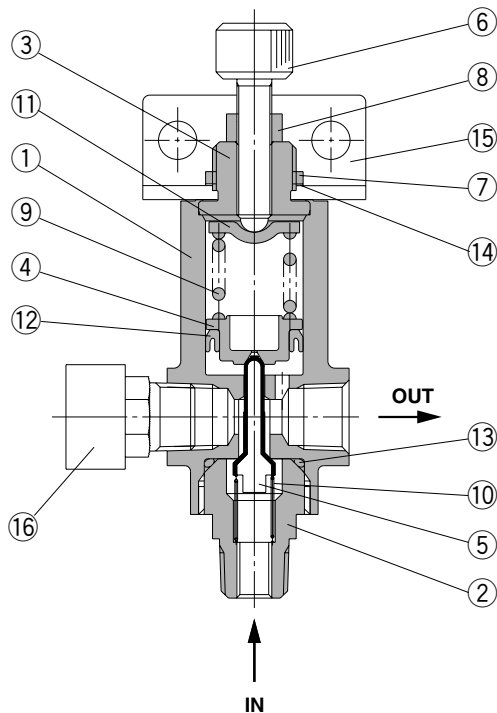
Pressure Characteristics



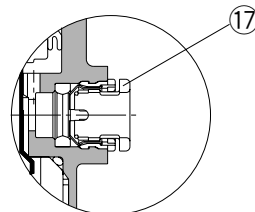
Conditions:
Inlet pressure 0.7 MPa
Outlet pressure 0.2 MPa
Flow rate Q = 20 l/min (ANR)

Construction

ARJ310-01



ARJF310F-01



Component Parts

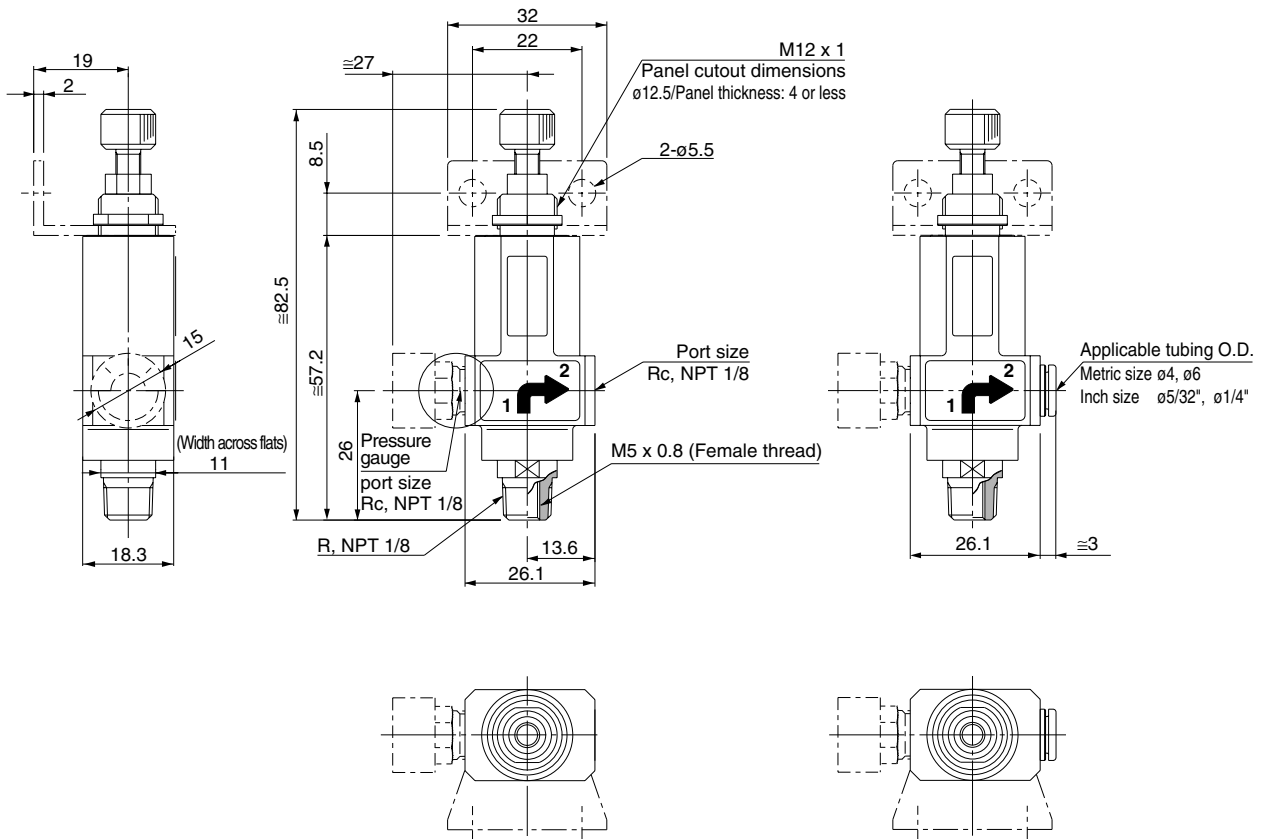
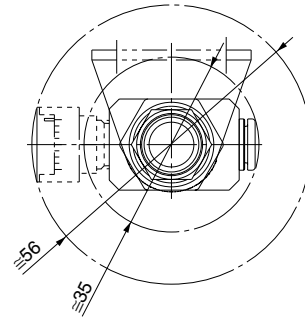
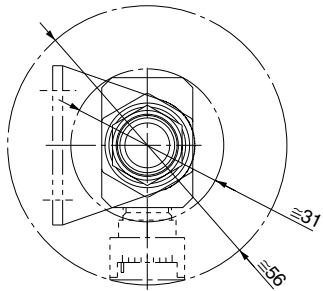
No.	Description	Material	Note
①	Body	Aluminum alloy	
②	Valve guide	Brass	Electroless nickel plated
③	Bonnet	Brass	Electroless nickel plated
④	Piston	POM	
⑤	Valve	Brass	Rubber lining material: HNBR
⑥	Adjusting screw	Brass	Electroless nickel plated
⑦	Panel nut	Brass	Electroless nickel plated
⑧	Hexagon nut	Brass	Electroless nickel plated
⑨	Adjusting spring	Steel wire	Zinc chromated
⑩	Valve spring	Stainless steel	
⑪	Spring holder	Steel band	Zinc chromated
⑫	Mini Y-seal	NBR	
⑬	O-ring	NBR	
⑭	Lock washer	SS	Electroless nickel plated
⑮	Bracket	Steel band	Black zinc chromated
⑯	Pressure gauge	—	Accessory
⑰	Cassette	POM, Stainless steel	

Miniature Regulator Series ARJ310

Dimensions

ARJ310-01

ARJ310F-01



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Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of "**Caution**", "**Warning**" or "**Danger**". To ensure safety, be sure to observe ISO 4414 ^{Note 1)}, JIS B 8370 ^{Note 2)} and other safety practices.

 **Caution** : Operator error could result in injury or equipment damage.

 **Warning** : Operator error could result in serious injury or loss of life.

 **Danger** : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414: Pneumatic fluid power--General rules relating to systems.

Note 2) JIS B 8370: General Rules for Pneumatic Equipment

Warning

1. The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements. The expected performance and safety assurance will be the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalog information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driver objects have been confirmed.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is restarted, take measures to prevent shooting-out of cylinder piston rod, etc.

4. Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.



Common Precautions

Be sure to read before handling.

For detailed precautions on every series, refer to main text.

Selection

Warning

1. Confirm the specifications.

Products represented in this catalog are designed for use in compressed air applications only (including vacuum), unless otherwise indicated.

Do not use the product outside their design parameters.

Please contact SMC when using the products in applications other than compressed air (including vacuum).

Mounting

Warning

1. Instruction manual

Install the products and operate them only after reading the instruction manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

2. Securing the space for maintenance

When installing the products, please allow access for maintenance.

3. Tightening torque

When installing the products, please follow the listed torque specifications.

Piping

Caution

1. Before piping

Make sure that all debris, cutting oil, dust, etc. are removed from the piping.

2. Wrapping of pipe tape

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

Air Supply

Warning

1. Operating fluid

Please consult with SMC when using the product in applications other than compressed air (including vacuum).

Regarding products for general fluid, please ask SMC about applicable fluids.

2. Install an air dryer, aftercooler, etc.

Excessive condensate in a compressed air system may cause valves and other pneumatic equipment to malfunction.

Installation of an air dryer, after cooler etc. is recommended.

3. Drain flushing

If condensate in the drain bowl is not emptied on a regular basis, the bowl will overflow and allow the condensate to enter the compressed air lines.

If the drain bowl is difficult to check and remove, it is recommended that a drain bowl with the auto-drain option be installed.

For compressed air quality, refer to "Air Preparation Equipment" catalog.

4. Use clean air

If the compressed air supply is contaminated with chemicals, synthetic materials, corrosive gas, etc., it may lead to breakdown or malfunction.

Operating Environment

Warning

1. Do not use in environments where the product is directly exposed to corrosive gases, chemicals, salt water, water or steam.

2. Do not expose the product to direct sunlight for an extended period of time.

3. Do not use in a place subject to heavy vibrations and/or shocks.

4. Do not mount the product in locations where it is exposed to radiant heat.

Maintenance

Warning

1. Maintenance procedures are outlined in the operation manual.

Not following proper procedures could cause the product to malfunction and could lead to damage to the equipment or machine.

2. Maintenance work

If handled improperly, compressed air can be dangerous.

Assembly, handling and repair of pneumatic systems should be performed by qualified personnel only.

3. Drain flushing

Remove drainage from air filters regularly. (Refer to the specifications.)

4. Shut-down before maintenance

Before attempting any kind of maintenance make sure the supply pressure is shut off and all residual air pressure is released from the system to be worked on.

5. Start-up after maintenance and inspection

Apply operating pressure and power to the equipment and check for proper operation and possible air leaks. If operation is abnormal, please verify product set-up parameters.

6. Do not make any modifications to be product.

Do not take the product apart.

Quality Assurance Information (ISO 9001, ISO 14001)

Reliable quality of products in the global market

To enable our customers throughout the world to use our products with even greater confidence, SMC has obtained certification for international standards "ISO 9001" and "ISO 14001", and created a complete structure for quality assurance and environmental controls. SMC products pursue to meet its customers' expectations while also considering company's contribution in society.

Quality management system ISO 9001

This is an international standard for quality control and quality assurance. SMC has obtained a large number of certifications in Japan and overseas, providing assurance to our customers throughout the world.

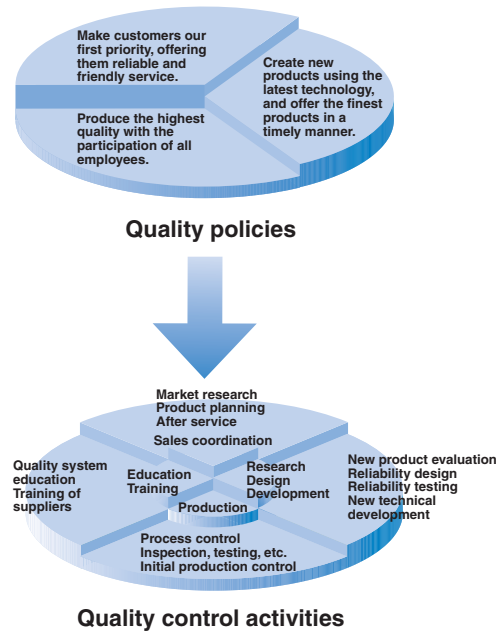


Environmental management system ISO 14001

This is an international standard related to environmental management systems and environmental inspections. While promoting environmentally friendly automation technology, SMC is also making diligent efforts to preserve the environment.



SMC's quality control system



SMC Product Conforming to Inter

SMC products complying with EN/ISO, CSA/UL standards are supporting



The CE mark indicates that machines and components meet essential requirements of all the EC Directives applied.

It has been obligatory to apply CE marks indicating conformity with EC Directives when machines and components are exported to the member Nations of the EU.

Once "A manufacturer himself" declares a product to be safe by means of CE marking (declaration of conformity by manufacturer), free distribution inside the member Nations of the EU is permissible.

■ CE Mark

SMC provides CE marking to products to which EMC and Low Voltage Directives have been applied, in accordance with CETOP (European hydraulics and pneumatics committee) guide lines.

■ As of February 1998, the following 18 countries will be obliged to conform to CE mark legislation

Iceland, Ireland, United Kingdom, Italy, Austria, Netherlands, Greece, Liechtenstein, Sweden, Spain, Denmark, Germany, Norway, Finland, France, Belgium, Portugal, Luxembourg

■ EC Directives and Pneumatic Components

• Machinery Directive

The Machinery Directive contains essential health and safety requirements for machinery, as applied to industrial machines e.g. machine tools, injection molding machines and automatic machines. Pneumatic equipment is not specified in Machinery Directive. However, the use of SMC products that are certified as conforming to EN Standards, allows customers to simplify preparation work of the Technical Construction File required for a Declaration of Conformity.

• Electromagnetic Compatibility (EMC) Directive

The EMC Directive specifies electromagnetic compatibility. Equipment which may generate electromagnetic interference or whose function may be compromised by electromagnetic interference is required to be immune to electromagnetic affects (EMS/immunity) without emitting excessive electromagnetic affects (EMI/emission).

• Low Voltage Directive

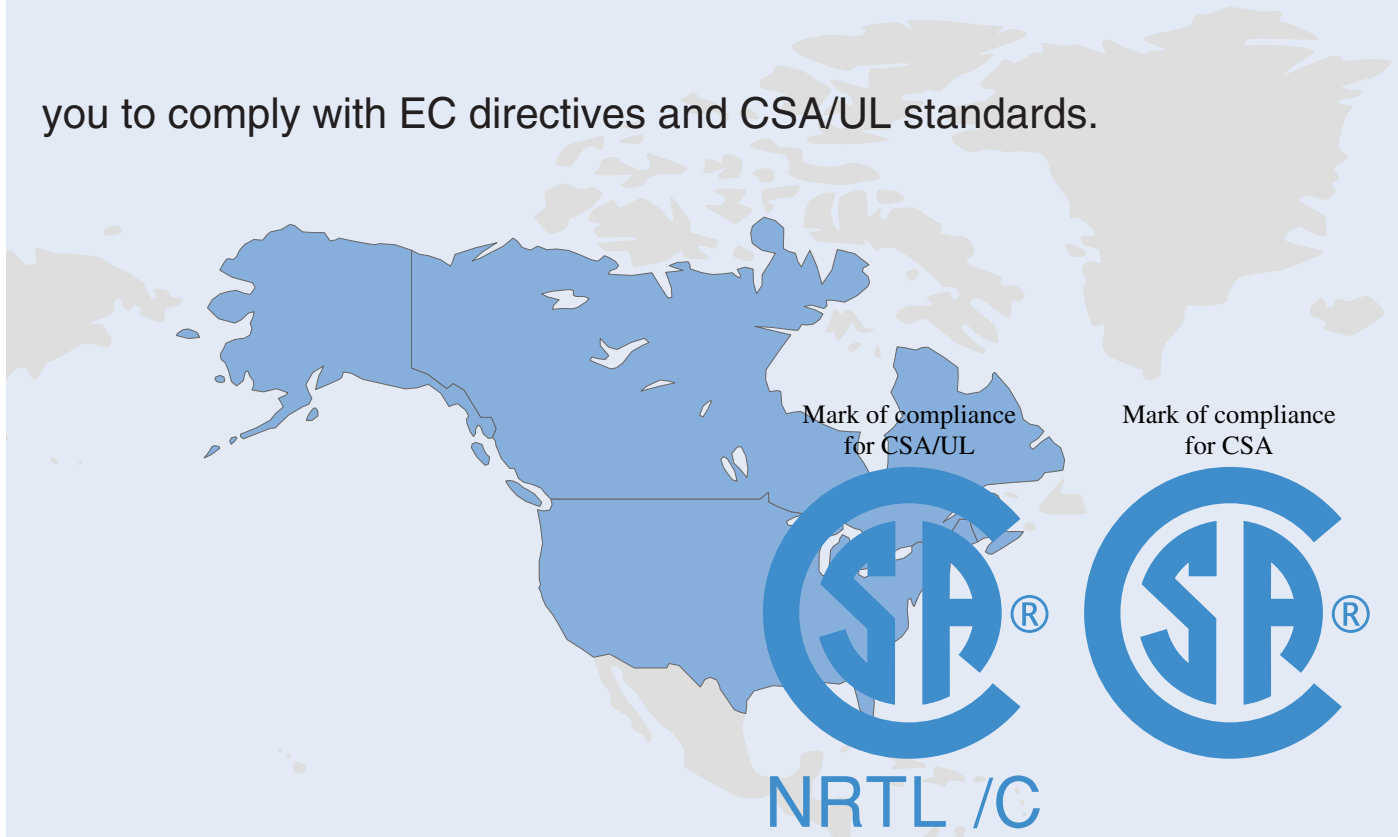
This directive is applied to products, which operate above 50 VAC to 1000 VAC and 75 VDC to 1500 VDC operating voltage, and require electrical safety measures to be introduced.

• Simple Pressure Vessels Directive

This directive is applied to welded vessels whose maximum operating pressure (PS) and volume of vessel (V) exceed 50 bar/L. Such vessels require EC type examination and then CE marking.

national Standards

you to comply with EC directives and CSA/UL standards.



■ CSA Standards & UL Standards

UL and CSA standards have been applied in North America (U.S.A. and Canada) symbolizing safety of electric products, and are defined to mainly prevent danger from electric shock or fire, resulting from trouble with electric products. Both UL and CSA standards are acknowledged in North America as the first class certifying body. They have a long experience and ability for issuing product safety certificate. Products approved by CSA or UL standards are accepted in most states and governments beyond question.

Since CSA is a test certifying body as the National Recognized Testing Laboratory (NRTL) within the jurisdiction of Occupational Safety and Health Administration (OSHA), SMC was tested for compliance with CSA Standards and UL Standards at the same time and was approved for compliance with the two Standards. The above CSA NRTL/C logo is described on a product label in order to indicate that the product is approved by CSA and UL Standards.

■ TSSA (MCCR) Registration Products

TSSA is the regulation in Ontario State, Canada. The products that the operating pressure is more than 5 psi (0.03 MPa) and the piping size is bigger than 1 inch. fall into the scope of TSSA regulation.

Products conforming to CE Standard

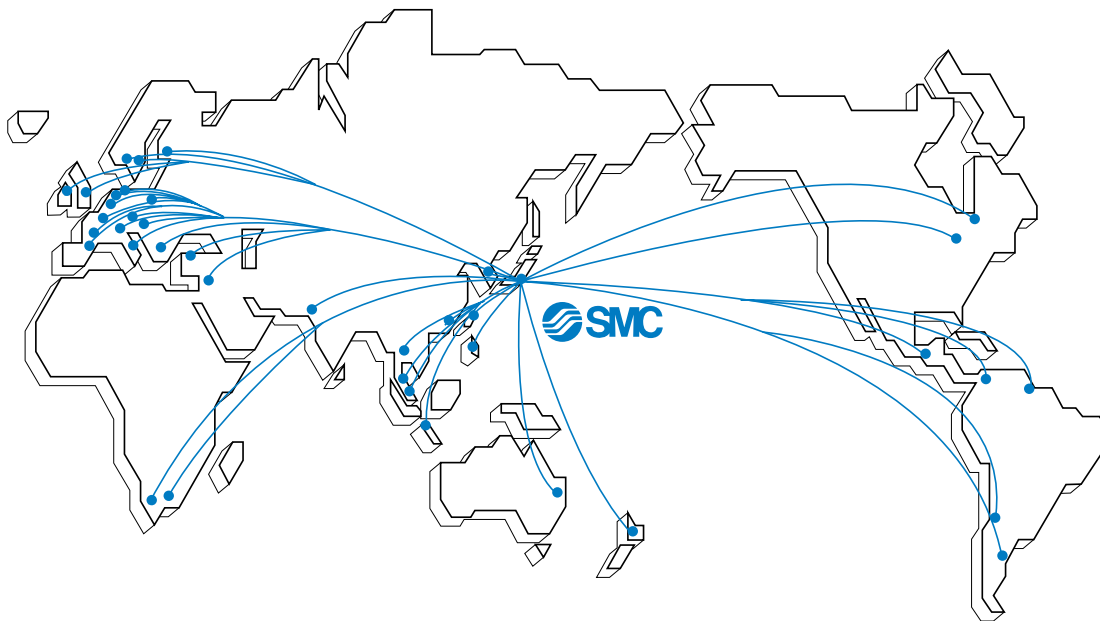


With CE symbol for simple visual recognition

In this catalog each accredited product series is indicated with a CE mark symbol. However, in some cases, every available models may not meet CE compliance. Please visit our web site for the latest selection of available models with CE mark.

<http://www.smcworld.com>

SMC's Global Service Network



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