

Miniature Regulator

ARJ1020F Series

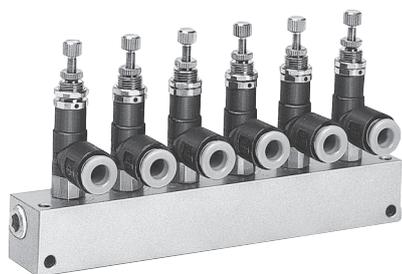
■ Compact and lightweight (16 g)

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



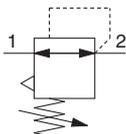
ARJ1020F-M5-04

ARJ1020F-M5-06



ARJM10-6

Symbol



Note) A standard model is equipped with a backflow function. A main valve opens when the inlet pressure is released, and then an outlet pressure backflows into the inlet side.

Standard Specifications

Model		ARJ1020F	
Port size	IN side	M5 (Male thread)	
	OUT side (Applicable tubing O.D.)	Ø 4	Ø 6
Fluid		Air	
Proof pressure		1.2 MPa	
Maximum operating pressure		0.8 MPa	
Regulating pressure range		Standard: 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 ¹⁾		Nylon, Soft nylon, Polyurethane	

1) Be sure to note the maximum operating pressure for soft nylon and polyurethane.

Accessory (Option)/Part No.

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

How to Order

ARJ 10 20 F - M5 - 04 -

Miniature regulator

Body size
10 M5

Port size
M5 M5 x 0.8

With One-touch fitting

Piping
20 Elbow type

Semi-standard

—	0.7 MPa setting (Standard)
1	0.2 MPa setting

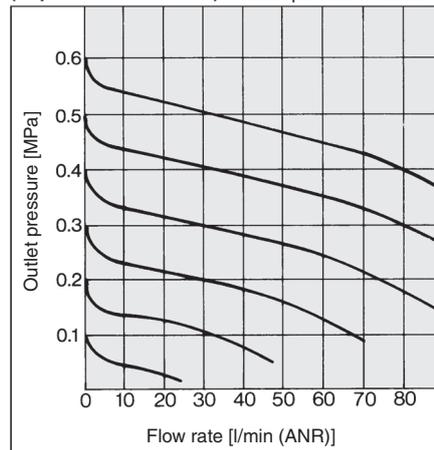
* Compared with standard specifications, its adjusting spring has only been changed. It is not the product which does not allow the pressure more than 0.2 MPa. Adjusting spring is not replaceable.

Applicable tubing O.D.

04	4 mm
06	6 mm

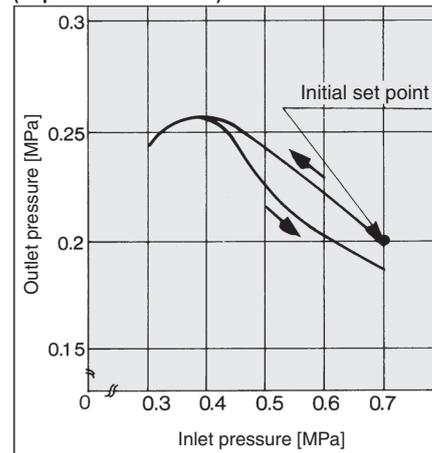
Flow Rate Characteristics (Representative values)

Inlet pressure: 0.7 MPa



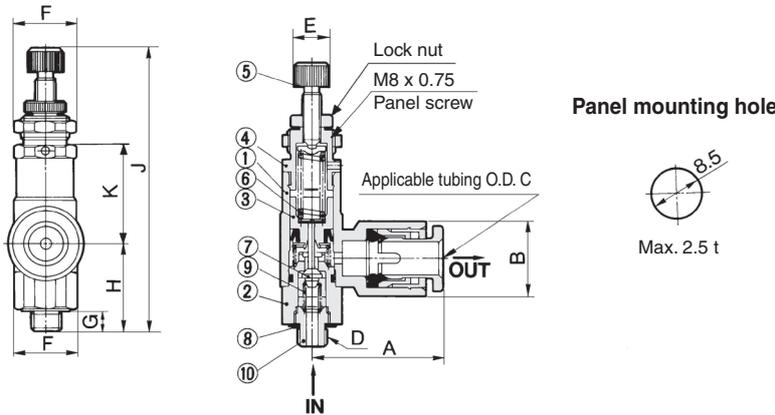
Pressure Characteristics (Representative values)

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



ARJ1020F Series

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	Knob	Brass	Electroless nickel plated
6	Adjusting spring	Steel wire	Zinc chromated
7	Valve	Brass	Rubber lining
10	Nipple	Brass	Electroless nickel plated

Replacement Parts

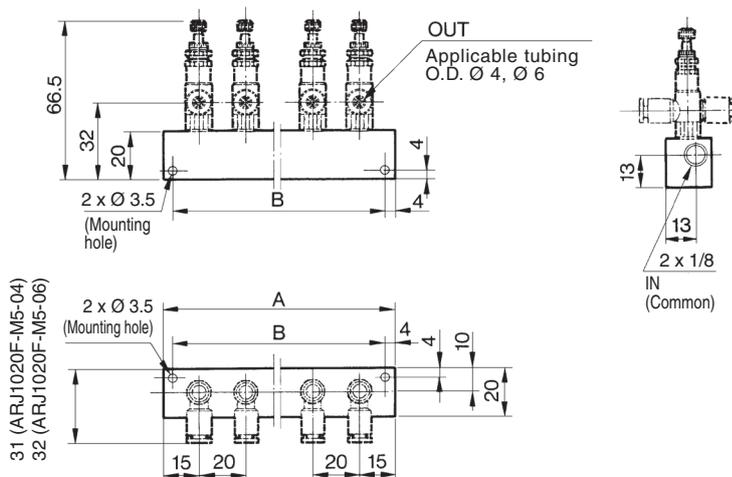
No.	Description	Material	Part no.
7	Valve	Brass, HNBR	13434-30#1
8	Gasket	Stainless steel NBR	P233014-04
9	Spring	Stainless steel	134313

* 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



Manifold base part no.	Stations	A dimension	B dimension
ARJM10-4	4	90	82
ARJM10-6	6	130	122
ARJM10-10	10	210	202

⚠ 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 1.0 to 1.5 N·m. (The recommended torque when using a tightening tool to tighten an additional 1/6 to 1/4 turn after tightening by hand)
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 knob, 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 knob 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 knob 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 can be used as a check regulator by installing it between solenoid valve and actuator.

Miniature Regulator

ARJ210 Series

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

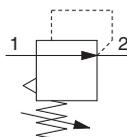


ARJ210-M5



ARJ210-M5BG

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		Standard: 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)
Construction		Relieving type
Weight [kg]		0.06

Accessory (Option)/Part No.

Bracket	134856
Pressure gauge ¹⁾	G27-10-R1

1) When ordering the pressure gauge, a socket assembly (134828A) is required. When installing a pressure gauge, the socket assembly must be fixed and installed to prevent the thread from breaking. 0.2 MPa specification is not available for G27.

How to Order

ARJ 2 10 - M5 BG - [] - []

- Miniature regulator**
- Body size**
- Model**
- Port size**
- Accessory ¹⁾**
- Made to Order**
- Semi-standard**

Symbol	Description
—	None (Standard)
X209	With backflow function
—	0.7 MPa setting (Standard)
1	0.2 MPa setting
S	With seal

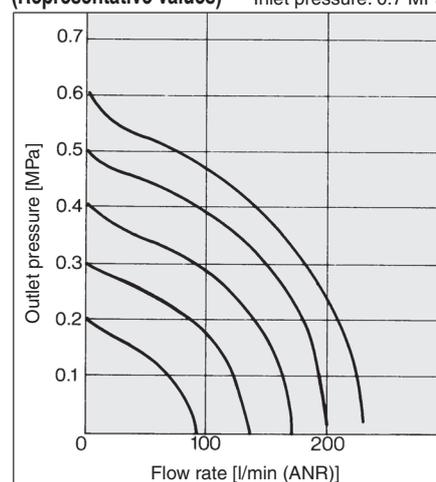
Model	Description
10	Relieving type (Standard)

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

1) Backflow function is not available for standard. X209 is with backflow function. A main valve opens when the inlet pressure is released, and then an outlet pressure backflows into the inlet side. X209 is a product with pressure gauge (G27-10-M-X202). The symbol "G" for accessory is not necessary.

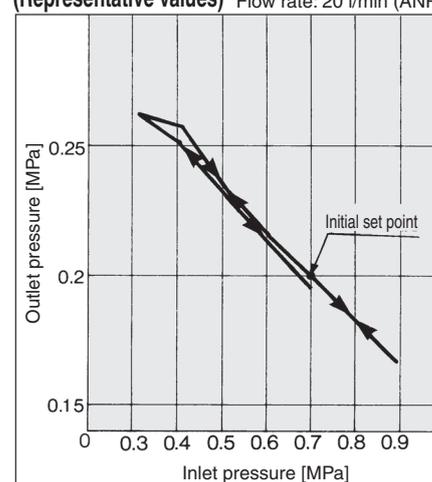
Flow Rate Characteristics (Representative values)

Inlet pressure: 0.7 MPa



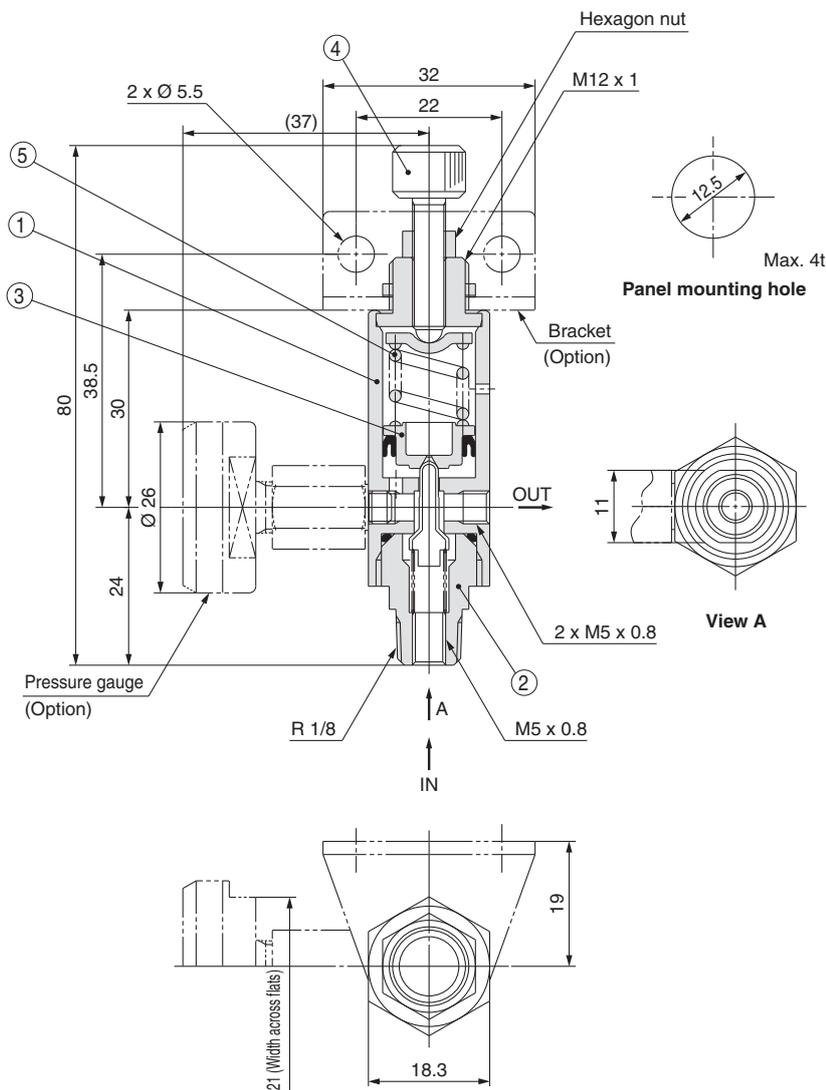
Pressure Characteristics (Representative values)

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



ARJ210 Series

Construction/Dimensions



No.	Description	Material	Note
1	Body	Aluminium alloy	Black anodised
2	Valve guide	Brass	Electroless nickel plated
3	Piston	POM	
4	Adjusting screw	Iron	Nickel plated
5	Adjusting spring	Steel wire	Zinc chromated

⚠ 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 piping, tighten the regulator with the recommended proper tightening torque shown in the table below 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 torque or holding it other than at the specified area could lead to equipment damage.
3. While piping to products or operating the knob, ensure that an excessbending moment should not be applied to a product, because it may result in damage.

Recommended proper torque

Connection thread	Recommended proper torque [N·m]	Note
M5	1.0 to 1.5	The recommended torque when using a tightening tool to tighten an additional 1/6 to 1/4 turn after tightening by hand
R1/8	7 to 9	—

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 knob 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 knob 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. (Except X209)
3. Port with a pressure gauge or a plug can be used as an OUT port.

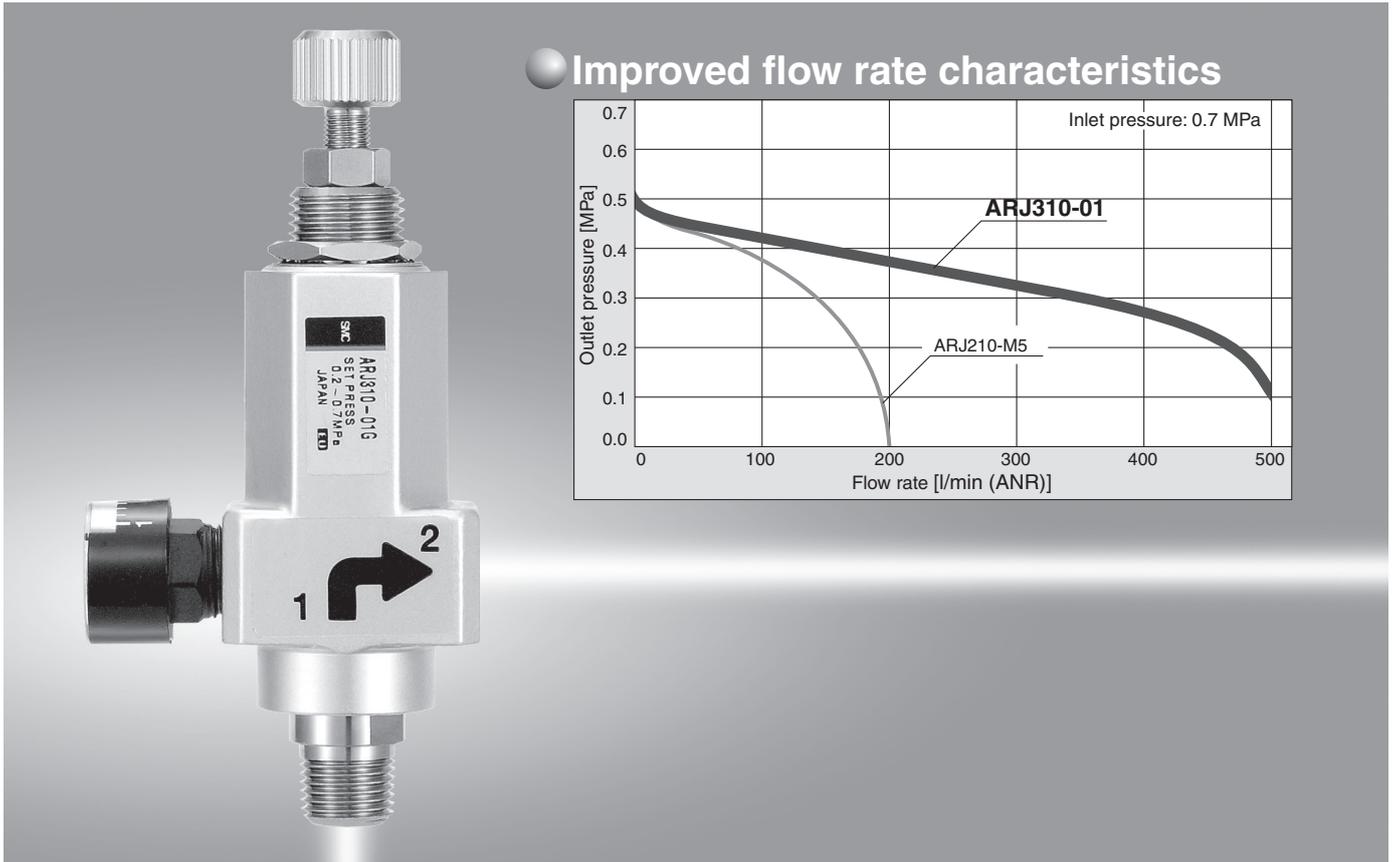
Maintenance

⚠ Warning

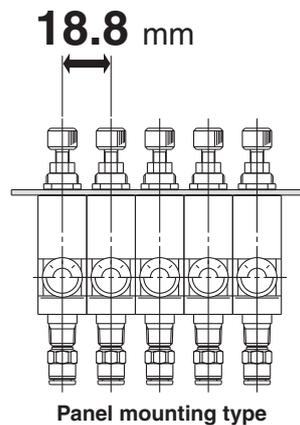
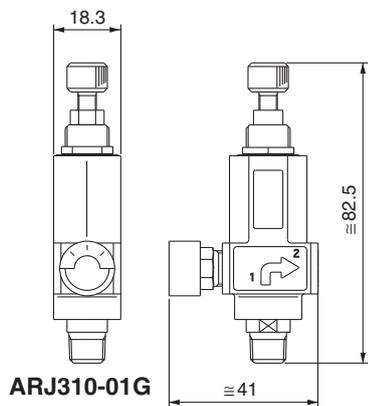
1. Make sure to perform a periodic inspection of the pressure gauge when the miniature regulator is installed between a solenoid valve and an actuator. Sudden pressure changes could happen and the durability of the product could be reduced. Using an electronic type pressure gauge is recommended, depending on the situation.

Miniature Regulator

ARJ310 Series



- 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)

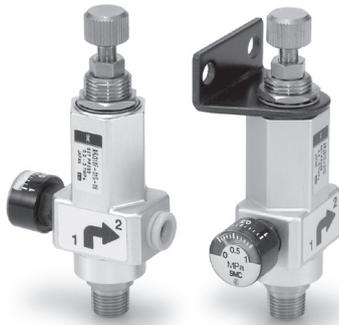


- Built-in One-touch fitting

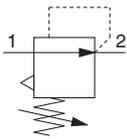
Ø 4, Ø 6 (Metric size)
Ø 5/32", Ø 1/4" (Inch size)

Miniature Regulator ARJ310 Series

Standard Specifications



Symbol



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 (No freezing)
Construction	Relieving type
Weight [kg]	0.065

Model

Model	Port size	
	IN *	OUT
ARJ310-01	R1/8, M5 x 0.8	Rc 1/8
ARJ310-N01	NPT1/8, M5 x 0.8	NPT 1/8
ARJ310F-01-04	R1/8, M5 x 0.8	Ø 4 One-touch fitting
ARJ310F-01-06		Ø 6 One-touch fitting
ARJ310F-N01-03	NPT1/8, M5 x 0.8	Ø 5/32" One-touch fitting
ARJ310F-N01-07		Ø 1/4" One-touch fitting

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

Accessory (Option) Part No.

Bracket	134856
Pressure gauge ¹⁾	G15-10-01(Rc1/8)/G15-P10-N01(NPT1/8)

¹⁾ 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 - [] - []

With One-touch fitting **ARJ 3 10 F - [] 01 BG - 04 - []**

Body size

Model

10	Relieving type
----	----------------

With One-touch fitting

Thread type

-	R, Rc
N	NPT

Port size (IN)

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

Accessory

-	None
B	Bracket
G	Pressure gauge

* For products with pressure gauge, pressure gauge is shipped together with product.

Made to Order
Refer to page 8 for details.

Semi-standard

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

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	

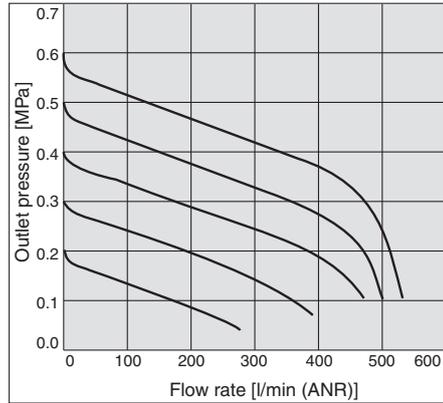
Inch size

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

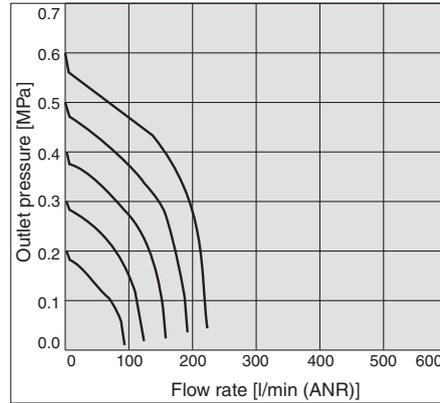
Flow Rate Characteristics (Representative Values)

Inlet pressure: 0.7 MPa

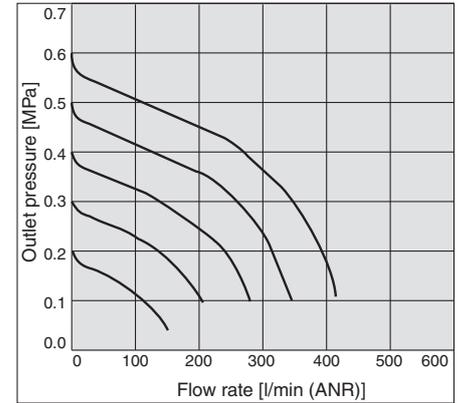
ARJ310-01



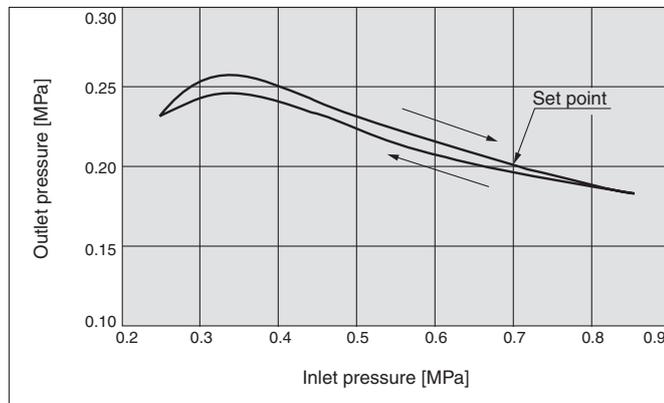
ARJ310F-01-04



ARJ310F-01-06



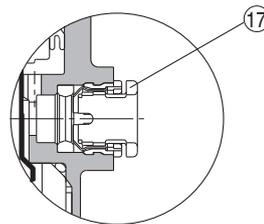
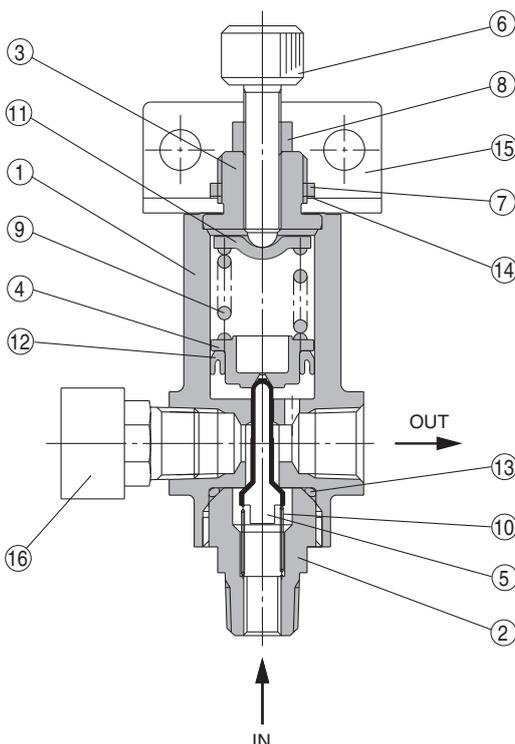
Pressure Characteristics (Representative Values)



Construction

ARJ310-01

ARJ310F-01



Component Parts

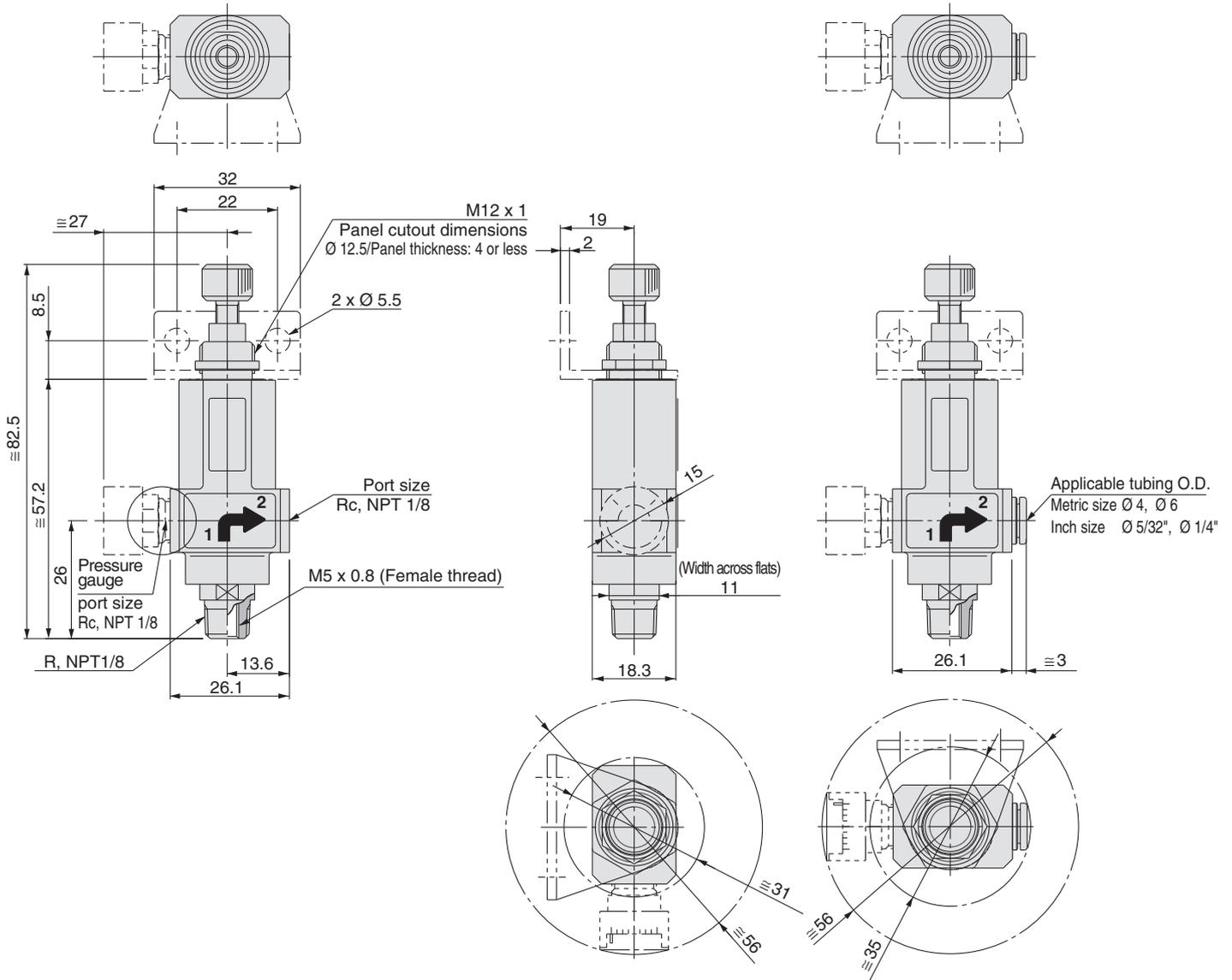
No.	Description	Material	Note
1	Body	Aluminium alloy	
2	Valve guide	Brass	Electroless nickel plated
3	Bonnet	Brass	Electroless nickel plated
4	Piston	POM	
5	Valve	Brass	Rubber lining material: HNBR
6	Adjusting screw	Iron	Nickel plated
7	Panel nut	Iron	Zinc chromated
8	Hexagon nut	Iron	Zinc chromated
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	Zinc chromated
15	Bracket	Steel band	Electrophoretic painting / Accessory
16	Pressure gauge	—	Accessory
17	Cassette	POM, Stainless steel	

ARJ310 Series

Dimensions

ARJ310-01

ARJ310F-01



Made to Order Specifications  Please contact SMC for detailed dimensions, specifications and lead times.

For moderate pressure (0.4 MPa Setting): Compared with standard specifications, its adjusting spring has been only changed for 0.4 MPa. It is not the product which does not allow the pressure more than 0.4 MPa. Adjusting spring is not replaceable.

How to Order

ARJ 3 10 - [] 01 B - [] - X204

Model

10 Relieving type

Body size

[]

Thread type

Nil	R, Rc
N	NPT

Port size (IN-OUT)

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

Accessory

-	None
B	Bracket

Made to Order

X204 0.4 MPa Setting (For moderate pressure)

Semi-standard

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

¹⁾ Compared with standard specifications, its adjusting spring has been only changed for 0.4 MPa. It is not the product which does not allow the pressure more than 0.4 MPa. Adjusting spring is not replaceable.



ARJ310 Series Specific Product Precautions

Be sure to read this before handling the products.

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 shown in the table below 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 knob, ensure that an excess bending moment should not be applied to a product, because it may result in damage.

Recommended proper torque

Connection thread	Recommended proper torque [N·m]	Note
M5	1.0 to 1.5	The recommended torque when using a tightening tool to tighten an additional 1/6 to 1/4 turn after tightening by hand
R1/8	7 to 9	—

Mounting

Caution

To set the correct pressure

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