

Precision Regulator

Series *IR1000/2000/3000*

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

Air Operated Type	Series IR2000 	IR2120	0.01 to 0.8 MPa	1/4
	Series IR3000 	IR3120	0.01 to 0.8 MPa	1/4, 3/8, 1/2

F.R.L.
 AV
 AU
 AF
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IR
 VEX
 AMR
 ITV
 IC
 VBA
 VE□
 VY1
 G
 PPA
 AL

Precision Regulator Series *IR1000/2000/3000*

Bracket and pressure gauge can be mounted from 2 directions

Mounting is possible on either the front or the back.

Expanded regulating pressure range

The maximum set pressure has been expanded from the conventional 0.7 MPa to 0.8 MPa.

Compact and lightweight

IR1000 width 35 mm weight 140 g

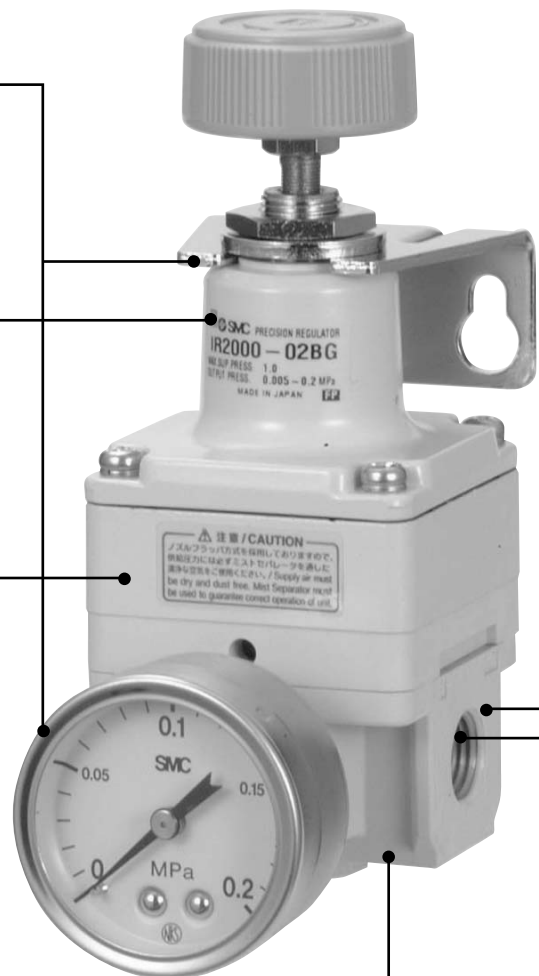
(Previously unavailable small size added)

IR2000 width 50 mm weight 300 g

(Width ▲ 14%, weight ▲ 6% Compared to SMC IR200)

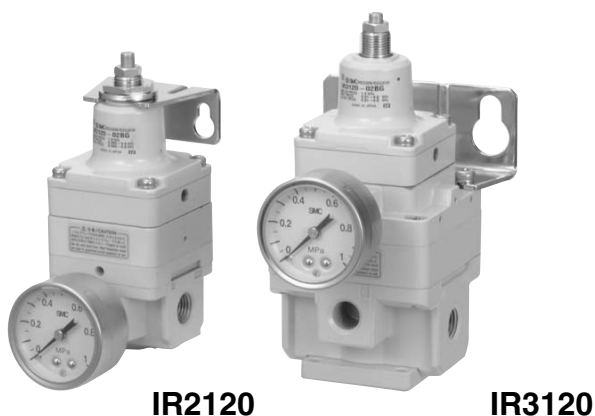
IR3000 width 66 mm weight 640 g

(Width ▲ 21%, weight ▲ 36% Compared to SMC IR400)



2 air operated models

Air operated type added to Series IR2000



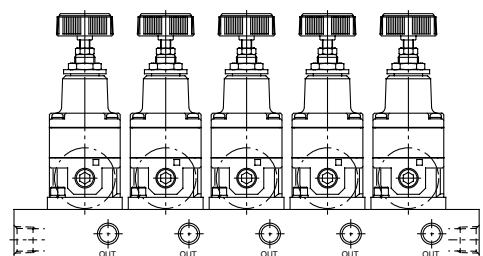
IR2120

IR3120

Manifolding is possible 8 stations at the maximum

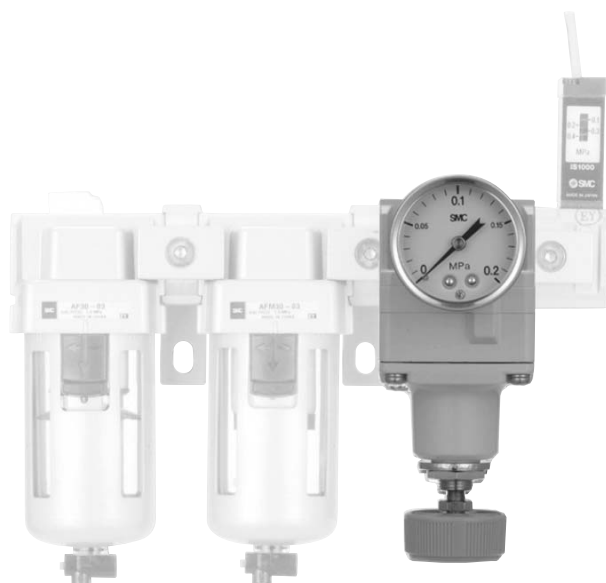
Made to order specifications

(Except Series IR2120, IR3000)



Modular body introduced

Can be combined with AF (Air filter) and AFM (Mist separator).

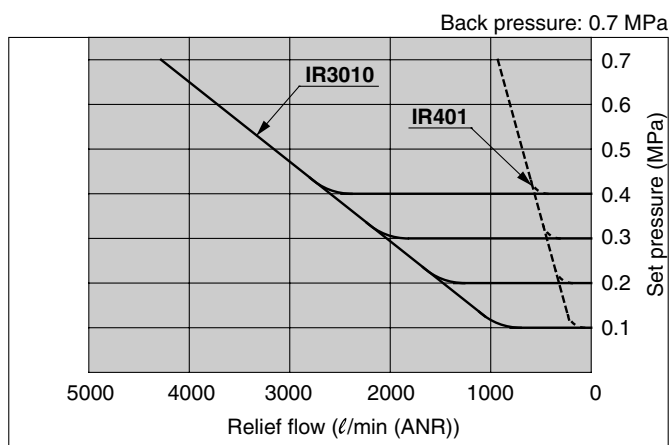
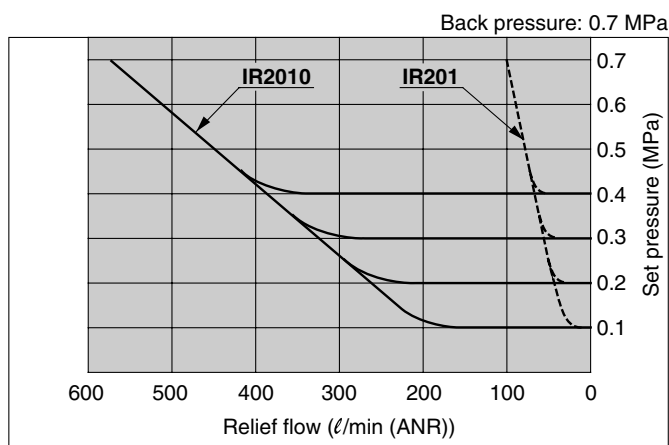


Attachments such as a pressure switch can be mounted as accessories

Applicable modular size **IR1000:** Modular 2000 type
IR2000: Modular 3000 type
IR3000: Modular 4000 type

Superior relief flow characteristics

Possible to relieve (exhaust) air ranged 50 to 4000 ℓ/min (ANR)



Series Variations

Specifications		Basic type			Air operated type	
		IR10□0	IR20□0	IR30□0	IR2120	IR3120
Maximum set pressure	0.2 MPa	●	●	●	—	—
	0.4 MPa	●	●	●	—	—
	0.8 MPa	●	●	●	●	●
Port size	Rc 1/8	●	—	—	—	—
	Rc 1/4	—	●	●	●	●
	Rc 3/8	—	—	●	—	●
	Rc 1/2	—	—	●	—	●

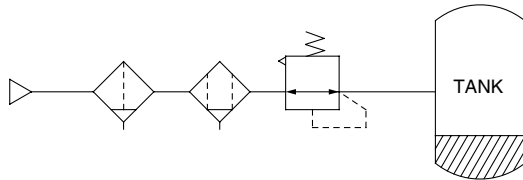
Made to Order Specifications

Symbol	Specifications/Content
10-	Clean Series
20-	Copper-free
80-	Ozone resistant
-T	For high temperature
-L	For low temperature
-X1	Non-grease specifications
-X465□	With digital pressure switch (ISE30)
IRM□□	Manifold (Except Series IR2120, IR3000)

* For details, refer to page 14-5-13.

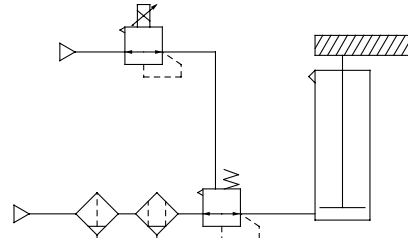
Application Example

Constant fluid pressure



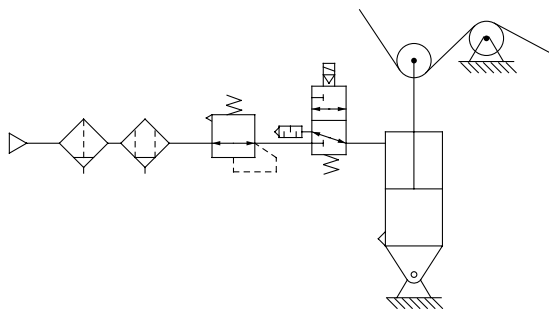
- Since there is a large effective area for supply and exhaust, pressure setting can be done quickly.

Balance and drive Accurate balance pressure setting

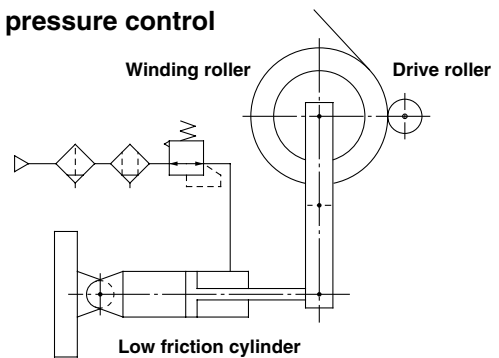


- Limits pressure fluctuation when driving a cylinder, maintaining excellent static and dynamic balance.

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

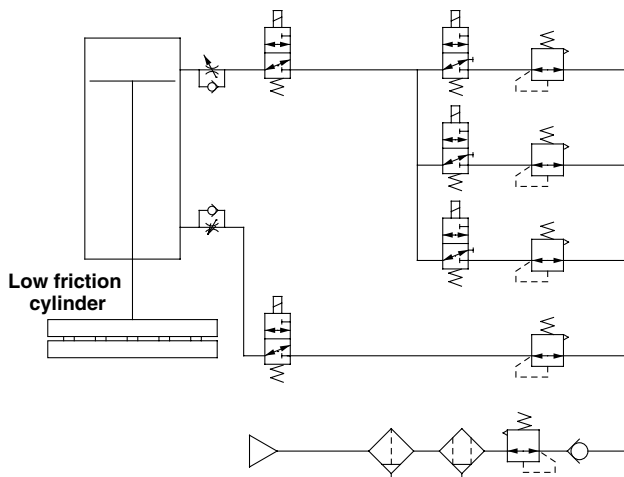


Contact pressure control

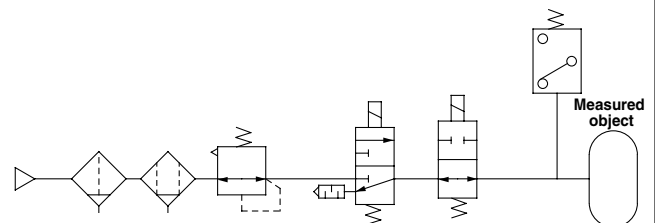


- Adapts to the cylinder's piston displacement, maintaining a constant pressure.

Multistage control of pressing force for workpiece (Wrapping machine)



Leak test circuit



⚠ Precautions

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

Air Supply

⚠ Warning

1. If the drain removal from air filter and mist separator is missed, drain will be flown out to the outlet side and may result in a malfunction of the pneumatic equipment. When removing drain is difficult, use of a filter with an auto-drain is recommended.

⚠ Caution

1. If the supply pressure line contains drain or particulate, etc., the fixed throttle can become clogged leading to malfunction, and therefore, in addition to an air filter (SMC Series AF) be sure to use a mist separator (SMC Series AM, AFM).
Refer to SMC's "Compressed Air Cleaning Systems" catalog regarding air quality.
2. Never use a lubricator on the supply side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the output side of the regulator.

Maintenance

⚠ Warning

1. When the valve guide (refer to construction drawing on page 14-5-8) is to be removed during maintenance, first reduce the set pressure to "0" and completely shut off the supply pressure.
2. When a pressure gauge is to be mounted, remove the plug after reducing the set pressure to "0".

Precautions for IR10□0 only

⚠ Warning

1. When remounting the valve guide after removing it for maintenance, use a tightening torque of no more than 0.6 N·m.
Since the valve guide on this product is made of resin, there is a danger of damage if tightened with a torque exceeding the prescribed value.

Operation

⚠ Caution

1. Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)
2. When mounting is performed, make connections while confirming port indications.
3. Screw a panel nut with the recommended proper torque when mounting onto a panel. 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)

IR1000	IR2000	IR3000
12.5	21	21

4. If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the supply side of the regulator and repeatedly switched ON and OFF, wear of the nozzle/flapper section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the supply side. In the event a directional switching valve will be used, install it on the output side of the regulator.
5. Air is normally released from the bleed hole (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.
6. Make sure to tighten the lock nut after pressure adjustment.

Precautions for IR30□0, IR3120 only

⚠ Caution

1. The supply pressure is relatively high (approx. 0.5 MPa or more), the set pressure is low (approx. 0.1 MPa or less), and when operated with the output side released to the atmosphere, there may be pulsations in the setting pressure. In this kind of situation, operate with the supply pressure reduced as much as possible, or increase the set pressure somewhat and restrict the output line (add and adjust a stop valve, etc.).
2. 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 Series AN) mounted on the exhaust port (EXH port). The connection is Rc 1/2.

Precautions for IR2120, IR3120

Precautions for (air operated type) only

⚠ Caution

1. Since the output types of IR2120 and IR3120 are the same pressure as the input signal pressure, select a type of regulator (general purpose or precision type) for input signal pressure adjustment according to the application.
2. The screw on the topmost section is a zero point adjustment screw which is locked at the factory and requires no adjustment for operation.

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Precision Regulator

Series IR1000/2000/3000

Standard Specifications

Model	Basic type			Air operated type	
	IR10□0	IR20□0	IR30□0	IR2120	IR3120
Max. supply pressure	1.0 MPa				
Min. supply pressure ⁽¹⁾	Set pressure + 0.05 MPa		Set pressure + 0.1 MPa	Set pressure + 0.05 MPa	Set pressure + 0.1 MPa
Regulating pressure range	IR1000: 0.005 to 0.2 MPa IR1010: 0.01 to 0.4 MPa IR1020: 0.01 to 0.8 MPa	IR2000: 0.005 to 0.2 MPa IR2010: 0.01 to 0.4 MPa IR2020: 0.01 to 0.8 MPa	IR3000: 0.01 to 0.2 MPa IR3010: 0.01 to 0.4 MPa IR3020: 0.01 to 0.8 MPa	0.01 to 0.8 MPa	0.01 to 0.8 MPa
Input signal pressure ⁽²⁾	—			0.01 to 0.8 MPa	0.01 to 0.8 MPa
Sensitivity	Within 0.2% of full span				
Repeatability	Within ±0.5% of full span				
Linearity ⁽³⁾	—			Within ±1% of full span	
Air consumption ⁽⁴⁾	Bleed hole: 3.5 ℓ/min (ANR) or less (Supply pressure: 1.0 MPa) Exhaust port: 1.2 ℓ/min (ANR) or less (at maximum set pressure)	Bleed hole: 3.5 ℓ/min (ANR) or less (Supply pressure: 1.0 MPa) Exhaust port: 0.9 ℓ/min (ANR) or less (at maximum set pressure)	Bleed hole: 9.5 ℓ/min (ANR) or less (Supply pressure: 1.0 MPa) Exhaust port: 2 ℓ/min (ANR) or less (at maximum set pressure)	Bleed hole: 3.5 ℓ/min (ANR) or less (Supply pressure: 1.0 MPa) Exhaust port: 0.9 ℓ/min (ANR) or less (at maximum set pressure)	Bleed hole: 9.5 ℓ/min (ANR) or less (Supply pressure: 1.0 MPa) Exhaust port: 2 ℓ/min (ANR) or less (at maximum set pressure)
Port size	Rc 1/8	Rc 1/4	Rc 1/4, 3/8, 1/2	Rc 1/4	Rc 1/4, 3/8, 1/2
Pressure gauge port	Rc 1/8 (2 locations)				
Ambient and fluid temperature	-5 to 60°C (No freezing)				
Weight (kg)	0.14	0.30	0.64	0.35	0.71

Note 1) With the condition of no flow on the output side. Together with the set pressure, be sure to maintain a minimum differential pressure of 0.05 MPa for models IR1000 and IR2000, and 0.1 MPa for model IR3000.

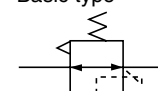
Note 2) Applicable only to air operated types IR2120 and IR3120. The basic type is excepted.

Note 3) Indicates the linearity of the output pressure with respect to the input signal pressure.

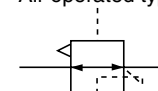
Note 4) Air is normally being discharged to the atmosphere.

JIS Symbol

Basic type



Air operated type



How to Order

IR 2 0 0 0 — 0 2 — R

Precision regulator

Body size

1	IR1000
2	IR2000
3	IR3000

Type of setting

0	Basic type (Handle)
1	Air operated type (Series IR2000/3000 only)

Regulating pressure range

For series IR1000/2000

0	0.005 to 0.2 MPa
1	0.01 to 0.4 MPa
2	0.01 to 0.8 MPa

Note) Air operated type is model IR2120 only.

For series IR3000

0	0.01 to 0.2 MPa
1	0.01 to 0.4 MPa
2	0.01 to 0.8 MPa

Note) Air operated type is model IR3120 only.

Thread type

Nil	Rc
N *	NPT
F *	G

* Option

Port size

Symbol	size	IR1000	IR2000	IR3000
01	1/8	●		
02	1/4		●	
03	3/8			●
04	1/2			●

Suffix (Pressure gauge mounting)

Note) Pressure gauge, Bracket, Name plate, Mounting on the opposite side

Note) The standard mounting position of the pressure gauge is on the front, when viewing the regulator with the SUP side to the left and OUT side to the right.

Accessory

Nil	None
B	With bracket
G	With pressure gauge

Precision Regulator Series IR1000/2000/3000

Specification Combinations



Series IR3000



Series IR2000



Series IR1000

○: Standard specifications ○: Combination possible ■: Combination not possible

Specifications		Symbol	Applicable model				
			IR1000 IR1010 IR1020	IR2000 IR2010 IR2020	IR2120	IR3000 IR3010 IR3020	IR3120
Standard specifications	Set pressure max. 0.2 MPa	0	○	○	■	○	■
	Set pressure max. 0.4 MPa	1	○	○	■	○	■
	Set pressure max. 0.8 MPa	2	○	○	○	○	○
	Connection Rc 1/8	01	○	■	■	■	■
	Connection Rc 1/4	02	■	○	○	○	○
	Connection Rc 3/8	03	■	■	■	○	○
	Connection Rc 1/2	04	■	■	■	○	○
Accessory	Bracket	B	○	○	○	○	○
	Pressure gauge	G	○	○	○	○	○
Option	Pressure gauge reverse mounted	R	○	○	○	○	○
	Connection NPT 1/8	N01	○	■	■	■	■
	Connection NPT 1/4	N02	■	○	○	○	○
	Connection NPT 3/8	N03	■	■	■	○	○
	Connection NPT 1/2	N04	■	■	■	○	○
	Connection G 1/8	F01	○	■	■	■	■
	Connection G 1/4	F02	■	○	○	○	○
	Connection G 3/8	F03	■	■	■	○	○
	Connection G 1/2	F04	■	■	■	○	○

F.R.L.

AV

AU

AF

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IR

VEX

AMR

ITV

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VE□

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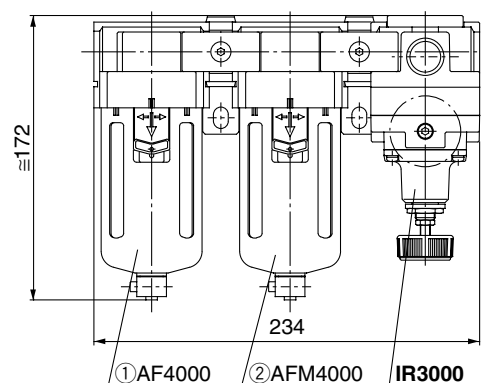
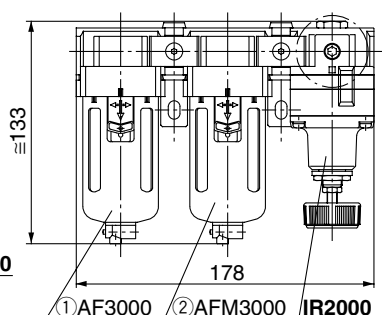
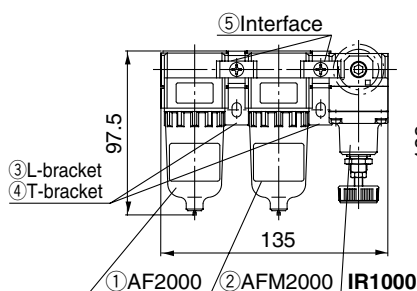
PPA

AL

Modular Products and Accessory Combinations

Description	Applicable model		
	IR10□0	IR20□0/IR2120	IR30□0/IR3120
① Air filter	AF2000	AF3000	AF4000
② Mist separator	AFM2000	AFM3000	AFM4000
③ L-bracket	B210L	B310L	B410L
④ T-bracket	B210T	B310T	B410T
⑤ Interface	Y20	Y30	Y40
⑥ Interface with L-bracket (③ + ⑤)	Y20L	Y30L	Y40L
⑦ Interface with T-bracket (④ + ⑤)	Y20T	Y30T	Y40T

<Combination example>



Accessory (Option)/Part No.

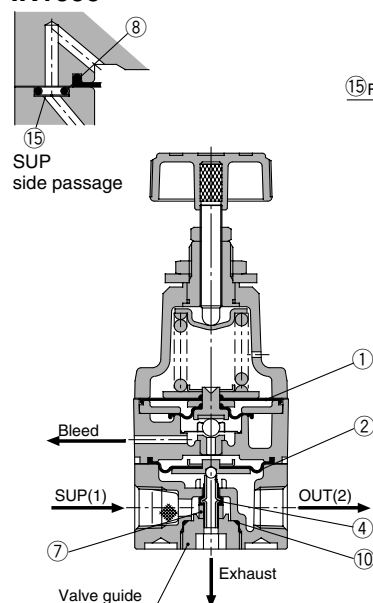
Description	Part no.								
	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020/2120	IR3000	IR3010	IR3020/3120
Bracket	P36201023			P36202028			P36203018		
Pressure gauge *	G33-2-01	G33-4-01	G33-10-01	G43-2-01	G43-4-01	G43-10-01	G43-2-01	G43-4-01	G43-10-01

* Accuracy ±3% (Full span)

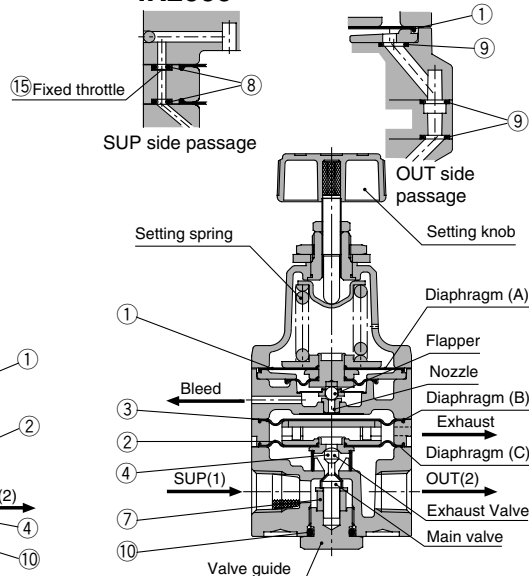
Series IR1000/2000/3000

Construction

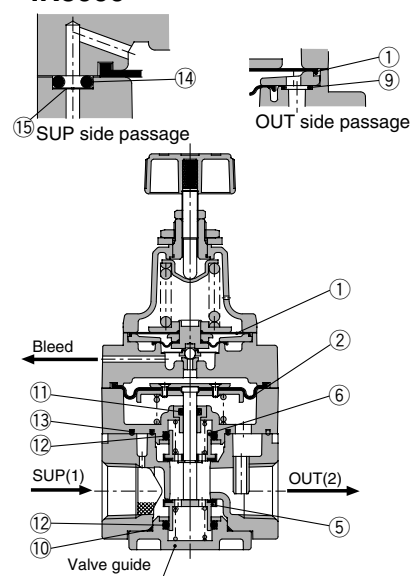
IR1000



IR2000



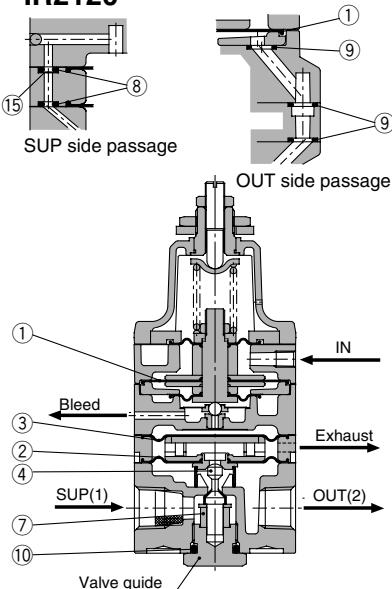
IR3000



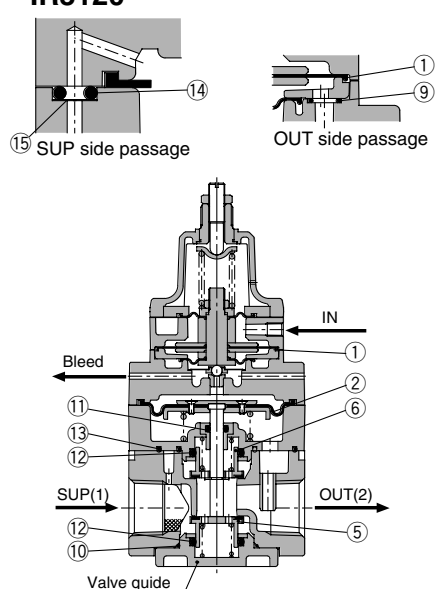
Working principle (For IR2000)

When the setting knob is turned, the nozzle is closed by the flapper allowing the supply air that flows in from the upstream side to pass through the fixed throttle. It then acts on diaphragm B as nozzle back pressure, the main valve is pushed down by the generated force, and the supply pressure flows out to the downstream side. The air pressure that flows in acts on diaphragm C. While opposing the force generated by diaphragm B it also acts on diaphragm A, opposing the compression force of the setting spring and becomes the set pressure. If the set pressure rises too high, diaphragm A is pushed up, the interval between the flapper and the nozzle widens, the nozzle back pressure drops, the balance of diaphragms B and C is broken, the main valve closes, the exhaust valve opens and the excess pressure from the downstream side is discharged to the atmosphere. In this way fine pressure variations are detected by the nozzle/flapper type pilot mechanism, and precise pressure adjustment is performed.

IR2120



IR3120



Replacement Parts

No.	Description	Material	Part no.				
			IR10□0	IR20□0	IR30□0	IR2120	IR3120
①	Diaphragm assembly	NBR, other	P362010-1	P362020-2	P362020-2	P362020-13	P362020-13
②	Diaphragm assembly	NBR, other	P362010-2	P362020-5	P362030-1	P362020-5	P362030-1
③	Diaphragm	NBR, other	—	P36202019	—	P36202019	—
④	Valve	Stainless steel, NBR	P36201020 (-1) ⁽¹⁾	P36202025	—	P36202025	—
⑤	Valve	Brass, NBR	—	—	P36203009	—	P36202009
⑥	Valve	Brass, NBR	—	—	P36203010	—	P36203010
⑦	Damper	NBR	P36201021	P36202026	—	P36202026	—
⑧	O-ring	NBR	ø2.5 x 1	ø1.5 x 1.5	—	ø1.5 x 1.5	—
⑨	O-ring	NBR	—	ø4.5 x 1	ø4.5 x 1	ø4.5 x 1	ø4.5 x 1
⑩	O-ring	NBR	ø10 x 1.3	JISB2401 P11	ø27.8 x 1.5	JIS B 2401 P11	ø27.8 x 1.5
⑪	O-ring	NBR	—	—	JIS B 2401 P5 ⁽²⁾	—	JIS B 2401 P5 ⁽²⁾
⑫	O-ring	NBR	—	—	JIS B 2401 P16 ⁽²⁾	—	JIS B 2401 P16 ⁽²⁾
⑬	Seal (A)	NBR	—	—	P36203015	—	P36203015
⑭	Seal (B)	NBR	—	—	P36203016	—	P36203016
⑮	Fixed throttle	Stainless steel	P36202018	P36202018	P36203017	P36202018	P36203017
Repair kit no. (A set of above nos. ① to ⑮.)			KT-IR1000 ⁽³⁾ KT-IR1010	KT-IR2000	KT-IR3000	KT- IR2120	KT- IR3120

Note 1) IR1000 uses P36201020-1 and IR1010/1020 use P36201020.

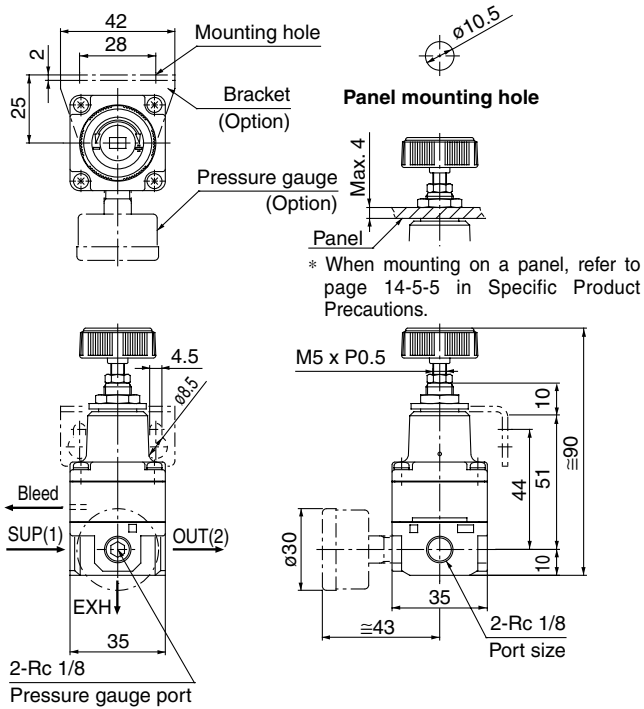
Note 2) Use mini-flick type.

Note 3) IR1000 uses KT-IR1000 and IR1010/1020 use KT-IR1010.

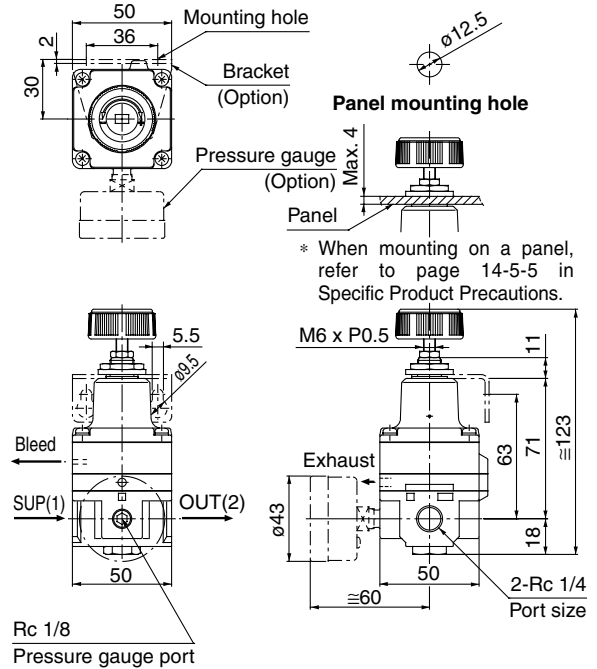
Precision Regulator Series IR1000/2000/3000

Dimensions

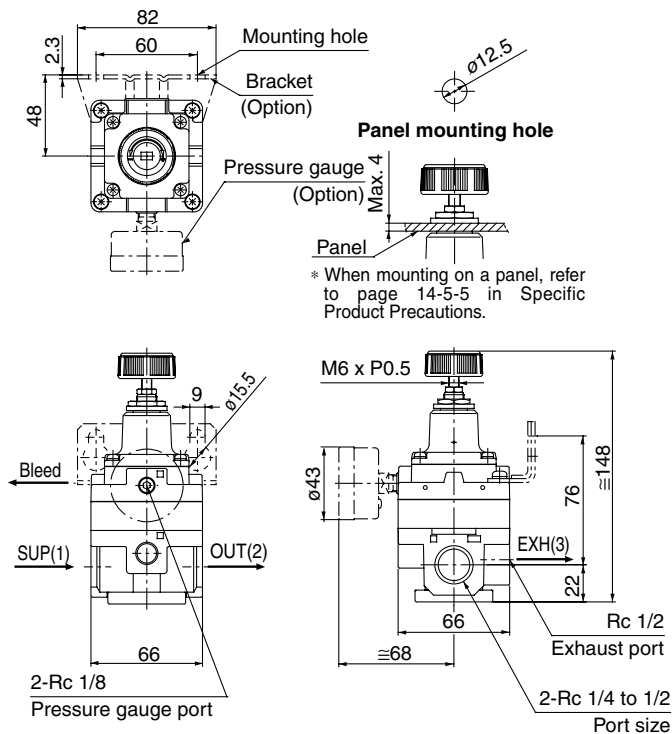
IR10□0-01□



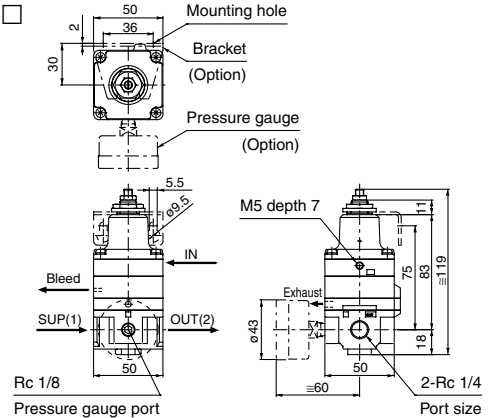
IR20□0-02□



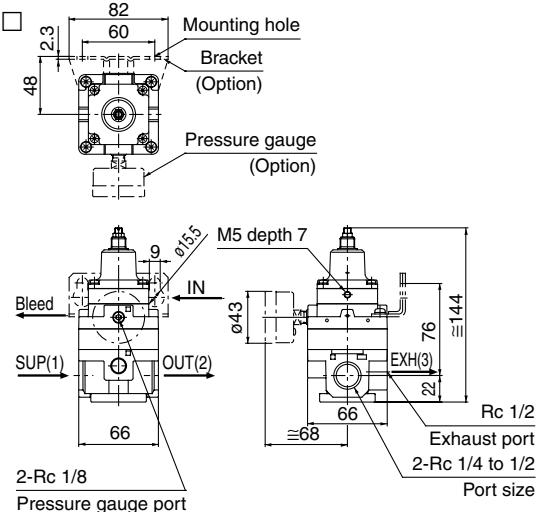
IR30□0-0□□



IR2120-02□



IR3120-0□□



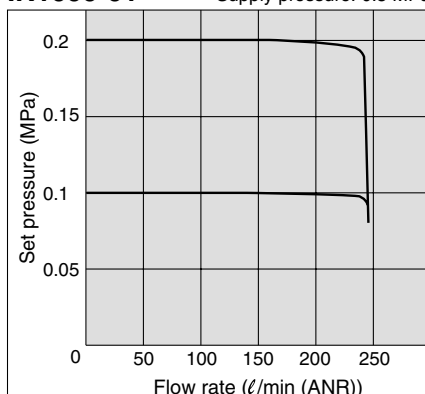
Series IR1000/2000/3000

Series IR1000

Flow Characteristics

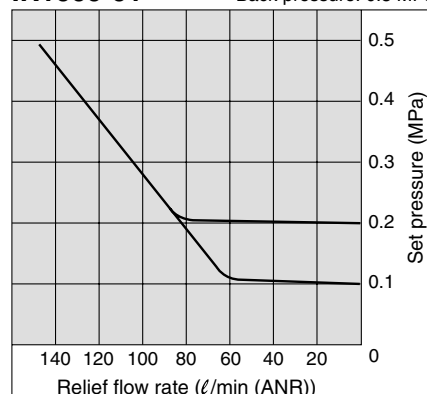
* Testing methods conform to JIS B 8372.

IR1000-01 Supply pressure: 0.5 MPa



Relief Characteristics

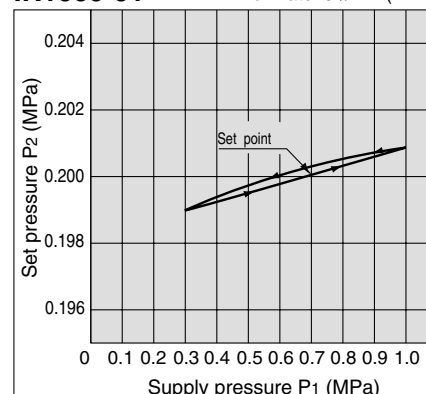
IR1000-01 Back pressure: 0.5 MPa



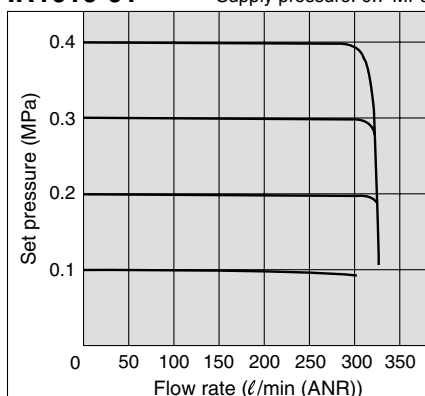
Pressure Characteristics

Supply pressure: 0.7 MPa
Set pressure: 0.2 MPa
Flow rate: 0 l/min (ANR)

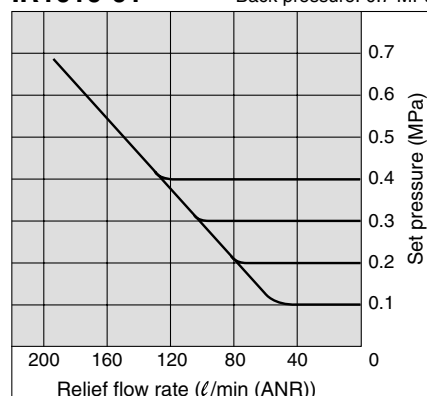
IR1000-01



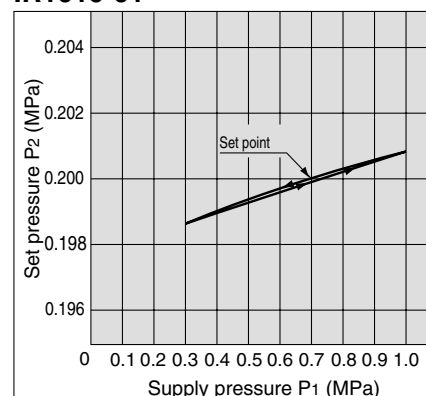
IR1010-01 Supply pressure: 0.7 MPa



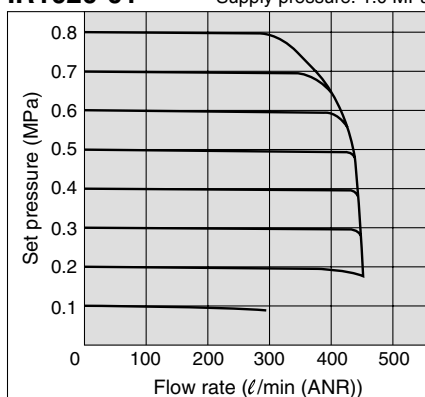
IR1010-01 Back pressure: 0.7 MPa



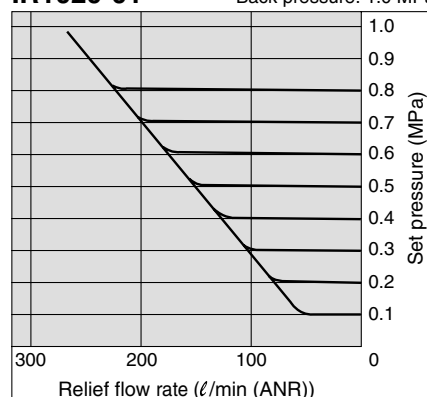
IR1010-01



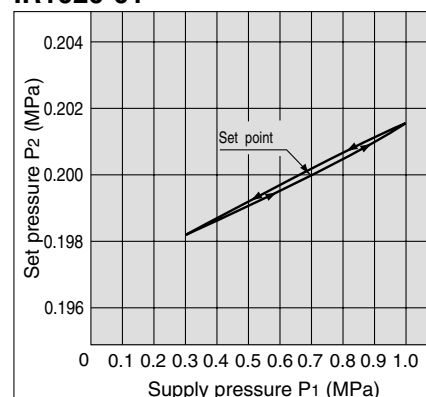
IR1020-01 Supply pressure: 1.0 MPa



IR1020-01 Back pressure: 1.0 MPa



IR1020-01

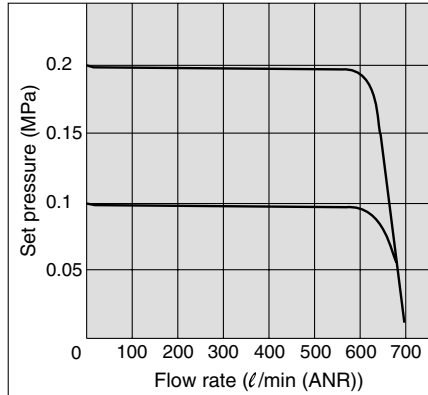


Series IR2000

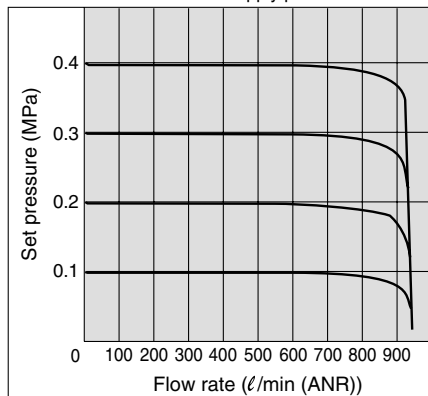
Flow Characteristics

* Testing methods conform to JIS B 8372.

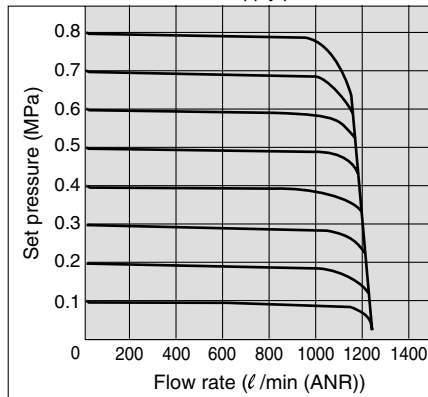
IR2000-02 Supply pressure: 0.5 MPa



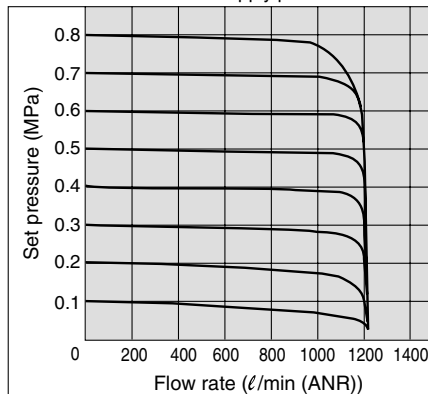
IR2010-02 Supply pressure: 0.7 MPa



IR2020-02 Supply pressure: 1.0 MPa

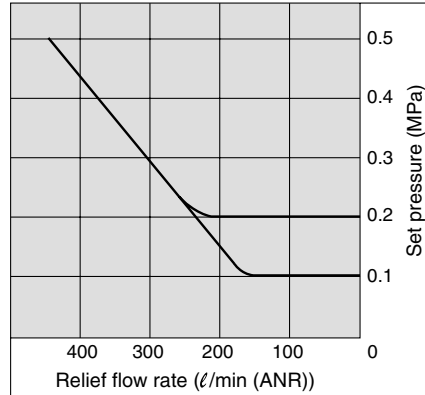


IR2120-02 Supply pressure: 1.0 MPa

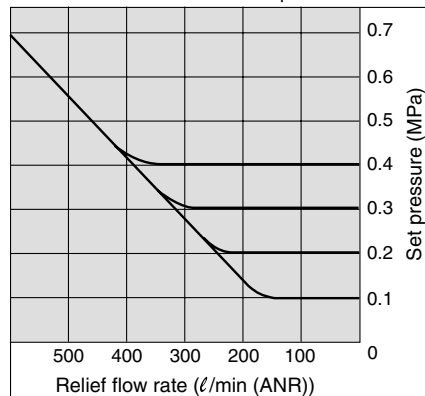


Relief Characteristics

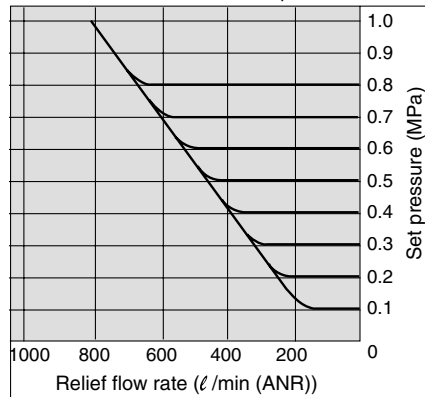
IR2000-02 Back pressure: 0.5 MPa



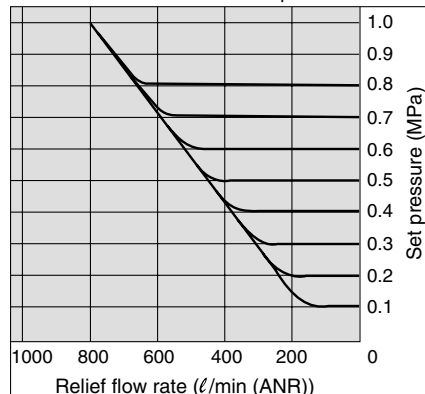
IR2010-02 Back pressure: 0.7 MPa



IR2020-02 Back pressure: 1.0 MPa

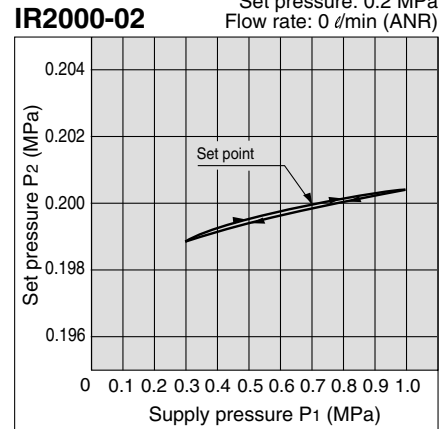


IR2120-02 Back pressure: 1.0 MPa

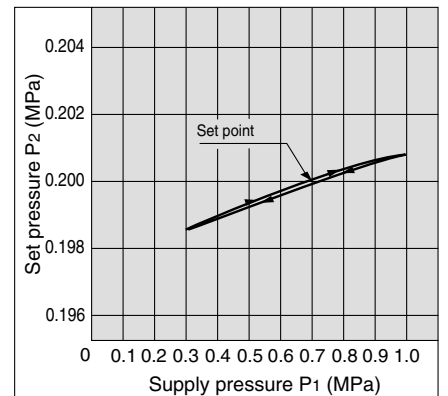


Pressure Characteristics

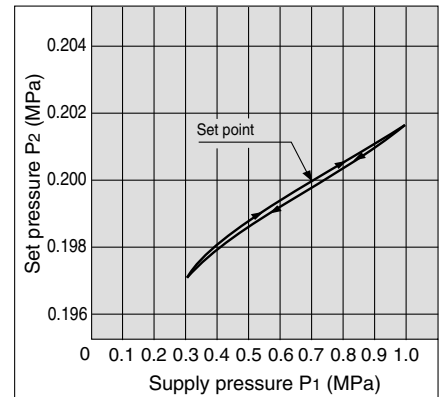
Supply pressure: 0.7 MPa
Set pressure: 0.2 MPa
Flow rate: 0 l/min (ANR)



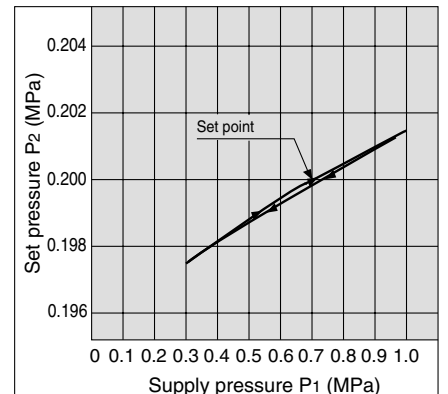
IR2010-02



IR2020-02



IR2120-02



F.R.L.

AV

AU

AF

AR

IR

VEX

AMR

ITV

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VBA

VE□

VY1

G

PPA

AL

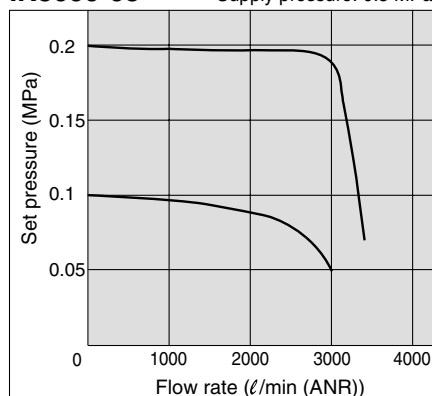
Series IR1000/2000/3000

Series IR3000

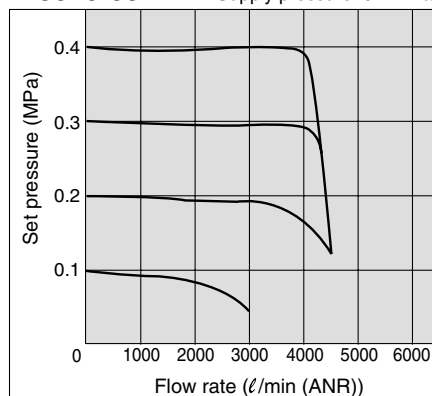
Flow Characteristics

* Testing methods conform to JIS B 8372.

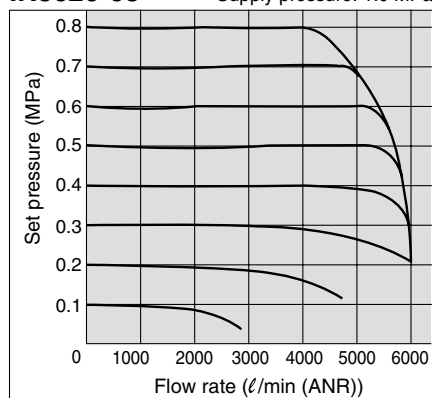
IR3000-03 Supply pressure: 0.5 MPa



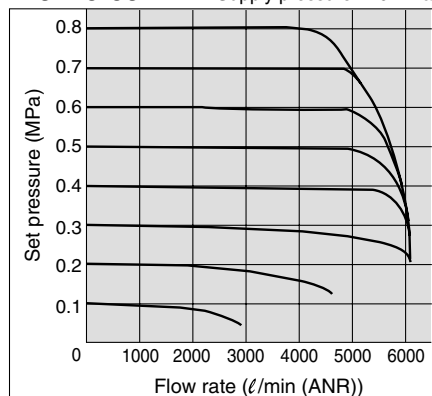
IR3010-03 Supply pressure: 0.7 MPa



IR3020-03 Supply pressure: 1.0 MPa

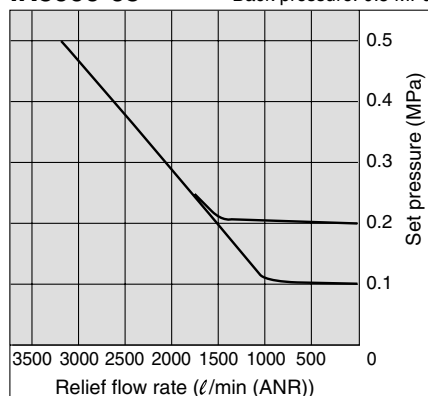


IR3120-03 Supply pressure: 1.0 MPa

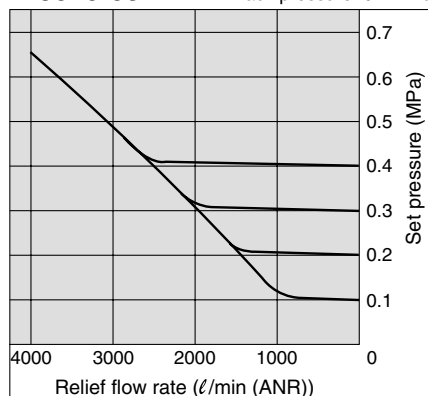


Relief Characteristics

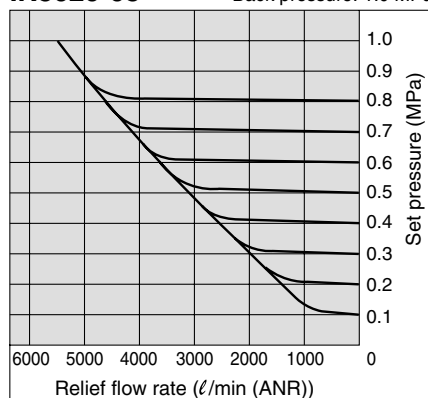
IR3000-03 Back pressure: 0.5 MPa



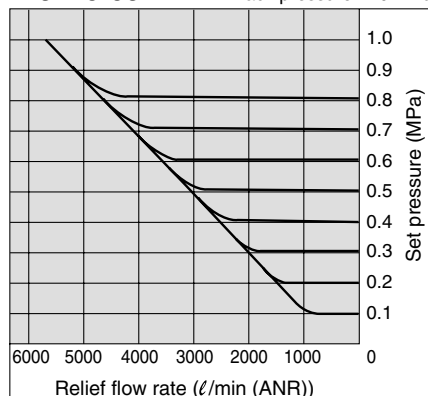
IR3010-03 Back pressure: 0.7 MPa



IR3020-03 Back pressure: 1.0 MPa



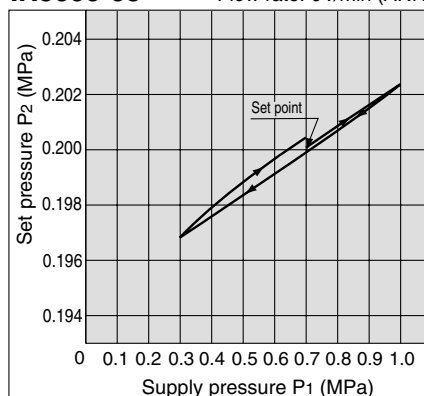
IR3120-03 Back pressure: 1.0 MPa



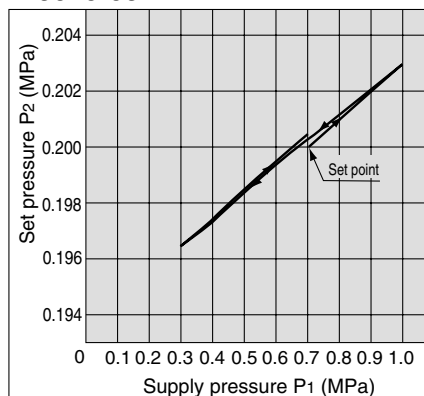
Pressure Characteristics

Supply pressure: 0.7 MPa
Set pressure: 0.2 MPa
Flow rate: 0 l/min (ANR)

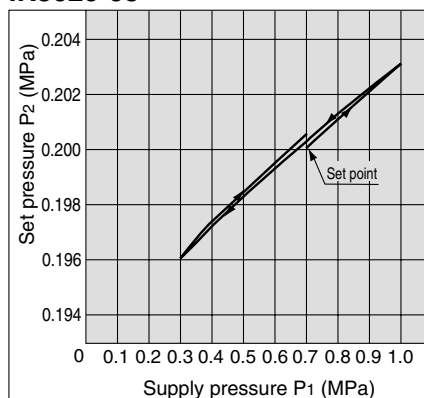
IR3000-03



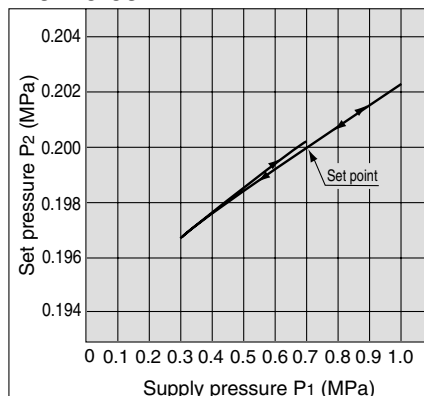
IR3010-03



IR3020-03



IR3120-03



Made to Order Specifications:

Please contact SMC regarding detailed dimensions, specifications, and delivery times.

1 Clean Series

10 — Standard model no.



Note) Please contact SMC if a product with pressure gauge is desired.

● Clean Series

Specifications

Cleanliness	Class 10000
Breather port	With M5 fitting (Applicable tubing O.D. ø6)
EXH port	IR1000/2000: With M5 fitting (Applicable tubing O.D. ø6) IR3000: Rc 1/2 female thread
Grease	Teflon grease

2 Copper-free

External and internal copper parts are changed to stainless steel or aluminum.

20 — Standard model no.



Note) Please contact SMC if a product with pressure gauge is desired.

● Copper-free

3 Ozone Resistant

Fluoro rubber is used for rubber seal materials.

80 — Standard model no.

● Ozone resistant

4 For High/Low Temperature Environments

Standard model no. — T

● For high/low temperature environments

T	For high temperature
L	For low temperature

Specifications

Symbol	T	L
Environment	For high temp. environments	For low temp. environments
Ambient temperature	–5 to 100°C (Max. 80°C with pressure gauge)	–30 to 60°C
Rubber material	Fluoro rubber	Special NBR

5 Non-grease Specifications

Assembly is performed in an ordinary environment without using grease. However, since parts are not washed, they are not completely oil-free.

Standard model no. — X1

● Non-grease specifications

6 With Digital Pressure Switch

With digital pressure switch (model no: ISE30-01-□□-ML). Mount a digital pressure switch into the connection port for pressure gauge, as it is not mounted at the time of shipment.

Specifications

Made to order part no.	–X465□
Set pressure range (MPa)	–0.1 to 1
Resolution of setting and display (MPa)	0.001
Power supply voltage	12 to 24 VDC ±10%, Ripple (p-p) 10% or less (With reverse connection protection)
Current consumption	45 mA or less (but 70 mA or less at current output)

How to Order

Standard no. Note) — X465A **Switch specifications**

Note) Except for symbol “G”
Note 1) Please contact SMC separately for details about the external dimensions, etc.
Note 2) For details on handling digital pressure switch and specifications, refer to Best Pneumatics Vol. 16 for digital pressure switch: Series ISE30.
Note 3) Digital pressure switch is packed together.

Symbol	Output specifications
A	NPN output
B	PNP output
C	1-5 V output
D	4-20 mA output

● **With digital pressure switch**

7 Manifold Specifications (Except type IR2120 and series IR3000)

2 to 8 station manifold type regulators. (Please contact SMC regarding 9 or more stations.)

IRM 10 — □ □ G — □ □ □ □

● **Stations**

2	2 stations
□	□
8	8 stations

● **Set pressure and quantity**

0□	0.2 MPa setting 1 to n pcs.
1□	0.4 MPa setting 1 to n pcs.
2□	0.8 MPa setting 1 to n pcs.

Example 1) 0.4 MPa setting with 6 stations IRM10-6G-16
Example 2) 0.2 MPa setting 2 pcs., 0.4 MPa setting 2 pcs., 0.8 MPa setting 1 pc. with 5 stations IRM20-5G-021221

● **Thread type (Thread on the manifold base)**

Nil	Rc
N	NPT
F	G

● **Body size**

10	IR1000
20	IR2000

● **Accessory (Pressure gauge)**

Nil	None
G	IR1000: G33-□-01 IR2000: G43-□-01

● **Manifold type regulator**

Specifications

Stations	2 to 8 stations	
Port	Common SUP	IR1000: Rc 1/4, IR2000: Rc 1/2
	Individual OUT	IR1000: Rc 1/8, IR2000: Rc 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 (IR1000), G43-□-01 (IR2000)	

- 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) Please consult with SMC when a blanking plate is needed.



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 over flow 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 break down 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 of 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.

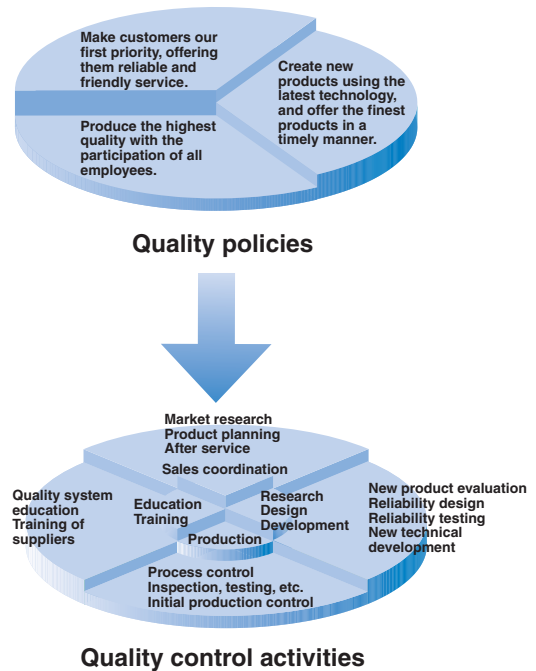


Environmental management system ISO 14001

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

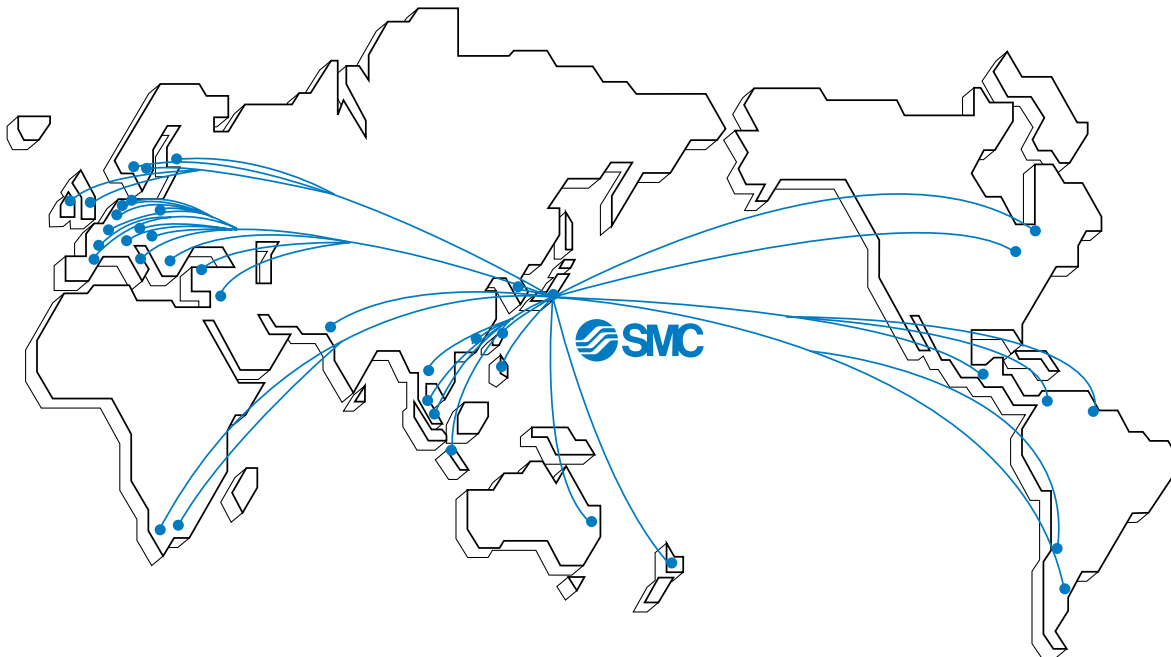


With CE symbol for simple visual recognition

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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