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SMC Precision Regulator
Series IR200

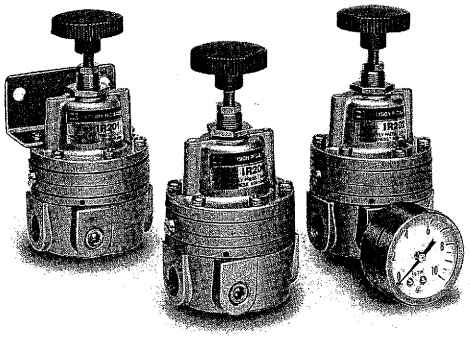
High accuracy
Possible to regulate accurately the output pressure at 0.2% F.S. sensitivity and ±0.5% F.S. repeatability by an accurate flapper nozzle mechanism.

Excellent characteristics
This unit displays very excellent characteristics such as flow, pressure and relief characteristics compared with a general purpose pressure reducer.

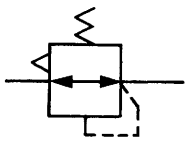
Wide pressure range
The wide controllable range of 0.05 to 7 kgf/cm² equivalent to a general purpose regulator.

Balance mechanism applications
Suitable for use in applications such as balance mechanisms, tension control, contact pressure control or air balancer if cylinder bore size is relatively small.

Compact·light weight
Very light weight only 290gf.



Symbol



Specifications

Model	IR200	IR201	IR202
Max. supply pressure	7kgf/cm²{700kpa}		9.9kgf/cm²{990kpa}
Min. supply pressure	Set pressure + 0.5kgf/cm²{50kpa}		
Set pressure	0.05~2kgf/cm² {5~200kPa}	0.05~4kgf/cm² {5~400kPa}	0.05~7kgf/cm² {5~700kPa}
Sensitivity	Within 0.2% of full span		
Repeatability	Within ±0.5% of full span		
Air consumption	(Note) Within 3Nl/min (for supply pressure of 7kgf/cm²)		
Ambient and fluid temperature	−5~60°C		
Port size	1/4		
Pressure gauge connection	1/8 (One part)		
Weight	290gf		

(Note) Air vent must be to atmosphere.

Accessories (Optional)

Description	Part No.
※Pressure gauge	G43-2-01 (for IR200)
	G43-4-01 (for IR201)
	G43-10-01 (for IR202)
Bracket	230451

※Accuracy : ±3%F.S. (full span)

How to Order

IR20 **0** — **02** **B**

Set pressure
- **0** — 0.05~2kgf/cm²
- **1** — 0.05~4kgf/cm²
- **2** — 0.05~7kgf/cm²

Port size
- **02** — 1/4

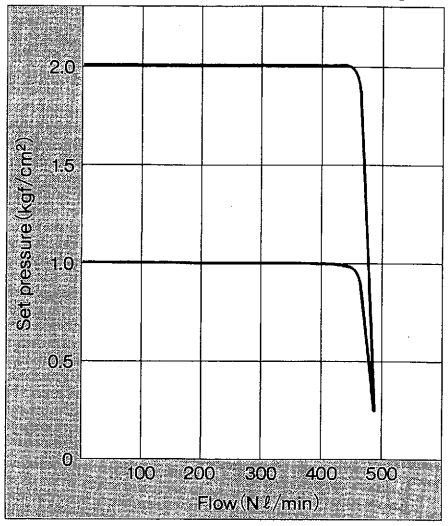
Accessories
- **Nil** — No accessory
- **B** — With bracket
- **G** — With pressure gauge

Precision Regulator/Series IR200

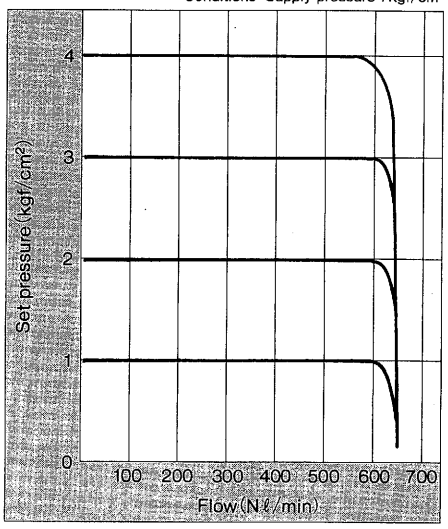
Flow characteristics

※To JIS B8372.

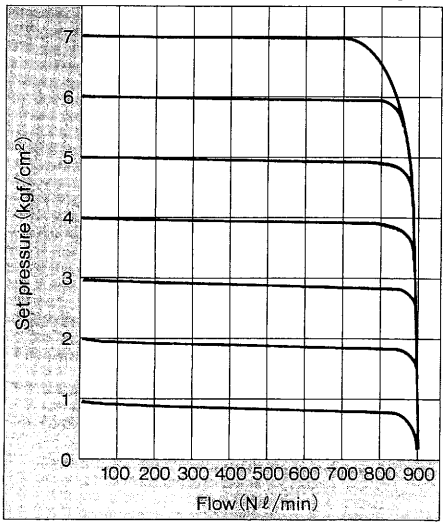
IR200-02 Conditions : Supply pressure 5kgf/cm²



IR201-02 Conditions : Supply pressure 7kgf/cm²

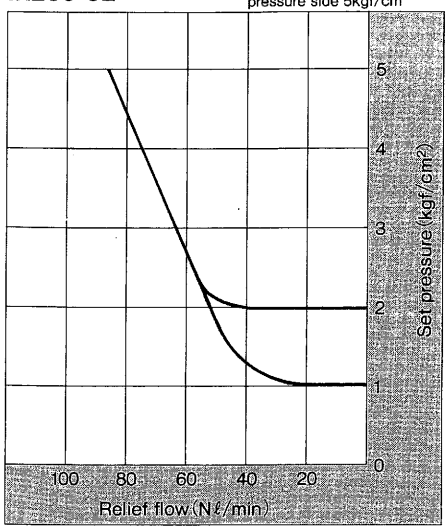


IR202-02 Conditions : Supply pressure 9.9kgf/cm²

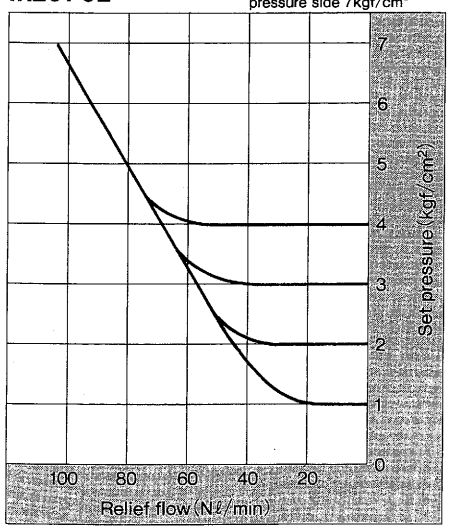


Relief characteristics

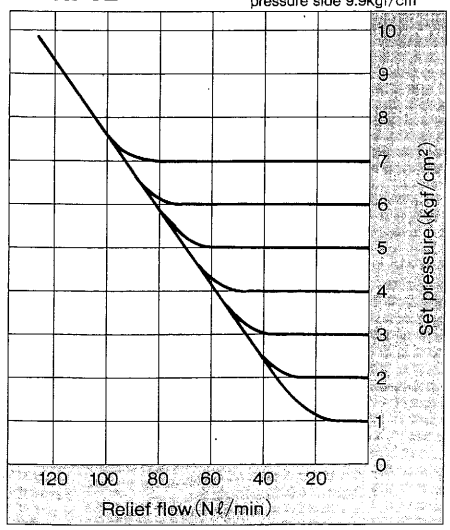
IR200-02 Conditions : Pressure in back pressure side 5kgf/cm²



IR201-02 Conditions : Pressure in back pressure side 7kgf/cm²



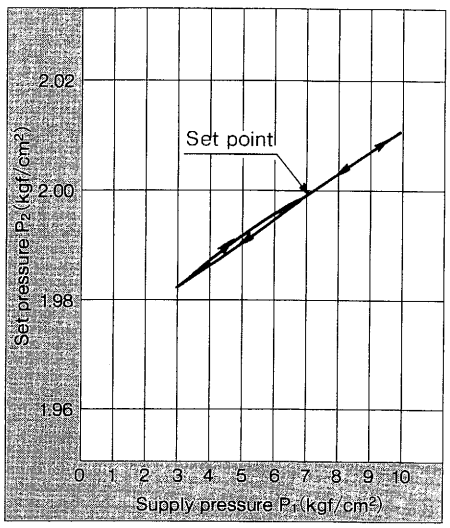
IR202-02 Conditions : Pressure in back pressure side 9.9kgf/cm²



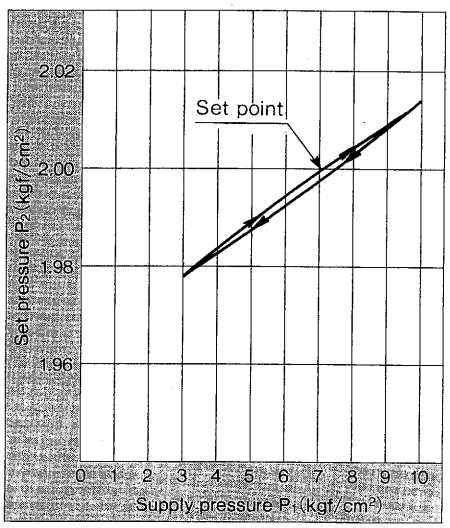
Pressure characteristics

Test conditions : Supply pressure 7kgf/cm²
Set pressure 2kgf/cm²
Flow 0 Nℓ/min.

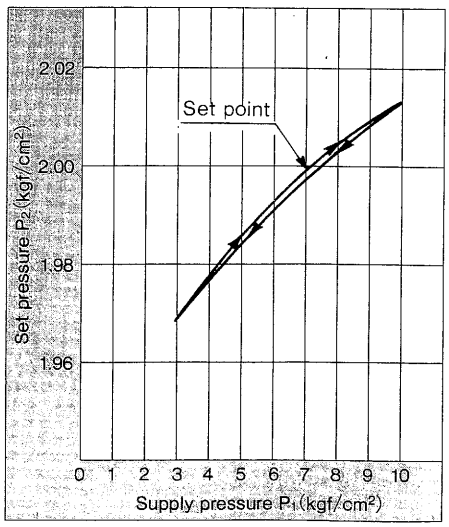
IR200-02



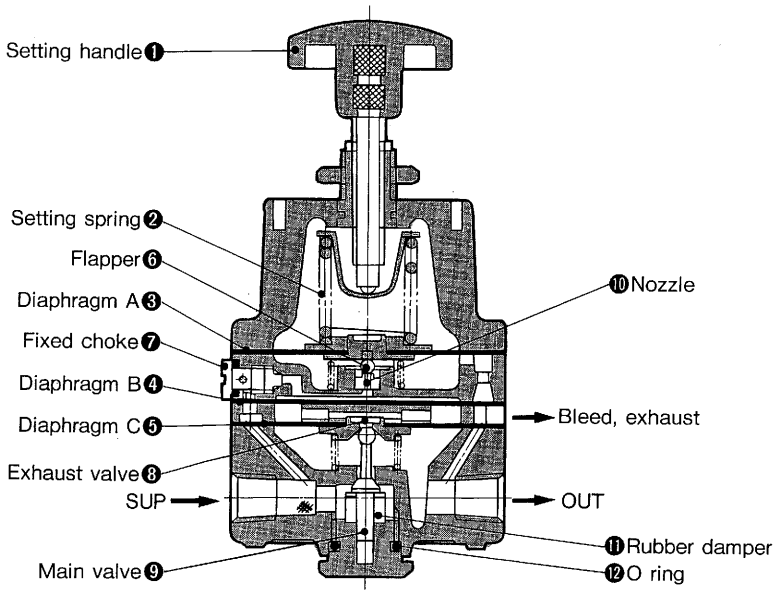
IR201-02



IR202-02



Construction/Operation principle/Spare parts



Clockwise rotation of setting handle ❶ pushes flapper ❻ down to close nozzle ❿. Supply pressure then bleeds into chamber through fixed choke ❼ to act on diaphragm B ❹. This pushes diaphragm assembly down thus opening main valve ❾, allowing supply pressure to flow to outlet. This increased pressure acts on both diaphragm C ❺ and diaphragm A ❸ by means of internal flow paths. The action on diaphragm C ❺ pushes diaphragm upwards thus closing main valve ❾ while the action on diaphragm A ❸ pushes set spring upwards thus opening flapper nozzle. Which decreases pressure on diaphragm B ❹ thus creating a balance resulting in the set pressure as required. Overpressure at the outlet pushes up diaphragm A ❸ and diaphragm C ❺. The upward pressure on diaphragm A ❸ opens flapper/nozzle to decrease, pressure on diaphragm B ❹, while the increased forward pressure also aids to push up diaphragm C ❺, thus opening relief valve to allow forward pressure to bleed away to atmosphere until set pressure is reached. This balancing principle results in a very accurate precision regulation device by use of the flapper/nozzle system.

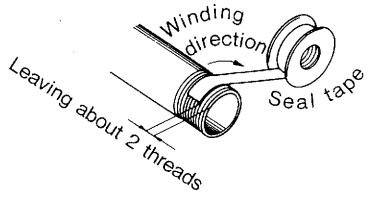
Spare parts list

No.	Description	Material	Part No.
❸	Diaphragm A assembly	NBR Aluminum alloy	23040-1
❹	Diaphragm B	NBR	230498
❺	Diaphragm C assembly	NBR Aluminum alloy	23040-4
❼	Fixed choke assembly(with O ring)	Stainless steel, NBR	230230A
❾	Valve assembly	Stainless steel, NBR, Brass	23040-5
⓫	Rubber damper	NBR	230422
⓬	O ring	NBR	JIS B2401 P11 1 Class A

Precautions

❶Ensure to flush piping thoroughly befor connection to ensure no chips, cutting oil, dust, etc, is present in the system.

❷Take care to ensure no chips, threads or sealant enters the ports while connecting piping. When winding with sealant tape, ensure to leave first 1.5 to 2 threads free of tape.



❸Ingress of drain fluid or dust at the inlet can degrade operation by clogging of the fixed choke. Therefore, a mist separater (series AM) should be employed in addition to standard air filter (series AF). Refer to our Air Cleaning Equipment (Catalog No. CAT. E3G) for the correct quality of air supply.

❹Ensure routine maintenance of air filter and mist separater. (Drain exhaust and element cleaning or replacement).

❺Lubrication should not be used at the supply side because the fixed choke may become clogged resulting in poor operation of the regulator.
If lubrication is required by the terminal equipment, a lublicator can be connected to the output side of the regulator.

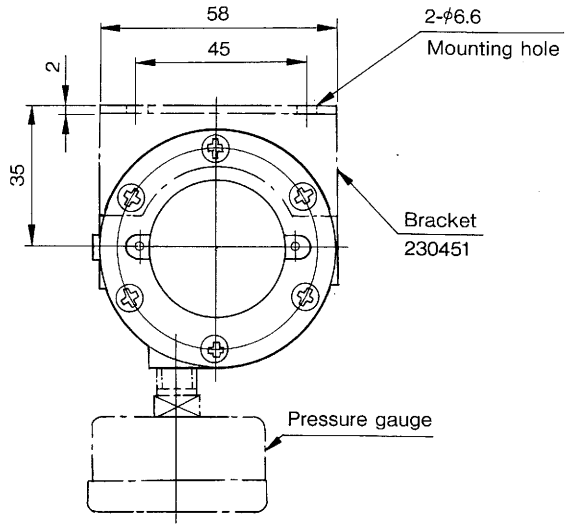
❻For mounting, connect in direction of the arrow which indicates the correct air flow direction .

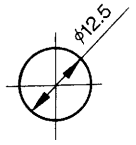
❼Repeated ON-OFF operation of a directional control valve (solenoid valve, mechanical valve, etc.) in the supply line of the regulator may cause some lag of the set value through wear of the nozzle and flapper parts.
Therefore, a directional control valve should not be used in the supply line but can be used at the output of the regulator.

❽Air is usually constantly exhausted from the bleed opening (horizontal hole in the body central portion). This air consumption is necessary for correct operation of the precision regulator. Exhaustion of air is normal operation.

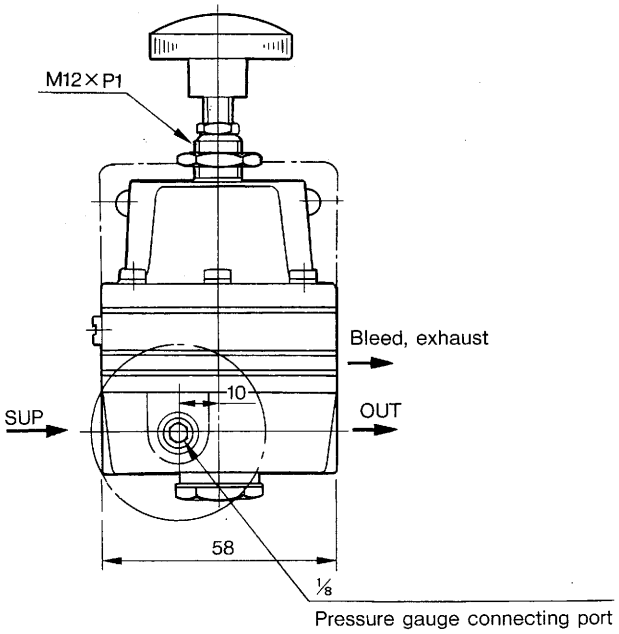
Precision Regulator/Series IR200

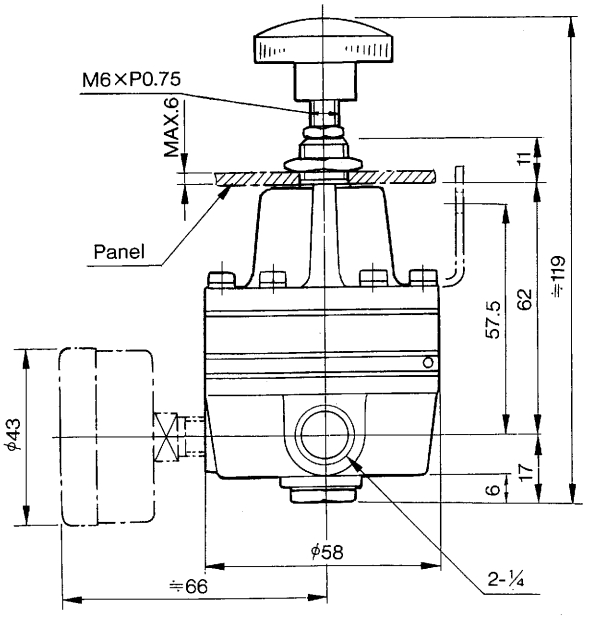
Dimensions





Panel mounting hole





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