70% less air consumption.

An eco-friendly, new type of precision regulator: the RPE Series.

Significant reduction in air consumption is achieved with the special structure (compared to CKD conventional products).
In addition, excellent control performance, high precision and compact size are also achieved.
Precise tension control, etc., can be used in various applications.

70% less air consumption

Air bleed is significantly reduced compared to CKD conventional products. (Comparing identical conditions at primary pressure 0.7 MPa)

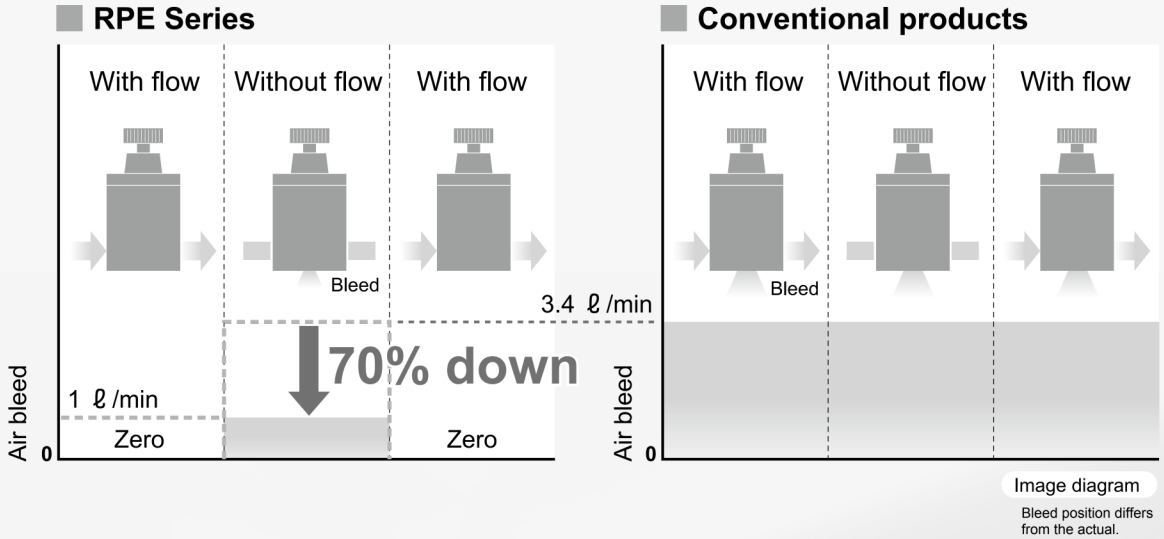


Image diagram
Bleed position differs from the actual.

High-precision pressure control

Repeatability: Within ±0.5% of full scale
Sensitivity: Within 0.2% of full scale

Compact □42 mm/lightweight 250 g

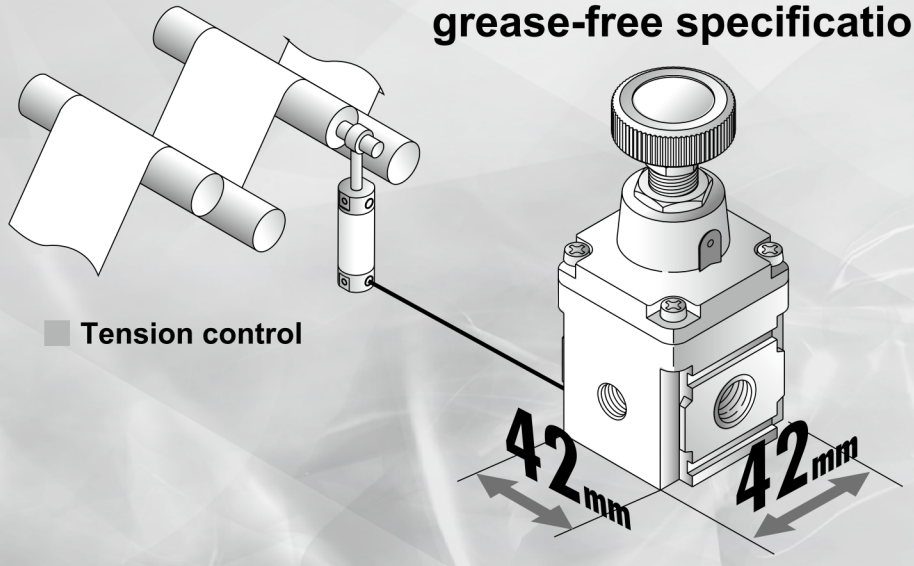
Aluminum materials used, compact/lightweight design.

Ozone-proof materials are used as standard in movable parts

Module type

Can be connected with C1000 Series filter and oil mist filter.

Fluid passage section grease-free specifications

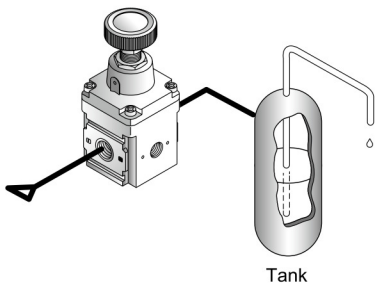


Tension control

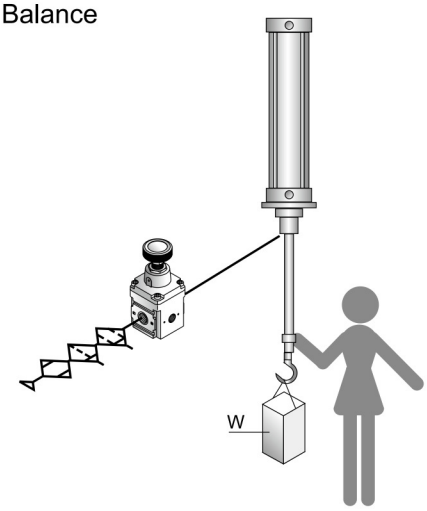
RPE Series

Applications

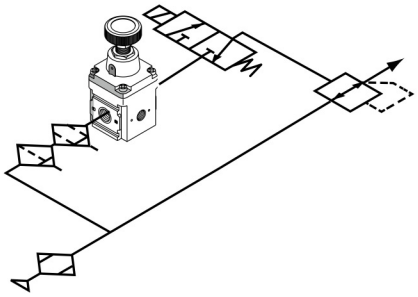
■ Fluid discharge control



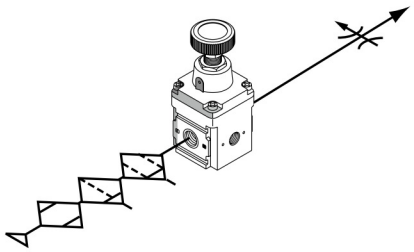
■ Balance



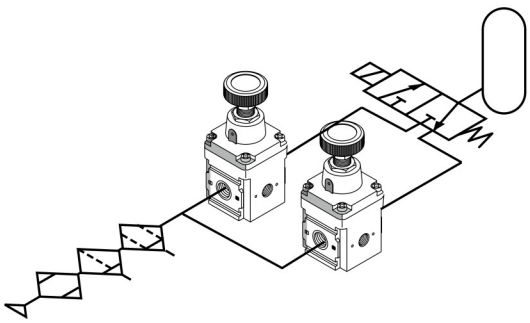
■ Pilot pressure control



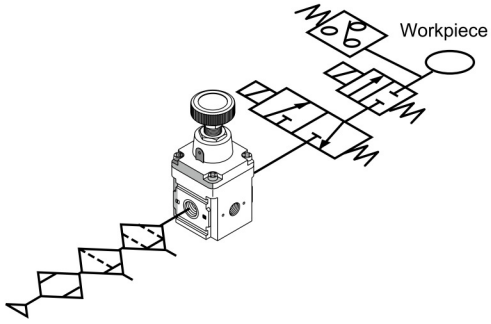
■ Very low pressure blow

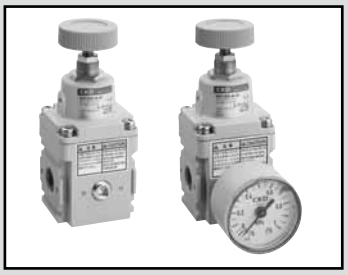


■ Quick pressure regulation of tank pressure



■ Leakage test

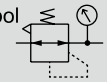




Precision regulator

RPE1000 Series

● Port size: Rc1/4

JIS symbol 

RoHS CAD

Specifications

Descriptions		RPE1000-8-07
Working fluid		Compressed clean air (refer to recommended air circuit on page 440)
Max. working pressure	MPa	1.0 (≈150 psi, 10 bar)
Min. working pressure	MPa	Set pressure +0.1 (≈15 psi, 1 bar) *1
Proof pressure	MPa	1.5 (≈220 psi, 15 bar)
Ambient / fluid temperatures	°C	-5 (23°F) to 60 (140°F) (no freezing)
Set pressure	MPa	0.01 (≈1.5 psi, 0.1 bar) to 0.7 (≈100 psi, 7 bar)
Sensitivity		Within 0.2% of full scale
Repeatability		Within ±0.5% of full scale
Air consumption *2	ℓ/min(ANR)	0.2 or less
Port size		Rc1/4
Pressure gauge port size		Rc1/8
Weight	g	250 *3

*1: Flow rate of the secondary side is to be zero.
*2: Conditions where the primary pressure is 0.7 MPa and air is consumed in the secondary side. Air is released to the atmosphere at 1 ℓ/min or less from EXH port when there is no air consumption.
*3: For weight when Ⓒ attachment is included, add the following weight. Pressure gauge: 74 g, bracket: 30 g

How to order

RPE1000 - 8 (Ⓐ) - 07 (Ⓑ) - G10B3 (Ⓒ)

Model
RPE1000: Precision regulator

Ⓐ Port size		Ⓑ Set pressure range	
8	Rc1/4	07	MAX.0.7 MPa

Ⓒ Other attachments	
Blank	Without attachment
G02	Pressure gauge (G45D-6-P02)
G04	Pressure gauge (G45D-6-P04)
G10	Pressure gauge (G45D-6-P10)
B3	L type bracket (B131)

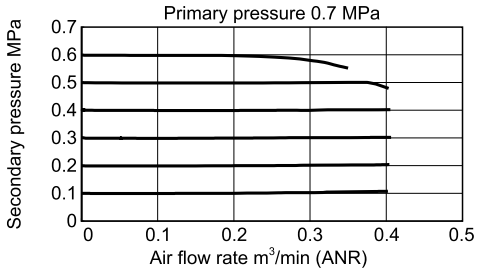
*1: A pressure gauge and a bracket are enclosed.
*2: The pressure gauge range is to be selected.
Do not apply pressure exceeding the pressure gauge's MAX range.
*3: One R1/8 plug is enclosed with the product.

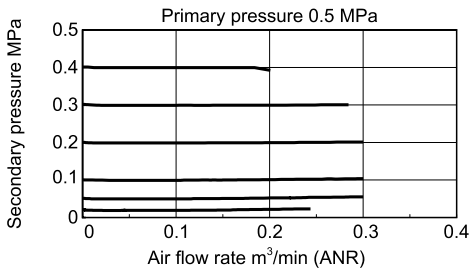
Specifications for rechargeable battery (Catalog No. CC-1226A)

● Structure compatible with rechargeable battery manufacturing process

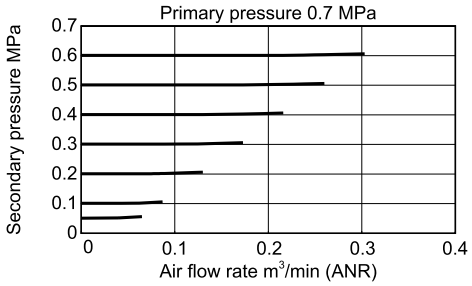
RPE1000 ..... P4

Flow characteristics

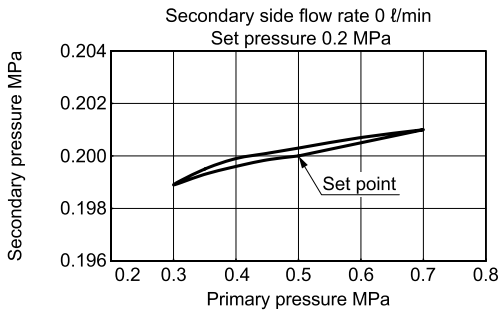




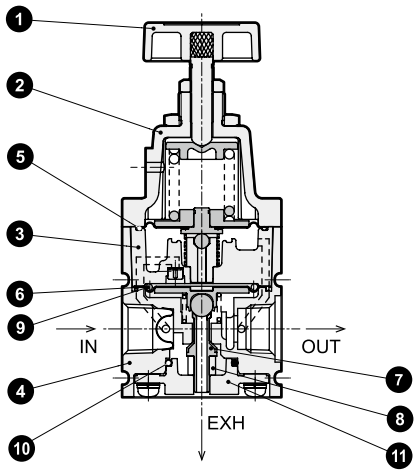
Relief flow characteristics



Pressure characteristics

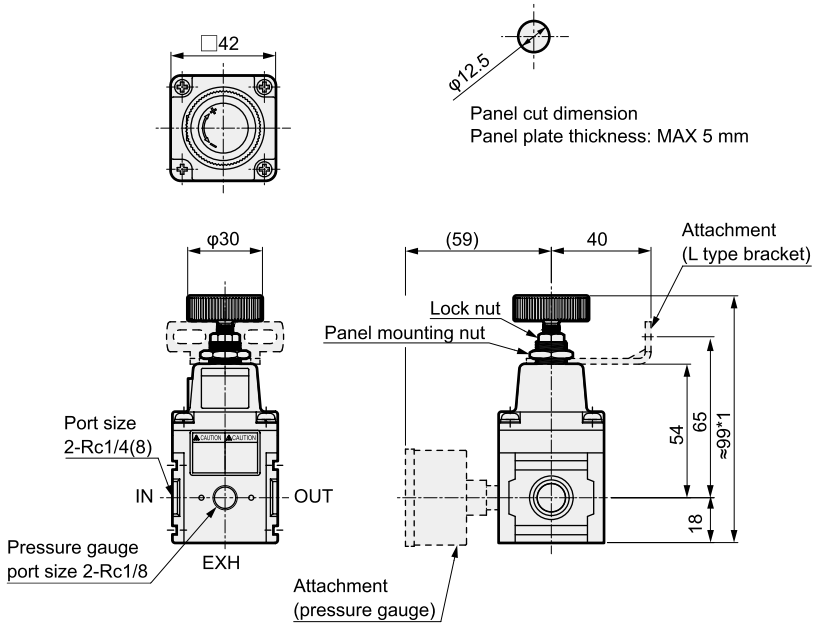


Internal structure and parts list



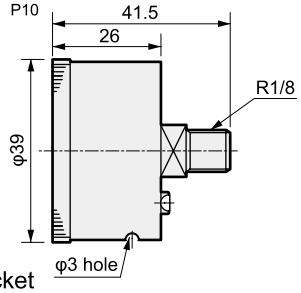
No.	Part name	Material
1	Pressure adjustment knob	Polyacetal resin, stainless steel
2	Cover	Aluminum alloy die-casting
3	Pilot body assembly	Aluminum alloy die-casting, etc.
4	Body	Aluminum alloy die-casting
5	Pilot diaphragm assembly	Hydrogenated nitrile rubber, zinc alloy die-casting
6	Main diaphragm assembly	Hydrogenated nitrile rubber, zinc alloy die-casting
7	Valve	Hydrogenated nitrile rubber, stainless steel
8	Bottom rubber	Silicone rubber
9	O-ring	Nitrile rubber
10	O-ring	Hydrogenated nitrile rubber
11	Bottom plug	Polybutylene terephthalate resin

Dimensions



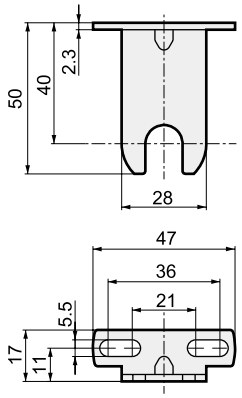
*1: Dimensions at the setting pressure of 0 MPa
*2: Pressure gauge and bracket are optional.

Pressure gauge
· G45D-6- P02 P04 P10



L type bracket
/ B131

· Weight: 29 g
· Material: Steel
Nickel plated



(Reference) Guideline for cylinder operation speed

Cylinder bore size (mm)	Recommended operation speed (mm/s)
φ40	500 or less
φ50	320 or less
φ63	200 or less
φ80	130 or less
φ100	80 or less

This is a guideline for operation speed obtained by calculating the air supply and exhaust flow rate of the precision regulator mounted directly to the cylinder and the required consumption flow rate at one cylinder PUSH/PULL. Using at a higher capacity than the capacity of the precision regulator may cause malfunctions.

Safety Precautions

Be sure to read this section before use.
Refer to Intro Page 63 for precautions for general pneumatic components.

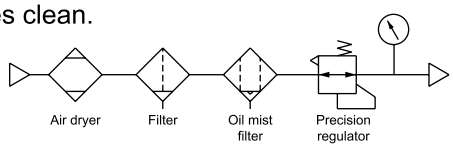
Product-specific cautions: Precision regulator RPE1000 Series

Design/selection

⚠ WARNING

■ Use the product in the range of conditions specified for the product.

■ Working fluid must be clean air from which solids, water and oil have been sufficiently removed using an air dryer, filter and oil mist filter. Never supply oiled air. As well, when secondary side pressure, etc., is turned OFF, air on the secondary side will pass through the regulator and be discharged from the EXH port. Thus, if secondary piping or load side interior is dirty, malfunction, characteristics deterioration, etc., may occur. Keep the inside of the pipes clean.



⚠ CAUTION

■ Keep the pressure difference between the primary and secondary sides to 0.1 MPa or more.
Depending on the circuit used and usage conditions, pulsation or noise may occur due to the resonance of the airflow (especially when blowing air). In this case, increase the secondary side capacity or use the primary pressure as low as possible.

■ Pulsation may occur when capacity is insufficient, such as when a switch valve is installed directly to the secondary side of the regulator. In such a case, increase the secondary side capacity of the regulator for use.

■ If the regulator is repeatedly turned ON and OFF with the directional switching valve on the primary side, the set pressure may change greatly. Thus, the directional switching valve should be installed on the secondary side.

■ Output pressure exceeding the regulator's set pressure could result in damage or faulty operation of the secondary side devices. Be sure to install a safety device.

■ Do not operate the pressure adjustment knob while the primary side is released to the atmosphere, as performance could deteriorate.

■ Select the RP2000 Series if the maximum flow rate of the regulator exceeds the maximum relief flow rate.

Mounting, installation and adjustment

⚠ CAUTION

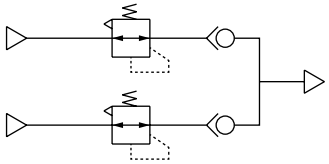
■ Check IN and OUT indications indicating the air inlet and outlet before connecting. A reverse connection could result in improper operation.

■ Do not move or swing the product by the pressure adjustment knob.

■ Do not install this product in a location where it may be subject to vibrations or shocks.

■ Flush air pipes before connecting the regulator.

■ Use sealing tape when piping. Do not use liquid and solid sealant. In addition, ensure that the sealing tape does not enter.



■ When using in parallel as shown at left, do not use the secondary side as a closed circuit. If a closed circuit is required, be sure to set a check valve on the respective secondary sides.

■ Install so that the EXH port is not plugged.

■ When installing on a panel, completely loosen and remove the pressure adjustment knob, insert the body into the φ12.5 panel hole, and fix it to the panel with the panel mounting nut. Then turn the pressure adjustment knob to attach it to the body. Panel mounting nut recommended tightening torque 2 to 3N·m

■ Use appropriate torque to tighten the pipes when connecting them.
- The purpose is to prevent air leakage and damage to bolts.
- First tighten the bolts by hand to ensure that the threads are not damaged, then use a tool.

[Recommended values]

Port thread	Tightening torque N·m
Rc1/8	3 to 5
Rc1/4	6 to 8

During use/maintenance

⚠CAUTION

■ Working fluid

- Use only compressed air. Air containing corrosive gases, fluids or chemicals could result in improper pressure adjustment due to body damage or rubber deterioration.

■ Environment

This product is an indoor use this product in the following environments.

- When ambient temperature exceeds the range of -5 to 60˚C.
- Where air freezes.
- Places where the unit will be exposed to dripping water and/or cutting oil.
- Highly humid places where dew condenses due to temperature fluctuations.
- Where salt air or splashing seawater contacts the product.
- In atmospheres containing corrosive gases, liquids and chemicals.
- Where the product is exposed to direct sunlight.
- Locations with vibration or impact.
- Locations where the surroundings are very dusty.

■ When using the product

- When there is no air consumption in the secondary side, air is released from the EXH port. As this is necessary for precise pressure control, do not block the EXH port. Air 1 ℓ/min or less is released into the atmosphere from the EXH port.
- Check primary pressure before setting pressure.
- Pressure higher than the primary pressure cannot be set.
- Turn the pressure adjustment knob clockwise to increase secondary pressure, and counterclockwise to lower pressure.
- After adjusting the pressure, tighten the lock nut, and then set the pressure adjustment knob.
- Since the set pressure also changes due to the changes in the ambient environment temperature, using at a constant temperature is recommended.
- Due to the product structure, the secondary side pressure may not be 0 MPa even if the pressure adjustment knob is completely loosened.

■ Maintenance

- Pneumatic components must be disassembled and assembled by qualified personnel.
- Pneumatic Pressure Skill Test Class 2 or higher level is required.
- Read the relevant product instruction manual thoroughly and fully familiarize yourself with the task before disassembling or assembling pneumatic components.
- Personnel must be fully familiar with pneumatic component structure and operational principles and safety requirements.
- Before conducting maintenance, turn the power OFF, stop the supply of pressure and make sure that there is no residual pressure.