



Pneumatic components

Safety precautions

Always read this section before starting use.

Refer to Intro 67 for general precautions for pneumatic components.

Compact direct operating precision regulator RJB500 Series

Design & Selection

CAUTION

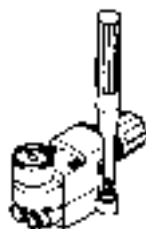
- Avoid using this product where strong pulsation of pressure or vibration is applied.
- Please consult with CKD for frequent operation.
- Set a $5\mu\text{m}$ or smaller air filter on the primary side of the regulator.
- Differential pressure between primary and secondary sides is to be 0.1 to 0.7 MPa.

- Even if primary and secondary pressure differ 0.7 MPa or less, secondary pressure may vibrate or make noise. In this case, lower primary pressure. If vibration or noise continues, contact CKD.
- On/Off using the direction switch valve on the regulator's primary side can cause set pressure to change greatly. The direction switch valve should be installed on the regulator's secondary side.
- When the set output pressure of regulator is exceeded, if damage and malfunction of devices at the secondary side could be caused, always provide a safety device.

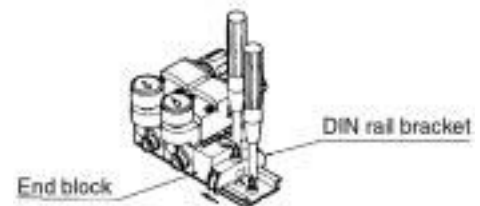
Installation & Adjustment

CAUTION

- When transporting or installing the product, do not apply impact such as falling, etc, or failure of indicator accuracy may be caused.
- Do not install the product where it is high temperature or humidity, or may cause a failure.
- When installing a pressure gauge, screw the gauge into using a wrench on across floats of square section. If another section is used on, air leakage or damage may be caused.
- When installing or piping, observe following matters.
 - Check the IN arrow showing air inlet before connecting. If connected reversely, malfunction may be caused.
 - Do not move and swing products with gripping adjustment knob.
 - When installing a compact regulator, use M4 plain washer attached screws, and fix them with tightening torque 1.4 to 2.0 N·m or less.



- When installing a block manifold with DIN rail, fix the DIN rail, while pinching the bracket by end blocks of manifold. Recommended tightening torque of DIN rail bracket is 1.4 to 2.0 N·m. Fix DIN rail bracket, while making no gaps between end blocks. Care must be taken when expanding, maintaining or disassembling regulator blocks.



- Avoid installation where vibration or impact is applied.
- Flash the pipe carefully before installation.
- When assembling a pressure gauge or extending joint to a pressure gauge port, fix the part with tightening torque 3.5N·m or less.

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact cont. SW
Air sensor
Pressure SW for coolant
Small flow sensor
Small flow controller
Flow sensor for air
Flow sensor for water
Total air system
Total air system (Gamma)

Ending

Compact direct acting precision regulator
F.R.L. unit

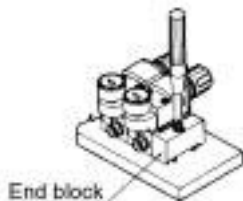
Installation & Adjustment

CAUTION

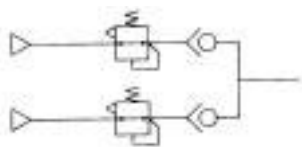
- When installing the product directly without using DIN rail (direct mount), fix end blocks on both sides with M4 set screws.

Recommended tightening torque is 1.4 to 2.0 N·m.

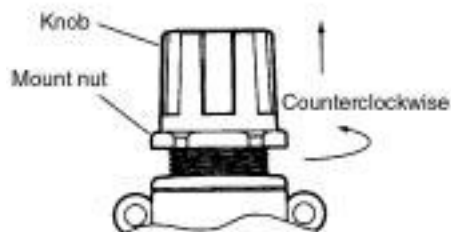
Install the product on fully flat plane. If the sheet plane is small, an external pressure from top may result in damaging manifold connection section. If flat sheet plane is not secured, use DIN rail mount type.



- When using in parallel as below, out side of circuit must not be closed. If closed circuit is required, install a check valve on each OUT side.



- When installing to a panel, loosening the mount nut, the nut function as a jack, so the knob is removed easily. Fix the product on a panel with a mount nut.



- Connecting a regulator, push-in joint is used. Tube coming off or air leakage could occur depending with outer diameter precision, wall thickness or hardness of piping tube. Use CKD specified tube. When mounting or dismounting a joint, press the release ring equally, while not twisting, then pull out the tube. When using a tube once used, cut the section having mark of chuck jaw.

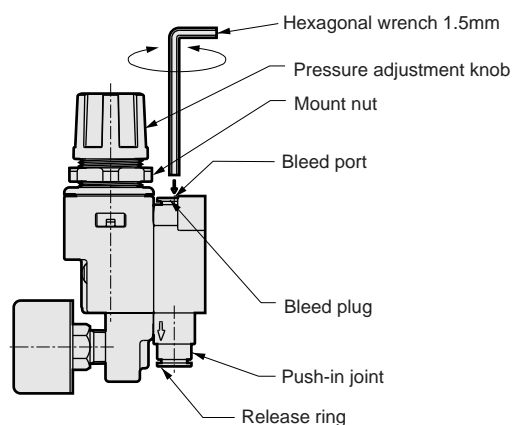
Tube	O.D. (mm)	O.D. tolerance (mm)	Bore size (mm)	Min. bending range (mm)
Soft nylon F-1500 series	φ 4	±0.1	φ 2.5	10
	φ 6		φ 4	20
	φ 8		φ 5.7	30
Urethane U-9500 series	φ 4	+0.1	φ 2	10
	φ 6	-0.15	φ 4	20
	φ 8	+0.1	φ 5	30
Urethane NU series	φ 4	±0.1	φ 2.5	8
	φ 6		φ 4.5	15
	φ 8		φ 6	24

- Insert piping tube into push-in joint certainly and check that tube does not dislocate before starting use.
- For tube used with push in joint, cut the tube to right angle by the dedicating tool.
- Adjusting constant bleed

Constant bleed is adjusted by turning the set screw in the constant bleed port, increasing it in proportion to the set pressure but if set pressure is 0.1 MPa or more to decrease it. In low pressure ranges, constant bleed should be increased to improve sensitivity.

Constant bleed is set to 1.5 ℓ/min (ANR) before the product is shipped from CKD. Insert a hexagon wrench into the constant bleed port and adjust the rate. After adjustment, confirm that set pressure does not increase.

When adjusting pressure constant bleed, do not turn the hexagon wrench fully closed. It will not be possible to adjust pressure and damage could occur.



During Use & Maintenance

⚠ CAUTION

■ Working air quality

- Use clean compressed air filtered with 5 μ m of air filter.
- Do not use the product with other than compressed air. Air containing corrosive gas, liquid and chemical may result in pressure adjustment failure, damage to body or rubber swelling.

■ Working environment

Avoid using the products in following environment.

- When ambient temperature exceeds range of 5 to 60°C.
- Where water drip and cutting lubricant contact to the product.
- Where it is humid, temperature fluctuates and dew condensates.
- Where splash of salt air or sea water contacts to the product.
- If there is atmosphere of corrosive gas and liquid and chemical material.
- Where the product is exposed to direct sun lay.

■ Pressure management

- Confirm primary pressure before setting.
- Pressure higher than the primary pressure can not be set.
- If pressure adjustment knob is rotated clockwise, the secondary pressure increases, while counterclockwise, the pressure decreases. When adjusting pressure pull up the knob to check that lock is not applied.
- Pressure is set in the depressurizing direction (high pressure → low pressure), so a highly precise setting can be made.
- Lock the pressure adjustment knob after setting pressure.
- Air constantly leaks from the bleed hole. This is necessary for precise pressure control, so do not plug the hole.
- When setting pressure, turn the secondary direction switch valve several times and confirm set pressure. Failure to confirm pressure could cause set pressure to change greatly.

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