



Pneumatic components (F.R.L. unit (compact type))

Safety precautions

Always read this section before starting use.

Refer to Intro 67 for general precautions for pneumatic components, and to "▲ Safety precautions" in this section for detailed cautions pertaining to each series.

Compact regulator RB500 Series

Design & Selection

▲ CAUTION

- Avoid using this product where strong pulsation of pressure or vibration is applied.
- When installing between a solenoid valve and actuator, avoid use of this product in the circuit with back pressure is applied.
- Differential pressure between primary and secondary sides is to be 0.1 MPa and over.

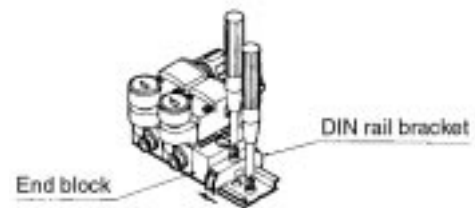
- In some case, the product could not be used in a sealed circuit at the secondary side or in balance circuit, so please consult with CKD.
- When the set output pressure of regulator is exceeded, if damage and malfunction of devices at the secondary side could be caused, always provide a safety device.
- Avoid use in applications released into the atmosphere.

Installation & Adjustment

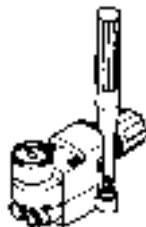
▲ CAUTION

- 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 flats 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 screw, and fix them with tightening torque 1.4 to 2.0 N·m or less.

- When installing 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 pressure gauge or extending joint to pressure gauge port, fix the part with tightening torque 3.5 N·m or less.



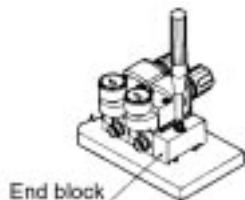
Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
F.R.L. (Separate)
Compact F.R.
Precise regulator
F.R.L. (Related products)
Clean F.R.
Electro pneumatic regulator
Air booster
Speed control valve
Silencer
Check valve / others
Joint / tube
Vacuum filter
Vacuum regulator
Suction plate
Magnetic spring buffer
Mechanical pressure SW
Electronic pressure SW
Contact / close contact conf. 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

Refrigerating type dryer
Desiccant type dryer
High polymer membrane dryer
Air filter
Auto. drain / others
F.R.L. (Module unit)
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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

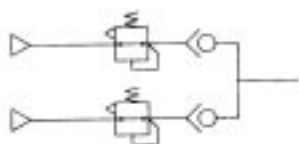
F. R. L. unit

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

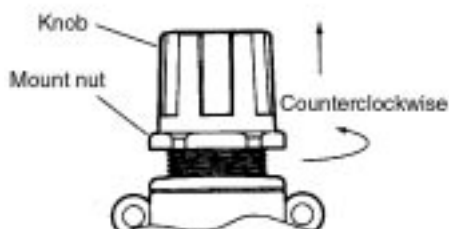
Recommended tightening torque is 1.4 to 2.0 N·m. Install the product on fully flat plane. If the sheet plane is small, an external pressure from top may result in damaging manifold connection section. If flat sheet plane is not secured, use DIN rail mount type.



- 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)	Tolerance of outer diameter (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 -0.2	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.

During Use & Maintenance

⚠ CAUTION

■ Working air quality

- Use clean compressed air filtered with 5μ 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.
- Service life could be shortened due to splashed lubricant and rubber part deterioration when using ultra dry air.

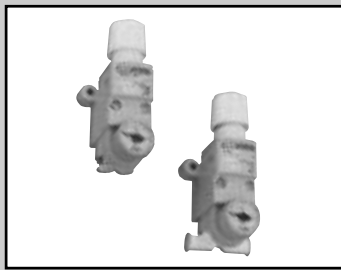
■ Working environment

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

- 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 higher than the primary pressure can not be set.
- Conduct pressure setting to increase, then lock pressure adjustment knob after pressure setting.



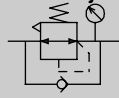
Compact regulator

RB500 Series

Compact, space saving structure and reverse flow function integrated.

Port size: Push-in joint $\phi 4$, $\phi 6$

JIS symbol



Specifications

Descriptions		RB500
Working fluid		Compressed air
Max. working pressure	Mpa	1.0
Withstanding pressure	Mpa	1.5
Ambient temperature range	°C	5 to 60
Set pressure range	Mpa	0.05 to 0.7 (Note 1)
Relief		With relief mechanism
Port size	IN-OUT	Push-in joint: $\phi 4$, $\phi 6$
	GAUGE	Rc1/8
Product weight	g	80

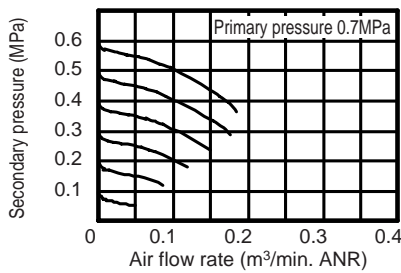
Ozone specifications (Ending 14)

RB500- - P11

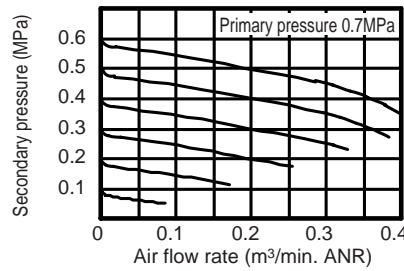
Note 1: Low pressure specifications are 0.05 to 0.35.

Flow characteristic

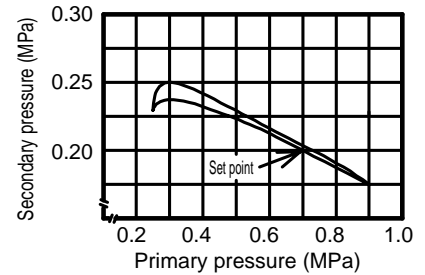
● RB500-SSC4



● RB500-SSC6



Pressure characteristic



How to order

RB500 - SSC4 - PG39

Model no.

A Connection

B Option

Symbol	Descriptions		
A Connection			
Direction	IN	S	Straight
		L	Elbow
	OUT	S	Straight
		L	Elbow
Port size	C4	$\phi 4$	
	C6	$\phi 6$	
B Option			
Panel mount Note 2	Blank	Without nut	
	P	With nut	
Pressure range	Blank	0.05 to 0.7MPa (pressure gauge: G29D-6-P10)	
	L	0.05 to 0.35MPa (pressure gauge: G39D-6-P04)	
Relief	Blank	Relief type	
	N	Nonrelief type	
Pressure gauge	Blank	With pressure gauge	
	T	Without pressure gauge (gauge port Rc1/8)	
	G39	With pressure gauge (G39D-6-P10)	

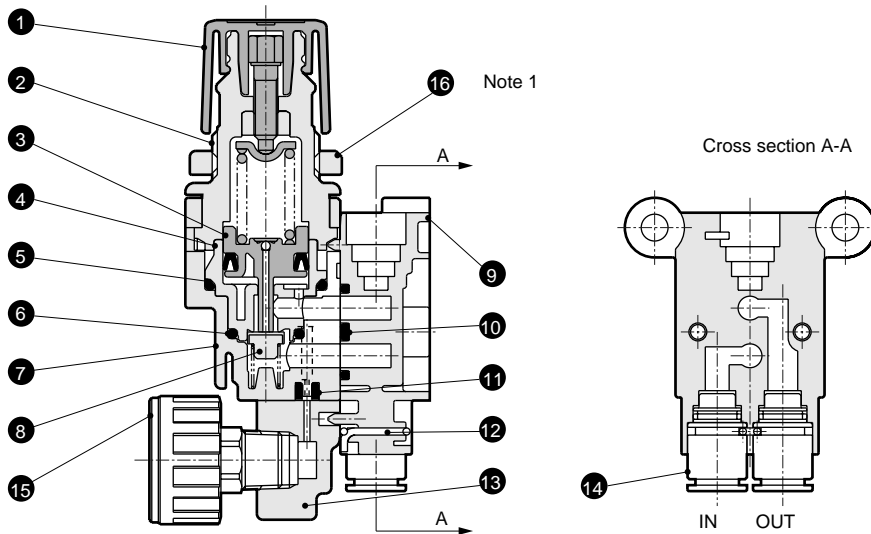
! Note on model no. selection

Note 1: $\phi 21$ 0 to 1.0MPa pressure gauge is provided as standard.

For low pressure, $\phi 27$ 0 to 0.4 MPa low pressure gauge is provided.

Note 2: For panel installation, indicate option symbol "P".

Internal structure and parts list



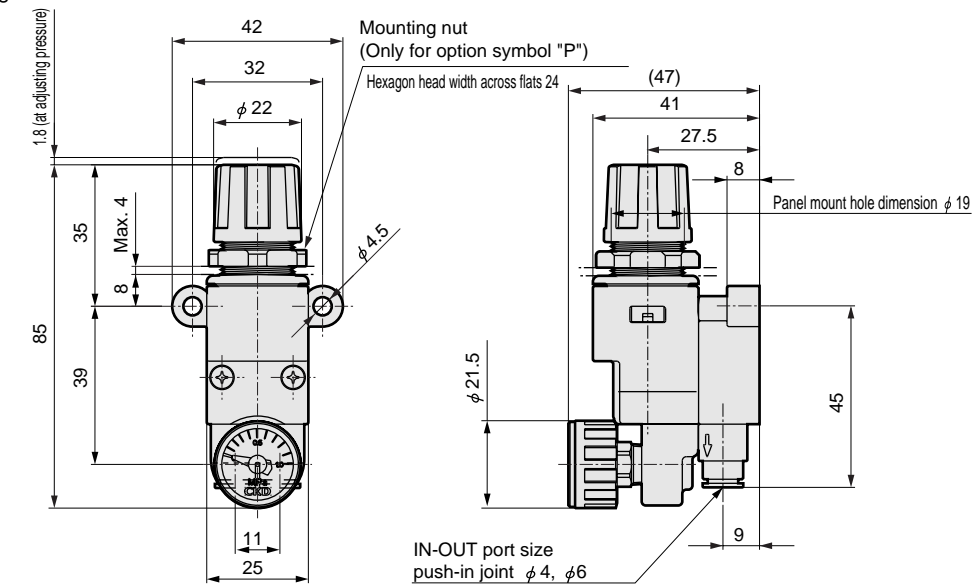
No.	Parts name	Material
1	Knob	Polyacetal resin
2	Guard	Polyamide resin
3	Piston assembly	Polyacetal resin, nitrile rubber
4	Piston guide	Polyacetal resin
5	O ring	Nitrile rubber
6	O ring	Nitrile rubber
7	Body	Polyamide resin
8	Valve element	Aluminum, hydrogen nitrile rubber
9	Piping block assembly	Polyamide resin, steel
10	Body packing seal	Hydrogen nitrile rubber
11	Packing seal	Nitrile rubber
12	Stop pin	Stainless steel
13	Gauge plug	Polyamide resin
14	Cartridge joint	
15	Pressure gauge	
16	Mounting nut	Polyacetal resin

Note 1: A mounting nut is optional.
Nut is attached only for option symbol "P".

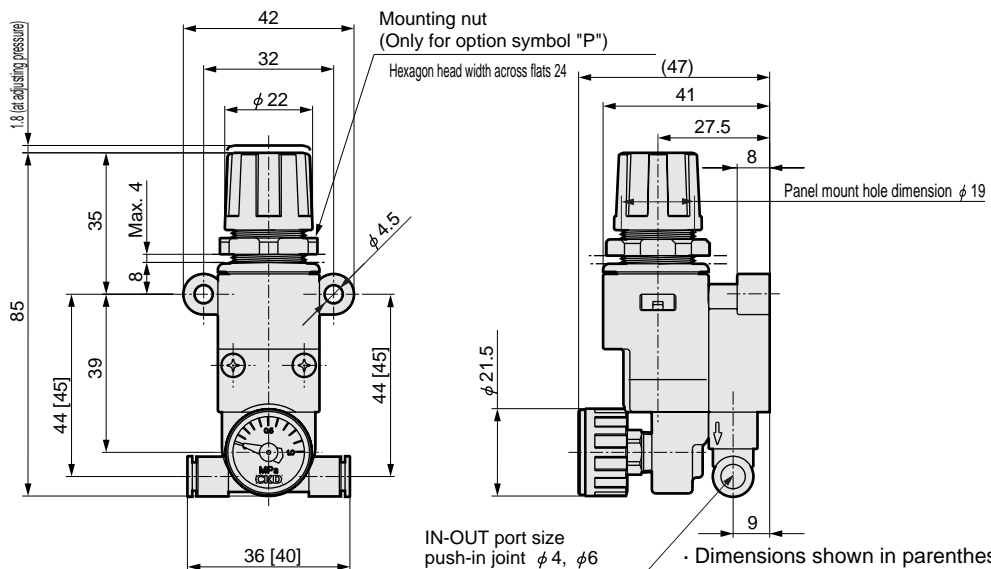
Dimensions



● RB500 straight piping



● RB500 elbow piping



Dimensions shown in parentheses are for push-in joint $\phi 6$.

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Ending

Compact regulator
F.R.L. unit