Safety Precautions

Be sure to read this section before use.

When designing and manufacturing a device using CKD products, the manufacturer is obligated to check that device safety mechanism, pneumatic control circuit, or water control circuit and the system operated by electrical control that controls the devices is secured.
It is important to select, use, handle, and maintain CKD products appropriately to ensure their safe usage.
Observe warnings and precautions to ensure device safety.
Check that device safety is ensured, and manufacture a safe device.

WARNING

1 This product is designed and manufactured as a general industrial machine part.
It must be handled by an operator having sufficient knowledge and experience.

2 Use this product in accordance with specifications.

This product must be used within its stated specifications. In addition, never modify or additionally machine this product.
This product is intended for use in general industrial machinery equipment or parts. It is not intended for use outdoors (except for products with outdoor specifications) or for use under the following conditions or environments.
(Note that this product can be used when CKD is consulted prior to use and the customer consents to CKD product specifications. The customer must provide safety measures to avoid risks in the event of problems.)

❶ Use for special applications including nuclear energy, railways, aircrafts, marine vessels, vehicles, medicinal devices, devices or applications coming into contact with beverages or foodstuffs, amusement devices, emergency cutoff circuits, press machines, brake circuits, or safety devices or applications.
❷ Use for applications where life or assets could be adversely affected, and special safety measures are required.

3 Observe organization standards and regulations, etc. related to the safety of device design and control, etc.

ISO4414, JIS B 8370 (General rules for pneumatic systems)
JFPS2008 (Principles for pneumatic cylinder selection and use)
Including High Pressure Gas Safety Act, Occupational Safety and Health Act, other safety rules, organization standards and regulations, etc.

4 Do not handle, pipe or remove devices before confirming safety.

❶ Inspect and service the machinery and equipment after confirming safety of the entire system related to this product.
❷ Note that there may be hot or charged sections even after operation is stopped.
❸ When inspecting or servicing the device, turn off the energy source (air supply or water supply), and turn off power to the facility. Discharge any compressed air from the system, and pay enough attention to possible water leakage and leakage of electricity.
❹ When starting or restarting the machinery and equipment using pneumatic components, make sure that the system safety, such as pop-out prevention measures, is secured.

5 Observe warnings and cautions in the following pages to prevent accidents.

■ The precautions are ranked as "DANGER", "WARNING" and "CAUTION" in this section.

⚠ DANGER:	If handled incorrectly, an imminently dangerous situation may occur, resulting in death or serious injury.
⚠ WARNING:	If handled incorrectly, a dangerous situation may occur, resulting in death or serious injury.
⚠ CAUTION:	If handled incorrectly, a dangerous situation may occur, resulting in minor injury or property damage only.

Note that some items indicated with "CAUTION" may lead to serious results depending on the conditions.
All items contain important information and must be observed.

Limited warranty and disclaimer

1 Warranty period

This warranty is valid for one (1) year after delivery to the customer's designated site.

2 Scope of warranty

If any faults, found to be the responsibility of CKD, occur during the above warranty term, the product shall be replaced, the required replacement parts provided free of charge, or shall be repaired at the CKD factory free of charge.
Note that the following faults are excluded from the warranty scope:
(1) Failures due to use outside the conditions and environments set forth in the catalog or these specifications.
(2) Failures resulting from factors other than this product.
(3) Failures caused by improper use of the product.
(4) Failures resulting from modifications or repairs made without CKD consent.
(5) Failures caused by matters that could not be predicted with the technologies in practice when the product was delivered.
(6) Failures resulting from natural disasters or accidents for which CKD is not liable.
The warranty covers the actually delivered product, and does not cover any damage resulting from losses induced by faults in the delivered product.

3 Compatibility check

The customer is responsible for confirming the compatibility of CKD products with the customer's systems, machines and equipment.

Safety precautions

Pneumatic components Warnings/cautions

Be sure to read this section before use.
Refer to "Pneumatic, Vacuum and Auxiliary Components (No. CB-24SA)" for general precautions.

Speed controller with dial

Design/selection

WARNING

■ Do not constantly push down or apply a load onto the push-ring of the push-in fitting.
- The tube may lose its ability to hold.
- When transporting an assembled product, avoid positions in which the push ring is constantly pressed down.

CAUTION

■ This valve cannot be used as a stop valve that has no leakage.
Due to structure, a few leakage could occur.

■ Note that the flow rate may differ from the values on page 3 and page 8 depending on the piping conditions around the unit and the temperature changes.

■ Do not use this valve in circuits where ozone is generated intentionally.
Ozone resistance is sufficient for naturally generated ambient ozone. Packing deteriorates if ozone levels are high.

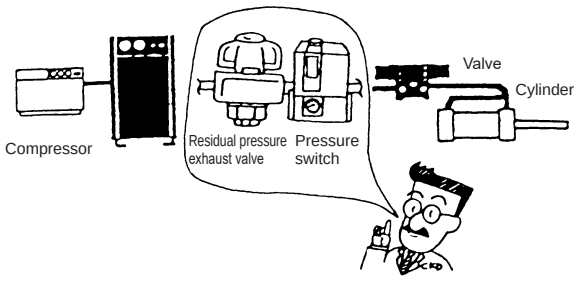
■ This product is used for compressed air. Do not use with other fluids.

■ Use this product in accordance with the specifications range.
Contact CKD when using the product outside specifications or for special applications.
- Use with exceeding the specifications range may result in insufficient performance, and safety cannot be secured.
- This product could not be used in special applications and environment.
For example, use for special applications including nuclear energy, railway, aircraft, vehicle, medical equipment or applications coming into contact with beverage or food, amusement equipment, emergency shutoff circuits, press machine, brake circuits, or for safeguard.

■ Confirm that the product will withstand the working environment.
- This product cannot be used in environments where functional obstacles could occur.
Such environments include high temperatures, chemical atmospheres, or where chemical liquids, vibration, moisture, water dripping or gas is present.
Environments where ozone is generated.
- Do not use the product in places that the product could directly contact with cutting oil, coolant, or spatter.

■ Understand compressed air features before designing a pneumatic circuit.
- The same functions as mechanical, hydraulic, and electrical methods cannot be anticipated when instantaneous holding emergency stop is required.
- Pop-out, air discharge, or leakage due to air compression and expansion could occur.

■ Install a "pressure switch" and "shut-off valve" on the device's compressed air supply side.
- The pressure switch will disable operation until the set pressure is reached. The shut-off valve releases compressed air into the pneumatic pressure circuit to prevent accidents caused by operation of pneumatic components under residual pressure.



■ Confirm whether PTFE can be used.
The sealant contains PTFE (polytetrafluoroethylene resin) powder. Check that this poses no problem during use.

■ Indicate the maintenance conditions in the device's instruction manual.
- The product's performance may drop too low to maintain an appropriate safety level depending on usage conditions, working environment and maintenance status. With correct maintenance, the product functions can be used to the fullest.

■ Contact CKD if ozone could occur in supplied air.

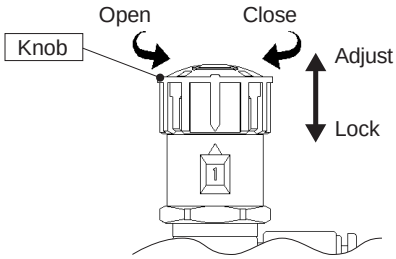
■ Rubber parts deteriorate and life is shortened if ultra dry air is used.

Mounting, installation and adjustment

⚠ CAUTION

■ The needle lock is released when the knob is pulled, and is locked when pressed.

■ To adjust the flow rate, turn the knob to the right to close or the left to open.



● When opened by rotating the knob on the left hand side, the rotary direction of the dial display is clockwise for standard and counterclockwise for compact.

■ Do not rotate the knob at an excessive speed.
● This may result in a distorted dial display or malfunctions.

■ Do not apply rotation torque to the dial display.
● This may result in distorted flow characteristics or malfunctions.

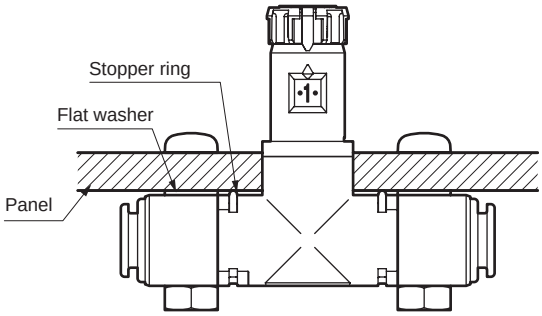
■ After adjustment, push the knob to lock the needle.

■ Controllable range of the needle is from 1 to 7 or 1 to 10 turns; operate with a maximum of 0.05 N·m torque.
Turning the knob more turns forcibly may result in wrong flow characteristics or malfunction.

■ Even when the needle is fully closed, the dial display is not 0.
Calibration of the dial indicator flow rate is performed when the needle is not fully closed. Note that 0 is not necessarily indicated when the needle is fully closed. Beyond "0", "-" is displayed.

■ Rotate the mounting hole section at no pressurized state.

■ When installing on a panel, the stopper ring will interfere with the panel, so insert a plain washer between the mounting hole and panel. (DSC-S)



■ Tighten bolts in mounting holes using a torque of 0.8 N·m or less.

■ Tubing could dislocated if the product oscillates or twists, so fix it with bolts or cable ties, etc., when piping.

■ Fully close the needle, and open to adjust speed.
● If adjustment is made when the needle is opened, the actuator could suddenly and dangerously pop out. Ensure that it is closed and then open it.
● The needle closes when turned to the right and opens when turned to the left.

■ Check the flow direction with the JIS symbol.
If installed in reverse, speed adjustment will not be applied and the actuator could pop out, posing a hazard.

■ Check the final speed each time of use.
Check the final speed each time of use since it should be adjusted depending on individual variability of the products and actuators, use condition and ambient temperature.

■ Install an air filter before the circuit.
Flow rate may change due to clogging and foreign matter in the orifice.

■ Use the specified tightening torque (Table 1-(1)) when connecting pipes.To additionally tighten to adjust the position of the rotation indicator window, use the torque in (Table 1-(2)).
Do not hold the knob when piping. Doing so may cause failures. Note that the port size M5 cannot be aligned by additional tightening.

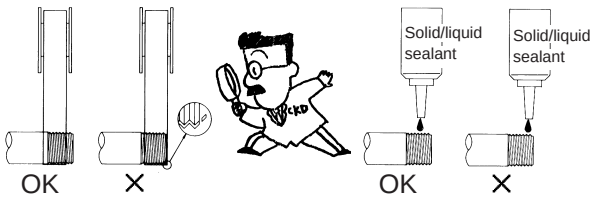
Screw size	(1) Piping (N·m)	(2) Additional tightening (N·m)
M5	1.0 to 1.5	-
R1/8	3 to 5	9 or less
R1/4	6 to 8	14 or less
R3/8	13 to 15	24 or less
R1/2	16 to 18	30 or less

Tightening torque of port thread (Table 1)

■ Securely insert the tube until it contacts the fitting's tube end, and check that it does not come off the fitting.

■ Do not remove the package or seal cap on the piping port until just before piping the product.
● If the piping port cap is removed from the piping port before piping work is started, foreign matter could enter the pneumatic component from the piping port and result in faults or faulty operation.

■ When connecting pipes, wrap sealing tape in the opposite direction from threads starting 2 mm inside from the end of piping threads.
● If sealing tape protrudes from pipe threads, it could be cut when screwed in. This could cause the tape to enter the pneumatic components and lead to faults.



■ Handling push-in fittings and tubes
● For handling push-in fittings and tubes, refer to the warnings and cautions for fittings and tubes in "Pneumatic/ Vacuum/Auxiliary Components (No. CB-24SA)".

■ Always flush just before piping pneumatic component.
- Any foreign matter that has entered during piping must be removed so it does not enter the pneumatic component.

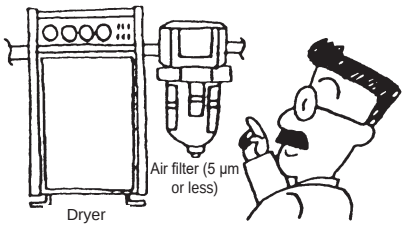
■ When supplying compressed air for the first time after connecting pipes, do not apply high pressure suddenly.
- The pipe connection could dislocate causing the pipe tube to bounce and result in accidents.

■ After connecting piping, check all pipe connections for air leaks before supplying compressed air.
- Apply a leakage detection agent to pipe connections with a brush and check for air leaks.

■ Connect piping so that connections are not dislocated by system movement, vibration, or tension, etc.
- Control of actuator speed will be disabled if piping on the exhaust side of the pneumatic circuit is disengaged.
- When using the chuck holding mechanism, the chuck will be released posing a hazardous state.

■ Ensure spaces around the pneumatic component for installation, removal, wiring, and piping work.

■ Install an air filter just before the circuit that uses pneumatic component.



■ Avoid using the product for applications that involve rotation or oscillation.
- Fittings could be damaged.

■ Do not apply lateral load to the body during or after installation.

■ Avoid using this product in places with high vibration or impact.

Use/maintenance

⚠ WARNING

■ Before maintenance, stop the air flow and confirm that no pressure remains.