Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

Precautions for each model series and for individual products

Air operated 2, 3-port ball valve (compact rotary valve)

Design/selection

⚠WARNING

1 Ambient environment

(1) If there are high levels of dust in the area, install a downward-facing silencer or elbow fitting on the exhaust port so that dust does not enter.

(2) Types with a solenoid valve cannot be used in an explosive gas atmosphere. When using in an explosive gas atmosphere, change to the CHB, CHBF, CHG, CHB-R, CHBF-R or CHG-R Series, and provide a separate explosion-proof solenoid valve on the pilot air circuit.

(3) Protect the product appropriately if it is exposed to water or oil.

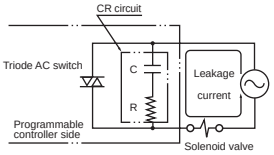
⚠CAUTION

1 Fluid viscosity

Generally, the valve can be used with a fluid viscosity of up to 500 mm^2/s. However, the properties may differ according to the fluid, so contact CKD.

2 Leakage current from other fluid control components

When operating the solenoid valve with a programmable controller, etc., check that the output leakage current from the programmable controller is within the following specifications. Failure to observe this could lead to malfunctions.



Keep at or below
100 VAC : 3 mA or less,
200 VAC : 1.5 mA or less,
24 VDC : 1.8 mA.

3 Notes for external pilot air

(1) Draining: Compressed air contains a large amount of drainage (water, oil oxides, tar, foreign matter). This is a factor that significantly reduces the reliability of the pneumatic components. For drainage measures, improve air quality by dehumidifying with an after cooler or dryer, removing foreign matter with a filter, and removing tar with a tar removal filter, etc.

(2) Pre-lubrication: This series is pre-lubricated, so no lubrication is required. However, once lubrication has been started, it must be continued so that the lubricant does not run out. Use turbine oil Class 1 ISO VG32 (#90) or equivalent for lubrication.

(3) Filter: Install a filter with a 5 μm or less filter element.

4 Limit switch

Refer to the table below for the rated values of limit switch.

Rated voltage (V)	Non-inductive load (A)			
	Resistance load		Lamp load	
	Normally closed circuit	Normally open circuit	Normally closed circuit	Normally open circuit
AC250	5		1.5	
DC30	5		-	

*1 : The values above show steady current.
*2 : Lamp load is assumed to have 10 times the inrush current.
*3 : The max. inrush current is 10 A.
*4 : Contact CKD when using with small load.
*5 : OMRON D4E-1G20N limit switch is used. Observe the specification range of the limit switch.

Mounting, piping and wiring

⚠CAUTION

1 Mounting

(1) Always hold the body when handling or installing the product. Do not pull the lead wires or drop the product.

2 Piping

(1) Fix the product when tightening or reinstalling the piping. When piping to the body side, fix the body, and when piping to the cap side, fix the cap.

(2) Fix and support the pipes so that the weight and vibration of the pipes are not directly applied on the valves.

(3) Be sure to observe the specified pressurization direction for 3-port valve (port C pressurization only).

(4) Refer to the table below for tightening torque of the pilot air piping.

Piping nominal diameter	Recommended piping tightening torque (Nm)
Rc1/8	7 to 9

(5) Do not pipe using the solenoid valve section. There is a risk of damage. (For solenoid valve mounted)

3 Wiring (for solenoid valve mounted)

(1) The CKD 4-way valve (4KB119) is used for the pilot operated solenoid valve. Refer to the general catalog of “Pneumatic Valves” for details on the wiring methods.

When using the product

⚠CAUTION

1 Preventing water hammer

To prevent water hammer, restrict the exhaust side with a metering valve with silencer and a speed controller, etc.

2 Frequency of use

Observe the specified frequency of use. Overuse will lower the durability.

3 Manual operation procedure (double acting only)

Exhaust residual pressure in the actuator by turning OFF the pilot air. Place an adjustable wrench on the stem on the top of the actuator and turn it slowly.

* The single acting (CHB-R, CHBF-R, CHG-R, CHB-X, CHBF-X, CHG-X, CSB-R, CSBF-R Series) cannot be manually operated because a spring is incorporated.

4 Do not touch the stem at the top of the actuator by hand during operation.

Doing so is dangerous since the stem is rotating during operation.

5 Do not reduce the operating air too much when adjusting the open/close speed. Otherwise operation may become unstable.

Maintenance

⚠WARNING

1 Handling single acting actuator

Do not disassemble the single acting actuator section. The powerful spring incorporated will pop out when disassembling.

2 Precautions when replacing the ball valve and actuator

(1) Before replacement, be sure to release the pilot air/fluid pressure and check that internal pressure is not applied inside the ball valve.
(2) When replacing, check that the actuator axis and the ball valve axis are not mis-aligned.
(3) When tightening two hexagon socket head cap screws or hexagon head bolts, assemble carefully in several actions to ensure that the tightening is uniform. (Recommended tightening torque 4.5 to 5.5 N·m)