Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

Precautions for each model series: product-specific cautions

Air operated 2, 3-port valve (coolant valve) (CVE/CVSE)

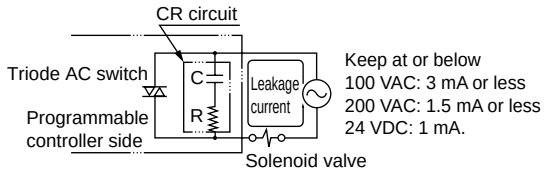
Design/selection

1. Safety design

⚠ CAUTION

■ 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.



2. Working fluid

⚠ WARNING

■ Working fluids

Compatibility has not been evaluated with all coolants. Particularly, if coolant contains high levels of chlorine or sulfur, materials used at wetted parts could be adversely affected. Non-corrosive fluids refer to fluids that are mutually unaffected when they contact the valve's wetted part materials.

Wetted part materials: Cast iron (nickel plating), stainless steel, nitrile rubber or fluoro rubber, and epoxy resin adhesive.

■ 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.

3. Working environment

⚠ WARNING

■ CVSE Series cannot be used in an explosive gas atmosphere. When using in an explosive gas atmosphere, change to the CVE Series, and provide a separate explosion-proof solenoid valve on the pilot air circuit.

■ 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.

■ Take appropriate safeguards when using this product in places where it can be exposed to dripping water.

4. How to use

⚠ CAUTION

■ Pilot pressure

Set pilot air pressure within the specified range.

Mounting, installation and adjustment

1. Piping

⚠ CAUTION

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

■ When piping the CVE/CVSE Series, check the supply ports on the body side and pilot operation side.

Model No.	Body side supply port	Pilot operation side supply port
CVE2	IN	X
CVE22		Y
CVSE2/CVSE22		P
CVE3		Y
CVSE3		P

Note) Pipe the unit side supply port so that the arrow on the body matches the fluid flow direction. If supplied in reverse, internal components could be damaged when the valve operates.

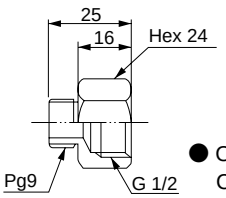
2. Wiring

⚠CAUTION

■ Wiring for models with solenoid valve

(1) Refer to Connections on Intro Pages 65 and 66 when wiring to a DIN terminal box or T type terminal box.

(2) The thread size for the junction box outlets of the DIN terminal box can be changed from Pg9 to G1/2 using the optional connector below.



● Order Model No.:
CVS2-CONNECTOR-F4-202936

(3) Coil direction can be changed 180°. To reverse the electrical connection direction, rotate only the coil. Do not lose internal parts when removing the coil.

Use/maintenance

1. Maintenance and inspection

⚠CAUTION

■ Pilot pressure

Set pilot air pressure within the specified range.

■ If water hammer occurs when a 3-port coolant valve for medium/high pressure operates, reduce the noise as follows.

(1) Install a metering valve on the valve IN side, then adjust the metering valve to reach the required flow rate. If these countermeasures fail, contact CKD.

2. Disassembly/assembly

⚠WARNING

■ A spring is used in the cylinder cover. When disassembling this type, be careful as the spring could pop out and cause injuries.
The NC 2-port valve has a snap ring to prevent the spring from popping out. Do not remove the snap ring.

Modular coolant valve (GCVE2/GCVSE2)

Mounting, installation and adjustment

1. Piping

⚠CAUTION

■ Do not support the valve body only with piping. Use the set screws on the lower part of the body to fix it to the equipment.

■ Refer to the table below for the piping tightening torque.

Piping nominal diameter	Recommended piping tightening torque (N·m)
Rc1/2	41 to 43
Rc3/4	62 to 65
Rc1	83 to 86

■ Tightening torque should be 30 to 36 N·m when tightening the fixing hexagon socket head cap screws to add/remove valves.
Make sure that the O-ring is fixed in position and the spigot is securely engaged before tightening additional valves.
After assembling, check for leakage from the connection parts before use.

■ Pilot solenoid valve (with solenoid valve) assembly procedure

If the pilot solenoid valve has been disassembled, assemble it as follows.

(1) Coil side

· Disassembly

Loosen the cross-recessed pan head machine screw and lift up the coil assembly. Take out the outer spring, plunger assembly, and O-ring.

· Reassembly

Assemble the parts in the sequence of O-ring, plunger assembly, outer spring and coil assembly. Tighten the cross-recessed pan head machine screws with a torque of 0.7 to 1.1 N·m.

(2) Cover side

· Disassembly

Loosen the cross-recessed flat head screw to remove the cover. Take out the valving element spring, valving element guide assembly, and O-ring.

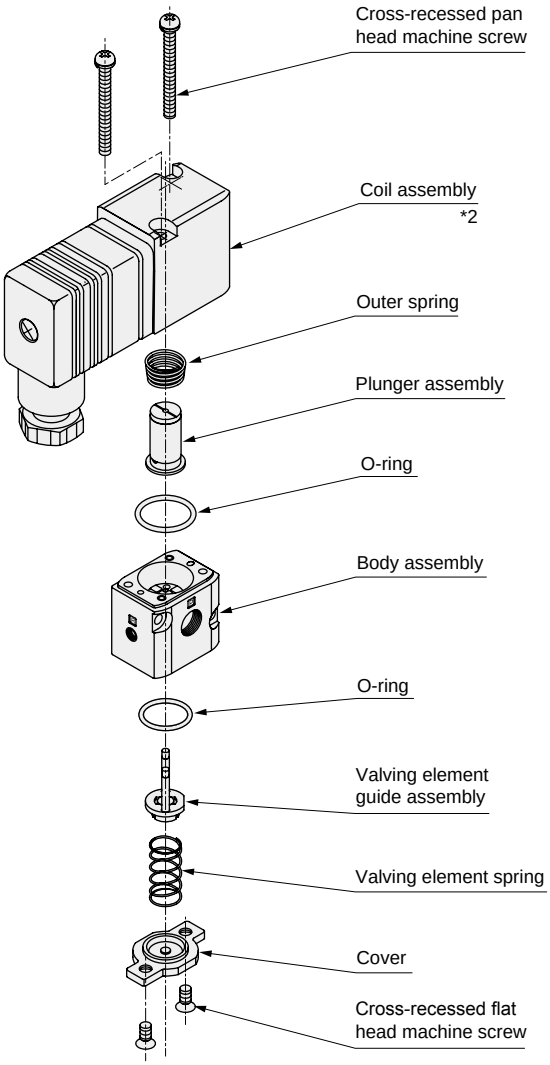
· Reassembly

Set the parts in the sequence of O-ring, valving element guide assembly, valving element spring and cover. Tighten the flat-head cross-recessed screw with a torque of 0.7 to 1.1 N·m.

*1 : Be careful not to lose components such as springs during disassembly.

*2 : The orientation of the coil assembly can be changed 180 degrees. Loosen the cross-recessed pan head machine screw to adjust the orientation.

*3 : Plunger is coated with turbine oil for lubrication.



■ Model No. of pilot solenoid valve (actuator assembly kit) for CVSE

CVSE2-ACTUATOR-0 [*1] [ ] - (Rated voltage)

*1 : Specify the coil option code in the *1 field.

*2 : Contact your CKD Sales Representative about the pilot solenoid valve (actuator assembly kit) for CVS3E.

■ Orientation of gasket (models with solenoid valve)

The gasket has an orientation. Make sure to check the orientation when re-assembling.