



Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 59 for general precautions for using valves.

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ◇ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
Custom
Ending

Product-specific cautions: 3-port large flow rate valve NP/NAP/NVP Series

Design/selection

⚠ WARNING

■ Ambient environment

- (1) NP and NVP Series cannot be used in an explosive gas atmosphere. When using in an explosive gas atmosphere, change to the NAP Series, and provide a separate explosion-proof solenoid valve on the pilot air circuit.
- (2) 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.

■ This product cannot be used as an emergency shut off valve.

It is not designed to function as a safety valve, such as an emergency shut off valve. When using in such a system, always take separate measures that will ensure safety.

■ Fluid temperature

Be sure to use the coolant check valve within the specified fluid temperature range.

■ Ambient environment

- (1) Do not use this product in a corrosive gas atmosphere or an atmosphere that could affect the component materials.
- (2) Do not use this product near a heat generating source or in a location where it may be exposed to radiant heat.
- (3) Use this product within the operating ambient temperature.
- (4) When using this product in a cold climate, take the necessary measures to prevent freezing.
- (5) Take appropriate safeguards according to the degree of protection listed in the catalog specifications. Consult with CKD when using outdoors.
- (6) Take appropriate safeguards when using this product in places where oil or welding spatter, etc. could come in contact with it.

⚠ CAUTION

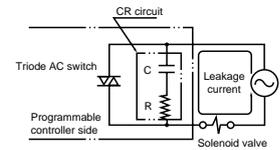
■ Ultra dry air

The inside of the valve is pre-lubricated with grease. This valve may not be appropriate if ultra dry air quality is required at the end of the circuit.

■ 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.



Voltage Bore size	100 VAC	200 VAC	24 VDC
	10 to 25A	3 (6) mA or less	1.5 (3) mA or less
32 to 50A	6 mA or less	3 mA or less	1 mA or less

The values in () are for models with surge suppressors.

■ Precautions 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) If pilot air is supplied, the valve may operate even if the pressure is less than the working pressure range.

■ Min. working pressure

The pressure must be 0.2 MPa and over to operate the NP Series. If the piping cross-section area on the fluid inlet is reduced, the operation may become unstable due to a pressure drop during valve operation.

■ Securing maintenance space

Secure sufficient space for maintenance and inspection.

■ Vibration

Install this product in a place not subject to vibration.

Mounting, piping and wiring

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/AD
APK/ADK
DryAir
EX-XPLNprf
XPLNprf
HVB/HVL
S \leftrightarrow B/NAB
LAD/NAD
Water-Rela
NP/NAP/NVP
SNP
CHB/G
MXB/G
Other valves
SWD/MWD
DustColl
CVE/CVSE
CCH/CPE/D
LifeSci
Gas-Combus
Auto-Water
Outdoor
SpecFld
Custom
Ending

1. Installation

⚠ CAUTION

- (1) Be sure to read the instruction manual thoroughly before installing the product.
- (2) In the case of models with solenoid valves, do not apply external force to the coil during installation.
- (3) After installation, check for leaks from pipes, for proper wire connections and that the product is installed correctly.

2. Piping

⚠ CAUTION

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

Piping nominal diameter	Recommended piping tightening torque (Nm)
Rc1/8	7 to 9
Rc3/8	22 to 24
Rc1/2	28 to 30
Rc3/4	31 to 33
Rc1	36 to 38
Rc1 ¹ / ₄	40 to 42
Rc1 ¹ / ₂	48 to 50
Rc2	54 to 56

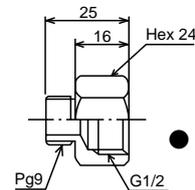
- Do not pipe using the solenoid valve section. There is a risk of damage. (NP/NVP only)
- Observe the effective thread length for the piping threads. Chamfer the end of the thread section by approx. a half-pitch.
- Before piping, flush the inside of the pipe with 0.3 MPa of air, and remove foreign matter such as dirt, metal chips, rust and sealing tape.
- If excessive sealant (sealing tape, gel-type sealant) is applied when piping, it could enter the product and cause malfunctions.
- When applying or wrapping sealant on the piping material, apply or wind it from the pipe end along the thread section, and leave 1.5 to 2 threads uncovered.
- Dirt or foreign matter in fluid could prevent the product from functioning correctly. Install a 5 μ m or finer air filter.
- Make sure not to use the wrong supply port when connecting the pipes to the product.
- Install a by-pass circuit and use an elbow union for piping to simplify the maintenance and repair work.
- When controlling fluid in a tank, pipe at a level slightly above the bottom of the tank.

- If a manifold is used on the solenoid valve for control, use a solenoid valve with a built-in "exhaust check valve" to avoid malfunctions caused by other exhaust pressures. (NAP only)

3. Wiring (for NP/NVP)

⚠ CAUTION

- Refer to the technical data on pages 689 and 690 for connection methods to a DIN terminal box or T type terminal box.
- When changing the nominal thread size from Pg9 to G1/2 for the DIN terminal box's junction box outlets, use the optional connector shown below.



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

- Coil direction can be changed 180°. To reverse the electrical connection direction, rotate only the coil. The valve will not function if the pilot solenoid valve body is moved.
- Use with the allowable voltage range. Usage outside the allowable voltage range may lead to malfunction or coil damage.
- Provide a circuit breaker, such as a fuse, on the control circuit to protect electrical equipment.
- If the electric circuit system is vulnerable to solenoid surge, use a solenoid with a surge suppressor (optional), or insert a surge absorber, etc., in parallel to the solenoid.
- As a guide, use a wire with a nominal cross section of 0.5 mm² or more. Make sure that excessive force is not applied to the lead wire.
- Use of a switching circuit which does not generate contact chattering extends the useful life of solenoid valves/motor driven valves.

Use/maintenance

EXA
FWD
HNB/G
USB/G
FAB/G
FGB/G
FVB
FWB/G
FHB
FLB
AB
AG
AP/
AD
APK/
ADK
DryAir
EX-
XPLNprf
XPLNprf
HVB/
HVL
S ⬆ B/
NAB
LAD/
NAD
Water-
Rela
NP/NAP/
NVP
SNP
CHB/G
MXB/G
Other
valves
SWD/
MWD
DustColl
CVE/
CVSE
CCH/
CPE/D
LifeSci
Gas-
Combus
Auto-
Water
Outdoor
SpecFld
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Ending

1. Common

⚠ WARNING

- Do not touch coils or actuators with hands or body while the power is ON or immediately after it is turned OFF.
The solenoid valve coil and actuator will heat up when energized. Depending on the product, direct contact could cause burns.
- Do not touch the electrical wiring connections (bare, live parts) with hands or body when they are energized. There is a risk of electric shock.
Touching electrical wiring connections while power is on may lead to electrical shock.
- Use within the working pressure range.

2. Using the product

⚠ CAUTION

- Using with vacuum
The NVP and NAP Series can be used for both negative pressure (vacuum) and positive pressure. As a balance poppet valve structure is incorporated, a pressurized or vacuum connection can be made from any port.
- Transfer circuit
When using a vacuum absorbing pad (suction bowl) for the transfer circuit, install a filter between the suction pad and valve so that foreign matter does not enter the valve. Otherwise, leakage may result.
- Leaving under elevated pressure
If the valve is left under elevated pressure for three days or longer, the starting response could be delayed.
- Response time
The response times given in the catalog are the times when energized at a pressure of 0.5 MPa and without lubrication.
- Do not use valves as footing or place any heavy objects on top of the valves.
- If the product has been out of use for one month or more, perform a test run before starting the actual operation.

3. Maintenance

⚠ CAUTION

- Pilot solenoid valves (NP/NVP)
Port size 10A to 25A
Pilot solenoid valve (actuator assembly kit) for CVS2: CVS2-B-0 [*1] - (Rated voltage) is built in. If the pilot solenoid valve has been disassembled, follow the assembly procedure provided on page 691 of the technical data.
Port size 32A to 50A
Special purpose valve: GFAG41-1-0-1 [*1] N - [*2] is built in.
The tightening torque for the coil assembly mounting screw is 1.1 to 1.8 N·m when disassembling or assembling.
After disassembly, assemble the manual override section (green) onto the port A side of the body.
Note: [*1] is the coil housing code.
[*2] is the rated voltage code.
- Carefully read the instruction manual before starting maintenance.
- Always turn the power OFF and release any fluids or pressure before starting maintenance.
- To ensure optimum use, inspect the product every six months.
- When cleaning the product, use a low-polluting cleaning agent such as a neutral detergent. (Note that the rubber parts must be replaced. There is a risk of expansion.)
- Contact CKD with questions about repair parts, etc.