



Safety precautions

# Fluid Control Components: Warnings and Cautions

Be sure to read this section before use.

## Precautions for each model series: product-specific cautions

### Solenoid valve for high vacuum (HVB/HVL)

#### Design/selection

#### CAUTION

##### 1 Working fluids

- The high vacuum device is designed for controlling gases (inert gas, air, vacuum). If other fluids (active gas, fluids, solids, etc.) pass through, the product may fail to operate normally or may display decreased performance.

#### Mounting, installation and adjustment

#### WARNING

##### 1 Mounting

- Incorrect mounting and piping will result in product trouble, may cause trouble in the user's system, and may result in death or serious injury. The user is responsible for making sure that the operator has read the instruction manual and fully comprehends the system.

After mounting, carry out an appropriate function test to confirm that the product is correctly mounted.

#### CAUTION

##### 1 Direction when connecting pipes (some models)

- The vacuum valve is basically designed so that all connection ports can be connected to the vacuum pump. However, with some models (see below), the connection port to the vacuum pump is limited to one direction.

[Table 1] Models with designated vacuum pump connection ports

Model	Vacuum pump connection port
HVB612-12F-12B	A port
HVB712-15F-15B	A port

When using a port other than the designated port when connecting to the vacuum pump with the models in the table above, trouble such as seal failure or operation failure could result.

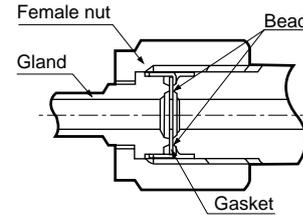
##### 2 Tightening the fitting

- Make sure that there is no dirt, scratches or burrs on the seal section before tightening the fitting with the following procedures.

##### (1) Fitting tightening method

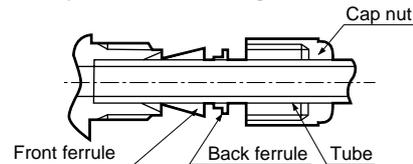
- JXR fitting (when the gasket material is nickel/SUS316)

Tighten the nut by hand until the gasket contacts the bead surface, and then tighten another 1/8 turn with a tool. (Consult with CKD for all other materials.)



- Double barbed fitting

Confirm that the front ferrule, back ferrule and nuts are properly attached, and then insert the tube until it contacts the back of the body. Tighten the nuts as far as possible by hand, and then tighten 1 1/4 turn with a tool.



- After tightening the fitting, always carry out a leak test, and confirm that there are no leaks.

##### 3 High temperature caution during solenoid valve coil energizing

- The coil section of the solenoid valve (HVB/HVL) heats up when energized. In particular, the class H specification coil (some HVB models) will become very hot when energized. There is a risk of burns if these coils are touched directly.

##### 4 Cautions for wiring the solenoid valve

- As a guide, use a wire with a nominal cross section of 0.5 mm<sup>2</sup> or more. Make sure that excessive force is not applied to the lead wire.
- Use within the allowable voltage range. Usage outside the allowable voltage range may lead to operation faults or coil damage.
- Provide a circuit breaker, such as a fuse, on the control circuit to protect the electrical equipment.
- Use of a switching circuit which does not generate contact chattering will increase the solenoid valve's durability.
- If the electric circuit system is susceptible to solenoid surges, provide measures such as inserting a surge absorber in parallel to the solenoid.

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
<b>HVB/HVL</b>
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

## When using the product

### CAUTION

#### **1** Electric shock risk: Solenoid valve electrical wiring (bare, live parts)

· There is a risk of electric shock due to touching the electrical wiring connections (bare, live parts) of the solenoid valve (HVB/HVL).

Always turn the power OFF before disassembly and inspection. Never touch the live parts with wet hands.

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  $\diamond$  B/  
NAB

LAD/  
NAD

Water-  
Rela

NP/NAP/  
NVP

SNP

CHB/G

MXB/G

Other  
valves

SWD/  
MWD

DustColl

CVSE/  
CVSE

CCH/  
CPE/D

LifeSci

Gas-  
Combus

Auto-  
Water

Outdoor

SpecFld

Custom

Ending