CKD D3- 402956-A 2017.04.03

Handling Instructions

3QB1 series

Thank you for purchasing CKD product.
Please review the precautions in this Instruction thoroughly for safe operation of this equipment.

Keep this document in a safe location so that it is easily referenced as necessary.
For further information, refer to the instruction manual and product catalog.

CAUTION!! Do not unpack solenoid valve until the piping is ready for connection.

Foreign materials entering through piping port will cause failure and malfunction.

⚠ WARNING

- Do not step on or place objects on the product. Failure to follow this warning may cause falling accident, falling of the product, bodily injury due to fall, malfunction due to breakage of the product, etc.
- Before inspecting, checking or adjusting the product, turn off power supply and shut down compressed air line and verify zero residual pressure.

Piping and installation

⚠ WARNING

- Do not use water or solvent for cleaning and painting. Plastics broken by the solvent and coating materials will clog the port, causing malfunction.
- Check the location of piping port by referring to product indication, etc. Wrong piping will cause malfunctioning of actuator.
- Screws used to fasten pipe joints must be tightened with a correct torque. Otherwise, air will leak or screws will be damaged.

Tightening torque

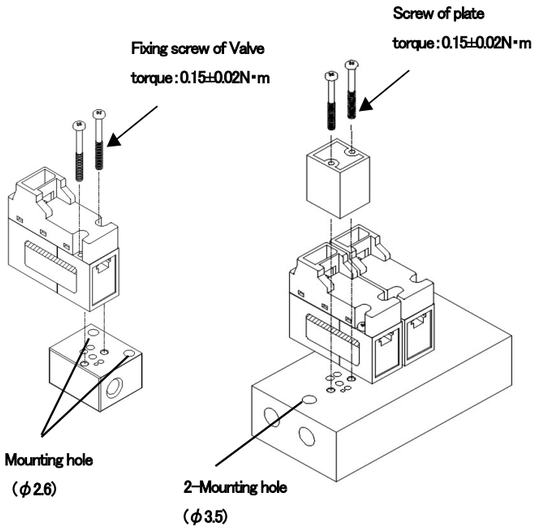
Connecting screw	Tightening torque N·m
M5	1～1.5

⚠ CAUTION

- Do not use as emergency cutout solenoid valve. Starting response time can be late, when leaving under elevated pressure long time.

■For direct installation

Secure the unit by tightening 2 screws passing through respective mounting hole.



- Before starting the piping work, always blow the air to the inside of the piping (flushing) or clean the inside of the piping to remove cutting chips, coolant, and dusts, etc.
- Do not mount the solenoid valve by supporting it with piping. Secure the valve with dedicated supporting member.
- Prevent entrainment of foreign materials from exhaust port by facing down the exhaust port or by using a silencer.

Lubrication

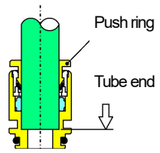
⚠ CAUTION

- Do not lubricate. Doing so will cause slow response or malfunction.

Joint and Tube

Push-in joint

- Insert the tube to the tube end. Verify positive engagement of the tube by gently pulling it with a force of approx. 20 N. If the tube is not inserted to the bottom, it may become loose, causing air leakage.



Tube

- With the dedicated cutter, cut the cable at a right angle.
- The bending angle of piping must be larger than the minimum bend radius of the tube.

Wiring method

⚠ WARNING

- When performing wiring work, make sure to do so with the power supply turned off. Also, do not touch the terminal during it is energized or let wet hands get near. There is a risk of receiving electric shock.

⚠ CAUTION

- Install wiring before check the working voltage
- The voltage will drop by simultaneous energizing and by the length of the cable. Check that the solenoid voltage drop is within 10% of the rated voltage.

Cautions on individual units

Electric connection

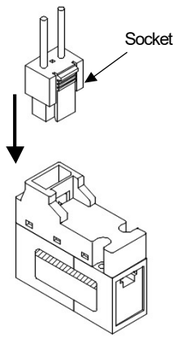
■3QB1 have polarity.

Verify the polarity before installing wiring

①To engage the socket, hold the lever and the socket with fingers and insert it to the square opening of the connector. Engage the detent on lever to groove of the connector to lock. Note that when inserting the socket downward, hold it so that the lever faces frontward, and when inserting it horizontally, the lever faces upward.

②To disengage the socket, first disengage the detent of lever from the groove by pressing lever, and then pull the socket straight downward.

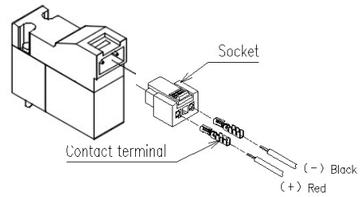
■The socket assembly has lead wire of AWG #26, OD φ1.35.



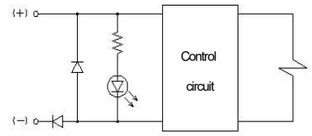
Assembling connector

①On the lead wire end, peel off 3 mm of insulation. Insert each conductor to contact terminal and press fit them with a crimping tool. Verify that conductor and insulation are positively clamped and end of the conductors are visible (0 to 0.5 mm). Use lead wire of AWG #26-28, 0.08 to 0.16 mm^2.
[Crimping tool: H4-M31]

②After crimping, insert the contact terminal to each square opening of the socket to the bottom until it is internally locked. Lightly pull the terminal to see that it is locked.



Solenoid valve internal circuit diagram



the control circuit of current

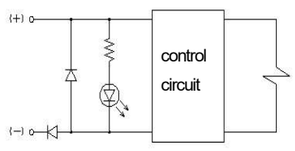
⚠ CAUTION

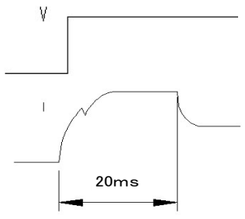
■Do not use the solenoid valve when it is subject to vibration or shock beyond the range of spec. Doing so will cause malfunction.

■The large flow rate type has the control circuit of current, therefore the current value is reduced when the coil holds suctioned. Verify that only plus common has polarity.

■Valve perfomance deterioration may be accelerated if valves are continuously energiving for long periods of time

■Minimum excitation time should be longer than 20 ms





Option H (positive and negative pressure)

■When using H type(positive and negative pressure) with negative pressure, vacuum port is 3 (R) port.
It can be used as NO (normally open) specification.

Pressure specifications

■Pressure specifications vary with options.
Please use within the specification range of following table.

Model name		3QB1-H	3QB1-HP	3QB1-HV
Maximum working pressure	MPa	0.3 ※1	0.65	0
Minimum working pressure	MPa	−0.1 ※1	0.1	−0.1

※1 : When using only positive pressure, it can be used in the pressure range of 0 to 0.4 MPa

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