

ACTUATOR

INSTALLATION

OPERATION

AND

MAINTENANCE MANUAL



Actuator

The valve is installed with an actuator and connected to the electrical circuit, allowing operation to open and close by the electrical system. However, in the case of electrical system failure or malfunction of the actuator, the valve can still be opened and closed manually. Switching between operation by the electrical system and manual operation can be done by.

- **Operation by electrical system**

After connecting the electrical circuit and supplying power to the actuator, the actuator will automatically switch to operate electrically.

- **Operation by manual system**

Turn off the switch that supplies power to the actuator, then pull the lever (Manual Override) in the direction toward the steering wheel. After that, turn the steering wheel to open or close the valve according to the arrow direction indicated on the steering wheel, while also monitoring the indicator to ensure the valve does not rotate beyond the fully open or fully closed position.



pull the lever



full open indicator



fully close indicator

Caution: Turning the steering wheel in the wrong direction or beyond the fully open or fully closed position may cause the steering shaft pin to break or damage the drive gear.

Precautions for Operation by manual system



for manual system,
Please check the open-close
position only by
the "status indicator"

Caution: Fan gear breakage!



Turning the steering wheel to the end
and hitting the stopper can cause
damage and break the fan gear.

Actuator installation

Preparation of the adapter

- Check the Actuator Mounting Standard (ISO5211) to ensure it has the same Flange Code as the Butterfly Valve. This can be verified from the table below.

Flange Code Selection

MODEL	FLANGE CODE	
QT04	F05	
QT06	F05	
QT09		F07
QT10	F07	F10
QT15	F07	F10
QT19	F07	F10
QT28	F10	F12
QT38	F10	F12
QT50	F10	F12
QT60	F10	F14

MODEL	FLANGE CODE	
QT80	F10	F14
QT100	F10	F14
QT120	F14	
QT150	F14	F16
QT200	F14	F16
QT250	F14	F16
QT400	F16	F25
QT500	F16	F25
QT600	F16	F25
QT800	F16	F25

Assemble the actuator (head) onto the valve

- Turn the steering wheel to position the actuator in the fully closed position (or fully open position).
- Rotate the valve to be assembled with the actuator to the fully closed position (or fully open position), matching the position of the actuator.
- Assemble the valve with the actuator by inserting the valve stem into the hole of the adapter, and ensure the valve disc fits into the disc slot.
- If the bolt holes of the valve and actuator do not align (they may be slightly offset), slightly adjust the steering wheel of the actuator to align the holes. Then, tighten the screws securely.
- Test the valve by turning it open and closed using the steering wheel. If assembled correctly, the valve should fully open and close. If the valve does not fully open or close, check the preparation of the adapter and the assembly process again.



Limit switch adjustment

- The actuator will consist of two limit switches: the Close Limit Switch (CLS) and the Open Limit Switch (OLS).

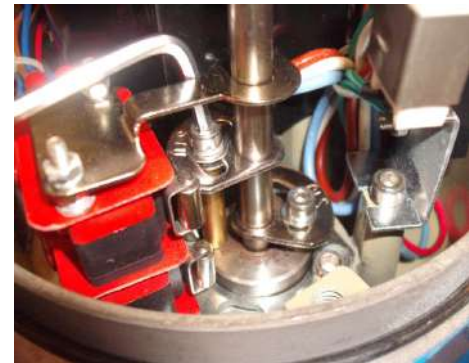
Procedure for setting the limit switch at closed position (CLS)

- Turn off the power, pull the lever (Manual override), and then turn the steering wheel to position the valve in the fully closed position. This can be observed by the edge of the valve disc being tightly sealed against the rubber seal, or by observing the flow of water in the case where the valve is installed in the piping system.
- Use an L-wrench to loosen the CLS screw, then adjust the ball bearing so that it presses the limit switch until you hear a single 'click' sound. After that, tighten the screw to secure the ball bearing in place.



Procedure for setting the limit switch at open position (OLS)

- Turn off the power, pull the lever (Manual override), and then turn the steering wheel to position the valve in the fully open position. This can be observed by the valve disc being perpendicular to the valve body or by the indicator.
- Use an L-wrench to loosen the OLS screw, then adjust the ball bearing so that it presses the limit switch until you hear a single 'click' sound. After that, tighten the screw to secure the ball bearing in place.



Cautions

1. After setting the limit switch, test the open-close operation of the valve using the electrical system to check if the valve closes completely. If the valve does not close properly, the limit switch for the closed position should be re-adjusted.
2. A single relay should not be used to control the operation of more than one actuator

Electrical wiring of the Actuator

Each actuator comes with an electrical circuit (wiring diagram) attached, along with the circuit number labeled on the nameplate of the product. This is to ensure that the user can connect the electrical circuit correctly.

Procedure for connecting the electrical system of the actuator

- Check the voltage to ensure it matches the wiring diagram and prepare the necessary wiring for connection.
- Remove the cover from the actuator and unplug the electrical cable entry
- Thread the wires through the cable entry hole and connect the wires to the correct terminals as follows:
 - The line wire (L) must be connected to all terminals according to the wiring diagram.
 - The neutral wire (N) should be connected to all terminals according to the wiring diagram or connected as required for the application.
 - Connect the ground wire (Ground).
- Test the open-close operation of the actuator. If it does not rotate or rotates in the wrong direction, check the wiring again.
- Once the electrical circuit has been correctly connected, close the actuator cover, tighten the screws securely, and seal the cable entry hole properly before use.

Cautions

A single relay should not be used to control the operation of more than one actuator.

Operating Instructions and Maintenance of the Actuator

- Connect the electrical circuit correctly according to the wiring diagram provided with the actuator and seal the cable entry hole properly.
- When installing and using an actuator outside the building, power must be supplied to the inside within a period of no more than 2 weeks to prevent damage to the electrical components inside the actuator due to moisture or condensation from water vapor in the air.
- When opening and closing the actuator using the steering wheel, you must observe the open-close position of the valve indicated by the indicator. Do not rotate beyond the fully open or closed position, as this could damage the drive gear or cause the steering wheel pin to break.
- In the case where the actuator has been installed for a long time but has not been used, before the first use, the electrical system should be checked, and the internal electrical components of the actuator should be inspected to ensure they are in good condition and ready for use. Afterward, test the valve's open-close operation using the steering wheel to check if the valve can rotate smoothly. This is important because a valve that has not been used for a long time may cause damage to the actuator.
- The actuator cover must be securely screwed tight every time.
- Electrical components inside the actuator should be inspected and maintained at least twice a year.



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