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HQ Series ¼ Turn Electric Actuator

Models HQ008 to HQ300

Operation and Installation Manual

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1.0 General

HQ Series electric actuators are designed to provide reliable and efficient operation of 90º quarter turn valves and dampers.

Warning: Use caution when working in, with, or around valves and actuators. High pressures, forces, voltages and flammable media can be present.
Warning: Failure to follow instructions for proper electrical wiring, storage, set-up and maintenance may cause serious injury, damage equipment, or void warranty.

Pre-Installation Inspection

Verify the actuator nameplate to ensure correct model number, torque, operating speed, voltage and enclosure type before installation or use.
It is important to verify that the output torque of the actuator is appropriate for the torque requirements of the valve and that the actuator duty cycle is appropriate for the intended application.

2.0 Actuator Mounting

Do not lift the actuator by the hand wheel or de-clutch lever.
The actuator may be mounted in any position.
HQ Series actuators are supplied with a female drive output. ISO5211 bolt patterns are provided for the actuator mounting.
It is mandatory that the actuator be firmly secured to a sturdy mounting bracket or directly mounted to the valves ISO mounting pad. High tensile bolts or studs with spring locking washers must be used.
The valve output stem must be in line with the actuator output drive to avoid side loading of the stem.
To prevent backlash, no flexibility in the mounting bracket arrangement should be present.

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3.0 Power Requirements
Consult the nameplate of the actuator (or product data sheet / catalogue) for duty cycle, voltage and current draw information.

4.0 Duty Cycle
Duty cycle rated IEC34 - S2 (35%)
Exceeding the actuator's rated duty cycle may cause thermal overload.

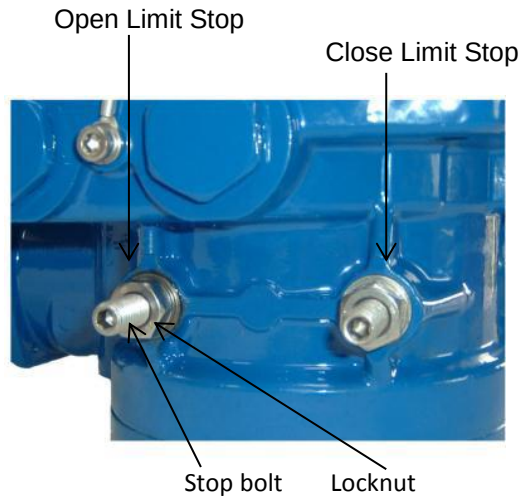
5.0 Manual Override
HQ actuators are provided with a de-clutchable manual override system.

- To manually operate the actuator, pull the manual declutch lever towards the hand wheel until it remains in position.
- Turn the hand wheel until the valve reaches the required position.
- Turn clockwise to close and counter -clockwise to open.

Please Note: The manual declutch lever has motor preference, meaning that when the motor is energized, the lever will automatically shift to auto position.

6.0 Mechanical Travel Stops
Built-in mechanical stops are provided to prevent hand wheel operation beyond total valve travel.

- Loosen both locknuts and back out the stop bolts.
- Run the actuator electrically to the fully CLOSED position.
- Screw in the CLOSED stop bolt until it seats, then back off ½ turn and tighten locknut.
- Run the actuator electrically to the fully OPEN position.
- Screw in the OPEN stop bolt until it seats, then back off ½ turn and tighten locknut.



Please Note: Do not set the actuator position limit switches to drive into the mechanical stops. Permanent damage will occur if the motor is allowed to repeatedly stall into the end stops.

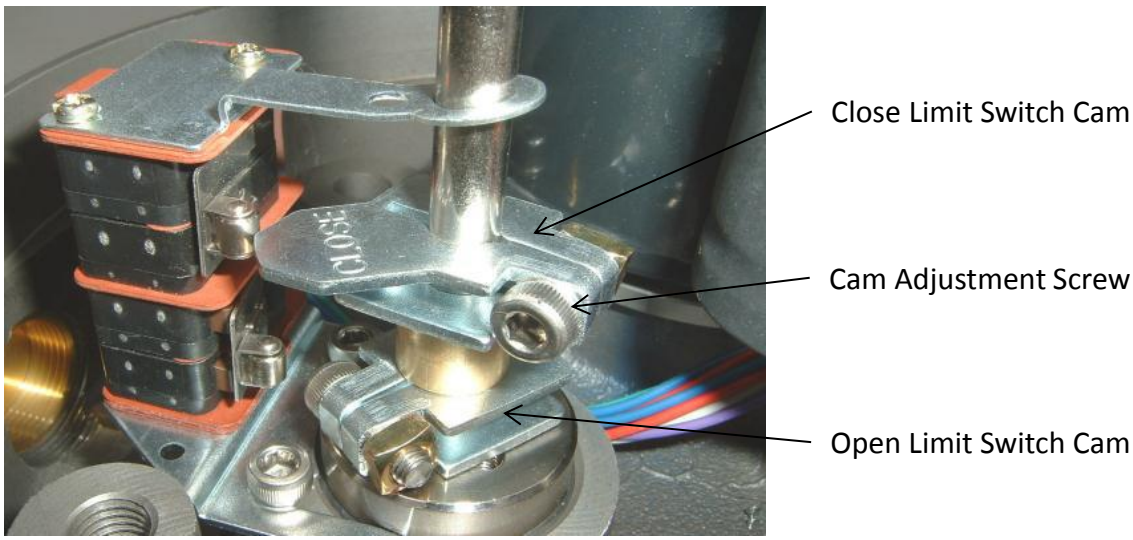
7.0 Electrical Connection

- Move valve to mid-position by hand wheel. This will allow sufficient time to stop actuator in case of improper hook-up or reversed power phases.
- Identify means of removing power during hookup.
- Be sure no erroneous remote control signals can be received causing actuator to energize.
- Electrically operate the valve in the open direction. If the valve closes, actuator must be stopped and the power leads reversed to correct voltage phasing or improper field wiring.

Please Note: Improper power voltage phasing eliminates protection of both the position limit switch and torque switches, risking valve damage.

8.0 Limit Switch Settings

Limit Switches



- Operate the actuator manually to closed position.
- Using an allen key, loosen the cam adjustment screw in the CLOSE limit switch cam.
- Rotate the CLS cam CW towards the top limit switch lever until the switch 'clicks'. Tighten setscrew with allen key.
- Operate the actuator manually to open position.
- Using an allen key, loosen the cam adjustment screw in the OPEN limit switch cam.
- Rotate the OLS cam CCW towards the bottom limit switch lever until the switch 'clicks'. Tighten setscrew with allen key.

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9.0 Torque Switch Settings

The torque switches are adjusted at factory to the protect actuator and valve against over torque. If adjustment is required, please contact us for assistance.

10.0 Lubrication

The HQ series actuators are totally enclosed units with permanently lubricated gear trains (Moly EP Grease). Once installed lubrication should not be required.

11.0 Mechanical Position Indicator

The HQ mechanical position indicator is held in position by belville washers and therefore can be adjusted without tools.

- Manually rotate actuator to fully closed position
- Remove actuator cover
- Grip the indicator firmly and carefully rotate to the correct orientation.
- Replace cover and check alignment.

12.0 Maintenance

At least once a year a check should be made of your HQ Series Actuator.

- Disconnect all power to actuator.
- Check that all external bolting and mounting to the valve is secure.
- Open Electrical Enclosure.
- Visually inspect for any electrical or mechanical damage. Inspect for excess moisture and condensation inside the electrical enclosure.

13.0 Storage

Actuators must be stored in a clean, cool and dry area. The unit shall be stored with the cover installed. If the actuator is mechanically installed but waiting for electrical connections, please ensure suitably rated cable glands or cable entry blanking plugs are fitted.

14.0 Trouble Shooting

The following instructions are offered for the most common difficulties encountered during installation and set-up.

Sympton	Probable Cause	Corrective Action
Motor will not run	Open in control circuit	Refer to appropriate wiring diagram and check for continuity.
No power available to actuator	Tripped circuit breaker	Reset breaker and check for correct rating.
Hand wheel hard to turn	Incorrectly sized actuator. Jammed valve. Damaged or bent valve. Valve gland packing too tight.	Refer to catalogue data and compare valve torque requirements with actuator (torque) output. Check for obstacles in the pipeline. Check for mechanical damage. Loosen valve gland packing.
Valve only opens or closes partially with motor	Limit switch incorrectly set Over torque: Incorrectly sized actuator. Jammed valve. Damaged or bent valve stem. Valve gland packing too tight.	Check setting and reset if necessary. Check to see if torque switches have tripped. If so refer to catalogue data and compare valve torque requirements with actuator (torque) output. Check for obstacles in the pipeline. Check for mechanical damage. Loosen valve gland packing.
Hand wheel does not operate valve.	De-clutch lever position. Damaged hand wheel mechanism	Pull lever towards hand wheel to initiate manual operation. Check for mechanical damage, replace parts as necessary.
Motor runs but does not operate valve.	Stripped gearing Damaged actuator/valve linkage	Check for mechanical damage, replace parts as necessary.

15.0 Standard Specifications

Enclosure Rating	Weatherproof IP67
Enclosure	High-grade aluminium alloy, hard anodized
Power Supply	110/220V ac 1 PH 50/60Hz, 440V ac 3 PH 50/60Hz
Duty cycle motor	EC 34 S2 (35%)
Motor	Squirrel caged inductor motor
Limit Switches	2x open/close SPDT, 250V ac 10A rating
Auxiliary Limit Switches	2x open/close SPDT, 250V ac 10A rating
Torque Switches	open/close SPDT, 250V ac 10A rating (except HQ008)
Stall Protection	Built-in thermal protection
Travel Angle	90 degrees +/- 10%
Indicator	Continuous position indicator
Manual Override	De clutchable manual override
Mechanical Travel Stops	2x external adjustable mechanical travel stops
Space Heater	7-10W ceramic housed
Conduit Entries	2x M25
Lubrication	Grease Moly EP
Ambient Temperature	-20ºC to + 70 ºC
External Coating	Dry polyester powder