

A Compact and Reliable Quarter-Turn Electric Actuator



Benefits

The HQ Series Electric Quarter Turn Actuators are an extension of Emerson's world famous EIM Electric Actuators. The HQ offers a compact, easy to use actuator solution, while maintaining EIM's durable, robust design and outstanding performance. This expanded range of electric actuators is perfectly suitable for butterfly, ball, and plug valves, including damper control.

Small and Compact with Efficient Performance



The HQ series electric actuator boasts being both small and lightweight while still producing high torque output. As the smallest member of the HQ series, the HQ-004 weighs only 2.6lbs(1.3kg), but is able to produce 350 in-lbs(40 N-m) of torque. Providing similar size-to-torque efficiency, the HQ series offers actuators producing over 34,500 in-lbs(3,920 N-m) of torque.

EIM Durability



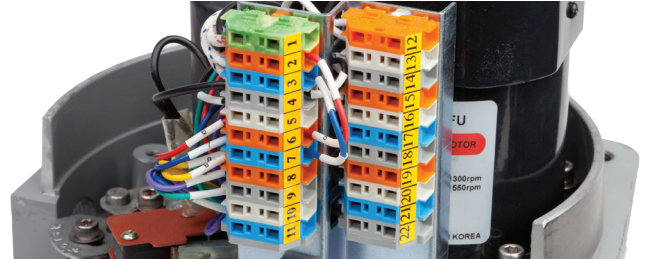
The HQ series has the same rugged and durable external and internal design that meets the Emerson standards. The HQ enclosure comes standard in a light and compact high grade aluminum alloy housing with a high corrosion resistant polyester coating. Castings are fully anodized, both internally and externally. All HQ actuators come standard with an IP67 weatherproof enclosure rating. Submersible and hazardous location service options are available on many HQ models. HQ-015 and larger models are AWWA C542 compliant.

Easy to Read Local Control Units (LCUs)



Including a local control station with an HQ actuator provides a quick and easy way to check actuator status and control operation. LCUs, depending on model size/type, offer a variety of controls and displays. LCUs can be as simple as two selector knobs for open/close control, or with indication LEDs, or with a Liquid Crystal Display showing digital valve position.

Easy Maintenance



The HQ's intuitive design allows quick disassembly and ease of maintenance. The HQ's main housing cover is spigot fitted with a slight taper for easy removal, and equipped with captive bolts. Inside the enclosure, the HQ's simple and color-coded electrical and mechanical design makes maintenance quick and easy. Limit switch settings can be adjusted without disturbing other switch settings.

Customizable for the Application



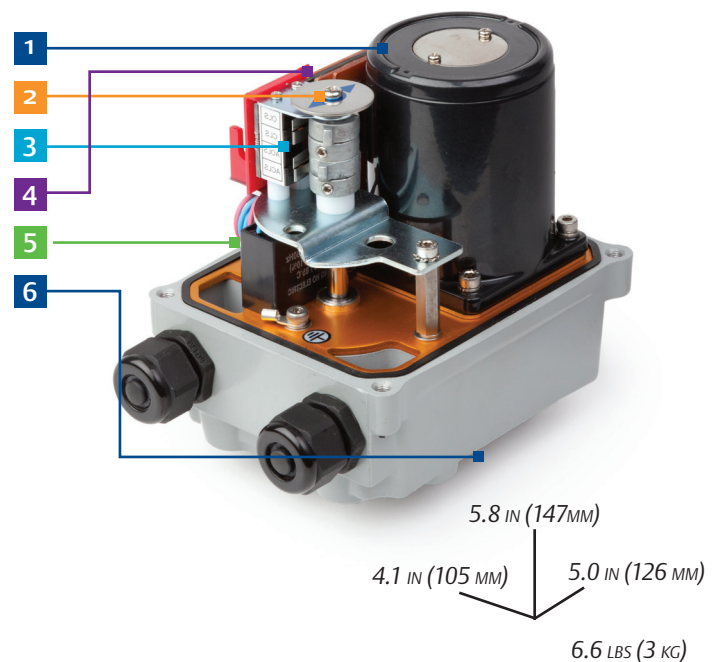
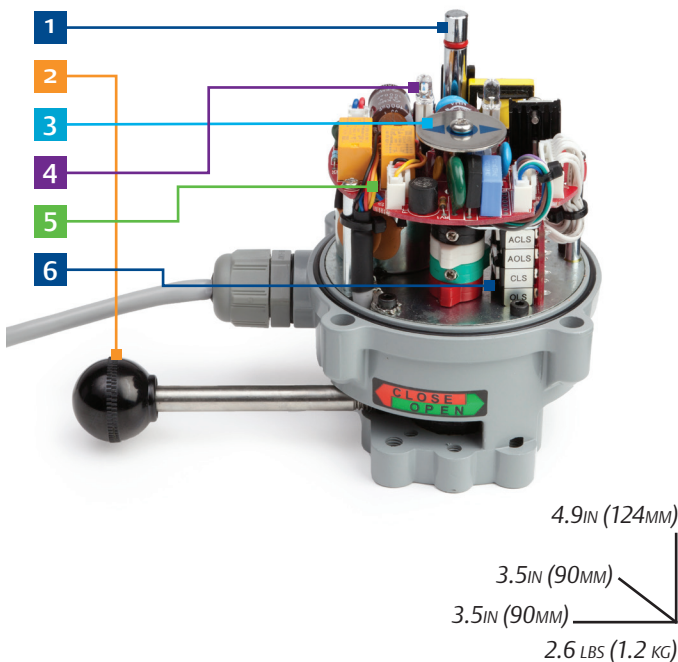
The HQ series offers a wide range of options to meet specific actuator requirements and applications. Listed below are a few of the options offered with the HQ actuators:

- 4-20mA input signal and output transmitter for position control and feedback, ideal for modulating applications
- Rechargeable battery backup (RBB) to permit local and remote fail safe operation, up to five times within one hour
- Modbus RTU control card for 2-wire digital network communication
- Remote push button stations for applications with limited access to local controls

Self-Locking Characteristics

The HQ-008 and larger actuators utilize double reduction worm gear drives—bronze worm gears and alloy steel worms. This provides inherent self-locking characteristics with minimum backlash. Motor brakes are not required.

HQ004 and HQ006



1. Manual Push Button
Used to engage the manual lever

2. Manual Lever
Open and close capabilities via hand lever

3. Mechanical Dial Position Indicator
Large window displays continuous valve position

Enclosure Weatherproof IP67, NEMA 4& 6(standard)

Gearing Spur gear

Self-Locking None

Duty Type S2-70%
Limit Switches 2 x open/close SPDT, 250 VAC 5A

Auxiliary Limit Switches
2x open/close SPDT, 250 VAC 5A

Torque Switches
Electronic Sensor(MAX 2A)

4. Full Close/Open LED
LED lights for open(red) and close(blue) indication

5. Heater
2 watt heater to prevent condensation

6. Limit Switches
4 limit switches: 2 dedicated switches, 2 volt-free contacts for customer use. Rated 250 VAC, 5 Amps

Indicator Mechanical Dial Position Indicator
Full Position LED lamp

Manual Manual push button & Manual lever

Space Heater 2W heater

Conduit Entries 1 x PG11 with 1.2m power cable
Wire Type

Lubrication Grease Moly EP

Ambient Temperature
-20°C to 80°C

External Coating Polyester powder coating

1. Motor
Reversible, high torque, and low current motor

2. Mechanical Dial Position Indicator
Displays continuous valve position

3. Limit Switches
4 limit switches. 2 dedicated switches, 2 volt-free contacts for customer use. Rated 250 VAC, 3A

Enclosure Weatherproof IP67, NEMA 4& 6(standard)

Gearing Spur gear

Self-Locking Motor brake

Duty Type S2-35%

Limit Switches 2 x open/close SPDT, 250 VAC 3A

Auxiliary Limit Switches
2 x open/close SPDT, 250 VAC 3A

Torque Switches N/A

4. Terminal Block
Color coded for easy identification

5. Heater
2 watt heater to prevent condensation

6. Manual Override
M6 hexagon socket used for manual operation

Indicator Mechanical Dial Position Indicator

Space Heater 2W heater

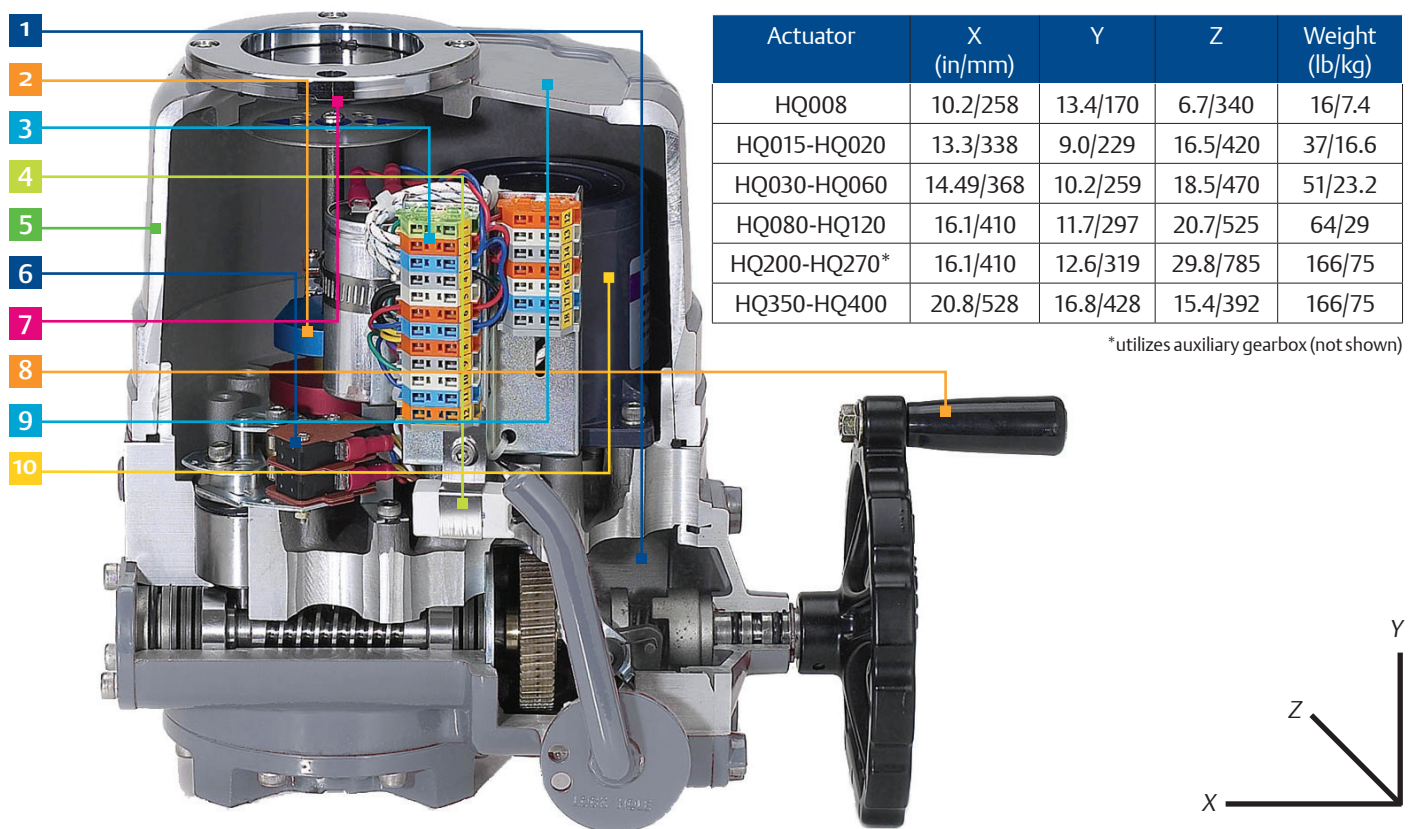
Conduit Entries 1 x 2 x PG 13.5 Tap

Lubrication Grease Moly EP

Ambient Temperature
-20°C to 70°C

External Coating Polyester powder coating

HQ008-HQ400



Actuator	X (in/mm)	Y	Z	Weight (lb/kg)
HQ008	10.2/258	13.4/170	6.7/340	16/7.4
HQ015-HQ020	13.3/338	9.0/229	16.5/420	37/16.6
HQ030-HQ060	14.49/368	10.2/259	18.5/470	51/23.2
HQ080-HQ120	16.1/410	11.7/297	20.7/525	64/29
HQ200-HQ270*	16.1/410	12.6/319	29.8/785	166/75
HQ350-HQ400	20.8/528	16.8/428	15.4/392	166/75

*utilizes auxiliary gearbox (not shown)

1. Manual Override
Easy to declutch under jammed valve conditions

2. Limit Switches
4 limit switches: 2 dedicated switches, 2 volt-free contacts for customer use.

3. Terminal Block
Color coded for quick and easy terminal identification

4. Heater
7-10 watt heater to prevent condensation

5. Main Housing Cover
Slight taper, equipped with captive bolts for easy removal. Weatherproof, hazardous area, and submersible service rated.

6. Torque Switches
2 torque switches, SPDT relays.*

7. Continuous Mechanical Position Indicator
Large window displays continuous valve position use.

8. Manual Override Handwheel
Compact and easily accessible handwheel for emergency manual operation

10. Motor
Standard with Class F insulation. Built-in thermals for motor protection.

Enclosure Weatherproof IP67, NEMA 4 & 6(standard)

Gearing Bronze Worm Gear, Alloy Steel Worm

Self-Locking Double Reduction Worm Gear

Duty Type S2-30%

Limit Switches
2x open/close SPDT, 250 VAC 10A

Auxiliary Limit Switches
2x open/close SPDT, 250 VAC 10A (except HQ-008)

Torque Switches
open/close SPDT, 250 VAC 10A*

Indicator Mechanical Dial Position Indicator

Manual Handwheel with declutching mechanism

Space Heater
7-10W heater

Conduit Entries
2 PF 3/4 in. Tap

Lubrication -20°C to 70°C

Ambient Temperature
-20°C to 80°C

External Coating
Polyester powder coating

Thermal Protection Built-in thermal protection, open: 140°C +/- 5°C; close: 90°C +/- 10°C

* HQ-008 does not include torque switches

Standard Configurations

HQ Capabilities

Model	Torque (in-lbs)	Torque (N-m)	Operating Time(s) 60 / 50Hz	Rated Current(A) 60 / 50Hz						Base	Max Bore Diameter (mm/in)
				DC	1 Phase		3 Phase				
				24V	110V	220V	380V	440V	460V		
HQ-004	350	40	12 / 12	0.12	0.12	0.06	-	-	-	F03/F04/F05	11 / 0.443*
HQ-004(HSA)	220	25	6.5 / 6.5	0.25	0.065	0.033	-	-	-	F03/F04/F05	11 / 0.443*
HQ-006	480	55	12 / 15	0.72	0.39 / 0.35	0.18 / 0.17	-	-	-	F03/F05/F07	14 / 0.551*
HQ-008	720	80	13 / 16	2.6	0.97 / 0.96	0.48 / 0.56	0.33 / 0.43	0.43 / 0.59	-	F07	20 / 0.787
HQ-015	1,320	150	21 / 25	8.8	1.7 / 1.5	0.84 / 0.73	0.28 / 0.37	0.35 / 0.59	0.19 / 0.23	F07 & F10	22 / 0.866
HQ-020	1,740	195	21 / 25	9.8	1.7 / 1.5	0.84 / 0.73	0.28 / 0.37	0.35 / 0.59	0.19 / 0.23	F07 & F10	22 / 0.866
HQ-030	2,580	290	26 / 31	10.6	1.67 / 1.37	0.81 / 0.68	0.29 / 0.33	0.30 / 0.43	0.24 / 0.27	F10 & F12	35 / 1.377
HQ-050	4,320	485	26 / 31	12.8	3.56 / 4.27	1.27 / 1.37	0.34 / 0.45	0.39 / 0.57	0.33 / 0.44	F10 & F12	35 / 1.377
HQ-060	5,220	590	26 / 31	-	3.56 / 4.27	1.27 / 1.37	0.34 / 0.45	0.39 / 0.57	0.33 / 0.44	F10 & F12	35 / 1.377
HQ-080	6,960	785	31 / 37	-	5.1 / 3.8	2.3 / 1.8	0.60 / 0.83	0.67 / 1.1	0.58 / 0.77	F12 & F14	45 / 1.771
HQ-120	10,440	1,180	31 / 37	-	5.1 / 3.8	2.3 / 1.8	0.60 / 0.83	0.67 / 1.1	0.58 / 0.77	F12 & F14	45 / 1.771
HQ-200**	17,400	1,965	31 / 37	-	5.1 / 3.8	2.3 / 1.8	0.60 / 0.83	0.67 / 1.1	0.58 / 0.77	F16	65 / 2.559
HQ-270**	23,430	2,645	47 / 56	-	5.1 / 3.8	2.3 / 1.8	0.60 / 0.83	0.67 / 1.1	0.58 / 0.77	F16	65 / 2.559
HQ-350	30,370	3,430	33 / 39	-	10.5 / 14.8	6.3 / 9.0	3.3 / 3.6	1.8 / 2.1	-	F16	75 / 2.952
HQ-400	34,710	3,920	49 / 58	-	10.5 / 14.8	6.3 / 9.0	3.3 / 3.6	1.8 / 2.1	-	F16	75 / 2.952

*star drive **utilizes auxiliary gearbox

Enclosure Ratings

Rating	HQ Compatibility
NEMA 4 & 6, IP67(standard)	All HQs
IP68(10 meters for 72 hours)	HQ-004 and larger
ATEX Ex d IIB T4	HQ-008 and larger
CSA Type 4, 4X, 6, IP66, IP67	HQ-008 - HQ-270; 110 VAC, 1 phase, 60/50 Hertz

General Options*

Option	Additional Features	HQ Compatibility
Potentiometer(PIU)	Potentiometer <ul style="list-style-type: none"> 1K Ohm Included with PCU and CPT 	All HQs
Proportional Control Unit(PCU)	Provides both control (input) and feedback (output) of valve position <ul style="list-style-type: none"> Input signal: 4-20mA, 0-20mA, 0-10 VDC, 1-5 VDC Output signal: 4-20mA, 0-10 VDC Ideal for modulating service 	All HQs
Current Position Transmitter(CPT)	Provides remote valve position <ul style="list-style-type: none"> Output signal: 4-20mA DC Resolution: 1/1000 Position Conversion Accuracy: 0.5% - 1.5% 	All HQs
Rechargeable Battery Backup(RBB)	Emergency power during site power failure <ul style="list-style-type: none"> Total of 5 operations within one hour Automatically recharges Comes with LED LCU display 	HQ-015 – HQ-030 Single phase only
Modbus RTU	2-wire communication with network master station	HQ-015 and larger
Additional Limit Switches	2 Additional SPDT 250V AC 10A rated limit switches	HQ-015 – HQ-400

*Some options may not be compatible with other options, consult an Emerson representative for compatibility.

Local Control Unit(LCU)

LCU	Controls	Display	Additional Features	HQ Compatibility
110VAC and 230VAC Single Phase				
LCU-B1*	(2) Selector Switches Open/Close Local/Off/Remote	LED Display • Open • Fault • Close • Power On • Remote	Control Transformer (110V/230 V)	HQ-015 and larger
LCU-D	(2) Selector Switches Open/Close Local/Off/Remote	None	None	HQ-006 and HQ-008
RBB (Rechargeable Battery Backup)	(2) Selector Switches Open/Close Local/Off/Remote	LED Display • Open • Fault • Close • Power On • Remote • Battery Level	Automatic Recharge Fail-safe Capability	HQ-015 to HQ-030
PBM (Push Button Module)	(1) Selector Switches Local/Off/Remote (3) Push Buttons Open/Stop/Close	LED Display • Open • Fault(optional) • Close	Local or remote mounted	HQ-015 and larger
230VAC and 380VAC Three Phase (includes Control Transformer and Reversing contactor)				
LCU-B3*	(2) Selector Switches Open/Close Local/Off/Remote	LED Display • Open • Fault • Close • Power On • Remote	Auto-phase detection	HQ-015 and larger
LCU-C*	(2) Selector Switches Open/Close Local/Off/Remote	LCD Display	Auto-phase correction Separate Terminal Chamber	HQ-015 and larger
460VAC Three Phase (includes Control Transformer and Reversing contactor)				
LCU-M	(2) Selector Switches Open/Close Local/Off/Remote	LED Display • Open • Fault • Close • Power On • Remote	None	HQ-015 and larger
LCU-N*	None	None	HQ-PBM(optional)	HQ-015 and larger

*Suitable for modulating service



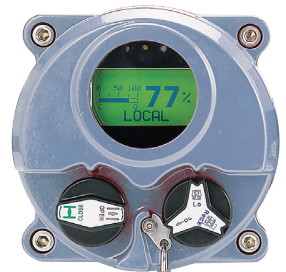
LCU B1/B3/M



RBB



PBM



LCU-C

Emerson
Actuation Technologies
19200 Northwest Freeway
Houston TX 77065
USA
T +1 281 477 4100
F +1 281 477 2809

For complete list of sales and manufacturing sites, please visit
www.emerson.com/actuationtechnologieslocations or contact us at info.actuationtechnologies@emerson.com

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