

JAMESBURY® VALVCON QX-SERIES ELECTRIC ACTUATOR

Metso is a leading designer and provider of *Jamesbury Valvcon* compact, reliable, electronically controlled electric actuators for valves and dampers. We offer a complete line of electric actuators for accurate positioning of dampers and valves in the aerospace, automotive, consumer services, discrete manufacturing, energy, environmental, oil/pipeline, petrochemical, power/utilities, process, recreation, transportation, and water/wastewater industries.

We have developed and introduced the industry's most innovative Metso *Jamesbury Valvcon* electric actuator products, including simple "set and go" calibration, intelligent processor-based digital electronics, "Plugin" accessory boards, Back-Up Power actuators, as well as electric actuators designed for remote control, solar-powered applications and two-wire network applications.

FEATURES AND BENEFITS

The QX-Series actuator is an economical DC powered explosionproof actuator. The low current draw DC motor and NEMA 4/4X/7&9 enclosure make this product suitable for use in oil and gas fields, offshore rigs, remote skids, and many other applications and locations. The actuator is available as 12VDC and 24VDC and has a torque range up to 3,000 in-lb (250 lb-ft).

Isolation and Electrical

The heavy-duty terminal block shall have clearly marked terminals for Power and Option connections to prevent mis-wiring. An internal relay will provide ease of directional control; eliminating the need for external voltage-polarity reversal. All connections will be hardwired to simplify field repairs. No maintenance will be required.

Motor

The internal electric motor will be of a brushed DC type, capable of 80% duty cycle at full torque, at ambient temperature at or below 104° F.



Lubrication

All rotating power train components will be coated with a multi-purpose grease. Lubricants will be suitable for ambient conditions of -40°F to 150°F. For operation in temperatures between 32°F and -40°F an optional heater and thermostat assembly must be included.

Gearing

The power train will be comprised of hardened steel, machine cut spur gears. Non-metallic, aluminum, cast or stamped gearing will not be permitted.

Additional Limit Switches

Two additional limit switches for position indication or as dry contacts to operate other devices. Single pole, double throw switches rated for 1/2 HP, 11 amps @ 250VAC, CSA certified. (Standard on all QX-Series models)

On/Off (Open/Close) Operation

The default position/direction of travel is clockwise, power must be applied to terminals 1 (NEG/-) and 2 (POS/+). To drive in the counter-clockwise direction, an additional "control signal" must be applied to terminal 3 (POS/+); when this "control signal" is de-energized, (and power is still present at terminals 1 and 2) the actuator will return to the clockwise position. The actuator will continue to drive in the "powered" direction until power is removed or a cam trips an end-of-travel switch. Power may be removed mid-stroke to position the final drive device. Once the actuator reaches an end-of-travel switch, power and the "control signal" may be removed or left applied without damaging the actuator.

Break-away Torque

Designed for efficiency and reliability, all Metso *Jamesbury* Valvcon actuators deliver the power you need when and where it is needed. With efficient gear trains and motors the actuators are rated at breakaway torque. Immediately upon power up, the actuator supplies the rated torque — when it is needed to break the valve away from its seat. Other manufacturer’s actuators may be rated at running torque, but actually deliver significantly less breakaway torque.

Holding Brake

A brake prevents the actuator from being backdriven. Required for all dampers, butterfly valves, PVC ball valves, and resilient seated valves. (Standard on all QX-Series models)

Hazardous Location Enclosures

The standard enclosure is rated for NEMA 4/4X/7 & 9, Class I, Div 1, Groups C&D; Class II, Div. 1, Groups E, F, & G; Class III.

CSA Certifications

Certification by the Canadian Standards Association, to both Canadian and U.S. (C US) standards, is standard on all QX-Series models.

COMMON FEATURES AT A GLANCE!

- Low current draw
- Heavy-duty Terminal Block
- Holding Brake
- Two auxiliary limit switches
- ISO 5211 Mounting
- CSA Approved

QX-SERIES OPTIONS

(Order Code H) Tropical Heater/Thermostat

Recommended in all high humidity applications where condensation may accumulate inside the actuator. For 115VAC, 24VAC, 12VDC and 24VDC applications the heater consumes 15 watts, for 230VAC applications the heater consumes 40 watts.

(Order Code I) ISO 5211 Output

ISO 5211 Standard mounting configuration and output coupling.

150-600 in-lb models with “I” options are supplied with a 14mm female square. (note: without option “I” the female square is 3/4 inch).

1000 in-lb models with “I” options are supplied with a 19mm female square and 1500-3000 in-lb models are supplied with a 22 mm female square. (note: without option “I” the female square is 1inch).

(Order Code T) Heater/Thermostat

Required in all applications where the temperature may drop below 32°F. For 115VAC, 24VAC, 12VDC and 24VDC applications the heater consumes 15 watts, for 230VAC applications the heater consumes 40 watts.

(Order Code Y) Keyed Output

150 - 600 in-lb actuators are supplied with a 3/4" female square output coupling; when the “Y” option is selected they are supplied with a 15mm female keyed output.

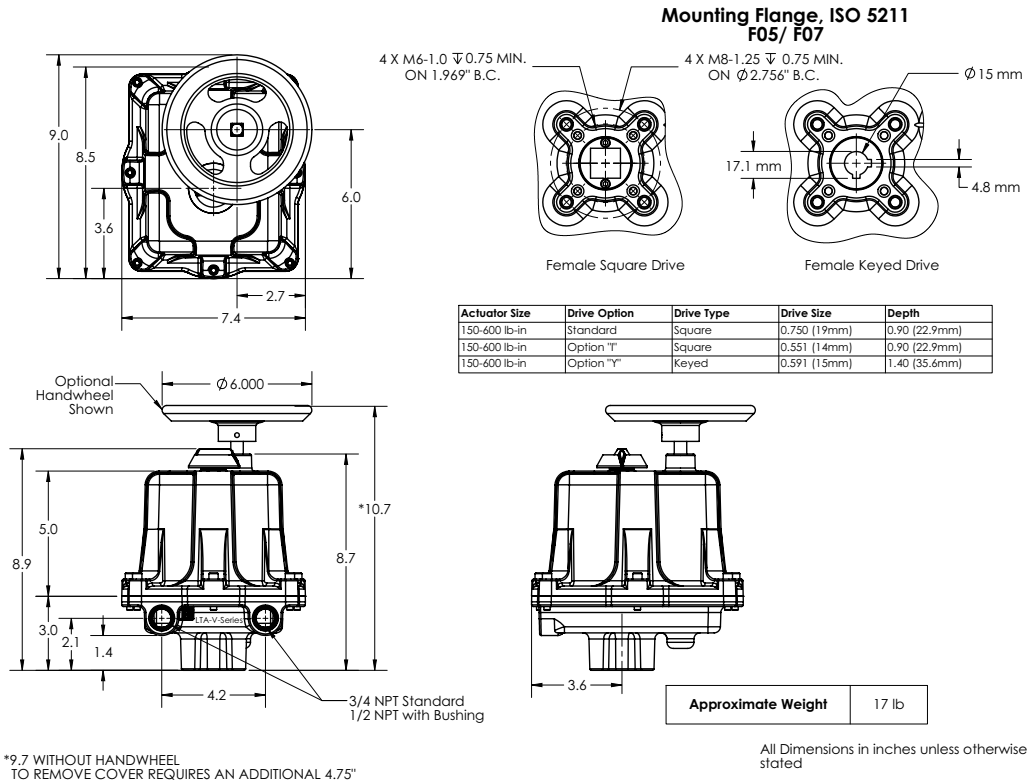
1000 - 3000 in-lb models are supplied with a 1" female square output coupling; when the “Y” option is selected they are supplied with a 20mm female keyed output.

(Order Code Z) Handwheel

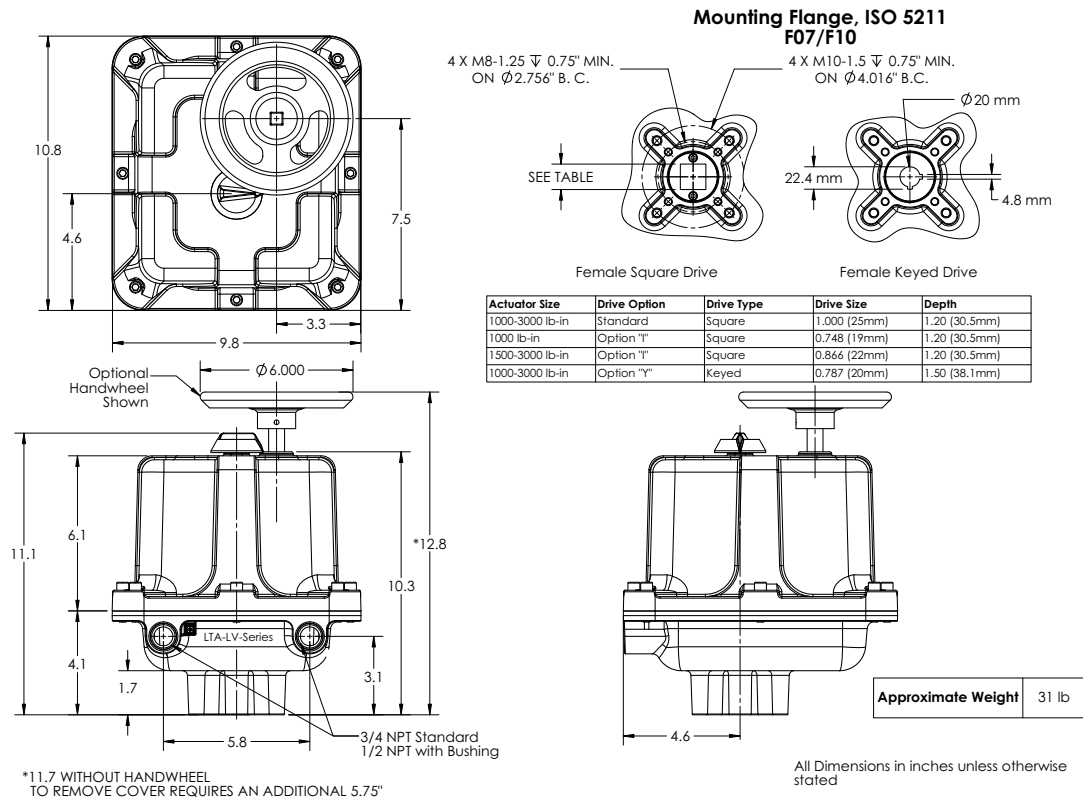
For manual operation when power is not available. The handwheel is disengaged from the geartrain and does not turn during normal operation. When the handwheel is pushed down, it disengages the motor from the geartrain and allows manual operation.

Torque Output (breakaway)	Cycle Time (seconds per 90°)		Duty Cycle	Max Running Current at Full Load	
	12VDC	24VDC		12VDC	24VDC
150 in-lb	5	3	80%	1.9	2.4
300 in-lb	10	5	80%	1.9	2.4
600 in-lb	15	8	80%	1.9	2.4
1000 in-lb	15	15	80%	3.5	3.5
1500 in-lb	20	20	80%	3.5	3.5
2000 in-lb	25	25	80%	4.8	4.8
2500 in-lb	30	30	80%	4.8	4.8
3000 in-lb	30	30	80%	4.8	4.8

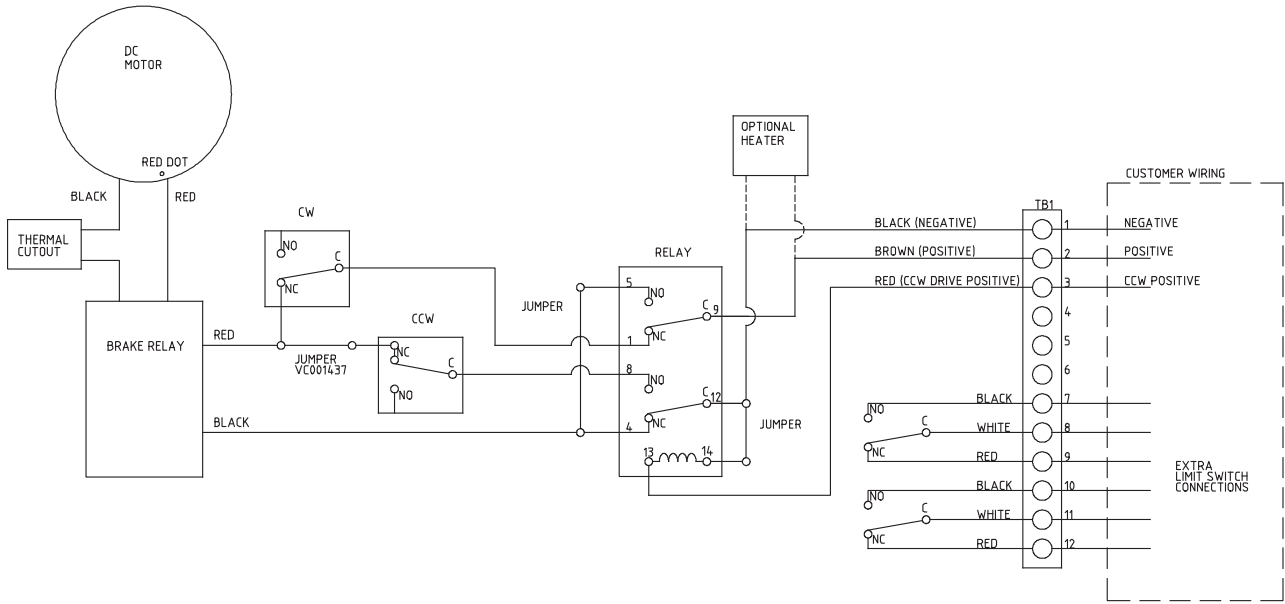
QX-SERIES ENCLOSURES (150-600 lb-in)



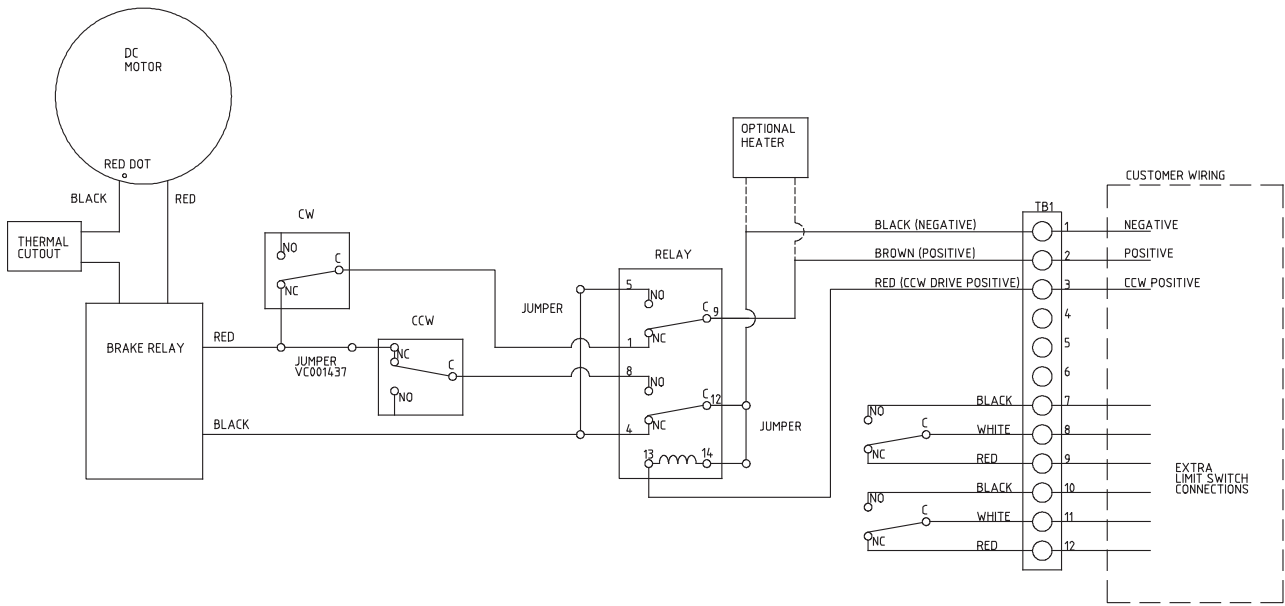
QX-SERIES ENCLOSURES (1,000-3,000 lb-in)



QX-SERIES WIRING DIAGRAM – SMALL ENCLOSURE



QX-SERIES WIRING DIAGRAM – LARGE ENCLOSURE



HOW TO ORDER - QX-SERIES ELECTRIC ACTUATORS

Example:

Sample model code:
QX2000IZS12DC

1	Enclosure
QX ¹	Weathertight & Explosionproof (NEMA 4/4X/7 & 9)

2	Torque (in lbs)
150	150
300	300
600	600
1000	1000
1500	1500
2000	2000
2500	2500
3000	3000

1	2	3	4
QX	2000	IZ	S12DC

3	Options
—	No Entry If Standard
H ²	Tropical Heater/Thermostat
I ³	ISO 5211 Compliant Output
T ⁴	Heater/Thermostat
Y ⁵	Keyed Output
Z	Handwheel

4	Operating Voltage
S12DC	12VDC
S24DC	24VDC

Notes:

1. All QX-Series actuators include a holding brake, two auxiliary limit switches, visual position indication, a wrench-operated manual override, a NEMA 4/4X/7&9 enclosure and CSA (C US) Certification as standard features.
2. This heater option activates at or below 90°F and deactivates at 110°F; it is recommended in high-humidity applications.
3. 150 - 600 lb-in models with "I" option are supplied with a 14mm female square (note that without option I the female square is 3/4"). 1000 lb-in models with "I" option are supplied with a 19mm female square and 1500 - 3000 lb-in models are supplied with a 22mm female square (note that without option "I" the female square is 1")
4. This heater option activates at or below 40°F and deactivates at 60°F; it is recommended in applications where the temperature may drop below 32°F.
5. 150 - 600 lb-in models with "Y" option are supplied with a 15mm female keyed output. 1000 - 3000 lb-in models with "Y" option are supplied with a 20mm female keyed output.

COMMITTED TO CUSTOMER SERVICE, QUALITY & SUPPORT

Committed to Customer Service

Metso worldwide web site: www.metso.com/valvcon, provides 24 hour a day access to all technical support material—from sales brochures to instruction manuals to installation and troubleshooting tips. For local support, our network of trained stocking distributors/representatives are industry leading experts in valve automation. Contact the Metso, *Jamesbury* Valvcon product web site to locate the nearest stocking distributor/representative.

Timely Technical Support

Metso Product Support is on call to answer your engineering or application questions, and to quickly repair or upgrade your actuators. These highly trained support engineers offer a broad range of expertise, with the combined experience to assist specifying engineers and contractors with information on feasibility and special applications.

A Tradition of Quality

Metso is dedicated to producing superior-quality products that are second to none. Our development laboratory and manufacturing facilities exemplify our total commitment to producing quality products.

Subject to change without prior notice.

Metso Automation Inc.

Europe, Vanha Porvoontie 229, P.O. Box 304, FI-01301 Vantaa, Finland.
Tel. +358 20 483 150. Fax +358 20 483 151

North America, 44 Bowditch Drive, P.O. Box 8044, Shrewsbury, MA 01545, USA.
Tel. +1 508 852 0200. Fax +1 508 852 8172

South America, Av. Independência, 2500- Iporanga, 18087-101, Sorocaba-São Paulo Brazil. Tel. +55 15 2102 9700. Fax +55 15 2102 9748/49

Asia Pacific, Haw Par Centre No. 06-01, 180 Clemenceau Avenue, 239922 Singapore, Singapore.
Tel. +65 6511 1011. Fax +65 6250 0830

China, 19/F, the Exchange Beijing, No. 118, Jianguo Lu Yi, Chaoyang Dist, 100022 Beijing, China.
Tel. +86-10-6566-6600. Fax +86-10-6566-2575

Middle East, Roundabout 8, Unit AB-07, P.O. Box 17175, Jebel Ali Freezone, Dubai, United Arab Emirates. Tel. +971 4 883 6974. Fax +971 4 883 6836

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