

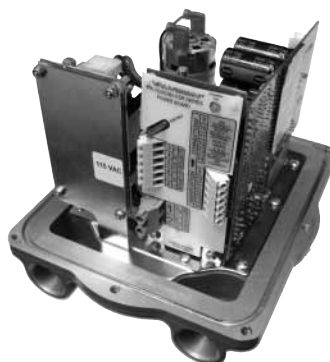
JAMESBURY® VALVCON ESR-SERIES ELECTRONIC SPRING RETURN ELECTRIC ACTUATOR

Metso is a leading designer and provider of 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 Valvcon electric actuator products, including simple "set and go" calibration, intelligent processor-based digital electronics, "Plug-in" 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 quarter-turn electric actuator will also be designed to meet NEMA standards for use in weather-tight or weathertight and hazardous locations. The actuator will be a single, complete unit composed of a compact cast aluminum housing, motor, gearing, limit switches controlled by metal cams for end of travel control, mechanical position indicator, and an internal back-up power source to drive to a pre-set position in the event of an external power loss. Actuator mounting flanges shall comply with ISO 5211 standards incorporating a female drive for direct output coupling. The actuator shall be capable of operating in ambient environments of -40° F to 130° F; optional internal heaters are required at temperatures below 32° F.



Isolation and Electrical

Internal electronic control boards shall have clearly marked and different size connection terminals for Power and Option Connections to prevent incorrect wiring. The actuator control electronics shall be electrically isolated to allow multiple actuators to be wired in parallel. Electronic control boards shall include an easy to follow insulating overlay that contains wiring information. All internal connections, (motor leads, limit switch leads, option connectors, etc.) shall be coded, using different style connectors for each function, to prevent incorrect wiring. All connections will plug-in to simplify field repairs and upgrades. A highly reliable switching power supply will provide power conversion to drive the internal DC motor; 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 130° F. For operation in temperatures between 32° F and -40° F an optional heater and thermostat assembly must be included.

Gearing

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

Limit Switches

Actuators will have two standard end-of-travel switches, single pole double throw, rated at 11 amps at 250 VAC. The limit switches will be activated by metal cams mounted on the actuator drive shaft. Up to two additional limit switches, adjustable to operate at any position as required by the process application, may be added to the actuator for end-of-travel indication.

On/Off (Open/Close) Operation

While power is applied to the actuator, the internal storage modules shall recharge in less than 300 seconds. Once fully charged, the actuator shall drive to the Power (non-fail) position. Upon loss of power the actuator will drive to the Fail position. During a loss of power condition, there shall be a two-second delay before actuation to ensure protection against brown-out conditions. The Fail position may be either the full CW or full CCW and is determined by the position of the "direction select" jumper on the main storage module.

Internal Storage Module

The internal storage module shall consist of a bank of super capacitors that are rated for a minimum of 100,000 cycles. The main storage module shall include two connectors to increase storage capacity for greater torque requirements.

Break-away Torque

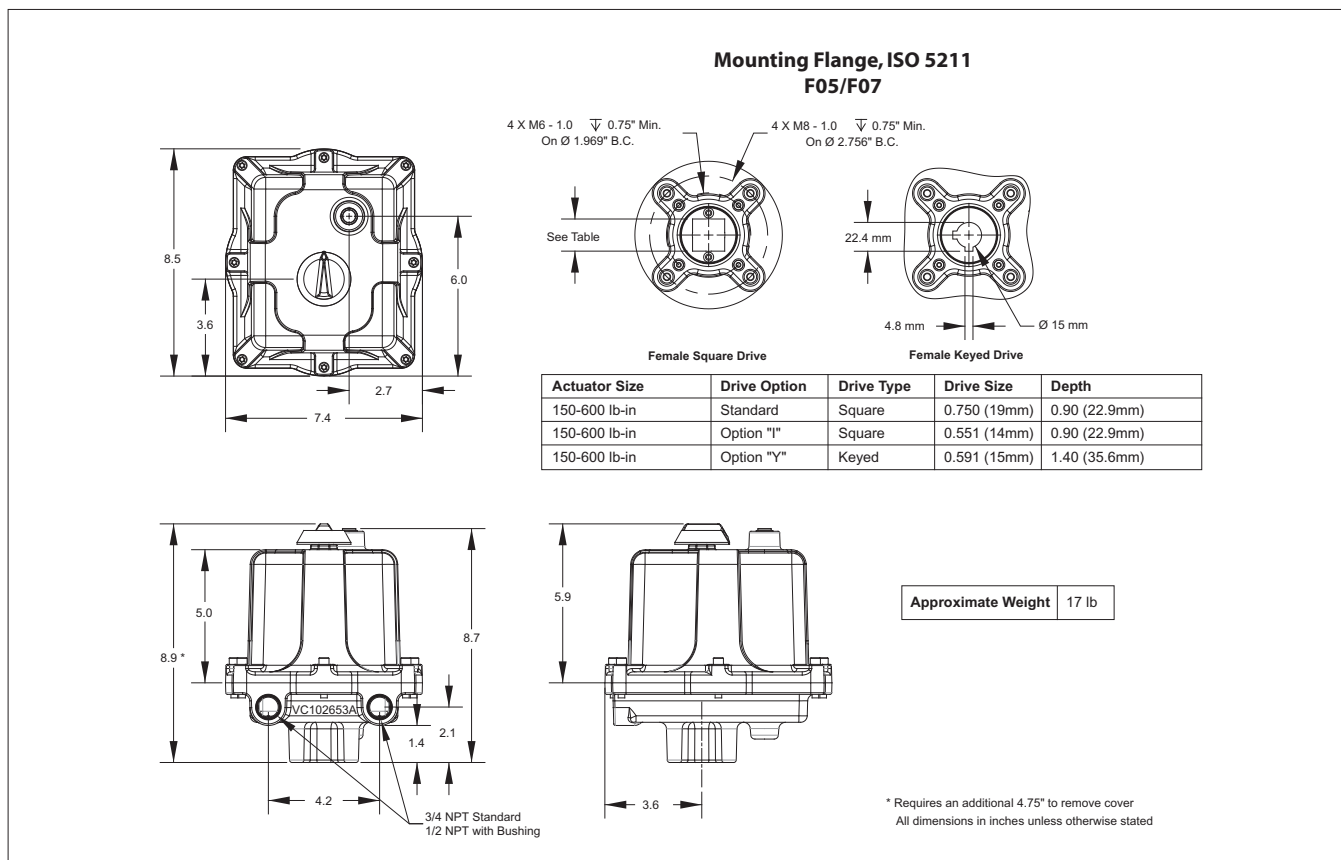
Designed for efficiency and reliability, all Metso Valvcon actuators deliver the power you need when and where it is needed. With efficient gear trains and motors these actuators are rated at breakaway torque. Immediately upon power up, the actuator supplies the rated torque — when it is needed to break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

FEATURES AT A GLANCE!

ESR-Series

- Internal energy storage provides power to "safe" position during power-outages.
- Field-settable for "fail clockwise" or "fail counter-clockwise."
- True "two-wire" control.
- Patented technology provides back-up capabilities within the standard size actuator enclosures!
- Dual conduit openings make wiring easier, and keep power and control wiring separate.
- Two year warranty.

ESR-SERIES ENCLOSURE



ALL DIMENSIONS IN INCHES

ESR SPECIFICATIONS

Internal Back-up Power

Metso Valvcon ESR-Series electric actuators, equipped with internal back-up power, allow you to shut down your system in the event of an external power loss.

The electronic back-up powered feature incorporates a rechargeable storage module on a plug-in, modular PC board under the actuator cover. Upon power loss, the storage module is automatically activated as the main power supply to drive the actuator to the "fail" position. No hard-wiring or other complex operations are required.

ESR-SERIES DATA

Torque (in lbs)	Normal Operating Speed (per 90° rotation in seconds)	Power Loss Speed (90° rotation)	Maximum Charge Monitor Delay (before actuation begins)	Normal Operating Current Draw (in amps)		Duty Cycle*
				115VAC	230VAC	
150	5	10 seconds	3 minutes	.2	.1	Continuous*
300	10	15 seconds	4 minutes	.2	.1	Continuous*
600	15	25 seconds	5 minutes	.2	.1	Continuous*

* Continuous up to 1 hour, after which duty cycle is 80%

ELECTRONIC SPRING RETURN ELECTRIC ACTUATORS OPTIONS

Tropical Heater/Thermostat

(Order Code H)

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

ISO 5211 Output

(Order Code I)

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).

(Order Code K)

Brake Option; prevents back-driving. Recommended on butterfly valves, dampers and resilient-seated ball valves.

Additional Limit Switches

(Order Code S2)

Up to two additional limit switches may be added 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.

Heater/Thermostat

(Order Code T)

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

Keyed Output

(Order Code Y)

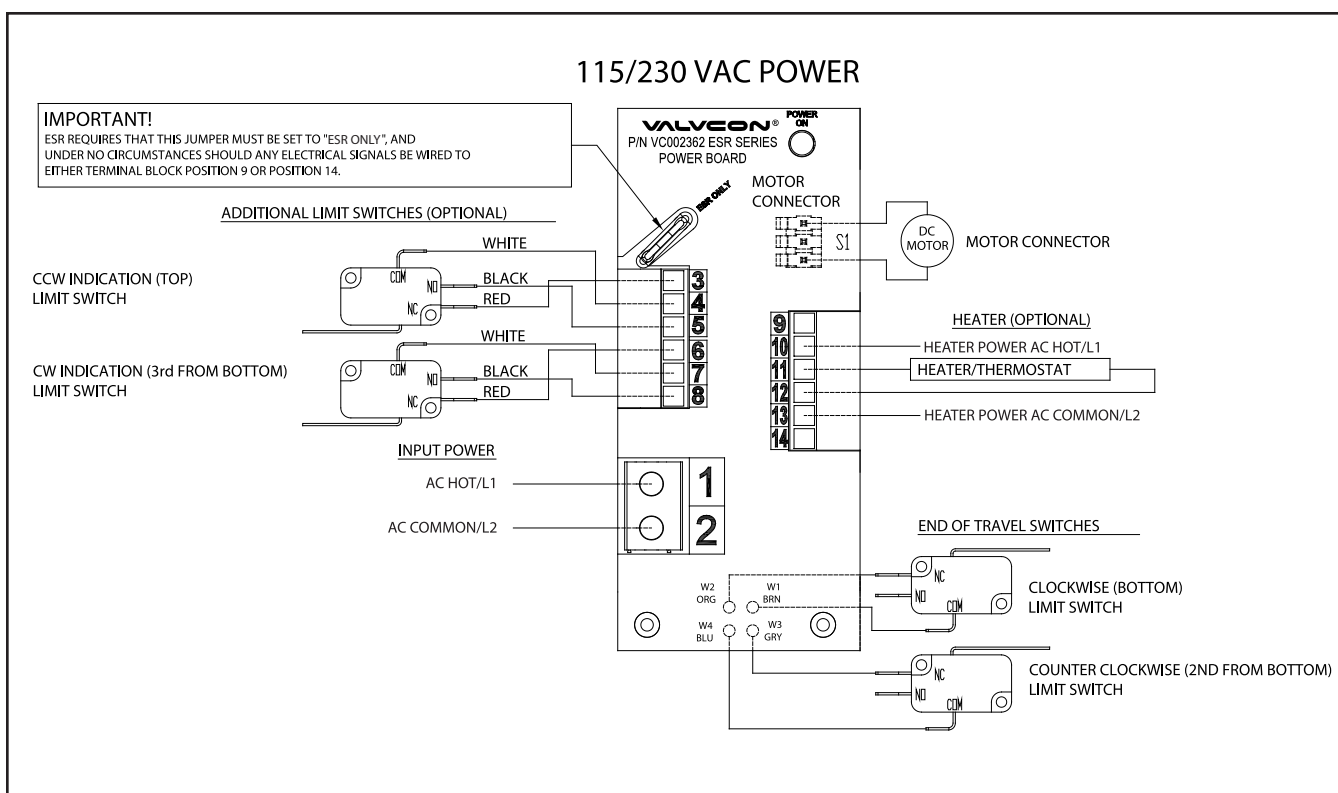
150 - 600 in-lb actuators are supplied with a 3/4" female square output coupling; when the "Y" option is selected they are supplied with a 15mm female keyed output.

Hazardous Location Enclosures

(ESRWX)

The standard enclosure (W) is rated for NEMA 4/4X (weather tight and corrosion resistant). The Hazardous Location enclosure (WX) is designed to meet NEMA 4/4X/7 & 9, Class I, Div 1, Groups C&D; Class II, Div. 1, Groups E, F, & G; Class III.

ESR-SERIES WIRING FOR 115 AND 230 VAC



HOW TO ORDER - ESR-SERIES ELECTRIC ACTUATORS

Example:

Sample model code:

ESR WX 600 IKS2T S115AC

1	Series
ESR	ESR

2	Enclosure
W	Weathertight (NEMA 4/4X)
WX	Weathertight & Explosionproof (NEMA 4/4X/7 & 9)

3	Torque (in lbs)
150	150
300	300
600	600

1	2	3	4	5
ESR	WX	600	I,K,S2,T	S115AC

4	Other Options
H¹	Tropical Heater/Thermostat
I²	ISO 5211 Output
K	Brake
S2	Two Auxiliary Limit Switches
T³	Heater/Thermostat
Y⁴	Keyed Output

5	Operating Voltage
S115AC	115VAC
S230AC	230VAC

Notes:

1. This heater option activates at or below 90°F and deactivates at 110°F; it is recommended in high-humidity applications.
2. ESR-Series actuators with I option are supplied with a 14mm female square (note that without option I the female square is 3/4")
3. 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.
4. ESR-Series actuators with Y option are supplied with a 15mm female keyed output.

JAMESBURY VALVCON – 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, 20 Kallang Avenue, Lobby B, #06-00, PICO Creative Centre, Singapore 339411, 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

www.metso.com/valvcon

