



# "E" SERIES ELECTRIC ACTUATORS

SVF Electric Actuators are geared motors that provide rotary output (torque) to power all types of rotary valves (ball, plug and butterfly valves as well as dampers and diverters). Output is achieved through the application of a supply voltage (AC or DC). Rotary action is controlled through two limit switches (one for "OPEN" and one for "CLOSED") located in the unit and in conjunction with two cams. Precise setting of either position is achieved by adjusting the cam to activate the switch at exactly the desired point in the rotary cycle. The power wiring procedure is indicated on the wiring diagram supplied with each unit.



"E" SERIES ACTUATOR  
MODEL E200W2E (NEMA 4)

## "E" SERIES DESIGN FEATURES

"E" Series electric, rotary actuators are designed to provide the operating torque required to automate our full line of process-quality ball valves. All SVF "E" Series electric actuators are available with the following features:

- ✓ Heavy-duty, fully enclosed, high performance motor is rated for both On/Off and modulating service.
- ✓ Actuator housing and fasteners meet NEMA 4 guidelines (weatherproof) or NEMA 7 (hazardous locations) requirements.
- ✓ Corrosion protection with thermally bonded polyester coating.
- ✓ Operating speeds and output torque generated through a permanently lubricated gear train.
- ✓ All motors feature integral thermal overload protection.
- ✓ Designed for operation in temperatures from -40°F to 150°F.
- ✓ All models feature a manual override, ISO mounting pad and are wired for light indication.
- ✓ Standard travel-stop limit switches can simultaneously be used for light indication.

## REVERSING MOTORS

Reversible motors open the valve in one direction and close the valve in the reverse direction. Reversible motors are ideal for precise flow control, since the actuator does not have to travel through the full stroke to start the reverse stroke. For example, one coil in the motor controls the counter-clockwise rotation or "open cycle" while the other coil controls the clockwise or "closing cycle".

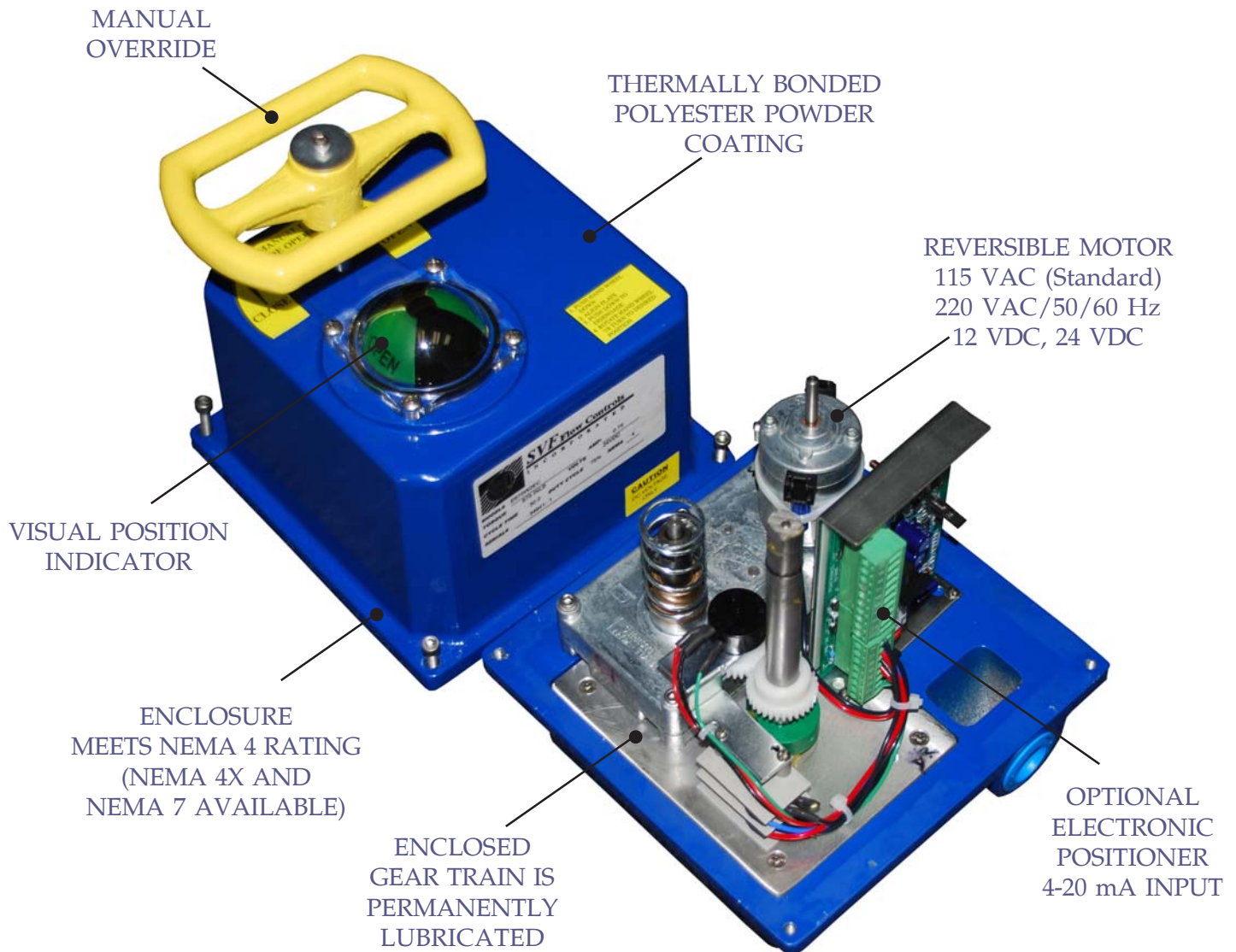
## "E" SERIES APPLICATIONS

- ✓ Excellent for use in systems where compressed air for actuation is either unavailable or impractical.
- ✓ Electric control circuits may be designed for virtually any control scheme.
- ✓ Readily interfaces with all electric control schemes.
- ✓ Ideal for multi-ported valves. Provides three or four distinct stop positions.
- ✓ May be used in manual jogging systems.
- ✓ When fitted with a heater, electric actuators are well suited for use in sub-freezing environment.

## SAMPLE SPECIFICATION

All "E" Series Electric Actuators shall be reversible type, capacitor run motor design, thermally protected and with a permanently lubricated hardened steel gear train.

Each actuator shall be available with a manual override, visual position indication and ISO standard mounting arrangement as offered by SVF Flow Controls, Inc.



Sample Specification based on SVF "E" Series Model E675W4EC (shown above), and Models E1000W4EC and E1500W4EC.

*What do you need today?*<sup>™</sup>

## OPTIONAL EQUIPMENT FOR "E" SERIES ACTUATORS

- Electromechanical Brake**  
Eliminates oscillation when seating butterfly valves.
- Voltages 115 VAC Standard**  
Optional 220 VAC/50/60 Hz, 12VDC, 24 VDC.
- Auxiliary Switches**  
Two additional limit switches may be added for interlocking other equipment such as pumps, compressors, mixers or other valves.
- Heater & Thermostat**  
For operation at low temperature (to -40°F). Also used to combat condensation in high humidity areas. The combination heater/thermostat will maintain the temperature of the enclosure at 40°F.
- Analog Positioner**  
Accepts 4-20 mA input signal or optional 1-5 and 10-50 mA, 0-10 VDC are available.
- Speed Control Circuit**  
Pulsing circuit to adjust (slow) the overall cycle time.
- Timer Control**  
Operates the actuator at specified intervals.
- Three-Position Control**  
For use with multi-ported valves.
- Local Control Station**  
Externally mounted pushbutton station.
- Two-Wire Control**  
To meet some digital interface control systems.
- Torque Sensor Control**  
Protects the actuator in the event of unforeseen torque increases often associated with valve wear or pipeline obstructions.
- Reversing Contactor**  
For three-phase motor operation. (Only available on some models - consult SVF).

## "E" SERIES MATERIALS OF CONSTRUCTION

| ITEM | DESCRIPTION  | MATERIALS                                  |  |
|------|--------------|--|--|
| 1    | Housing      | Cast Aluminum                              |  |
| 2    | Coating      | Thermally Bonded Polyester Coating         |  |
| 3    | Gearing      | Hardened Steel<br>(Permanently Lubricated) |  |
| 4    | Output Shaft | Carbon Steel                               |  |
| 5    | Cover Bolts  | Stainless Steel                            |  |

## "E" SERIES ELECTRIC ACTUATOR - QUICK REFERENCE GUIDE

| SVF "E" SERIES MODEL | STANDARD VOLTAGE | LOCKED ROTOR CURRENT | WIRE SIZE | CONDUIT SIZE | SPEED Sec/90 | DUTY CYCLE |
|----------------------|------------------|----------------------|-----------|--------------|--------------|------------|
| E100                 | 115/60/1         | 0.55 Amps            | AWG 14    | 1 x 1/2"     | 2.5          | 75%        |
| E200                 | 115/60/1         | 0.75 Amps            | AWG 14    | 1 x 1/2"     | 5            | 25%        |
| E300                 | 115/60/1         | 0.99 Amps            | AWG 14    | 1 x 1/2"     | 5            | 25%        |
| E675                 | 115/60/1         | 0.75 Amps            | AWG 14    | 1 x 1/2"     | 15           | 25%        |
| E1000                | 115/60/1         | 1.1 Amps             | AWG 14    | 1 x 1/2"     | 15           | 25%        |
| E1500                | 115/60/1         | 1.1 Amps             | AWG 14    | 1 x 1/2"     | 30           | 25%        |



## HAZARDOUS AREA RATINGS FOR NEMA 7 ENCLOSURES

NEMA-7 enclosures are designed to meet or exceed specifications for use in:

- ☑ Class I, Groups C and D
- ☑ Class II, Groups E, F and G
- ☑ Divisions I and II
- ☑ Maximum Temperature = 140° F
- ☑ Models E200 and E300 are CSA certified. File# LR79567
- ☑ Class I, Groups C and D
- ☑ Class II, Groups E, F and G
- ☑ Divisions I and II

## "E" SERIES ISO 5211 MOUNTING DIMENSIONS

## TORQUE

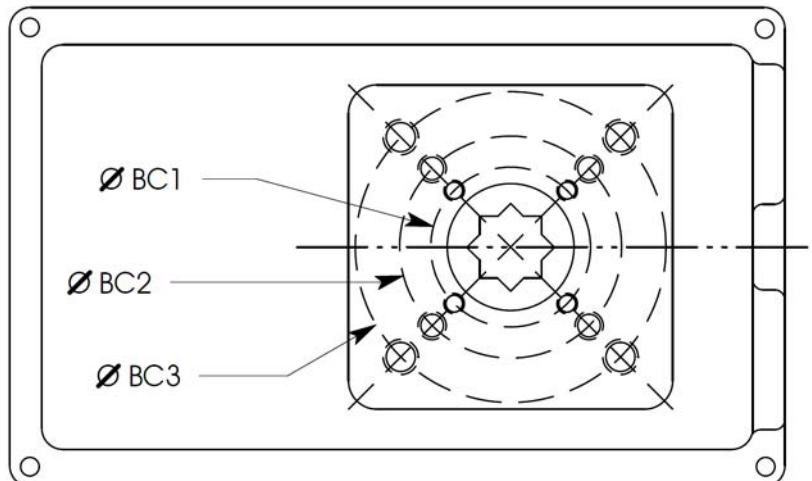
| SVF<br>"E" SERIES<br>MODEL | BOLT<br>CIRCLE #1 |     | MOUNTING<br>BOLTS<br>(Qty - 4) | BOLT<br>CIRCLE #2 |     | MOUNTING<br>BOLTS<br>(Qty - 4) | BOLT<br>CIRCLE #3 |     | MOUNTING<br>BOLTS<br>(Qty - 4) | TORQUE |     |
|----------------------------|-------------------|-----|--------------------------------|-------------------|-----|--------------------------------|-------------------|-----|--------------------------------|--------|-----|
|                            | in.               | ISO |                                | in.               | ISO |                                | in.               | ISO |                                | in-lbf | Nm  |
| E100W                      | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | N/A               | N/A | N/A                            | 100    | 11  |
| E100X                      | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | N/A               | N/A | N/A                            | 100    | 11  |
| E200W                      | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | 2.756             | F07 | 5/16-18x0.5                    | 200    | 23  |
| E200X                      | 1.969             | F05 | 1/4-20x0.44                    | N/A               | N/A | N/A                            | N/A               | N/A | N/A                            | 200    | 23  |
| E200W (M)                  | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | 2.756             | F07 | 5/16-18x0.5                    | 200    | 23  |
| E300W                      | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | 2.756             | F07 | 5/16-18x0.5                    | 300    | 34  |
| E300X                      | 1.969             | F05 | 1/4-20x0.44                    | N/A               | N/A | N/A                            | N/A               | -   | -                              | 300    | 34  |
| E300W (M)                  | 1.417             | F03 | 10-24x0.44                     | 1.969             | F05 | 1/4-20x0.44                    | 2.756             | F07 | 5/16-18x0.5                    | 300    | 34  |
| E675W                      | 2.756             | F05 | 5/16-18x0.40                   | N/A               | N/A | N/A                            | N/A               | N/A | N/A                            | 675    | 76  |
| E675X                      | 2.756             | F05 | 5/16-18x0.40                   | 4.015             | F10 | 3/8-16x0.56                    | N/A               | N/A | N/A                            | 675    | 76  |
| E1000W                     | 2.756             | F05 | 5/16-18x0.40                   | N/A               | N/A | N/A                            | N/A               | N/A | N/A                            | 1000   | 113 |
| E1000X                     | 2.756             | F05 | 5/16-18x0.40                   | 4.015             | F10 | 3/8-16x0.56                    | N/A               | N/A | N/A                            | 1000   | 113 |
| E1500W                     | 2.756             | F05 | 5/16-18x0.40                   | 4.015             | F10 | 3/8-16x0.56                    | N/A               | N/A | N/A                            | 1500   | 169 |
| E1500X                     | 2.756             | F05 | 5/16-18x0.40                   | 4.015             | F10 | 3/8-16x0.56                    | N/A               | N/A | N/A                            | 1500   | 169 |

W= NEMA 4 | X= NEMA 7 | (M)= Modulating

The table above provides the dimensions necessary to mount "E" Series actuators to a valve supplied by SVF Flow Controls, Inc. The Bolt Circle Dimensions include "ISO 5211" dimensions, the International Standard for mounting pad dimensions.

The SVF Series B41 Rev3 and Series SBC9 are direct mount. Other valve series may require the addition of a mounting kit.

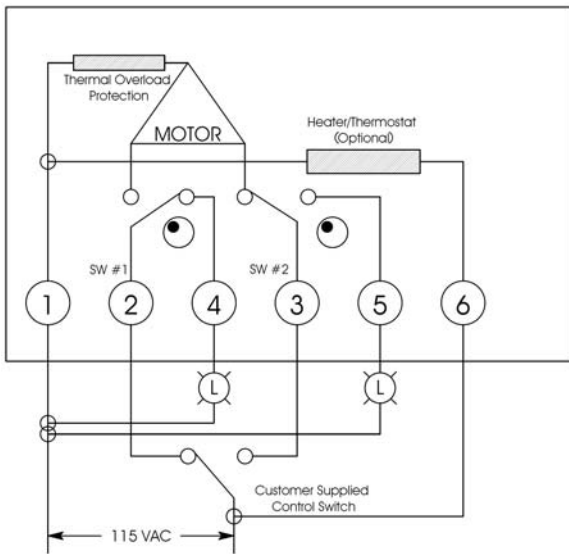
Contact SVF for additional information.



NOTE: Not all actuators have three Bolt Circles.

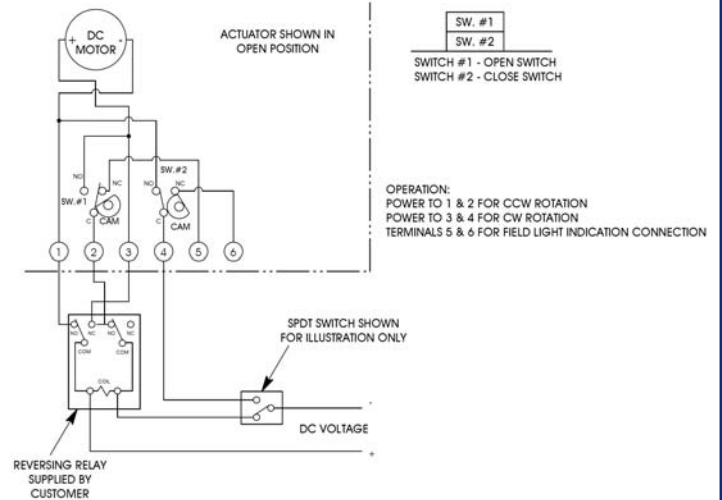
## WIRING DIAGRAMS

**STANDARD WIRING DIAGRAM FOR SINGLE PHASE AC, ON-OFF CONTROL.**  
Consult SVF for more wiring information.



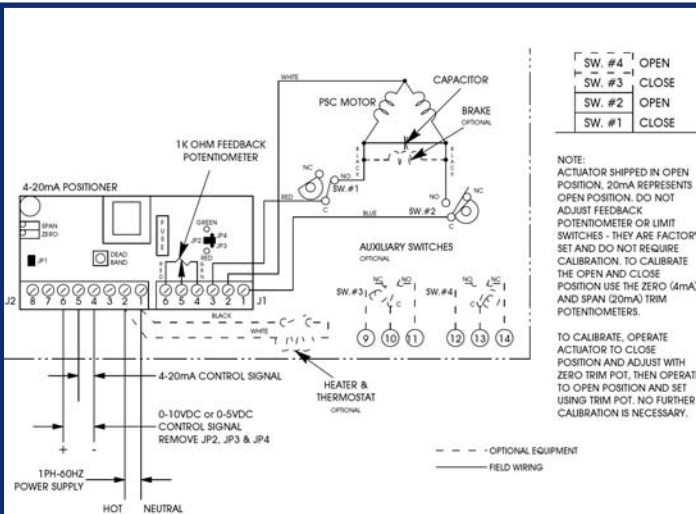
STANDARD WIRING DIAGRAM FOR SINGLE PHASE AC, ON-OFF CONTROL.  
Consult SVF for more wiring information.

**WIRING DIAGRAM FOR TWO-POSITION S&R SERIES ELECTRIC ACTUATOR - 12VDC OR 24VDC**



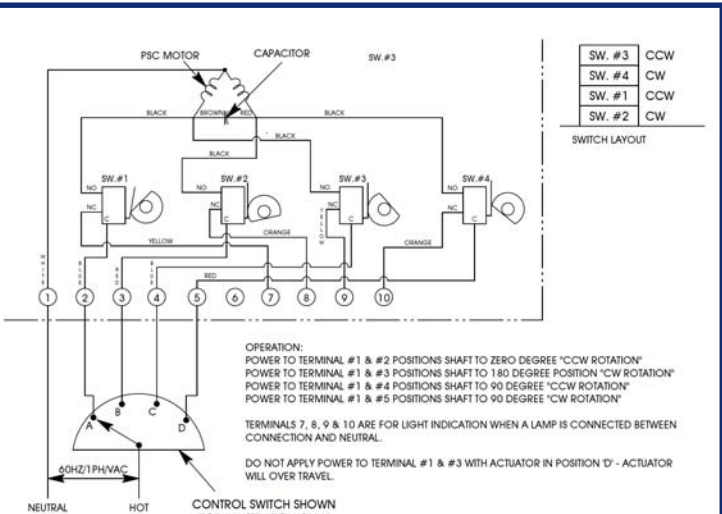
WIRING DIAGRAM FOR TWO-POSITION S&R SERIES ELECTRIC ACTUATOR - 12VDC OR 24VDC

**WIRING DIAGRAM FOR 1Ph/60Hz ELECTRIC ACTUATOR WITH 4-20mA, 0-5VDC or 0-10VDC CONTROL**



WIRING DIAGRAM FOR 1Ph/60Hz ELECTRIC ACTUATOR WITH 4-20mA, 0-5VDC or 0-10VDC CONTROL

**WIRING DIAGRAM FOR 115VAC THREE-POSITION ACTUATOR**



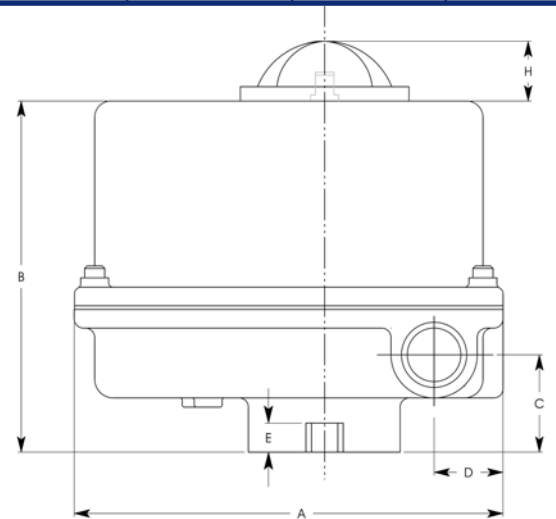
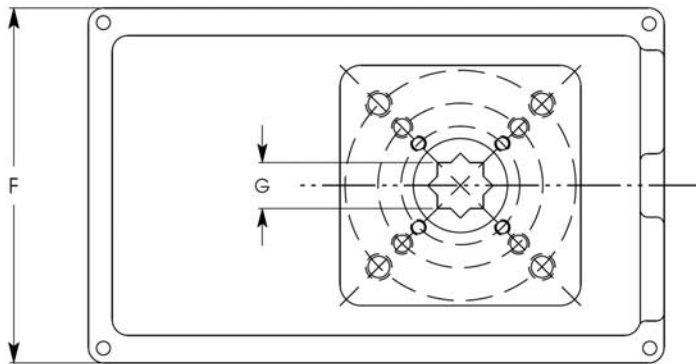
WIRING DIAGRAM FOR 115VAC THREE-POSITION ACTUATOR

Individual wiring diagram sheets are available in the Engineering Resource section on our website.  
Visit [www.SVF.net/resource\\_library.php](http://www.SVF.net/resource_library.php) or email our Engineering Department - [Engineering@SVF.net](mailto:Engineering@SVF.net)  
Specifications subject to change without notice

## DIMENSIONS, WEIGHT

| SVF<br>"E" SERIES<br>MODEL | A    |     | B    |     | C    |    | D    |    | E    |    | F    |     | G    |    | H    |     | Weight |     |
|----------------------------|------|-----|------|-----|------|----|------|----|------|----|------|-----|------|----|------|-----|--------|-----|
|                            | in.  | mm  | in.  | mm  | in.  | mm | in.  | mm | in.  | mm | in.  | mm  | in.  | mm | in.  | mm  | lbs    | kg  |
| E100W                      | 5.75 | 146 | 4.72 | 120 | 1.31 | 33 | 0.87 | 22 | 0.39 | 10 | 4.13 | 105 | 0.43 | 11 | 0.89 | 23  | 5      | 2.3 |
| E100X                      | 6.06 | 154 | 4.95 | 126 | 1.34 | 34 | 1.60 | 41 | 0.39 | 10 | 5.25 | 133 | 0.35 | 9  | 0.89 | 23  | 5      | 2.3 |
| E200W                      | 6.88 | 175 | 6.13 | 156 | 1.76 | 45 | 2.43 | 62 | 0.63 | 16 | 4.25 | 108 | 0.55 | 14 | 0.91 | 23  | 7      | 3.2 |
| E200X                      | 8.53 | 217 | 6.39 | 162 | 1.39 | 35 | 2.23 | 57 | 0.63 | 16 | 8.66 | 220 | 0.55 | 14 | N/A  | N/A | 15     | 6.8 |
| E200W (M)                  | 7.34 | 186 | 6.88 | 175 | 2.11 | 54 | 2.23 | 57 | 0.63 | 16 | 4.75 | 121 | 0.55 | 14 | N/A  | N/A | 7      | 3.2 |
| E300W                      | 6.88 | 175 | 6.13 | 156 | 1.76 | 45 | 2.43 | 62 | 0.63 | 16 | 4.25 | 108 | 0.55 | 14 | 0.91 | 23  | 7      | 3.2 |
| E300X                      | 8.53 | 217 | 6.39 | 162 | 1.39 | 35 | 2.23 | 57 | 0.63 | 16 | 8.66 | 220 | 0.55 | 14 | N/A  | N/A | 15     | 6.8 |
| E300W (M)                  | 7.34 | 186 | 6.88 | 175 | 2.11 | 54 | 2.23 | 57 | 0.63 | 16 | 4.75 | 121 | 0.55 | 14 | N/A  | N/A | 7      | 3.2 |
| E675W                      | 7.00 | 178 | 7.09 | 180 | 1.76 | 45 | 1.80 | 46 | 0.63 | 16 | 7.00 | 178 | 0.67 | 17 | 1.94 | 49  | 13     | 5.9 |
| E675X                      | 8.50 | 216 | 7.10 | 180 | 1.76 | 45 | 1.85 | 47 | 0.63 | 16 | 8.50 | 216 | 0.67 | 17 | 1.90 | 48  | 13     | 5.9 |
| E1000W                     | 7.00 | 178 | 7.09 | 180 | 1.76 | 45 | 1.80 | 46 | 0.63 | 16 | 7.00 | 178 | 0.67 | 17 | 1.94 | 49  | 13     | 5.9 |
| E1000X                     | 8.50 | 216 | 7.10 | 180 | 1.76 | 45 | 1.85 | 47 | 0.63 | 16 | 8.50 | 216 | 0.67 | 17 | 1.90 | 48  | 13     | 5.9 |
| E1500W                     | 8.50 | 216 | 7.09 | 180 | 1.76 | 45 | 1.80 | 46 | 0.63 | 16 | 7.00 | 178 | 0.67 | 17 | 1.94 | 49  | 17     | 7.7 |
| E1500X                     | 8.50 | 216 | 7.10 | 180 | 1.76 | 45 | 1.85 | 47 | 0.63 | 16 | 8.50 | 216 | 0.67 | 17 | 1.90 | 48  | 17     | 7.7 |

W= NEMA 4 | X= NEMA 7 | (M)= Modulating



## HOW TO ORDER "E" SERIES ELECTRIC ACTUATORS

| ACTUATOR   | ENCLOSURE                | VOLTAGE     | DUTY CYCLE | OPTIONS  |
|--|--------------------------|-------------|------------|--|
| E100   | W= NEMA 4                | 1 = 12 VDC  | S= 25%     | C= Control Package   |
| E200   | Weatherproof             | 2 = 24 VDC  | E= 75%     | P= Potentiometer (1K)  |
| E300   |                          | 4 = 115 VAC |            | S1 = Limit Switch Kit (1-SPDT)*  |
| E675   | X= NEMA 7                | 5 = 230 VAC |            | T= Heater & Thermostat   |
| E1000  | Hazardous Area Locations | 6 = 24 VAC  |            | D= 180° 3-Position   |
| E1500  |                          |             |            | K= Brake (Power off 115 VAC)   |
|  |                          |             |            | 4X = NEMA 4X Rated   |
|  |                          |             |            | (4X Option on NEMA 4 Model Only)   |
|  |                          |             |            | *All limit switches are rated 15A, 1/2HP at 125-150 VAC; 0.5A at 125 VDC |
| <b>Order Example: (E100W4ET)</b>   |                          |             |            |  |
| <b>Example Description: E100 actuator, NEMA 4 weatherproof enclosure, 115 VAC, 75% duty cycle, heater &amp; thermostat option.</b> |                          |             |            |  |
| E100   | W                        | 4           | E          | T  |