

## VTE® ELS, EL, and EL Extended Series Electric Actuators



### Optimum Performance Under the Most Demanding On/Off and Regulating Conditions

From aggressive chemicals to use in hostile environments, electric actuators must provide optimum performance under the most demanding operating conditions.

EL-O-MATIC ELS, EL, and EL Extended Series Electric Actuators meet this challenge through a superior design that is field-proven over a wide range of process applications and uses high quality, corrosion-resistant aluminum alloy, stainless steel, and bronze materials for internal components and housings.

### A Choice of Three Designs for Small, Medium or Large-Size Valves

#### ELS Series

ELS Series Electric Actuators are available in two (2) models, produce up to 221 lb.in. of torque and utilize a spur gear drive system effective for use with 2-way and 3-way ball valves.

Standard operating features include cam operated limit switches from 0° to 270° of rotation and 50% duty rating.

Options include two extra switches for auxiliary circuit control, feedback potentiometers, MOD positioner (ELS 25 only) for position control, compartment heater, low voltage DC motors for vehicular applications and special paint or labeling.

#### EL Series

EL Series Electric Actuators are available in the seven (7) models with torque outputs to 7,080 lb.in. and utilize a self-locking multiple reduction worm gear system for tight quarter turn positioning control. EL Series Actuators have a 30% duty cycle.

Standard, integrated features on all models include dome position indicator, manual override, heater, torque switches (except EL55), and mechanical travel stops.

Available options include positioners, position transmitters, low temperature, local control, speed control, extra switches, and multi-turn models.

#### EL Extended Series

EL Extended Series Electric Actuators are available in three (3) models, produce up to 22,125 lb.in. of torque and are ideal for use with butterfly and larger type valves.

A self-locking worm gear system, lubed-for-life gear case, ball bearing motor, anti-condensation heater, precision adjustable limit switch cams, and hermetically enclosed mechanical position indicator result in an all-encompassing actuator that provides on/off valve positioning service, extra long life, low maintenance, and maximum corrosion resistance. These units feature a 30% duty cycle.

Integrated control options include extra switches (up to 6), electronic speed control, potentiometer, multi-position control, 180° rotation (greater angles available), 4-20 mA position transmitter, 4-20 mA positioner control local control station, and plug and socket connection.



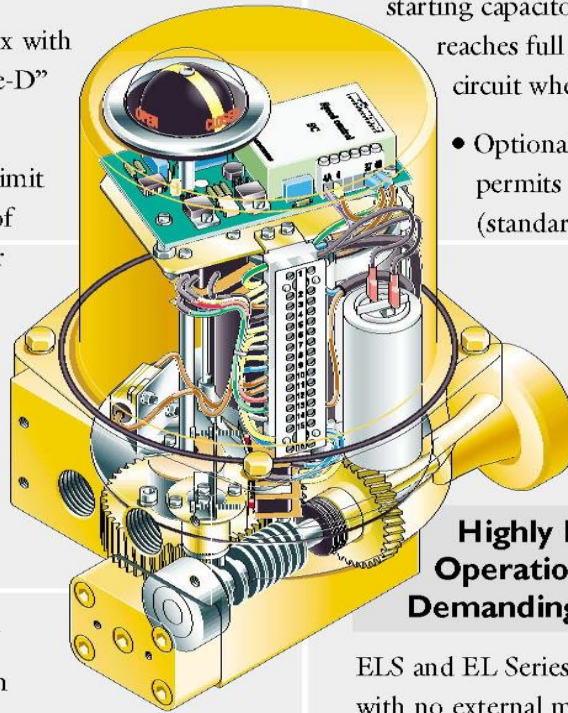
## Outstanding Features to Meet Most In-Field Operating Requirements

### ELS Series

- Compact, lightweight, fully gasketed NEMA 4X housing (500 hour salt spray tested)
- Spur gear system designed for 2-way and 3-way ball valves
- Split capacitor fan cooled ball bearing motor with integrated thermostatic overheat protection
- Sealed, maintenance-free gearbox with steel spur gear chain and “double-D” universal output shaft
- Easily adjustable, cam actuated limit switches that cover up to 270° of rotation and provide outputs for position indication

### EL Series

- Compact, lightweight durable NEMA 4, 4X, 7, and 9 rated aluminum housings
- Self-locking, multiple reduction worm gear system for tight, quarter turn positioning control
- Rugged, ball bearing motor with auto-reset thermal overload protector available in all common supply voltages
- Hand wheel override for manual valve operation
- Torque switches to protect valve seat from debris damage and provide reserve torque up to the rated maximum (except EL55)
- Cam operated limit switches for in-field adjustment of actuator stroke to valve (factory preset for nominal 90° stroke)
- Highly visible, domed valve position indicator



### EL Extended Series

- Durable, corrosion-resistant NEMA 4, 4X, 7, and 9 rated aluminum housings (optional NEMA 6)
- Declutchable, easy-to-use spoked hand wheel override for manual operation
- Electromechanical torque regulator/limiter to protect valve seat from debris damage and provide reserve torque up to the rated maximum
- Integral motor centrifugal switch that removes the starting capacitor from the circuit when the motor reaches full speed and returns the capacitor to the circuit when the motor stops (EL2500 only)
- Optional NEMA 6 submersible rating permits use in 40” of seawater for 24 hours (standard on EL2500)

## Highly Reliable, Trouble-Free Operation for the Most Demanding Applications

ELS and EL Series Electric Actuators have been designed with no external moving parts for trouble-free, in-field operation and are easily installed on most ball, plug, and butterfly valves through standardized mounting. The electric motor used in all EL actuator designs turns primary and secondary worm gears to engage the final drive shaft. This double worm gear drive system offers two (2) distinct advantages over other designs. First, the actuator is self-locking and second, transmission backlash is negligible. The hand wheel override, which is connected to the second worm gear, can be used to operate the valve manually in case of power failure.



local control (left)

positioner (right)

## A Wide Range of Accessories to Accommodate Most In-Field Operating Needs

### Additional Switches

For external (or remote) position indication of the actuator.

### Speed Control

To regulate actuator cycle time (adjustable).

### Potentiometer

Provides a resistive signal for position indication throughout the stroke.

### Position Transmitter

For position indication by a 4-20 mA signal throughout the stroke.

### Positioner

To regulate the valve between open and closed position via a 4-20 mA or 0-10 VDC signal.

### Local Control Station

To operate actuator locally or from a remote location.

**NOTE: For complete information regarding electric actuator and accessory specifications, data sheets are available for download from [www.El-O-Matic.com](http://www.El-O-Matic.com).**

## Available Models and Sizing Data

ELS Series Electric Actuators are available in two (2) models: ELS18 and ELS25

EL Series Electric Actuators are available in seven (7) models: EL55, EL100, EL150, EL200, EL350, EL500, and EL800

EL Extended Series Electric Actuators are available in three (3) models: EL1200, EL1600, and EL2500.

Low, high temperature, and explosion proof models are also available.

Complete sizing data for major valve manufacturers is on file and available from EL-O-MATIC's in-house database to ensure proper selection of the right actuator for the right valve.

## Standards

ELS, EL, and Extended Series Electric Actuators are manufactured in accordance with ISO 9001 and comply with the following international standards:

- ISO 5211
- EN55018
- DIN 3337
- EN50082-2
- EN50014
- EN50093
- EN60204
- EN60529

## Typical Applications

Electric Actuators are ideal for applications where an air supply is not available, low ambient temperatures limit use of pneumatic actuators, location makes maintenance difficult, or an all electric system is much more flexible and economical than installation of an extensive compressed air network.

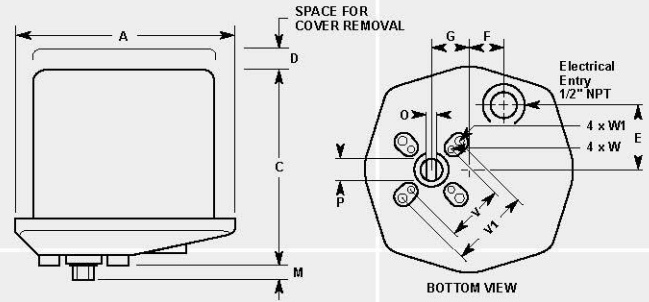
ELS Series Actuators are ideal for small ball valves while EL Series Actuators are particularly well suited for use with ball valves, small and medium-sized butterfly valves, and for other quarter turn applications such as dampers and ventilation grids. EL Extended Series actuators are specifically designed and engineered for use with butterfly and larger type valves in marine, wastewater, and other applications.

## Technical Data

Model		ELS-18	ELS-25	EL-55	EL-100	EL-150	EL-200	EL-350	EL-500	EL-800	EL-1200	EL-1600	EL-2500	
Torque (Nm)	break	18	25	55	100	150	200	350	500	800	1200	1600	2500	
	run	14	20	20	35	53	70	123	175	280	420	560	875	
Torque (in.lb)	break	160	221	487	885	1,328	1,77	3,098	4,425	7,081	10,621	14,16	22,125	
	run	124	177	177	310	465	620	1,084	1,548	2,478	3,717	4,956	7,744	
Op. Time (S)	50 Hz	6.5	9.5	6	7.5	9	13.5	22	25.5	25.5	25.5	25.5	28	
	60 Hz	5.5	7.5	5	6	7.5	11.5	18	21.5	21.5	21.5	21.5	22.5	
Current (A)	DC	-	-	5	6.5	8	12	20	23	-	-	-	-	
	120/1/60	break	0.55	0.6	1.1	2.9	2.9	2.9	2.9	2.9	4.5	14	14	58
		run	0.45	0.5	0.6	2.1	2.1	2.1	2.1	2.1	2.8	5.8	5.8	8
	220/1/50	break	0.1	0.3	0.6	1.7	1.7	1.7	1.7	1.7	2.3	7	7	27
		run	0.1	0.27	0.5	1.1	1.1	1.1	1.1	1.1	1.8	2.5	2.5	6
	380/3/50	break	-	-	0.4	0.7	0.7	0.7	0.7	0.7	0.9	2.8	2.8	9
		run	-	-	0.2	0.4	0.4	0.4	0.4	0.4	0.54	0.6	0.6	1.5
	460/3/60	break	-	-	0.37	0.63	0.63	0.63	0.63	0.63	0.87	1.1	1.1	2
		run	-	-	0.18	0.45	0.45	0.45	0.45	0.45	0.57	0.72	0.72	1.6
	24 Vdc	break	0.8	0.51	5	8	8	8	8	8	-	-	-	-
run		0.15	0.1	1.9	4.9	4.9	4.9	4.9	4.9	-	-	-	-	
Power consump. (W)	120/1/60	45	25	100	225	225	225	225	225	315	535	535	720	
	220/1/50	40	65	72	200	200	200	200	200	305	450	450	792	
	380/3/50	-	-	80	145	145	145	145	145	165	220	220	560	
	460/3/60	-	-	77	180	180	180	180	180	200	266	266	600	
	24Vdc	4.8	2.4	45	118	118	118	118	118	-	-	-	-	
Power factor (cos Phi)	120/1/60	-	-	0.87	0.98	0.98	0.98	0.98	0.98	0.93	0.83	0.83	0.74	
	220/1/50	0.82	0.82	0.91	0.82	0.82	0.82	0.82	0.82	0.77	0.92	0.92	0.5	
	380/3/50	-	-	0.54	0.51	0.51	0.51	0.51	0.51	0.47	0.55	0.55	0.67	
	460/3/60	-	-	0.54	0.5	0.5	0.5	0.5	0.5	0.44	0.53	0.53	0.6	
Motor speed (RPM)	50 Hz	1878	1620	1450	1425	1425	1425	1425	1425	1450	1450	1450	1450	
	60 Hz	2328	2040	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725	
	24Vdc/ac	3230	4210	1600	1600	1600	1600	1600	1600	-	-	-	-	
Overall gear ratio		849/1	1070/1	1250/1	700/1	840/1	1316/1	2106/1	2480/1	2480/1	3100/1	3100/1	2600/1	
Capacitor (µFV)	120/1/60	6.8/250	6.8/250	20/250	36/250	36/250	36/250	36/250	36/250	50/250	100/250	100/250	400/250	
	220/1/50	1.5/400	2/400	8/450	10/450	10/450	10/450	10/450	10/450	16/450	30/450	30/450	100/450	
Weight (Kg)	WV-proof	2.2	2.8	6	11	11	16.5	17	25.5	26.4	37	37	75	
	Ex-proof	-	-	8	13	13	18.5	20	28.5	30	37	37	75	
Weight (Lbs)	WV-proof	4.3	5.5	13	24	24	36	37.5	56	57	81.5	81.5	165	
	Ex-proof	-	-	17.5	28.5	28.5	40.5	44	62.5	66	81.5	81.5	165	
Duty Cycle		50%	50%	30%	30%	30%	30%	30%	30%	30%	30%	30%	30%	

## ELS Series Specifications

Enclosure:	NEMA 4X (CSA approved optional)
Temperature:	-4 to +158°F
Connections:	by 4 point internal terminal strip
Materials:	aluminum base; steel cover; drive spindle, and fastenings
Finish:	zinc plating, two part polyurethane
Life:	100,000 operations minimum
Heater:	10 W, optional
Conduit entry:	1 x 1/2" NPT



## Dimensions

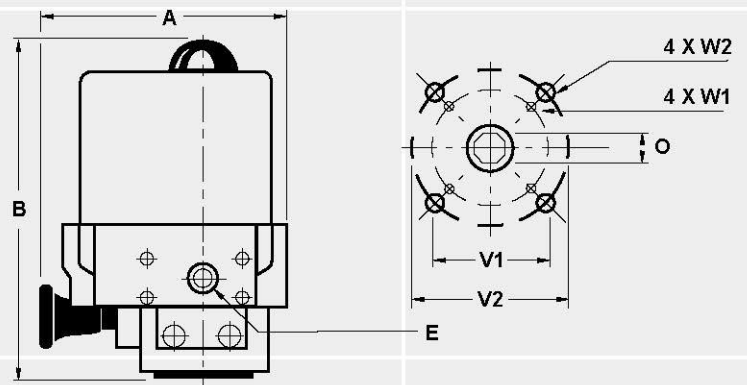
Model	A	C	D	E	F	G	M	O	P	V	V1	W	W1
ELS 18	5.1	4.82	3.3	1.65	0.87	0.92	0.44	0.279	0.437	2.114	-	10.24 UNC x .306	-
ELS 25	6.2	5.3	3.9	1.97	0.79	1.04	0.51	0.393	0.472	1.968	2.756	1/4-20 UNC x .408	5/16-18 UNC x .459

Note: Request for certain options on ELS25 adds 1.85" to cover height.

## EL Series Specifications

Enclosure:	NEMA 4X or 4X/7/9 EL55-800 – available in NEMA 6
Temperature:	-4 to +158°F*
Connections:	by 12 to 16 point internal terminal strip
Materials:	see data sheet
Finish:	zinc plate, two part polyurethane
Life:	50,000 operations minimum
Heater:	10 W, standard
Conduit Entry:	EL55 – 150 1/2" NPT EL200 – 800 3/4" NPT

\*FM approved explosion proof Model + 140°F Max.



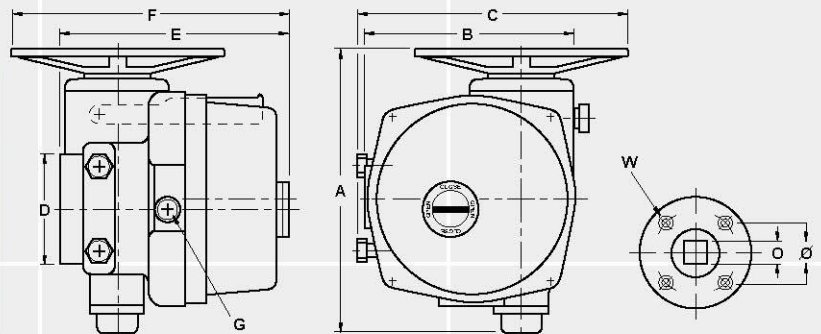
## Dimensions

Model	A	B	E	O	V1	V2	W1	W2
EL 20	5.1	6.4	1/2	.435	1.969	-	1/4-20	-
EL 55	7.5	10	1/2	.551	1.969	2.756	1/4-20	5/16-18
EL 100	9.3	11.5	1/2	.748	1.969	2.756	1/4-20	5/16-18
EL 150	9.3	11.5	1/2	.748	1.969	2.756	1/4-20	5/16-18
EL 200	11.6	12.1	3/4	.748	2.756	4.016	5/16-18	3/8-16
EL 350	11.6	12.1	3/4	.748	2.756	4.016	5/16-18	3/8-16
EL 500	12.7	12.5	3/4	1.063	4.016	-	3/8-16	-
EL 800	12.7	14.02	3/4	1.063	4.921	-	1/2-14	-

EL mounting and drive dimensions are to ISO 5211.

## EL Extended Series Specifications

Enclosure:	NEMA 4X/7/9
Temperature:	-4 to +158°F
Connections:	By 12 and 16 point internal terminal strip
Materials:	Aluminum cast base and cover; steel drive spindle, and fastenings
Finish:	Two part polyurethane
Life:	50,000 operations minimum
Heater:	20 W, standard
Conduit Entry:	1" NPT 3X



## Dimensions

Model	A	B	C	D	E	F	G	O	Ø	W
							NPT		UNC	
EL 1200/1600	17.0	11.3	15.2	6.9	15.0	18.3	3/4" 3xPL	1.417	5.510	4x5/8-11
EL 2500	21.3	15.8	25.2	8.3	19.5	23.2	1" 3xPL	1.811	6.496	4x3/4-10

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