PRO-torq electric actuators

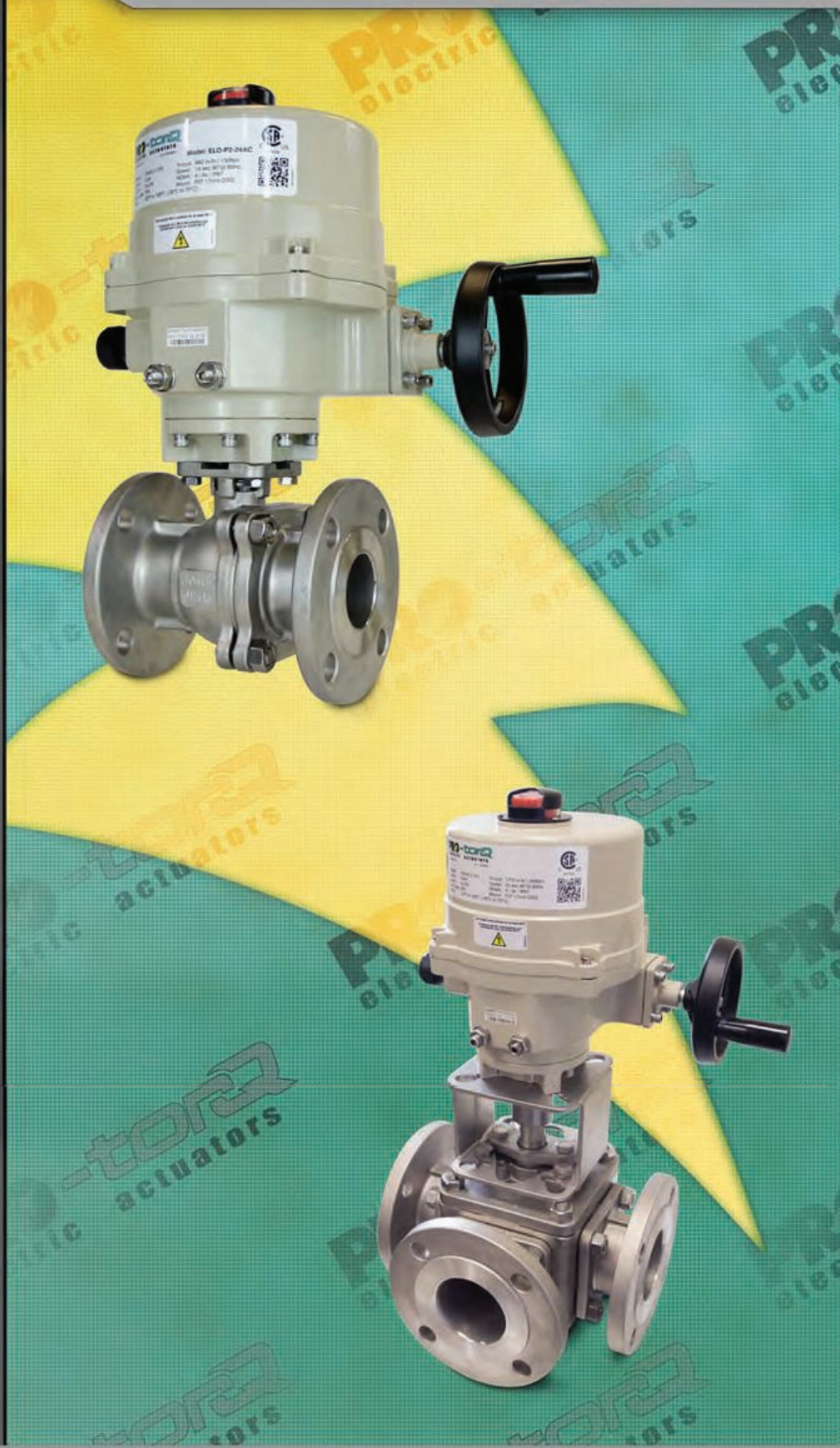
ELO SERIES ELECTRIC ACTUATORS

Electric Actuators Built For Industrial and Commercial Applications That Require Optimal Performance

Full Line of Actuators
Quarter Turn to 40,500 in ib
Spring Return to 2300 in lb

Multiple Configurations
On/Off, jog or proportional
24VDC through
575/60 applications
Local Control Stations

Complete Support
Full Documentation
Rapid Quote



Many Actuators Look the Same on the Outside. The Pro-Torq Difference is on the Inside.

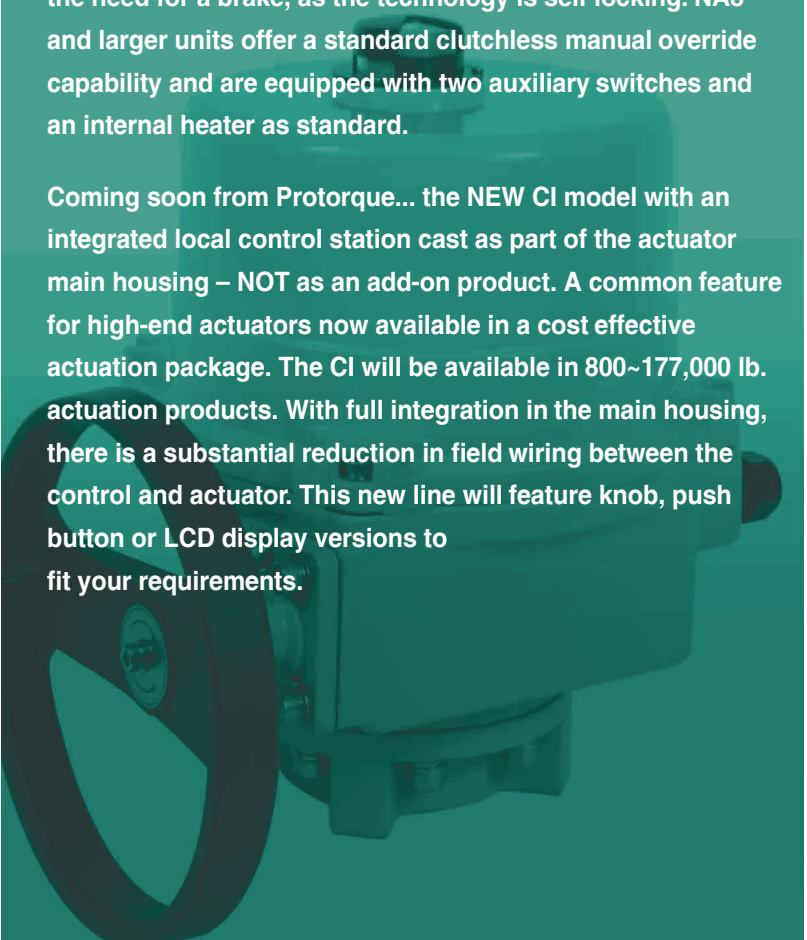
INTRODUCING PRO-TORQ NEW ELO SERIES QUARTER-TURN ELECTRIC ACTUATORS

Pro-Torq has been automating valves for the industrial process markets we serve. Pro-Torq is now proud to introduce its own industrial electrical actuators with greater range of sizes and capabilities. With Pro-Torq's world class quality and customer service, the ELO Series provides our customers with an industry leading actuation solution, featuring increased technical capabilities to meet all phases of small or large projects.

The new ELO Series is built based on global design standards, including ISO5211 mechanical transmission specifications. We offer operating voltage ranging from 12vac/vdc to 575v 3 phase, with options for on/off and modulating control as well as several industry bus communications capabilities.

Based on industry proven epicyclic technologies, the ELO Series provides smooth, efficient transmission of motor torque in a compact package. The epicyclic design negates the need for a brake, as the technology is self locking. NA8 and larger units offer a standard clutchless manual override capability and are equipped with two auxiliary switches and an internal heater as standard.

Coming soon from Protorque... the NEW CI model with an integrated local control station cast as part of the actuator main housing – NOT as an add-on product. A common feature for high-end actuators now available in a cost effective actuation package. The CI will be available in 800~177,000 lb. actuation products. With full integration in the main housing, there is a substantial reduction in field wiring between the control and actuator. This new line will feature knob, push button or LCD display versions to fit your requirements.



OVERVIEW

Pro-Torq's ELO Series electric actuators are designed and produced to provide years of service in demanding industrial environments such as chemical processing, waste and water treatment, power generation, oil & gas, marine, mining and building services. These quarter-turn units drive dampers, ball valves, butterfly valves or inlet guide vanes that require torque ranges from 300 lbf-in up through 177,000 lbf-in. The ELO Series housings are designed to meet NEMA 4X environmental demands, with ISO5211 compliant mounting that readily mounts up to most valves in the industries served. Featuring an epicyclic transmission system, the ELO Series provides highly efficient multiplication of motor power to produce uniquely compact torque ranges compared to other technologies. A clutch-free manual override system provides full-time override capabilities during powered or un-powered events, and allows for simple adaptation for overhead chain-wheel drive installations.

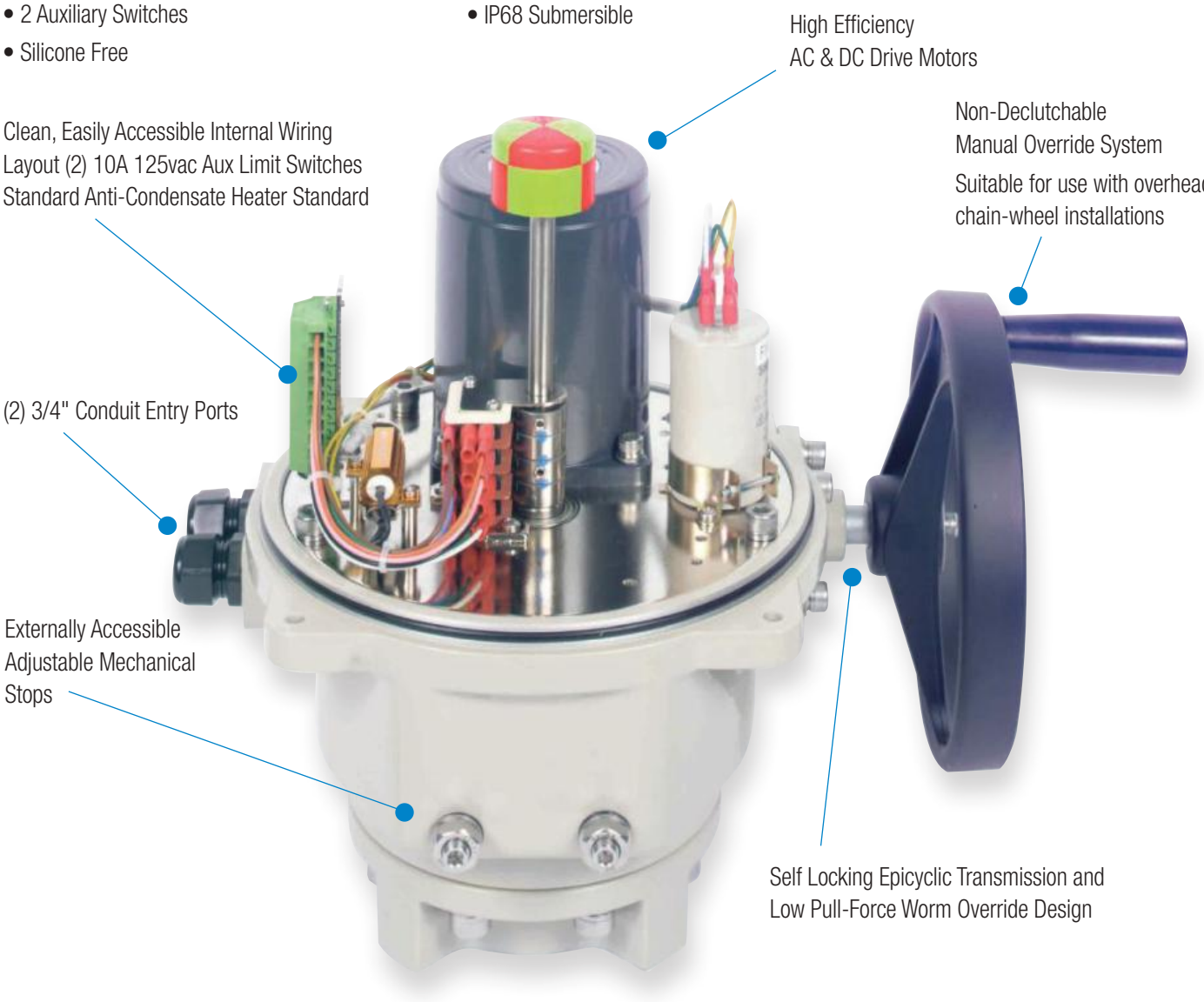
ELO SERIES ELECTRIC ACTUATORS

KEY FEATURES & BENEFITS

- Powder Coated Aluminum Alloy Housing
- NEMA 4/4X/IP67 Enclosure
- Raised Position Indicator
- ISO5211 Compliant Mounting
- Internal Low Power Heater
- Clutchless Manual Override
- Self-Locking Drive
- Permanently Lubricated
- Thermally Protected Motor
- 2 Auxiliary Switches
- Silicone Free

OPTIONAL FEATURES

- Interchangeable ISO5211 Mount
- Interchangeable Drive Inserts
- Positioners
- Extended Duty Motors
- 3 Position Control
- Passive Analog Feedback
- Torque Switches
- Local Control Stations
- 3 phase Motor Control Center
- IP68 Submersible



*Features typical of NA8 Series and larger.

ELO Series Electric Actuators, *FEATURES*

ISO MOUNTING FLANGE

The bottom of the ELO actuators are machined to meet ISO5211 standards. On the NA8 series up through the HRS4 series, should a different flange pattern be needed, these models can be fitted with available flanges without any affect on actuator performance. Contact Hayward for available ISO compliant flanges.

INTERCHANGEABLE BUSHING

Our ELO series actuators are supplied with ISO5211 compliant double-square drive sockets. On the NA8 series up through the HRS4 series, the drive socket is removable and can be fitted with a different size or a different shape female drive socket. Available patterns include square, double square, double D and round keyed shafts. Contact Pro-Torq / Flo-Tite for available splined drive inserts.

EPICYCLIC DRIVE TRANSMISSION

Highly efficient, compact transmission technology provides unmatched multiplication of motor torque compared to spur geartrain type systems. Additonally, the final drive output utilizes worm gear geometry to provide self-locking gearsets without any type of braking required to hold the connected device in position. This technology also allows a manual override system which does not require any type of declutching mechanism.

COLOR CODED CAM SYSTEM

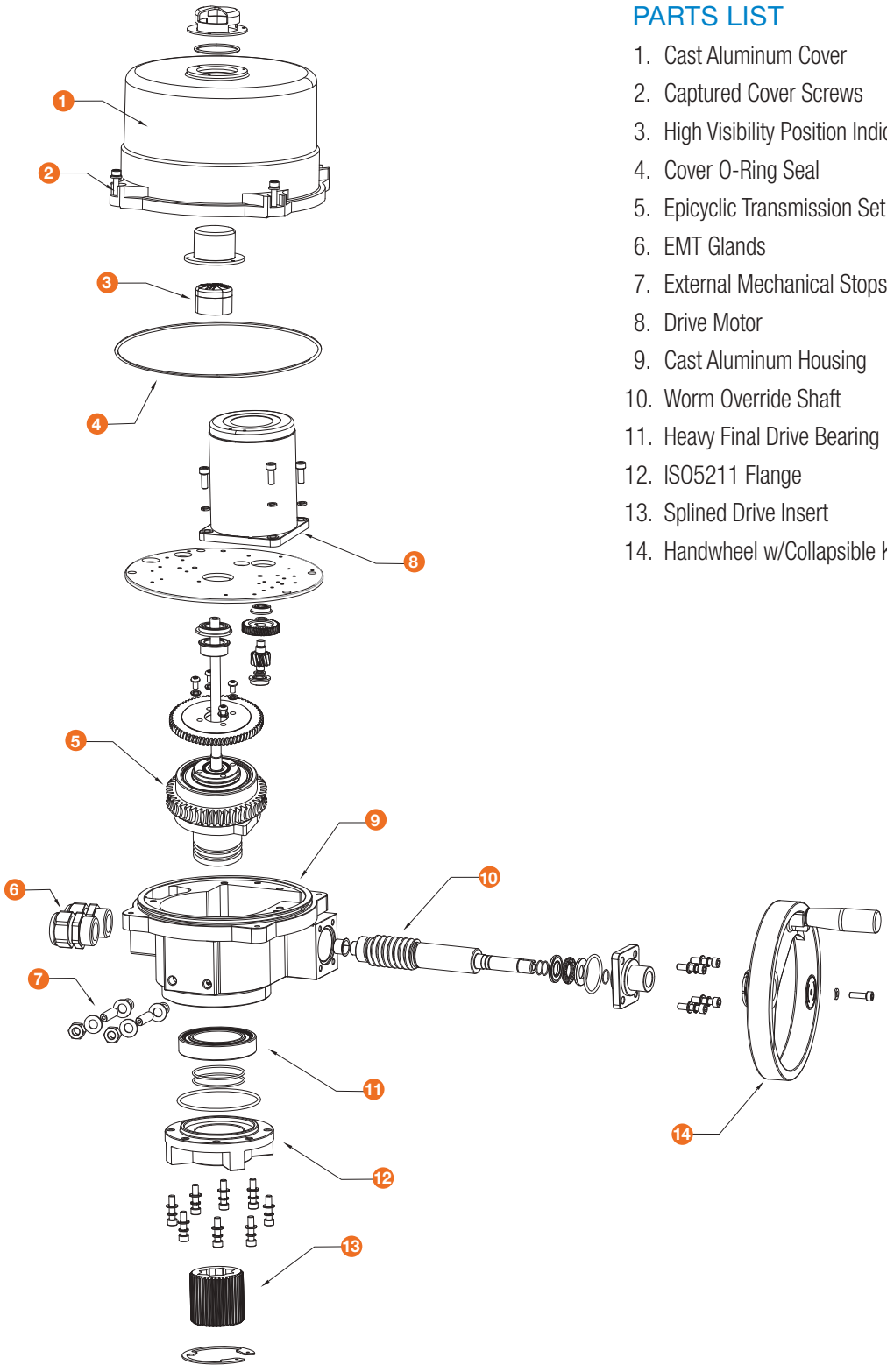
Easily accessible travel and auxiliary switch cams are color coded to provide instant recognition of the CW or CCW cams when making stroke adjustments. Cam positions are easily changed by utilizing 2.5mm setscrews across the entire ELO range of actuators.

ELO SERIES ELECTRIC ACTUATOR PART NUMBER MATRIX

MODEL	ELO	INT TYPE		FRAME SIZE & TQR		VOLTAGE		CONTROL	
		N		3A		K		8	
Quarter-Turn Type		N	None	A1	89"lb	A	12vdc	0	On/Off
		K	LCS - Knob/LED	B2	177"lb	B	12vac	1	On/Off/Jog
		L	LCS - PB/LED/Key	C3	266"lb	C	12vac/vdc	2	Jog ONLY
		D	LCS - LCD Type	A4	310"lb	D	24vdc	3	3 Pos - Field Control (Supply Voltage Inputs)
		P	LCS - Prog	B5	310"lb HW	E	24vac	4	4 Pos - Unidirectional (90° drive models only thru EHM7)
		T	Touch Screen	R6	440"lb	F	24vac/vdc	5	Reserved
		W	Wireless	S7	440"lb HW	G	48vdc	6	2 Pos - Relay Control (Field Select RO or RC)
				A8	880"lb	H	AutoSw1 (Specify)	7	Field Control Timer (Requires Config Sheet)
				B9	1770"lb	J	AutoSw2 (Specify)	8	Mod 4-20mA (Default incl code D)
				A10	3570"lb	K	120vac	9	Mod 2-10V (Default incl code M)
				B11	5510"lb	L	230vac	A	Mod 2-10V (Default incl code P)
				C12	7080"lb	M	230/3/60	f	Future
				D13	8850"lb	P	315/3/60		
				E14	15040"lb	R	380/3/60		
				F15	20350"lb	S	440/3/60		
				A16	30970"lb	T	480/3/60		
				B17	44250"lb	U	575/3/60 (limited availablity)		
				A18	70800"lb				
				A19	115000"lb				
				B20	140000"lb				
				C21	177000"lb				

ELO Series Electric Actuators, *FEATURES*

EXPLODED VIEW



PARTS LIST

1. Cast Aluminum Cover
2. Captured Cover Screws
3. High Visibility Position Indicator
4. Cover O-Ring Seal
5. Epicyclic Transmission Set
6. EMT Glands
7. External Mechanical Stops
8. Drive Motor
9. Cast Aluminum Housing
10. Worm Override Shaft
11. Heavy Final Drive Bearing
12. ISO5211 Flange
13. Splined Drive Insert
14. Handwheel w/Collapsible Knob

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

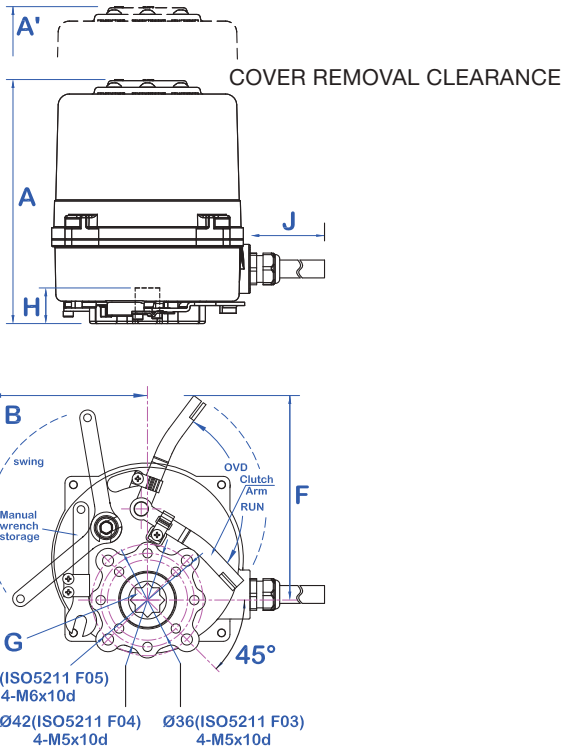
The ELO Series are quarter-turn electric industrial service actuators delivering up to 266 lbf-in torque in voltages ranging from 24v up through 230v in on/off or proportional control modes. Other Key Features include:

- Equipped with two (2) volt-free Form A Auxiliary switches rated at up to 1A 250vac (on/off models only)
- Proportional models have 4-20mA or 2-10vdc feedback output standard
- ISO5211 compliant with an 11mm double square female drive
- Furnished with a 39" (1M) cable to facilitate field connections outside the compact enclosure
- Low profile visual position indicator and three flush mounted LEDs allow at-a-glance position indication
- Manual override lever and 8mm access shaft at the bottom of the actuator housing
- NEMA 4X/IP67 compliant
- PG6 EMT entry port with sealed cable gland

TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		NA1	NB2	NC3
Supply	Torque Output (**lbf-in** / Nm)	**89 /** 10	**177/** 20	**266 /** 30
24VAC - 24VDC	Current Draw (Start / Run / LRA)	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A
	Speed (90°) DC, seconds	13	12	11
	Motor - 24vdc Perm Magnet Brush Type	5W	8W	10W
	Duty Cycle (on/off / mod)	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
120V	Current Draw (Start / Run / LRA)	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A
	Speed (90°) 60Hz / 50Hz, seconds	13	12	11
	Motor - 120vac Split-Phase Cap TENV	5W	8W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
230V	Current Draw (Start / Run / LRA)	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A
	Speed (90°) 60Hz / 50Hz, seconds	13	12	11
	Motor - 230vac Split-Phase Cap TENV	5W	8W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200
	Motor Class	Class B	Class B	Class B
All	Control	On/Off or Proportional		
	Electrical Entry (1)	PG6 Nylon Gland with 39" 11C-24 Cable On/Off or 9C-24 Proportional		
	Manual Override	Bottom Mounted 8mm Hex Shaft		
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)		
	Humidity Range	0-95% RH		
	Altitude Limit	9850 ft / 3000 m		

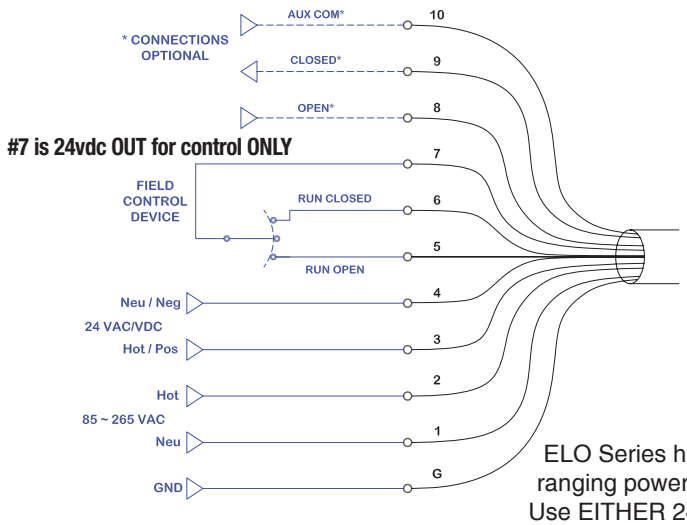
Models : ELO-NA1/NB2/NC3



DIMENSIONS

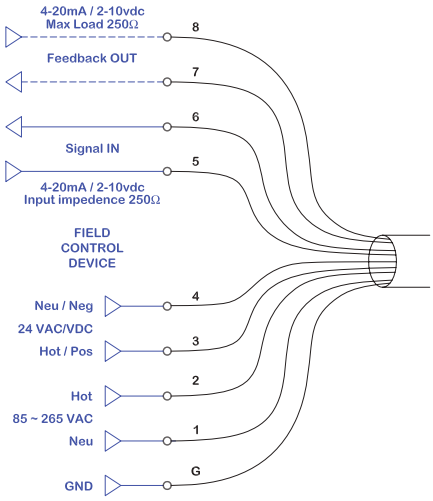
MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	E in/mm	F in/mm	G in/mm	H in/mm	J in/mm	WEIGHT lbs/kg
NA1/NB2/NC3	4.33/110	2.95/75	2.83/72	1.00/25	2.75/70	3.72/95	.433/11	.630/16	39.4/1000	2.2/1.0

No Aux Switches on Modulating Models



ON/OFF WIRING DIAGRAM

ELO Series has auto ranging power supply. Use EITHER 24vac/vdc OR 85~265vac for on/off and proportional control



PROPORTIONAL WIRING DIAGRAM

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 440 lbf-in torque in voltages ranging from 12v up through 230v in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 3A 250vac
- ISO5211 compliant mounting with a double square female drive
- Raised visual position indicator
- Manual override hand wheel is available as an option on 2B & 2S models
- Manual override shaft standard
- NEMA 4X/IP67 compliant
- Two (2) 1/2" EMT entry ports with sealed cable glands

OPTIONS

- Battery Backup
- Supercap Backup
- Local Control Stations
- IP68 Submersion

TECHNICAL INFORMATION

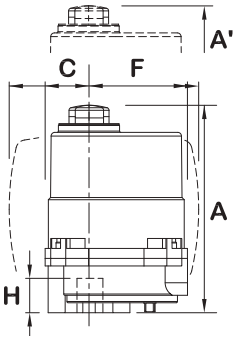
ACTUATOR SPECIFICATIONS

	Models	ELO-NA4	ELO-NB5	ELO-NR6	ELO-NS7
Supply	Torque Output (**lbf-in** / Nm)	**310** / 35	**310** / 35	**440** / 50	**440** / 50
12VAC* - 12VDC*	Current Draw (Start / Run / LRA)	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A	3.5A / 2.0A / 3.8A
	Speed (90°) DC, seconds	8	8	10	10
	Motor - 12vdc Perm Magnet Brush Type	6W	6W	6W	6W
	Duty Cycle (on/off / mod)	75%	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Class	Class B	Class B	Class B	Class B
24VAC - 24VDC	Current Draw (Start / Run / LRA)	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A	2.1A / 1.2A / 2.3A
	Speed (90°) DC, seconds	8	8	10	10
	Motor - 24vdc Perm Magnet Brush Type	6W	6W	6W	6W
	Duty Cycle (on/off / mod)	75%	75%	75%	75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Class	Class B	Class B	Class B	Class B
120V	Current Draw (Start / Run / LRA)	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A	.39A / .36A / .48A
	Speed (90°) 60Hz / 50Hz, seconds	9.2 / 11	9.2 / 11	12.5 / 15	12.5 / 15
	Motor - 120vac Split-Phase Cap TENV	10W	10W	10W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
230V	Current Draw (Start / Run / LRA)	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A	.23A / .21A / .28A
	Speed (90°) 60Hz / 50Hz, seconds	9.2 / 11	9.2 / 11	12.5 / 15	12.5 / 15
	Motor - 120vac Split-Phase Cap TENV	10W	10W	10W	10W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
All	Manual Override	Bottom 8mm Hex Shaft	Hand Wheel	Bottom 8mm Hex Shaft	Hand Wheel
	Electrical Entry (2)	1/2" EMT or Nylon gland			
	Control	On/Off or Proportional			
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)			
	Humidity Range	0-95% RH			
	Altitude Limit	9850 ft / 3000 m			

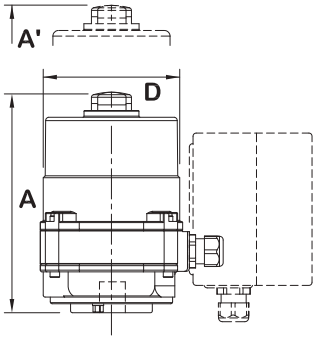
*12V versions available custom order.

Models : ELO-NA4/NB5/NR6/NS7

COVER REMOVAL CLEARANCE

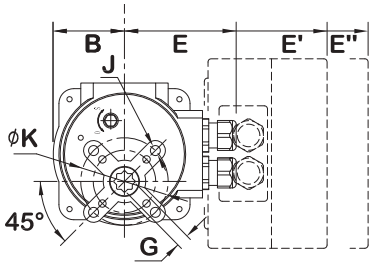


ON/OFF HEIGHT DIM



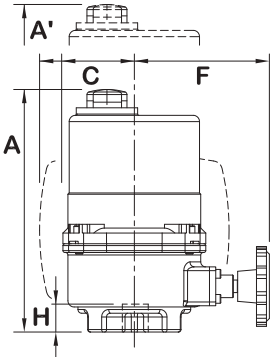
MODULATING HEIGHT DIM

Note: Low Voltage Modulating units require additional enclosure as shown with dotted lines

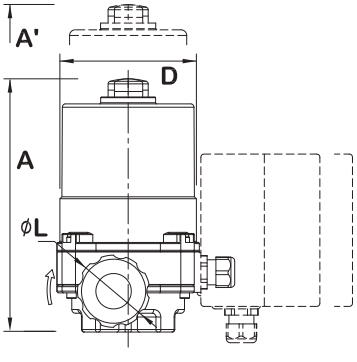


NA4/NB5 (NO HANDWHEEL)

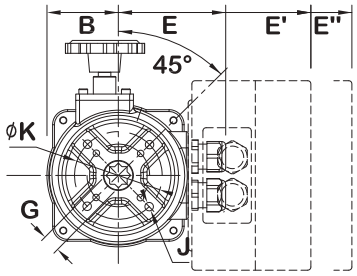
COVER REMOVAL CLEARANCE



ON/OFF HEIGHT DIM



MODULATING HEIGHT DIM



NR6/NS7 (WITH HANDWHEEL OVERRIDE)

DIMENSIONS

MODEL		A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E (HV) in/mm	E' (LV) in/mm	E'' (LV) in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L in/mm	WEIGHT lbs/kg
ELONA4	on/off - LV	6.38/162	4.93/125	2.20/56	1.40/36	4.22/107	3.60/92	-	-	3.25/83	0.551/14	0.78/20	(4) M6-1.0 X 18mm Deep	F03 / 1.417/36	-	6.6/3.0
	on/off - HV						3.60/92	-	-					F05 / 1.969/50		6.6/3.0
	Mod - LV	7.56/192			2.52/64		-	6.32/160	2.5/64	3.60/91			(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				1.40/36		3.60/92	-	-	3.25/83						6.8/3.1
ELONB5	on/off - LV	7.40/188	4.93/125	2.20/56	2.32/59	4.22/107	3.60/92	-	-	4.25/108	0.551/14	0.78/20	(4) M6-1.0 X 18mm Deep	F03 / 1.417/36	2.5/63 12 turns 90°	6.6/3.0
	on/off - HV						3.60/92	-	-					F05 / 1.969/50		6.6/3.0
	Mod - LV	8.58/218			2.99/76		-	6.32/160	2.5/64				(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				2.32/59		3.60/92	-	-							6.8/3.1
ELONR6	on/off - LV	6.38/162	4.93/125	2.20/56	1.40/36	4.22/107	3.60/92	-	-	3.25/83	0.551/14	0.78/20	(4) M6-1.0 X 18mm Deep	F03 / 1.417/36	-	6.6/3.0
	on/off - HV						3.60/92	-	-					F05 / 1.969/50		6.6/3.0
	Mod - LV	7.56/192			2.52/64		-	6.32/160	2.5/64	3.60/91			(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				1.40/36		3.60/92	-	-	3.25/83						6.8/3.1
ELONS7	on/off - LV	7.40/188	4.93/125	2.20/56	2.32/59	4.22/107	3.60/92	-	-	4.25/108	0.669/17	0.78/20	(4) M6-1.0 X 18mm Deep	F03 / 1.417/36	2.5/63 14 turns 90°	6.6/3.0
	on/off - HV						3.60/92	-	-					F05 / 1.969/50		6.6/3.0
	Mod - LV	8.58/218			2.99/76		-	6.32/160	2.5/64				(4) M8-1.25 X 20mm Deep	F07 / 2.756/70		13.8/6.3
	Mod - HV				2.32/59		3.60/92	-	-							6.8/3.1

PRO-torq electric actuators

Models : ELO-NA8/NB9

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 1770 lbf-in torque in voltages ranging from 12V up through 480/3 in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Raised visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup
- Supercap Backup
- Interchangeable ISO5211 Flange & Drives

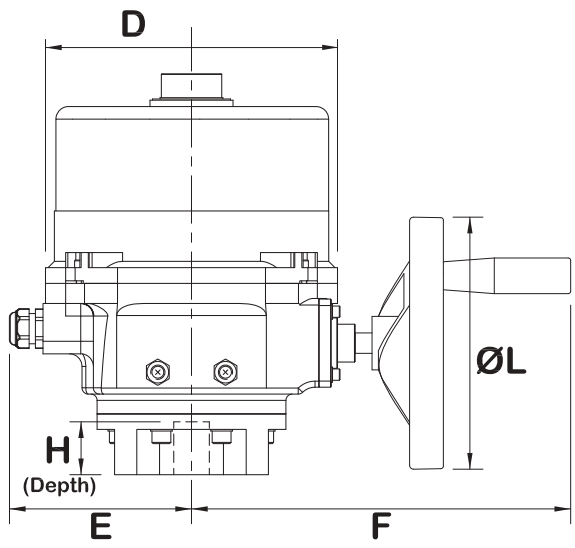
QUARTER-TURN ELECTRIC ACTUATION

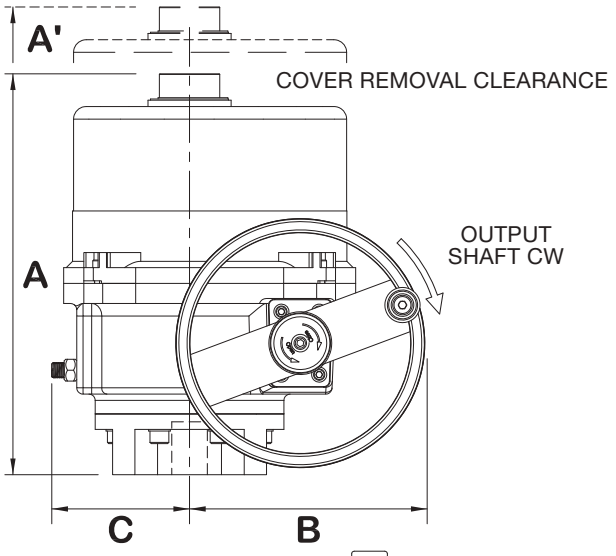
TECHNICAL INFORMATION

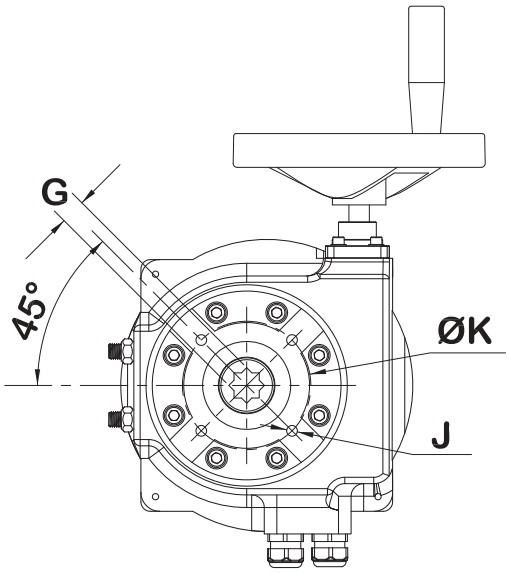
	ACTUATOR SPECIFICATIONS	ELONA8	ELONB9
Supply	Torque Output (lbf-in / Nm)	**880** / 100	**1770** / 200
12VAC* - 12VDC*	Current Draw (Start / Run / LRA)	7.2A / 5.2A / 17.8A	7.2A / 5.2A / 17.8A
	Speed (90°) DC, seconds	14	28
	Motor - 12vdc Perm Magnet Brush Type	25W	25W
	Duty Cycle (on/off / mod)	75%	75%
	Motor Starts, per hour, Max	1200	1200
	Motor Class	Class B	Class B
24VAC - 24VDC	Current Draw (Start / Run / LRA)	4.2A / 3.2A / 11A	4.2A / 3.2A / 11A
	Speed (90°) DC, seconds	14	28
	Motor - 24vdc Perm Magnet Brush Type	25W	25W
	Duty Cycle (on/off / mod)	75%	75%
	Motor Starts, per hour, Max	1200	1200
	Motor Class	Class B	Class B
120V	Current Draw (Start / Run / LRA)	1.16A / 0.93A / 1.47A	1.16A / 0.93A / 1.47A
	Speed (90°) 60Hz / 50Hz, seconds	16 / 19	33 / 39
	Motor - 120vac Split-Phase Cap TENV	40W	40W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F
230V	Current Draw (Start / Run / LRA)	0.54A / 0.42A / 0.66A	0.54A / 0.42A / 0.66A
	Speed (90°) 60Hz / 50Hz, seconds	16 / 19	33 / 39
	Motor - 230vac Split-Phase Cap TENV	40W	40W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F
All	Electrical Entry (2)	3/4" EMT or Nylon gland	
	Control	On/Off or Proportional	
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)	
	Humidity Range	0-95% RH	
	Altitude Limit	9850 ft / 3000 m	

*12V versions available custom order.

Models : ELO-NA8/NB9







DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G in/mm	H in/mm	J in/mm	K in/mm	L		WEIGHT lbs/kg
NA8	10.45/265	6/150	4.85/123	3.11/79	8.50/216	4.73/120	9.45/240	0.669/17	1.38/35	(4) M8 - 1.25 X 20mm D	F07 2.756/70	4.7/120	12.5 turns 90°	24.5/11
NB9	10.45/265	6/150	4.85/123	3.11/79	8.50/216	4.73/120	9.45/240	0.669/17	1.38/35	(4) M8 - 1.25 X 20mm D	F07 2.756/70	4.7/120	12.5 turns 90°	24.5/11

Models : ELO-NA10/NB11/NC12/ND13/ NE14/NF15

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 20,350 lbf-in torque in voltages ranging from 12V up through 480/3 in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Raised visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup
- Supercap Backup
- Interchangeable ISO5211 Flange & Drives

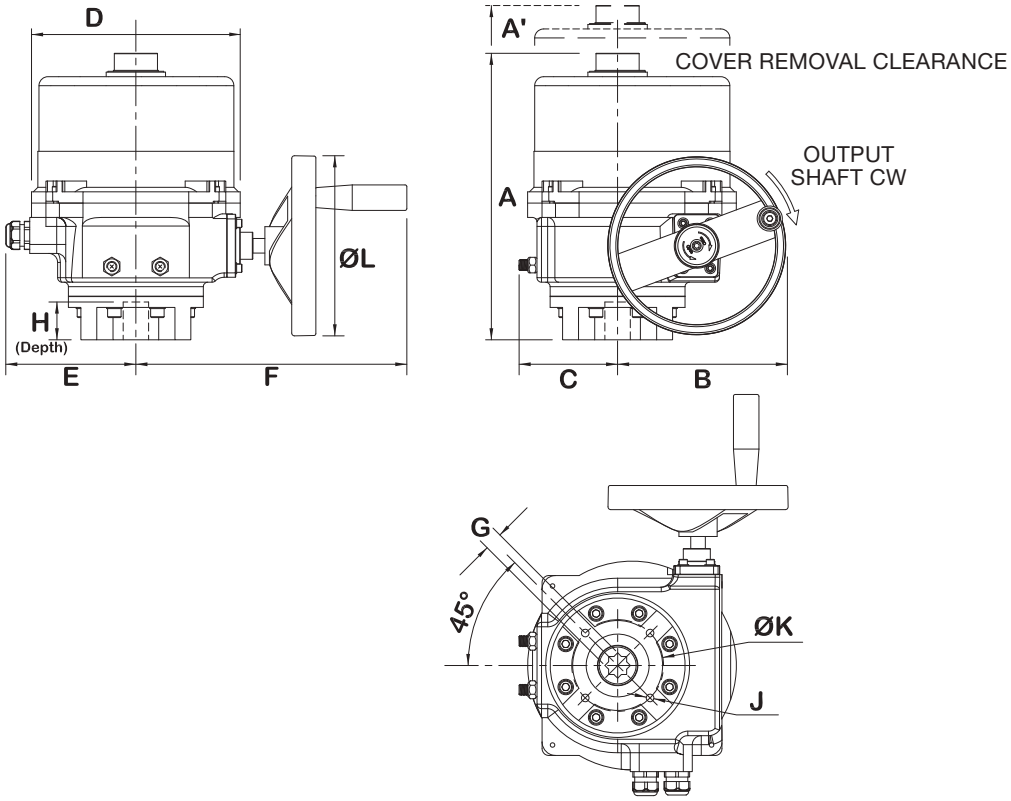
TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		ELONA10	ELONB11	ELONC12	ELOND13	ELONE14	ELONF15
Supply	Torque Output (**lbf-in** / Nm)	**3540** / 400	**5310** / 600	**7080** / 800	**8850** / 1000	**15,040** / 1700	**20,350** / 2300
12VAC* - 12VDC*	Current Draw (Start / Run / LRA)	11.4A / 9.4A / 24.4A	11.4A / 9.4A / 24.4A	11.4A / 9.4A / 24.4A	-	-	-
	Speed (90°) DC, seconds	21	28	34	-	-	-
	Motor - 12vdc Perm Magnet Brush Type	40W	40W	40W	-	-	-
	Duty Cycle (on/off / mod)	75%	75%	75%	-	-	-
	Motor Starts, per hour, Max	1200	1200	1200	-	-	-
	Motor Class	Class B	Class B	Class B	-	-	-
24VAC - 24VDC	Current Draw (Start / Run / LRA)	7.0A / 5.8A / 15A	7.0A / 5.8A / 15A	7.0A / 5.8A / 15A	10.5A / 7.8A / 22A	-	-
	Speed (90°) DC, seconds	21	28	34	34	-	-
	Motor - 24vdc Perm Magnet Brush Type	40W	40W	40W	60W	-	-
	Duty Cycle (on/off / mod)	75%	75%	75%	75%	-	-
	Motor Starts, per hour, Max	1200	1200	1200	1200	-	-
	Motor Class	Class B	Class B	Class B	Class B	-	-
120V	Current Draw (Start / Run / LRA)	2.95A / 1.8A / 3.5A	2.95A / 1.8A / 3.5A	2.95A / 1.8A / 3.5A	3.8A / 2.3A / 4.8A	7.2A / 4.5A / 9.4A	7.2A / 4.5A / 9.4A
	Speed (90°) 60Hz / 50Hz, seconds	24 / 29	33 / 39	39 / 47	39 / 47	28 / 34	39 / 47
	Motor - 120vac Split-Phase Cap TENV	90W	90W	90W	120W	200W	200W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
230V	Current Draw (Start / Run / LRA)	1.71A / 0.91A / 1.9A	1.71A / 0.91A / 1.9A	1.71A / 0.91A / 1.9A	2.16A / 1.1A / 2.43A	4.1A / 2.2A / 4.5A	4.1A / 2.2A / 4.5
	Speed (90°) 60Hz / 50Hz, seconds	24 / 29	33 / 39	39 / 47	39 / 47	28 / 34	39 / 47
	Motor - 230vac Split-Phase Cap TENV	90W	90W	90W	120W	200W	200W
	Duty Cycle (on/off / mod)	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%	25% / 75%
	Motor Starts, per hour, Max	1200	1200	1200	1200	1200	1200
	Motor Protection, Temp / Class	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F	135°C / Class F
	Electrical Entry (2)	3/4" EMT or Nylon gland					
	Control	On/Off or Proportional					
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)					
	Humidity Range	0-95% RH					
	Altitude Limit	9850 ft / 3000 m					

*12V versions available custom order.

ELO Series Electric Actuators

Models : ELO-NA10/NB11/NC12/ND13/NE14/ NF15



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L		WEIGHT lbs/kg
ELO-NA10	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	0.866/22	2.17/55	(4) M10 - 1.50 X 20mm D	F10 4.016/102	7.8 / 197	14.5 turns 90°	49/22
ELO-NB11	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
ELO-NC12	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
ELO-ND13	12.64/321	8/200	7.36/187	4.06/103	10.32/262	5.91/150	11.70/297	1.063/27	2.17/55	(4) M12 - 1.75 X 20mm D	F12 4.921/125	7.8 / 197	14.5 turns 90°	49/22
ELO-NE14	14.89/378	10/250	9.49/241	4.69/119	11.54/293	6.34/161	13.62/346	1.063/27	2.56/65	(4) M12 - 1.75 X 20mm D	F14 5.512/140	11.5 / 290	16 turns 90°	80/36
ELO-NF15	14.89/378	10/250	9.49/241	4.69/119	11.54/293	6.34/161	13.62/346	1.417/36	2.56/65	(4) M16 - 2.0 X 20mm D	F14 5.512/140	11.5 / 290	16 turns 90°	80/36

*Consult Pro-Torque/Flo-Tite for optional ISO patterns

Contact Flo-Tite with questions: **USA:** 1.910.738.8904 • Fax: 1.910.738.9112 • 4815 West 5th St. • Lumberton, NC 28358
Visit us at: www.flotite.com • Email: flotite@flotite.com

Models : ELO-NA16/NB17

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 44,250 lbf-in torque in voltages ranging from 120VAC up through 480/3 in on/off or proportional control modes.

Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

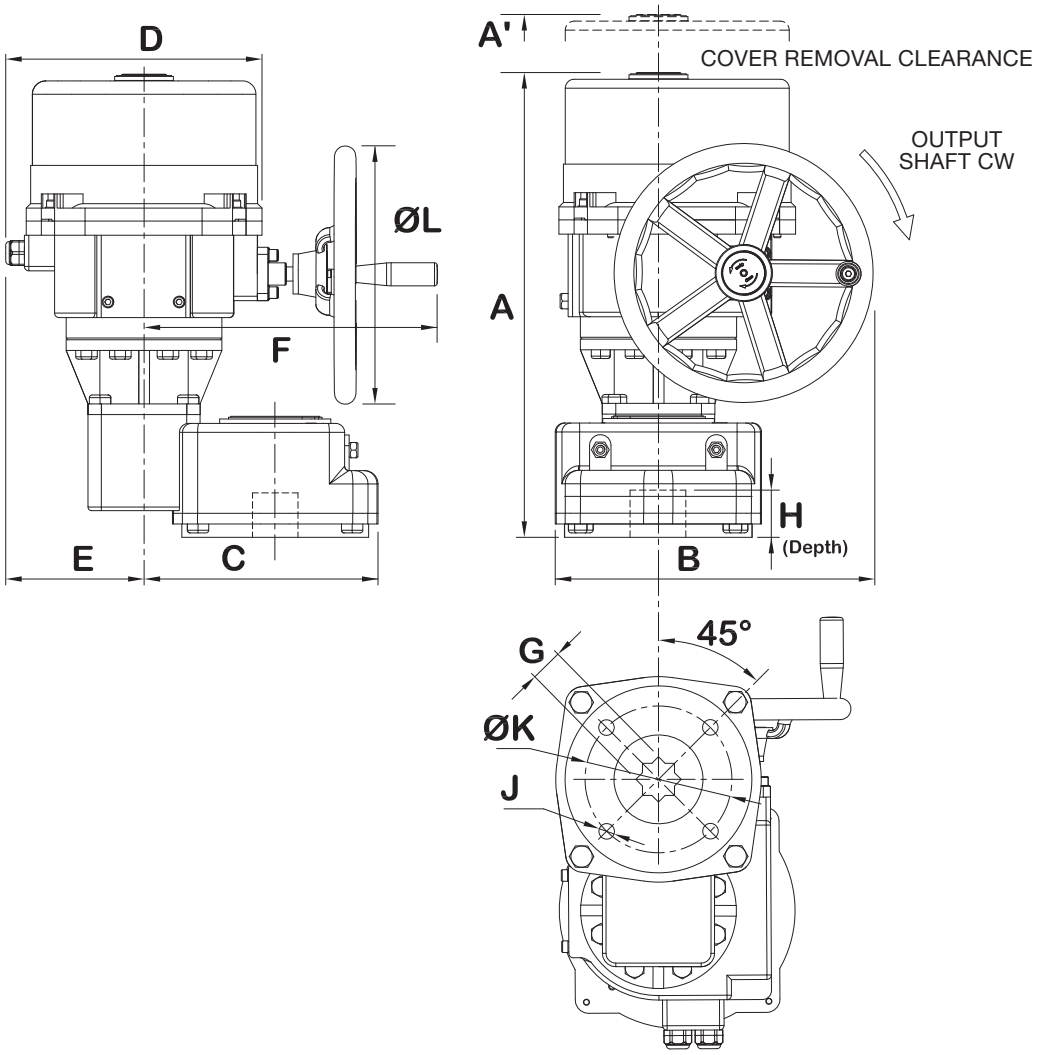
- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup

TECHNICAL INFORMATION

	ACTUATOR SPECIFICATIONS	ELONA16	ELONB17
Supply*	Torque Output (**lbf-in** / Nm)	**30,975** / 3500	**44,250** / 5000
120V	Current Draw (Start / Run / LRA)	7.2A / 4.5A / 9.4A	7.2A / 4.5A / 9.4A
	Motor - 120vac Split-Phase Cap TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
230V	Current Draw (Start / Run / LRA)	4.05A / 2.2A / 4.5A	4.05A / 2.2A / 4.5A
	Motor - 230vac Split-Phase Cap TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
220/3ph	Current Draw (Start / Run / LRA)	3.58A / 1.33A / 4.52A	3.58A / 1.33A / 4.52A
	Motor - 220/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	2.5A / 1.3A / 3.16A	2.5A / 1.3A / 3.16A
	Motor - 315/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	2.1A / 1.1A / 2.6A	2.1A / 1.1A / 2.6A
	Motor - 380/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	1.5A / 0.95A / 2.3A	1.5A / 0.95A / 2.3A
	Motor - 440/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	1.2A / 0.87A / 2.1A	1.2A / 0.87A / 2.1A
	Motor - 480/3 Polyphase TENV / Protection / Class	200W /135°C / Class F	200W /135°C / Class F
All	Speed (90°) 60Hz / 50Hz	63 sec / 76 sec	88 sec / 105 sec
	Motor Starts	1200 per hour	
	Duty Cycle (on/off / mod)	25% / 50%	
	Control	On/Off/Jog, Proportional	
	Electrical Entry (2)	3/4" EMT or Nylon Gland	
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)	
	Humidity Range	0-95% RH	
	Altitude Limit	9850 ft / 3000 m	

*HRSN5 not available below 120vac supply.

TECHNICAL INFORMATION, *CONTINUED*



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L		WEIGHT lbs/kg
ELO-NA16	20.95/532	9.83/250	14.14/359	8.90/226	11.54/293	6.34/161	13.62/346	1.811/46	3.35/85	(4) M20 - 2.5 X 35mm D	F16 6.50/165	11.42 / 290	35.6 turns 90°	167/76
ELO-NB17	20.95/532	9.83/250	14.14/359	8.90/226	11.54/293	6.34/161	13.62/346	1.811/46	3.35/85	(4) M20 - 2.5 X 35mm D	F16 6.50/165	11.42 / 290	35.6 turns 90°	167/76

*Consult Flo-Tite for optional ISO patterns

ELO-NA18 Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 71,200 lbf-in torque in voltages ranging from 120VAC up through 480/3 in on/off or proportional control modes.

Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

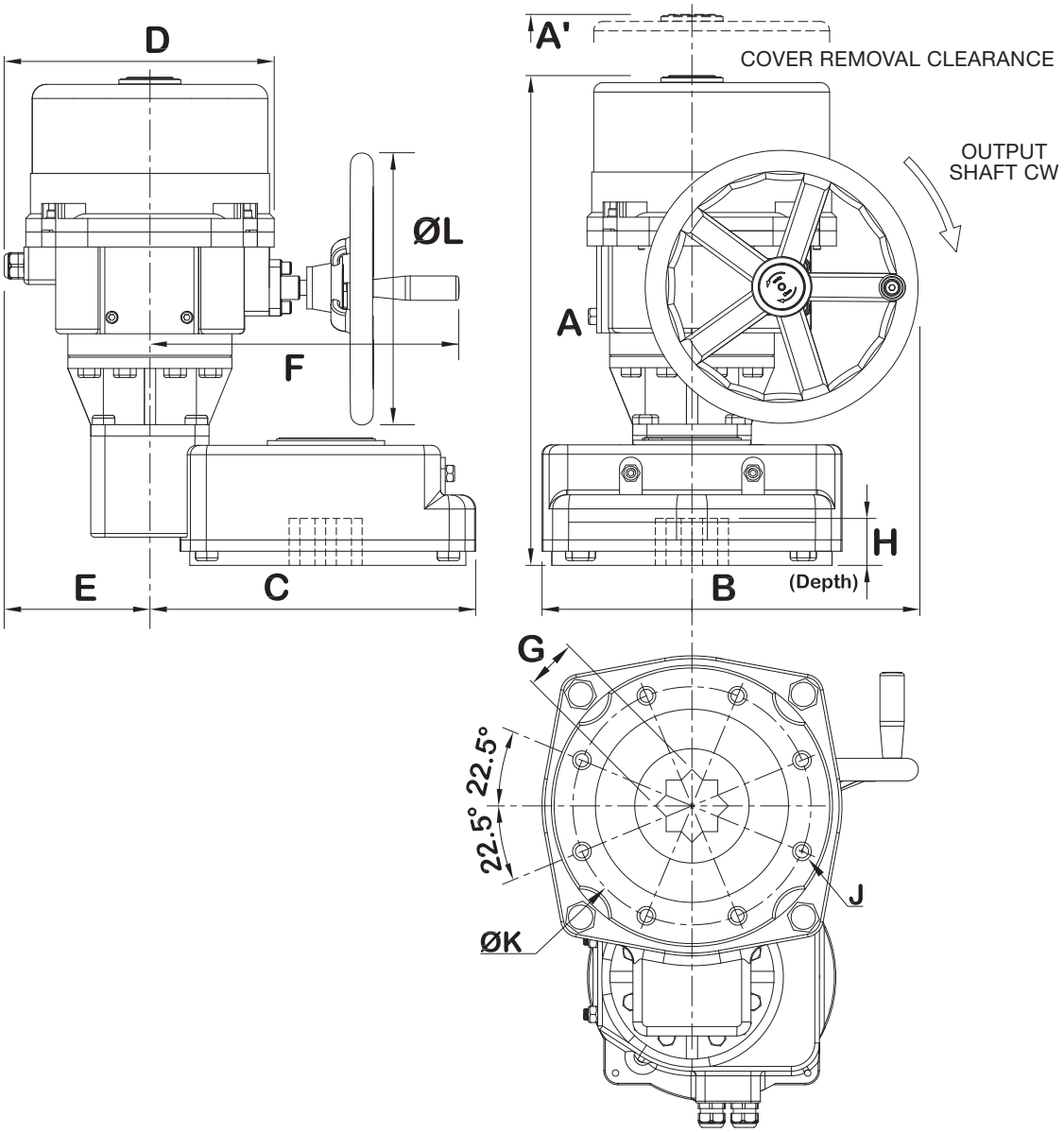
OPTIONS

- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Battery Backup

TECHNICAL INFORMATION

	ACTUATOR SPECIFICATIONS	ELO-NA18
Supply*	Torque Output (**lbf-in** / Nm)	**71,200** / 8000
120V	Current Draw (Start / Run / LRA)	7.2A / 4.5A / 9.4A
	Motor - 120vac Split-Phase Cap TENV / Protection / Class	200W / 135°C / Class F
230V	Current Draw (Start / Run / LRA)	4.05A / 2.2A / 4.5A
	Motor - 230vac Split-Phase Cap TENV / Protection / Class	200W / 135°C / Class F
220/3ph	Current Draw (Start / Run / LRA)	3.58A / 1.33A / 4.52A
	Motor - 220/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	2.5A / 1.3A / 3.16A
	Motor - 315/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	2.1A / 1.1A / 2.6A
	Motor - 380/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	1.5A / 0.95A / 2.3A
	Motor - 440/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	1.2A / 0.87A / 2.1A
	Motor - 480/3 Polyphase TENV / Protection / Class	200W / 135°C / Class F
All	Speed (90°) 60Hz / 50Hz	120 sec / 143 sec
	Motor Starts	1200 per hour
	Duty Cycle (on/off / mod)	25% / 50%
	Control	on/off or proportional
	Electrical Entry (2)	3/4" EMT or Nylon Gland
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)
	Humidity Range	0-95% RH
	Altitude Limit	9850 ft / 3000 m

*ELO-NA18 not available below 120vac supply.



DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L		WEIGHT lbs/kg
ELO-NA18	22.56/573	9.83/250	15.75/400	13.50/343	11.54/293	6.34/161	12.76/324	2.165/55	5.12/130	(8) M16 - 2.0 X 35mm D	F25 10.0/254	11.42 / 290	48 turns 90°	235/107

ELO Series ON/OFF/PROPORTIONAL ELECTRIC ACTUATORS

OVERVIEW

The ELO Series are quarter-turn electric industrial service actuators delivering up to 177,000 lbf-in torque in voltages ranging from 220/3 up through 480/3 in on/off or proportional control modes. Other Key Features include:

- Units are equipped with two (2) volt-free Form A Auxiliary switches rated at up to 10A 250vac
- ISO5211 compliant mounting with double square female drive inserts
- Flat visual position indicator
- Clutch-free manual override handwheel standard
- NEMA 4X/IP67 compliant
- Two (2) 3/4" EMT entry ports with sealed cable glands

OPTIONS

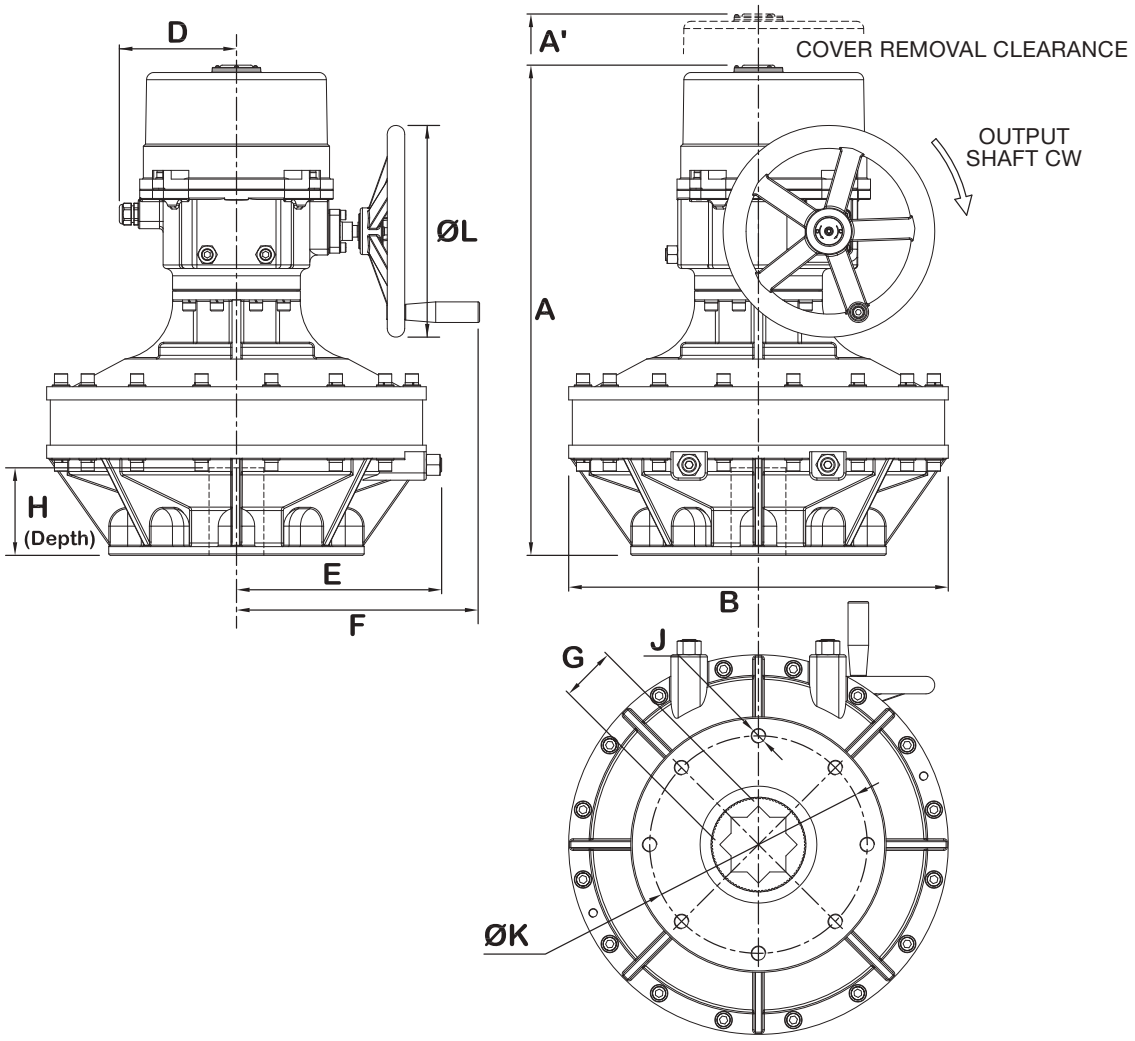
- Torque Switches
- Motor Control Centers
- Local Control Stations
- IP68 Submersion
- Interchangeable ISO5211 Drive Inserts

TECHNICAL INFORMATION

ACTUATOR SPECIFICATIONS		ELO-NA19	ELO-NB20	ELO-NC21
Supply*	Torque Output (**lbf-in** / Nm)	**115,700** / 13000	**142,400** / 16000	**177,000** / 20000
220/3ph	Current Draw (Start / Run / LRA)	6.82A / 3.5A / 8.89A	6.82A / 3.5A / 8.89A	6.82A / 3.5A / 8.89A
	Motor - 220/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
315/3ph	Current Draw (Start / Run / LRA)	4.75A / 2.4A / 6.20A	4.75A / 2.4A / 6.20A	4.75A / 2.4A / 6.20A
	Motor - 315/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
380/3ph	Current Draw (Start / Run / LRA)	3.95A / 2.0A / 5.0A	3.95A / 2.0A / 5.0A	3.95A / 2.0A / 5.0A
	Motor - 380/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
440/3ph	Current Draw (Start / Run / LRA)	3.2A / 1.7A / 4.32A	3.2A / 1.7A / 4.32A	3.2A / 1.7A / 4.32A
	Motor - 440/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
480/3ph	Current Draw (Start / Run / LRA)	2.2A / 1.6A / 3.96A	2.2A / 1.6A / 3.96A	2.2A / 1.6A / 3.96A
	Motor - 480/3 Polyphase TENV	400W / 135°C / Class F	400W / 135°C / Class F	400W / 135°C / Class F
All	Speed (90°) 60Hz / 50Hz	91 sec / 109 sec	108 sec / 129 sec	130 sec / 155 sec
	Motor Starts	1200 per hour		
	Duty Cycle (on/off / mod)	25% / 50%		
	Control	on/off or proportional		
	Electrical Entry (2)	3/4" EMT or Nylon Gland		
	Ambient Operating Range	-22°F to +158°F (-30°C to +70°C)		
	Humidity Range	0-95% RH		
	Altitude Limit	9850 ft / 3000 m		

*ELO-NA19/NB20/NC21 not available below 220/3 supply.

TECHNICAL INFORMATION, *CONTINUED*



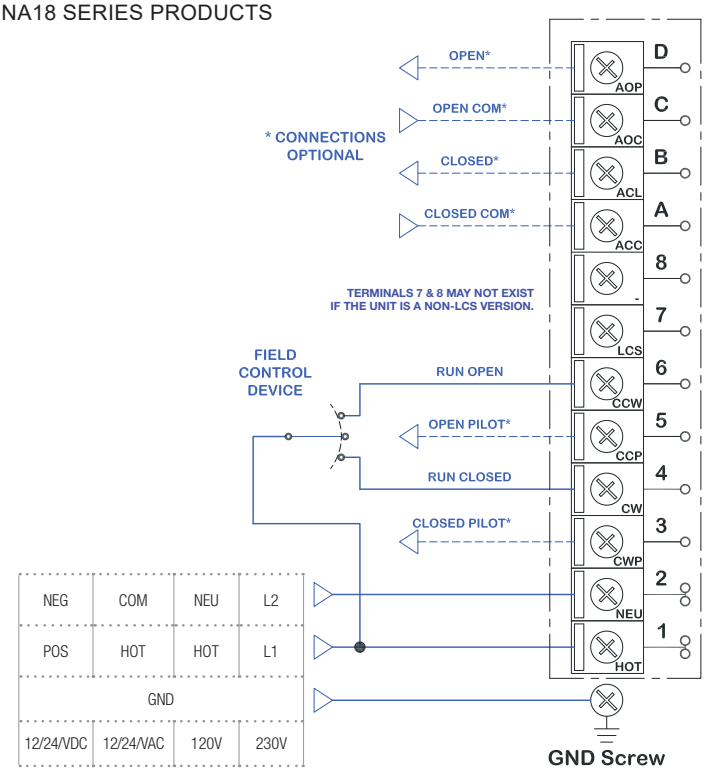
DIMENSIONS

MODEL	A in/mm	A' in/mm	B in/mm	C in/mm	D in/mm	E in/mm	F in/mm	G* in/mm	H in/mm	J* in/mm	K* in/mm	L		WEIGHT lbs/kg
ELO-NA19	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5 / 290	48 turns 90°	480/218
ELO-NB20	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5 / 290	48 turns 90°	480/218
ELO-NC21	26.46/672	9.83/250	20.47/520	-	6.34/161	11.06/281	13.03/331	2.953/75	4.72/120	(8) M20 - 2.5 X 35mm D	F30 11.73/298	11.5 / 290	48 turns 90°	480/218

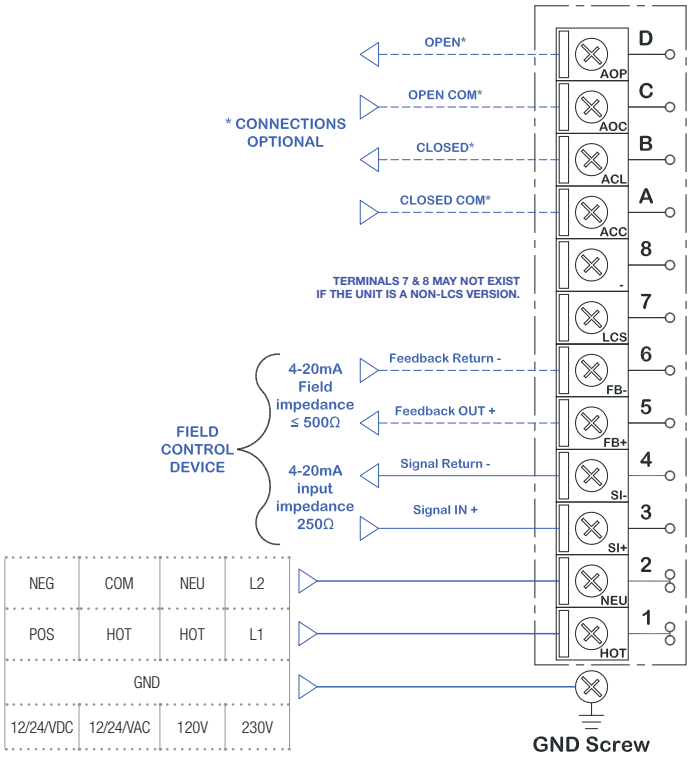
*Consult Pro-Torque/Flotite for optional ISO patterns

ELO SERIES WIRING DIAGRAMS

APPLIES TO ALL N4 THRU NA18 SERIES PRODUCTS
12VAC/DC ~ 220/1 PHASE



ON/OFF CONTROL



4-20mA CONTROL

NOTES