

**AWWA**  
C540-93



**WE Series Weatherproof**  
CSA Approved TYPE 4 & 4X IP67



**KE Series**  
Weatherproof IP67

**XE Series Explosion Proof**  
ATEX/IECEx Certified  
Ex d IIB T4 Gb  
IP67



**XC Series**  
**CSA Explosion Proof**  
CSA Approved TYPE 4, 4X, 6 & 7, IP67



# XC Series



## CSA Certification

Class I, Division 1, Groups C, D T4  
 Ex d IIB T4 Gb  
 Class I, Zone 1, AEx d IIB T4 Gb  
 TYPE 4, 4X, 6 & 7, IP66/IP67

## Standard Features

- Visual position indicator
- Torque switches (XC-01350 – XC-25900)
- Anti-condensation heater and thermostat
- Two auxiliary limit switches
- Self-locking gear train
- Manual handwheel with torque from 690 in-lbs to 25900 in-lbs
- Available motor voltages: 12VDC, 24VDC, 24VAC, 120VAC & 220VAC
- Optional proportional control
- Various inputs with feedback available

See **How To Order XC Series** on page 4

## Triac XC Series Actuators

The Triac XC Series Actuators are CSA Certified Type 4, 4X, 6 & 7 for hazardous locations and meet UL 1203 standard. The actuators are rugged and reliable with powder coated anodized aluminum housing for use in Oil, Gas, Chemical & Power Gen applications. The XC Series is the perfect match for resilient or high-performance butterfly valves and dampers because of the self-locking, double reduction worm drive and torque switches. The XC Series is also ideal for ball, plug or any rotary valve requiring automation in a hazardous location.

Actuator Model	Output Torque				90° Cycle Time (sec)				Full Load Amps (FLA)				Locked Rotor Amps (LRA)				Duty Cycle*				Hand-wheel Turns	Lbs		
	In-Lbs				60Hz	60Hz	60Hz/DC	DC	60Hz	60Hz	60Hz/DC	DC	60Hz	60Hz	60Hz/DC	DC	S4 (IEC 60034-1)							
XC	110 VAC	220 VAC	24V AC/DC	12 VDC	110 VAC	220 VAC	24V AC/DC	12 VDC	110 VAC	220 VAC	24V AC/DC	12 VDC	110 VAC	220 VAC	24V AC/DC	12 VDC	110 VAC	220 VAC	24V AC/DC	12 VDC	110 VAC	220 VAC	24V AC/DC	12 VDC
-00690	690	690	620	350	20	20	17	11	1.2	0.6	5	13.5	1.4	0.7	12.8	21.7	40%	40%	30%	30%	10	16.4		
-00860	860	790	700	440	20	20	20	11	1.2	0.6	6.3	13.5	1.4	0.7	12.8	21.7	40%	40%	30%	30%	10	16.4		
-01350	1350	1350	1350	-	21	23	22	-	2	1	6	-	2.5	1.2	16.9	-	70%	35%	40%	-	11	36.7		
-01700	1700	1590	1410	-	21	23	22	-	2.3	1.1	7.4	-	2.5	1.2	16.9	-	70%	35%	40%	-	11	36.7		
-02640	2640	2300	2120	-	26	26	32	-	2.3	1.3	8.9	-	2.9	1.4	30.8	-	70%	40%	35%	-	13.5	48.6		
-04400	3980	3980	-	-	29	29	-	-	4.5	1.9	-	-	5	2.4	-	-	30%	30%	-	-	13.5	50.8		
-06900	6900	6900	-	-	31	34	-	-	5.1	2.4	-	-	7.3	3.8	-	-	30%	30%	-	-	16.5	64		
-10500	9600	8300	-	-	31	34	-	-	5.4	3.4	-	-	7.3	3.8	-	-	30%	30%	-	-	16.5	64		
-17500	17500	17500	-	-	93	93	-	-	5.8	2.4	-	-	7.3	3.8	-	-	30%	30%	-	-	49.5	167		
-25900	25900	25900	-	-	93	93	-	-	6.3	3.4	-	-	7.3	3.8	-	-	30%	30%	-	-	49.5	167		

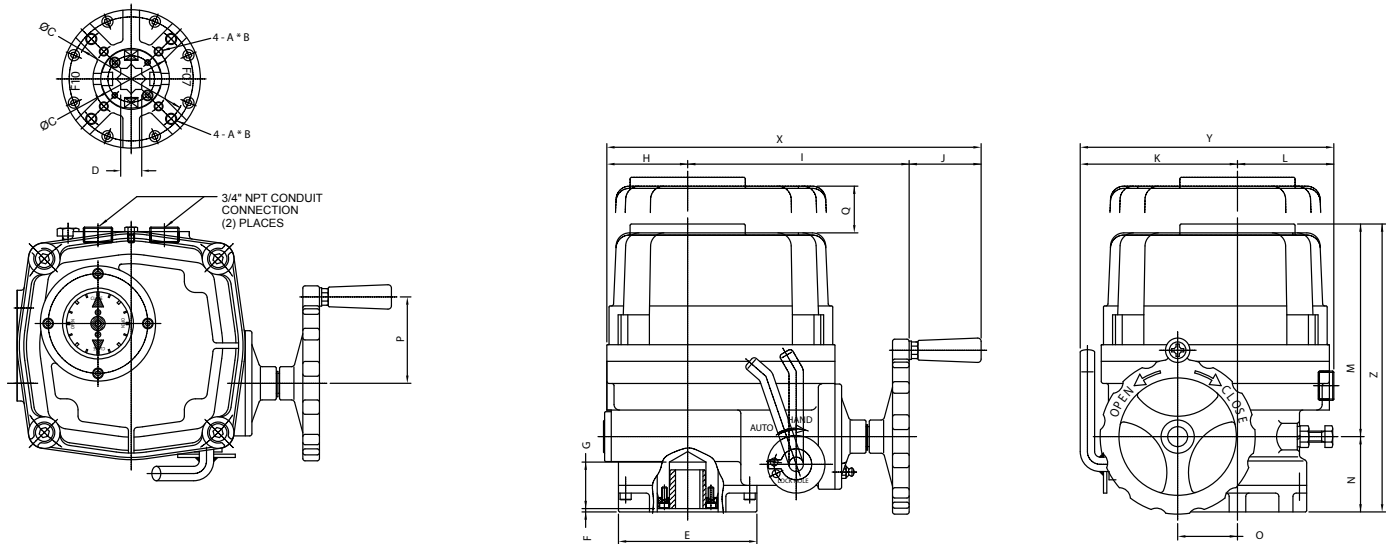
\*DUTY CYCLE: FULL LOAD WITH 158°F AMBIENT TEMP

# XC Series

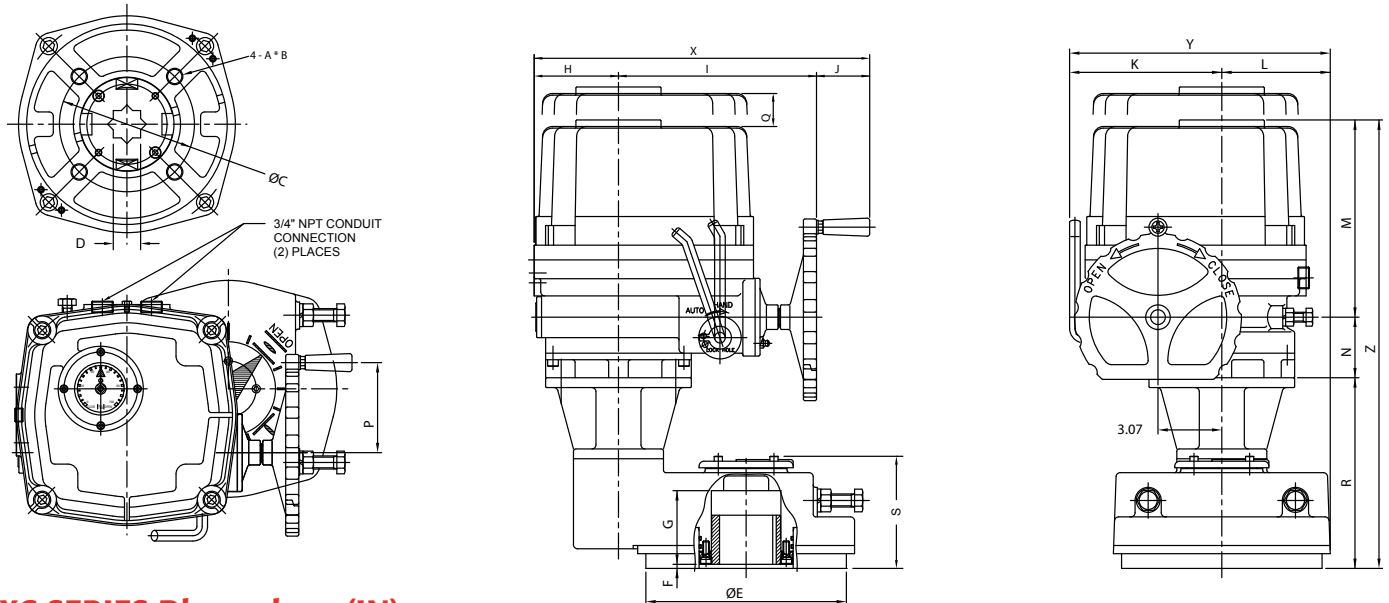
ELECTRIC ACTUATORS

## Dimensional Drawings

**XC-00690, 00860, 01350, 01700, 02640, 04400, 06900, 10500**



**XC-17500, 25900**



### XC SERIES Dimensions (IN)

Model XC	ISO 5211	A	B	C	D sq	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
-00690	F07	M8	0.47	2.756	0.669	3.46	0.12	1.26	1.97	6.18	2.01	3.94	2.76	7.10	2.09	1.57	2.36	4.72	-	-	10.16	6.69	9.78
-00860	F07	M8	0.47	2.756	0.669	3.46	0.12	1.26	1.97	6.18	2.01	3.94	2.76	7.10	2.09	1.57	2.36	4.72	-	-	10.16	6.69	9.78
-01350	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	8.09	2.68	2.13	3.07	6.30	-	-	13.31	9.02	11.08
-01700	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	8.09	2.68	2.13	3.07	6.30	-	-	13.31	9.02	11.08
-02640	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	9.23	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.95
-04400	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	9.23	2.72	2.56	3.07	7.09	-	-	14.49	10.20	12.50
-06900	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	10.02	2.91	3.07	4.33	8.27	-	-	16.14	11.69	13.52
-10500	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	10.02	2.91	3.07	4.33	8.27	-	-	16.14	11.69	13.52
-17500	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	10.02	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.70
-25900	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	10.02	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.70

# How to order XC Series

## TRIAAC® XC Series

### CSA Approved Explosion Proof Actuators

### Part Number Reference

Series	
XC	Explosion Proof, CSA Class I, Division 1, Groups C, D; T4 Type 4, 4X, 6 & 7, IP66/IP67 Ex d IIB T4 Gb Class I, Zone 1, AEx d IIB T4Gb

Control	
Blank	(2) Position Control (Open / Close)
D	Modulating Controller* (Sizes 01350 -01700) *XCD available with motor option C or E only

Actuator Size	Output Torque			
	110 VAC	220 VAC	24V AC/DC	12 VDC
-00690	690	690	620	350
-00860	860	790	700	440
-01350	1,350	1,350	1,350	-
-01700	1,700	1,590	1,410	-
-02640	2,640	2,300	2,120	-
-04400	3,980	3,980	-	-
-06900	6,900	6,900	-	-
-10500	9,600	8,300	-	-
-17500	17,500	17,500	-	-
-25900	25,900	25,900	-	-



Motor	
X	110VAC/1PH
A	24VDC/24VAC on/off (Sizes 00690 - 02640)
B	12VDC (Sizes 00690 & 00860)
C	24VDC XCD MODELS ONLY (Sizes 01350 - 01700)
E	220VAC /1PH
N	12VDC/12VAC on/off (Sizes 00690 - 00860)

Options		Note: Add all miscellaneous options to end of part number
Blank	No options	
XT	0-10VDC/4-20mA Transmitter	XCD MODELS ONLY

NOTE: Class I, Division 2 areas require a certified seal-off fitting during installation



### Example

**XC-01350X** - Triac Explosion Proof Electric Actuator, 1350 In-Lbs (150Nm), 21 Second Operation, 110VAC/1PH, 50-60Hz, 2 FLA, Two Position Control, ISO Mounting, 10 Watts Compartment Heater & Thermostat, (2) Auxiliary Limit Switches with Independent Cams, (2) Torque Switches, Diecast Anodized Aluminum Polyester Coated Construction, Class F Extended Duty Fan Motor, Manual Override, (2) 3/4" NPT Conduit Connections, F07/F10 ISO Mounting Pad, 19MM (0.748) Star Output Drive, cCSAus Approved Class I, Division 1, Groups C, D; T4, Ex d IIB Gb T4, Class I, Zone 1, AEx d IIB Gb T4, Type 4, 4X, 6 & 7, IP66, IP67, Ambient Temp = -20°C to +60°C  
Color - Silver

A-T Controls reserves the right to change product designs and technical/dimensional specifications without notice. See website for updates.

# KE Series

ELECTRIC ACTUATORS



## Standard Features

- Convex lens visual position indicator makes it easier to observe without water collecting on the surface of the indicator
- Anti-condensation heater and thermostat
- Two auxiliary limit switches
- Self-locking gear train
- Manual override with wrench
- Available motor voltages: 12VDC, 24VDC, 120VAC & 220VAC
- Optional 4-20mA & 0-10 VDC proportional control
- Duty Cycle (IEC60034-1), 50% max torque at 25°C/77°F
  - On/Off – S2 continuous 15 minutes max
  - Modulating – S4 intermittent, 50%, 1200 starts per hour
- Temperature Range: -4° F to 140° F

## Triac KE Series Actuators

The Triac KE Series electric actuators are the perfect match for resilient or high-performance butterfly valves and dampers because of the self-locking worm drive. The KE Series actuators are used to control rotary valves, such as butterfly valves, ball valves, plug valves, etc. Widely used in applications such as petroleum, chemical, water treatment, ship, paper, power stations, heating supply, building automation, light industry etc.

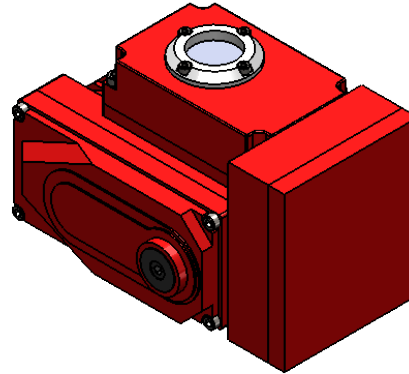
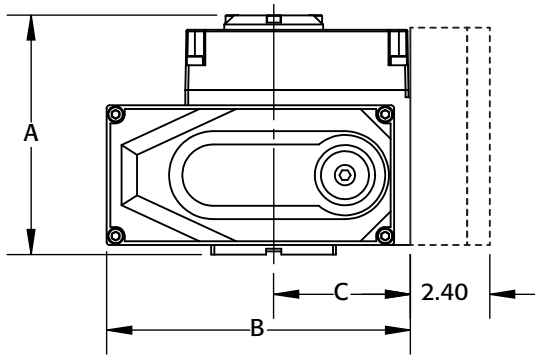


*Unique low profile actuator,  
ideal for tight spaces*

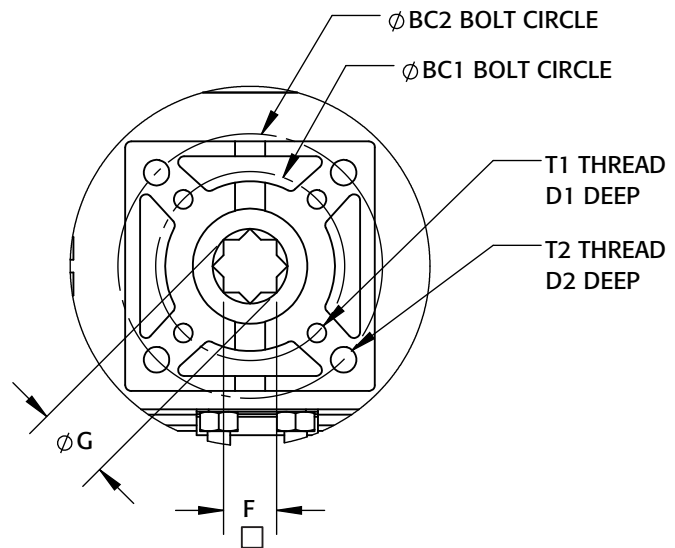
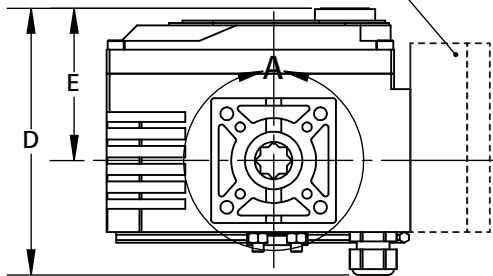


## Dimensional Drawing

KE-440 to -3500



OPTIONAL MODULATING CONTROL MODULE



### KE SERIES Dimensions (IN)

Model	A	B	C	D	E	Mounting Pad								
						ISO 5211	F	G	BC1	BC2	T1	D1	T2	D2
KE-440	5.14	6.74	3.07	5.44	3.12	F05/F07	0.551 x 0.67 Deep	0.76	1.969	2.756	M6 x 1	0.4	M8 x 1.25	0.5
KE-880	5.31	7.69	3.50	6.24	3.43	F05/F07	0.669 x 0.89 Deep	0.92	1.969	2.756	M6 x 1	0.4	M8 x 1.25	0.5
KE-1700	6.65	11.63	4.93	8.37	4.57	F10/F12	1.063 x 1.28 Deep	1.47	4.016	4.921	M10 x 1.5	0.6	M12 x 1.75	0.7
KE-3500	6.65	11.63	4.93	8.37	4.57	F10/F12	1.063 x 1.28 Deep	1.47	4.016	4.921	M10 x 1.5	0.6	M12 x 1.75	0.7

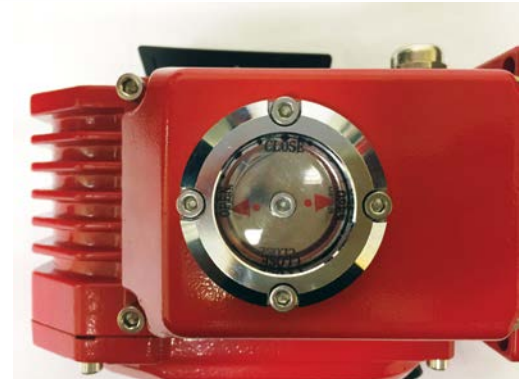
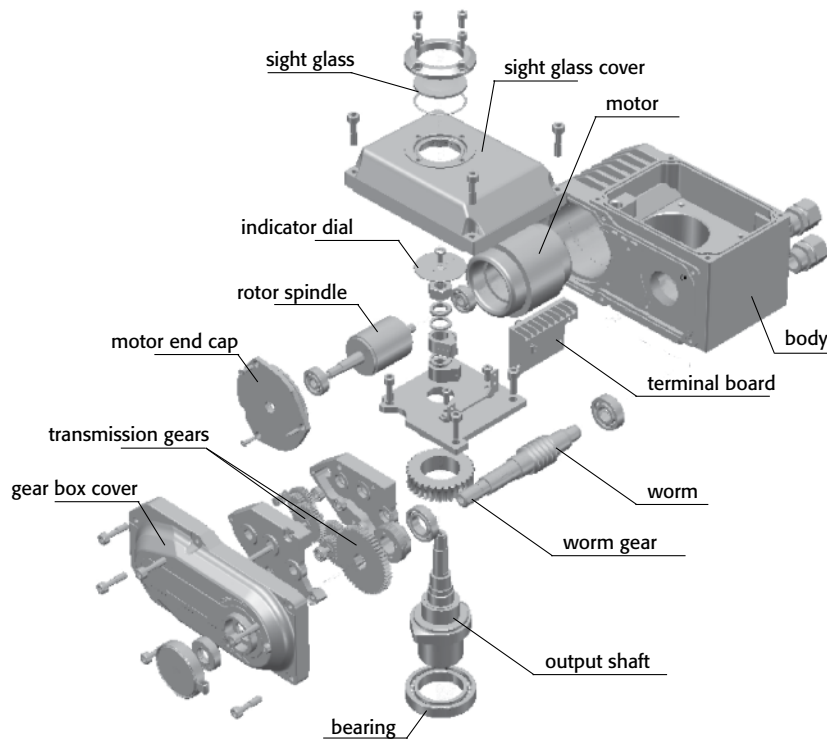
### KE Motor Technical Data

Actuator Model	Output Torque		90° Cycle Time (sec)				Rated Current				Lbs
			AC		DC		DC		1 Phase		
	In-Lbs	Nm	50 Hz	60 Hz	12V	24V	12V	24V	110VAC	220VAC	
KE-440	440	50	15	13	25	20	3.0	1.8	1.2	0.65	7.5
KE-880	880	100	15	13	25	20	5.3	2.8	1.3	0.9	12
KE-1700	1700	200	20	17	N/A	20	N/A	7.5	1.3	0.6	21
KE-3500	3500	400	20	17	N/A	30	N/A	7.5	2.5	1.2	21

# KE Series

ELECTRIC ACTUATORS

## KE Series Actuators



Convex lens visual position indicator



4-20mA/0-10 VDC Modulating Control Module

### TRIAK® KE Series Electric Actuator Part Number Reference

<b>Model</b>	
KE	Weather-Proof IP67 Electric Actuator
<b>Control</b>	
Blank	(2) Position Control (Open / Close)
M	Standard Modulating Control Module (4-20mA / 0-10 VDC Input/Output)
<b>Actuator Sizes (KE)</b>	
<b>Size</b>	
440	440 In-Lbs
880	880 In-Lbs
1700	1700 In-Lbs
3500	3500 In-Lbs
<b>Motor</b>	
X	110/120VAC/1PH <i>Place holder - Omit when at end of part number</i>
B	12VDC (440 & 880 models only)
C	24VDC
E	220VAC/1PH



### Example

#### KEM-880

Triac Worm Drive Electric Actuator, Weather-Proof IP67, 880 In-Lbs Torque Output, 13 Sec Cycle Speed, 110VAC/1PH, 0.75 Rated Amps, Modulating Control, (2) Auxiliary Limit Switches, Heater & Thermostat, Diecast Aluminum Powder Coated Construction, Manual Override with Wrench, (2) 1/2" NPT Conduit Entries, F05, F07, F10 Mounting Pad, 0.669 (17MM) Star Output Drive

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## WE-350

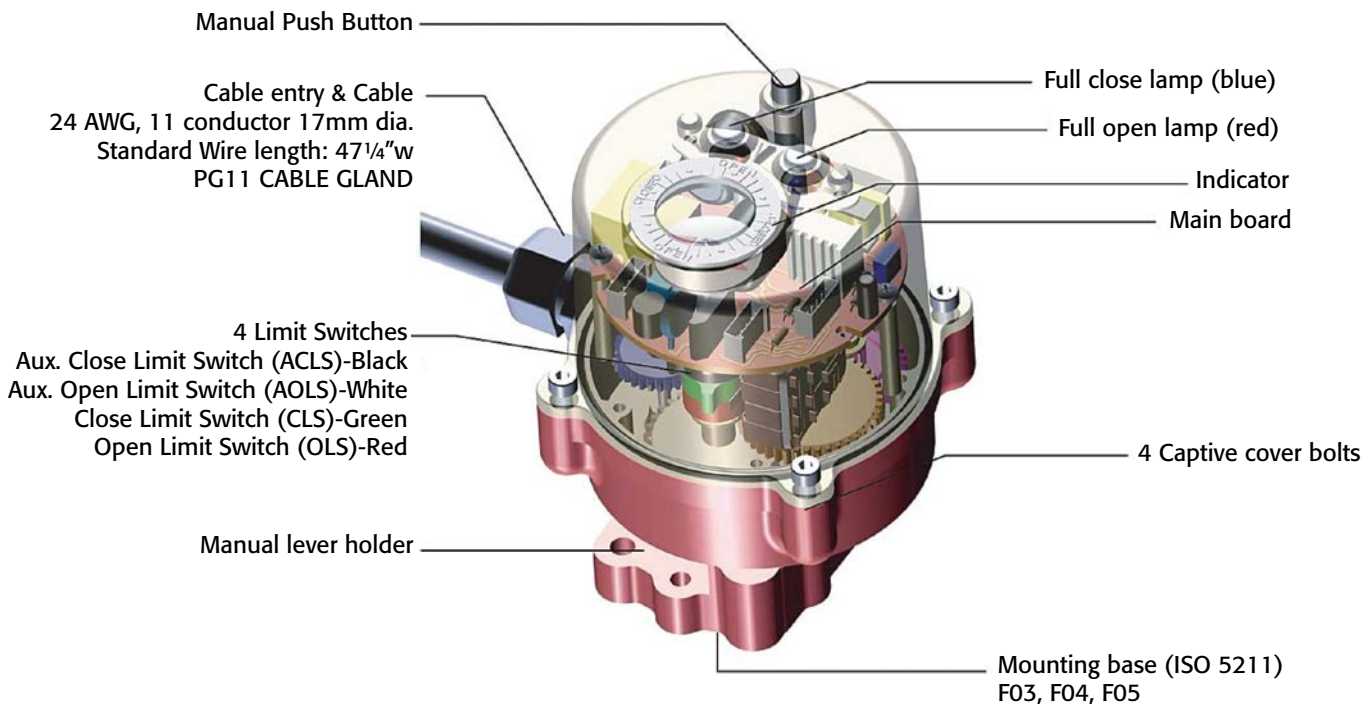
The WE-350 Electric Actuator is specifically designed to operate small size ball valves (1" and less), dampers and other quarter-turn devices.

### Features

- Compact and light weight
- High resistance to corrosion due to hard anodizing on inside and outside with polyester powder coating on external surface
- Multi-voltage (85-265VAC/1PH, 24VDC)
- Standard space heater (0.5W)
- Weather proof (IP67)
- Push Button and Manual lever
- Wide, easy mounting base standard to ISO 5211 (F03/F04/F05)
- (2) Operational & (2) Auxillary, Open / Close, SPDT, 6A 125/250VAC
- Captive cover bolts
- Mechanical position indicator & LED lamp indicators (Open/Close)



### Construction





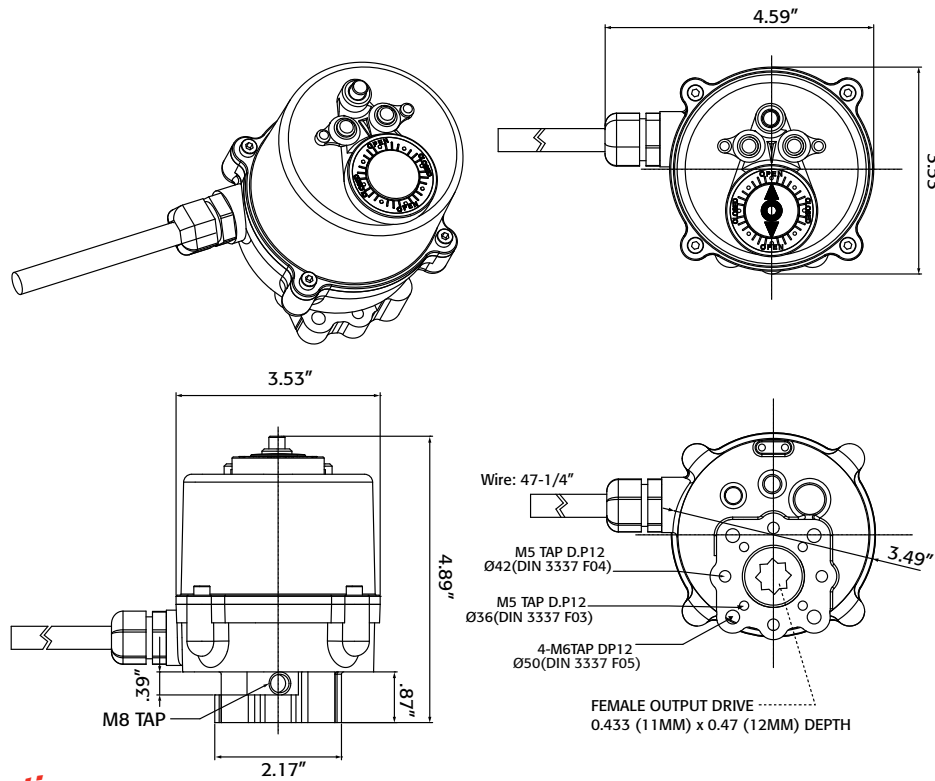
# WE-350

## ELECTRIC ACTUATORS

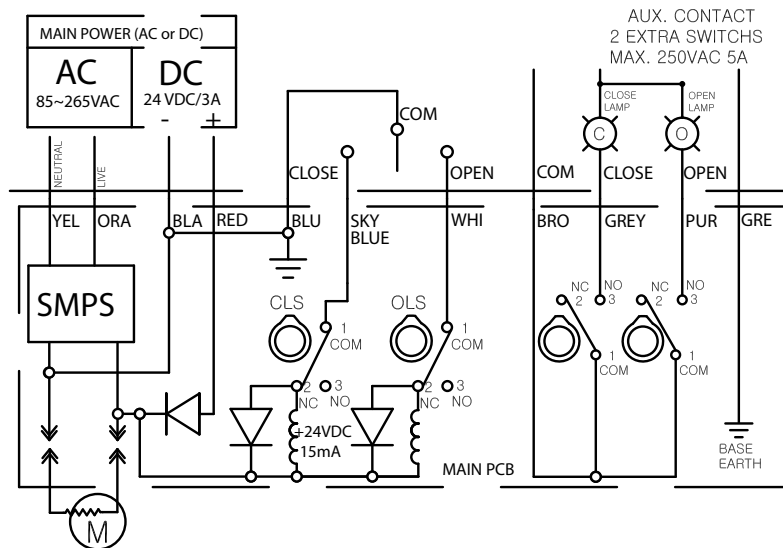
### Performance

Type (Model)	Maximum Output Torque	Operating Time 60/50 Hz	Mounting Size	Supply Power & Rated Current (A) 60/50Hz, 1 Phase			Duty Cycle IEC34-1	Manual Level Angle	Weight
	In-Lbs.	90°		ISO 5211	110VAC	220VAC			24VDC
WE-350	354	12 sec.	F03/F04/F05	.12	.06	.46	70%	90°	2.65
WE-350HS	270	6.5 sec.		.065	.033	.25			

### Dimensions



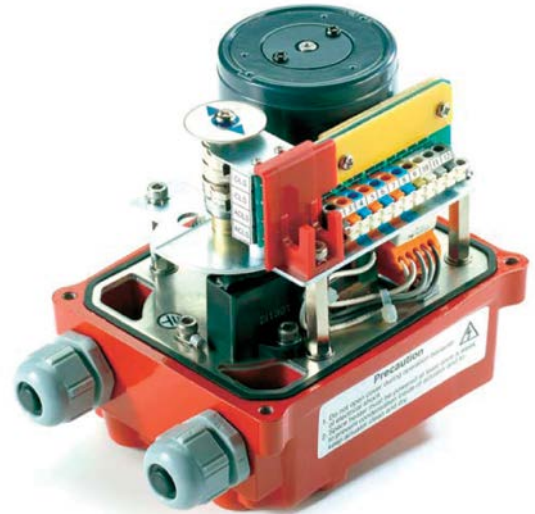
### Wiring Connection



# WE/XE Series

## WE/XE-500

The WE-500 and XE-500 Electric Actuators have a compact design ideal for use with small ball valves (2" and less), dampers and other quarter-turn devices. Each actuator includes a visual indicator, two auxiliary switches and a compartment heater. A convenient wrench manual override shaft is standard. This actuator is the clear choice when a compact, efficient electric actuator is required!



### Standard Features

- Compact and light due to high grade aluminum alloy housing.
- High resistance to corrosion due to hard anodizing on inside and outside with polyester powder coating on external surface
- Output torque: 530 In-lbs.
- Reversible, high torque and low current motor
- Enclosure: Weatherproof (IP67, Type 4, 4X) or Explosion Proof (ATEX/IECEX Ex d IIB T4)
- Captive cover bolts
- Terminal block (11P)

### Standard Specifications

<b>Enclosure</b>	Weatherproof (IP67, Type 4, 4X) or Explosion Proof (ATEX/IECEX Ex d IIB T4)
<b>Power Supply</b>	110/220V AC 1PH, 50/60Hz, ± 10%, 24V AC/DC
<b>Duty cycle</b>	IEC60034-1 S4, 70%, 1200 starts per hour (50% max torque at 25°C/77°F)
<b>Motor</b>	Class F Reversible motor
<b>Limit switches</b>	(2) Operational & (2) Auxiliary, Open / Close, SPDT, 6A 125/250VAC
<b>Space heater</b>	2W (110/220V AC) Anti-condensation
<b>Manual override</b>	Drive Nut (4mm hex)
<b>Cable conduit</b>	Two 1/2" NPT
<b>Movement angle</b>	320° ± 10°
<b>Ambient temperature</b>	-4°F - 158°F (optional -40°F Low Temp Kit)
<b>External coating</b>	Polyester powder coating
<b>Mounting</b>	ISO 5211 (F03/F05/F07)

### Performance

Type (Model)	Maximum Output Torque In-Lbs.	Operating Time 60/50 Hz 90°	Motor Size Watts	Full Load Amps			Locked Rotor Amps			Duty Cycle IEC 34-1 S4	Number of Handle Turns N	Weight Lbs.
				AC 1PH. 50/60Hz		AC/DC	AC 1PH. 50/60Hz		AC/DC			
				110V	220V	24V	110V	220V	24V			
WE-500	530	12/14	10	0.4	0.2	1.4	0.5	0.25	2.5	70%	8	6.61
XE-500												

### Optional Configurations

#### Position Indication Unit (Potentiometer kit)

High resolution potentiometer with precisely machined gearing directly engaged with drive shaft provides continuous monitoring of position of valve and actuator.

#### AC/DC 24V Control Unit

Dip Switch

Mode	1	2
DC	ON	OFF
AC	OFF	ON

(setting shown here applies to WE/XE-500A only)



#### TMC3 Electronic Modulating Card

- For WE Series only; See details on page 16

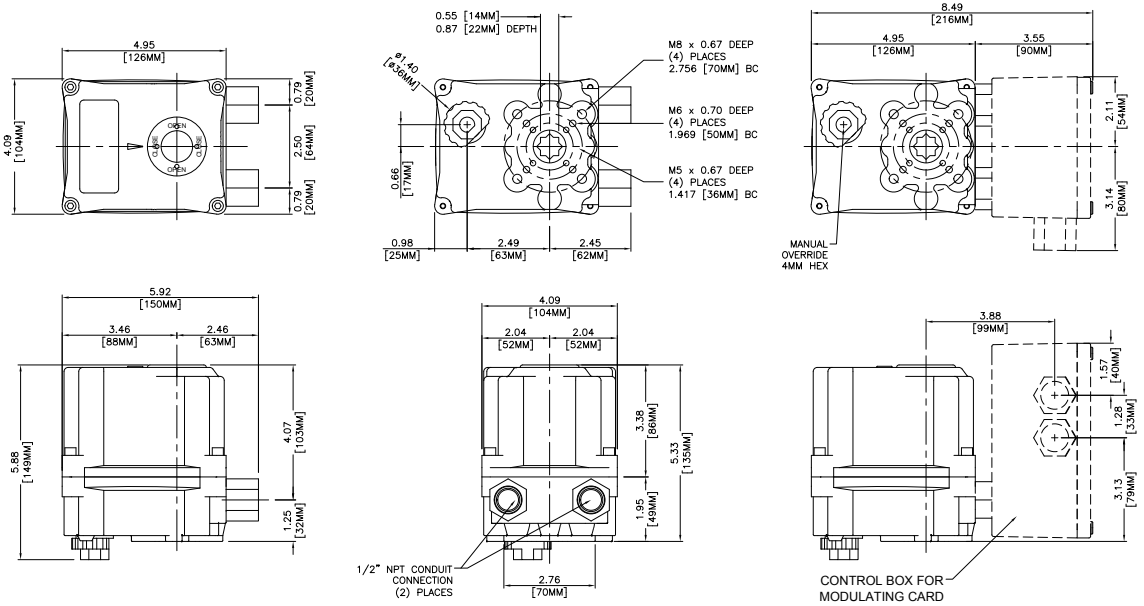
# WE/XE-500

ELECTRIC ACTUATORS

## Dimensions

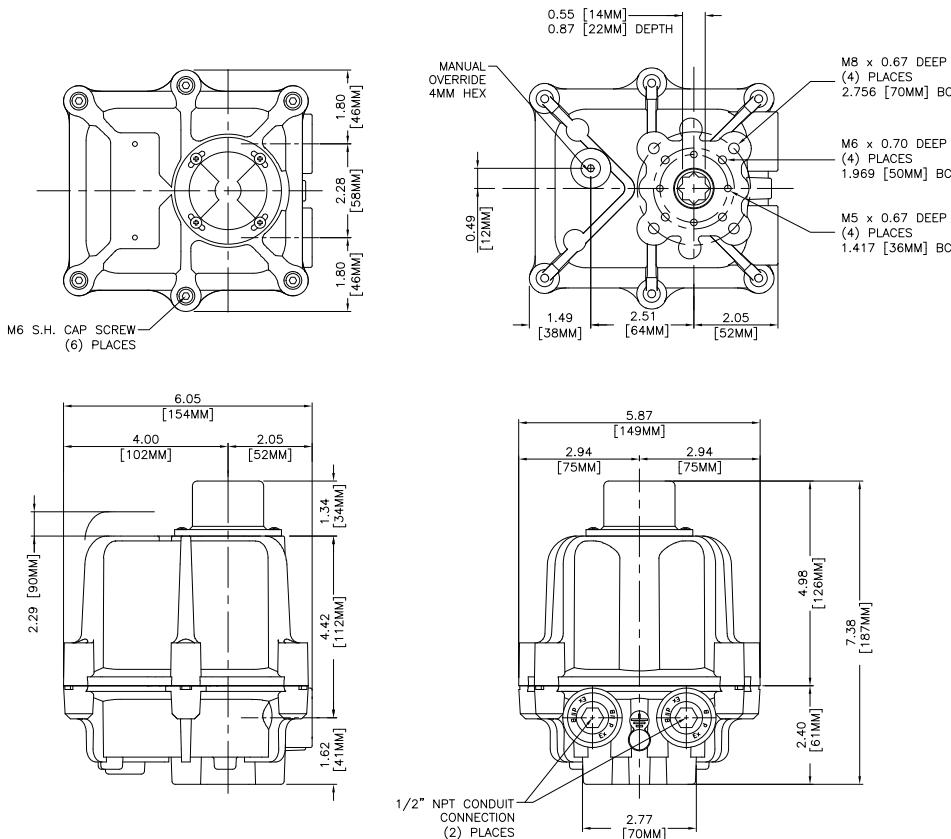
### WE-500

CSA Approved,  
Type 4 & 4X IP67



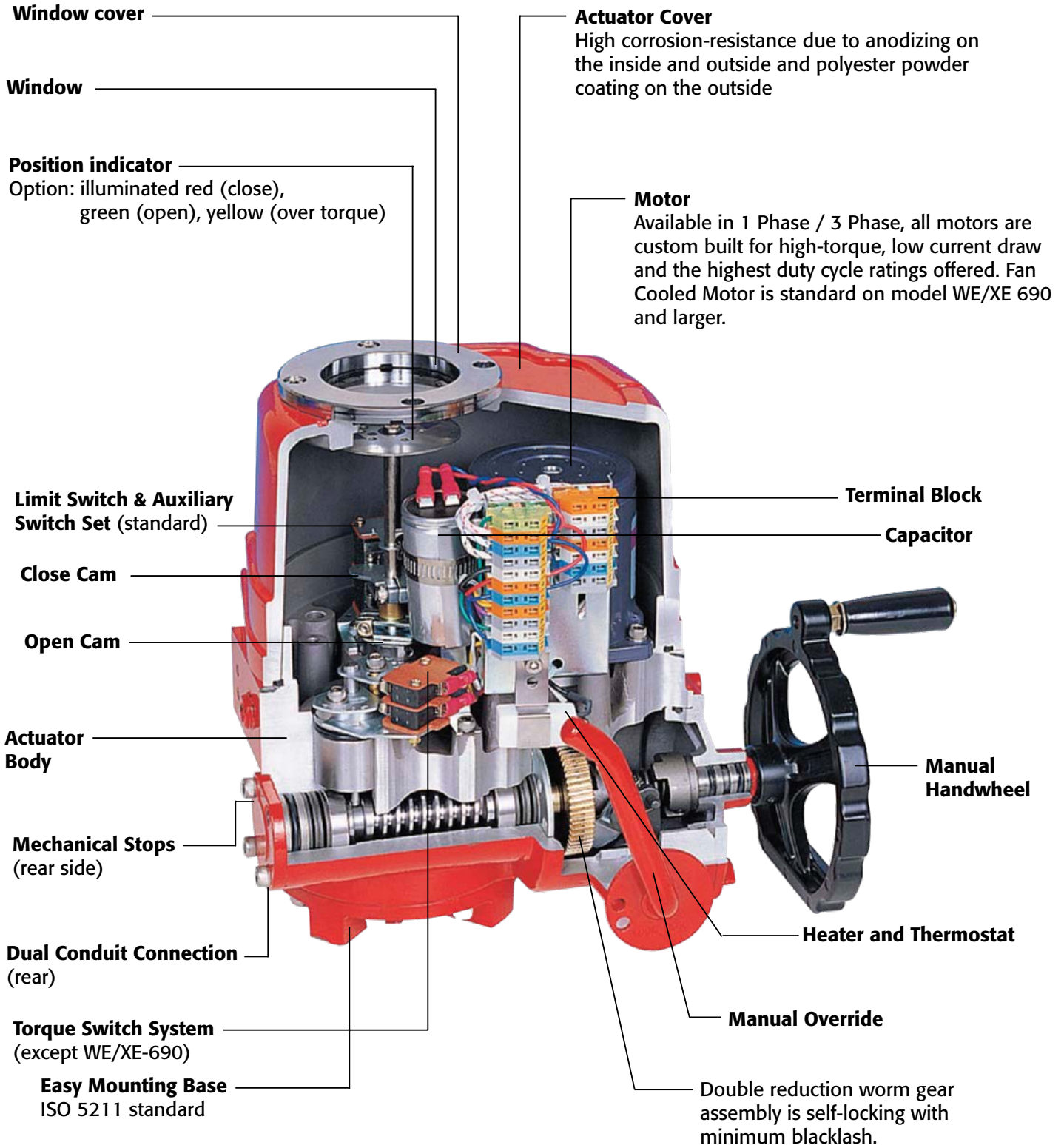
### XE-500

ATEX/IECEx Ex d IIB T4 Gb, IP67



# WE/XE Series

## Electric Actuators WE/XE Features



# WE/XE Series

ELECTRIC ACTUATORS

## WE/XE-690 thru WE/XE-25900



### **Terminal block**

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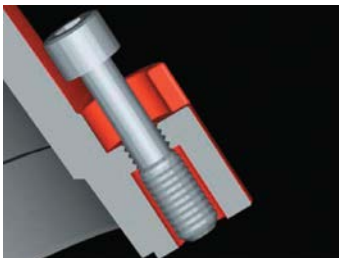
- Extra terminals for customer's convenience
- Spring Loaded Terminal Strip provides secure connection



### **Heater**

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- Ceramic housing with thermostat to eliminate condensation (7-10 watt Standard)
- Optional High Wattage Heater for Low Temp applications to -40°F



### **Captive cover bolt**

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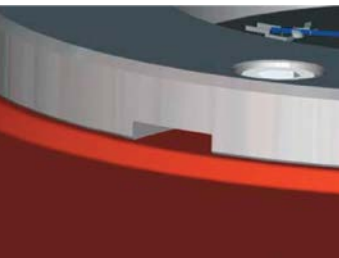
- Cover bolts are specially designed to prevent loosening during maintenance or installation
- All external bolts are stainless steel for rust prevention



### **Indicator sustained by spring**

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- Direction of visual indicator is set by factory
- To change its direction, simply grip the indicator plate and rotate to the new position
- Spring beneath the indicator plate sustains the set position
- No need to loosen screw and tighten it again



### **Slot on window cover for draining water**

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- A drain slot is provided to eliminate water buildup on window



### **Removable Drive Bushing**

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- Easily change drive size

# WE/XE Series

## WE/XE Series



**WE** CSA Approved,  
Type 4 & 4X,  
IP67



**XE**  
ATEX/IECEX  
Ex d IIB T4 Gb, IP67



**SE** Type 4,  
4X & 6, IP68

Acuator Models	Output Torque	90° Cycle Time (sec)	Motor Size	Full Load Amps						Locked Rotor Amps					Duty Cycle	Handwheel Turns	Weight
				AC/DC	1 Phase		3 Phase		AC/DC	1 Phase		3 Phase					
WE / XE	In-Lbs.	60 / 50 Hz	Watts	24V	110V/60Hz	220V/60Hz	380V	440V	24V	110V/60Hz	220V/60Hz	380V	440V	IEC 34-1 S4	N	Lbs.	
-690	690	13 / 16	15	5	1.2	0.6	N/A	N/A	12.8	1.4	0.7	N/A	N/A	70%	10	16.4	
-1350	1350	21 / 25	40	6	2	1	0.28	0.36	16.9	2.5	1.2	0.75	0.66	70%	11	36.7	
-1700	1700	21 / 25	40	7.4	2.3	1.1	0.28	0.36	16.9	2.5	1.2	0.75	0.66	70%	11	36.7	
-2640	2640	26 / 31	40	8.9	2.3	1.3	0.27	0.34	30.8	2.9	1.4	1	0.87	70%	13.5	48.6	
-4400	4400	26 / 31	90	N/A	4.5	1.9	0.42	0.47	N/A	5	2.4	1.73	1.5	70%	13.5	50.8	
-5200	5200	26 / 31	90	N/A	4.5	2	0.42	0.47	N/A	5	2.4	1.73	1.5	70%	13.5	50.8	
-6900	6900	31 / 37	180	N/A	5.1	2.4	0.61	0.67	N/A	7.3	3.8	2.73	2.38	50%	16.5	64	
-10500	10500	31 / 37	180	N/A	5.4	3.4	0.61	0.67	N/A	7.3	3.8	2.73	2.38	50%	16.5	64	
-17500	17500	95 / 112	180	N/A	5.8	2.4	0.61	0.67	N/A	7.3	3.8	2.73	2.38	50%	49.5	167	
-25900	25900	95 / 112	180	N/A	6.3	3.4	0.61	0.67	N/A	7.3	3.8	2.73	2.38	50%	49.5	167	

### Standard Specifications

<b>Enclosure</b>	Series WE - Weatherproof, CSA Type 4, 4X, IP67 Series XE - Explosion(Flame) Proof, ATEX/IECEX Ex d IIB T4 Gb, IP67 Series SE - Submersible, Type 4, 4X, & 6, IP68, 10m for 72hr
<b>AWWA</b>	Conforms to AWWA C540-93 requirements
<b>Power supply</b>	12/24VDC, 24/110/220VAC 1PH, 220/380/440/460/480VAC 3 PH, 50/60Hz, ±10%
<b>Duty cycle</b>	IEC60034-1 S4, 50%-70%, 1200 starts per hour (50% max torque at 25°C/77°F)
<b>Motor</b>	Class F Reversible Induction motor
<b>Limit switches</b>	Open / Close, SPDT, 16A 1/2HP 125/250VAC, 0.6A 125VDC, 0.3A 250VDC; (2) Operational & (2) Auxillary
<b>Torque switches</b>	Open / Close, SPDT, 16A 1/2HP 125/250VAC, 0.6A 125VDC, 0.3A 250VDC (except size -690)
<b>Stall protection</b>	Built-in thermal protection, Open 302°F (150°C) / Close 207°F (97°C)
<b>Travel angle</b>	0 to 90° ± 10° / 0 to 270° ± 10°
<b>Indicator</b>	Continuous position indicator
<b>Manual override</b>	Declutching mechanism
<b>Self locking</b>	Provided by double worm gearing
<b>Mechanical stopper</b>	Open / Close (external adjustable screws)
<b>Space heater</b>	7-10W Anti-condensation
<b>Cable Conduit</b>	Two 3/4" NPT
<b>Lubrication</b>	Grease moly (EP type)
<b>Terminal block</b>	Spring loaded lever push type
<b>Materials</b>	Steel, Aluminium alloy, Al bronze, Polycarbonate
<b>Ambient temperature</b>	Standard: -4°F — 158°F Explosion Proof standard: -4°F — 140°F
<b>Ambient humidity</b>	90% RH Max. (non-condensing)
<b>Anti-Vibration</b>	XYZ 10g, 0.2~34Hz, 30 minutes
<b>External coating</b>	Anodizing treatment before dry powder, Polyester

# WE & XE Series

ELECTRIC ACTUATORS

## Options

Option	WE	XE	SE	Available Models
Explosion Proof Enclosure (ATEX/IECEx II 2 G, Ex d IIB T4 Gb, IP67)	-	X	-	-500 to -25900
Submersible Enclosure (Type 4, 4X & 6, IP68, 10m for 72hr)	-	-	X	-690 to -10500
Potentiometer Unit (1k $\Omega$ to 10k $\Omega$ )	X	X	X	-500 to -25900
(TMC3) Electronic Modulating Card; 4-20mA, 1-5mA, 0-10VDC, 1-5VDC, 0-135 $\Omega$ command signal	X	X	X	WE-500 to -25900 XE/SE-1350 to -25900
(TDC) High Resolution Electronic Modulating Card; 4-20mA, 1-5VDC, 0-5VDC, 0-10VDC command signal	X	X	X	WE-500 to -25900 XE/SE-1350 to -25900
Local Control Unit (local/remote control)	X	-	-	-500 to -25900
Semi-Integral Control Unit (local/remote control with feedback)	X	-	-	-1350 to -25900
Intelligent Digital Control Unit (local/remote control with feedback and digital LCD display)	X	-	-	-1350 to -80000
Current Position Transmitter (4-20mA output)	X	X	X	-500 to -25900
Low Temp Kit (-40°F)	X	X	X	-500 to -25900
24V AC/DC Control	X	X	X	WE/XE-500A to -2640A SE-690A to -2640A
DC Motor (24VDC)	X	X	X	WE/XE-500C to -2640C SE-690C to -2640C
Rotation 120°, 180°, 270° turn	X	X	X	-690 to -10500
Visual LED Indicator (open, close, power, torque)	X	X	X	-1350 to -25900
Fire-Proof Covering (1050°C $\pm$ 5°C for 50 min)	-	-	-	Consult Factory for FE Series
Fire-Proof Covering (250°C $\pm$ 5°C for 150 min)	-	-	-	Consult Factory for FE Series

## Enclosure Ratings

**Series WE** - Weatherproof, CSA Type 4, 4X, IP67

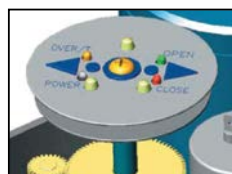
**Series XE** - Explosion(Flame) Proof, ATEX/IECEx Ex d IIB T4 Gb, IP67

**Series SE** - Submersible, Type 4, 4X, & 6, IP68, 10m for 72hr



### XE Explosion Proof Enclosure

- ATEX/IECEx Certification



### Signal LED Unit

Large indicator with monitoring lamps (Over torque, open and close)



## Wiring Diagram References

Model	Description	Drawing
<b>WE-500</b>	115 VAC/1 Phase, Two Position	SE 1010
<b>WE-500A</b>	24 VAC/24 VDC, Two Position	SE 1168/SE 1130
<b>WEM-500</b>	115 VAC/1 Phase, Modulating with TMC3 Servo Card	SE 1085
<b>WE-690</b>	115 VAC/1 Phase, Two Position	SE 1032
<b>WEM-690</b>	115 VAC/1 Phase, Modulating with TMC3 Servo Card	SE 1235
<b>WE/XE-1350 thru 25900</b>	115 VAC/1 Phase, Two Position	SE 1080
<b>WE/XE-1350A thru 2640A</b>	24 VAC/24 VDC, Two Position	SE 1221/SE 1220
<b>WEM/XEM-1350 thru 25900</b>	115 VAC/1 Phase, Modulating with TMC3 Servo Card	SE 1052
<b>Digital Control Unit</b>	3 Phase/Modulating	SE 1222
<b>Digital Control Unit</b>	3 Phase/Two Position	SE 1301
<b>Semi-Integral Unit</b>	1 Phase/Proportional	SE 1176
<b>Semi-Integral Unit</b>	1 Phase/Two Position	SE 1097

» See [www.atcontrols.com](http://www.atcontrols.com) to download specific wiring diagrams (Download > Sort by Document Type > Electric Schematic)

## High Speed Electric Actuators

Model	Output Torque (In-Lbs)	Speed (60Hz) (seconds)	Torque Switch Setting (In-Lbs)
WE-690*HS2	290	4.5	N/A
WE-690*HS1	400	7.0	N/A
WE-1350*HS2	840	7.0	1,350
WE-1350*HS1	1,200	10.5	1,350
WE-2640*HS2	1,390	8.5	2,640
WE-2640*HS1	2,050	13.0	2,640
WE-4400*HS2	2,350	8.5	4,400
WE-4400*HS1	3,500	13.0	4,400
WE-6900*HS2	4,500	10.5	6,900
WE-10500*HS1	6,700	15.5	10,500
WE-17500*HS2	12,000	31.0	17,500
WE-25900*HS1	18,000	47.0	25,900

Motor specifications remain the same.

\*Must specify voltage - see part number matrix on pg 22

## Control Options for WE-500 thru 25900

### Control Cards



#### TMC3 Electronic Modulating Card (120/220VAC)

- 10 Bit Microprocessor controller for precise positioning and control
- 4-20mA, 1-5mA, 0-10 VDC, 1-5 VDC, 0-135 Ohm or Command Signal Potentiometer
- TMC3 Can be programmed to Fail in Place, Fail CW, or Fail CCW on loss of command signal
- Characterized Control-Linear, quick opening (Square root), or Equal Percentage (Square)
- OnBoard 4-20 mA transmitter (standard)



#### TDC Electronic Modulating Card (12/24VDC, 24/120/220 VAC)

- 450 Point Resolution, 16 Bit Micro Processor
- Auto Calibration
- Adaptive Control Feature (continuously adjusts for load and actuator conditions and positions to  $\pm 0.1^\circ$ )
- Dynamic Breaking
- 4-20mA, 1-5V, 0-5V, 0-10V
- Programmed to Fail in place, Fail CW, or Fail CCW on loss of command signal
- 4-20mA Feedback Transmitter (Optional)

#### EPC Electronic AS-i Network Card

- AS-i Version 2.1
- 120 VAC or 24VDC Power
- Emergency Override-Normal Operation is overridden when actuator is driven to either CW or CCW position on command
- Built in Emergency Position Command (EPC) overrides normal operation and automatically operates the valve into either the open or closed position (normally this is the closed position) as defined in the user specifications
- Signal Sentinel continuously monitors the EPC system offering additional failsafe backup in the event of an unexpected local event



#### Modbus RTU (RS485) Application

- **WER** Modbus RTU control for open/close applications.
- **WEZ** Modbus RTE control for proportional control. Provides position feedback.
- Modbus functions 03, 08 and 16.
- Jam/obstruction detection.
- Separate ESD and fault settings to stay in place, go full CCW, go full CW, or go to position (WEZ only).

#### Boiler Feedwater Application

- **WEL** Control signal 4-20mA, specify these parts: LRC-101, POT-102 & Extended Bracket.
- **WES** Control signal 0-135 ohm, specify these parts: TDC-100, XMA-108, POT-102 & Extended Bracket
- Logarithmically averages rapidly changing signals to reduce unnecessary hunting for position.

#### Other Network Cards Available Upon Request



## Special Application

### Intelligent Digital Control Unit

- Light, compact and integral design
- Wide range of electric power application (220VAC~480VAC/3 Phase)
- Built-in auto phase discriminator (easy and convenient wiring)
- Digital indicator with number, bar graph, menu and (3) LED lamps
- Separate terminal chamber (Reliable against water, vibration, temperature, etc.)
- Easy application for WE-Series Actuators
- Various options available



### Semi-Integral Control Unit

- Light, compact and integrated design (IMS, Local/Remote control)
- Wide range of electric power application (115VAC~480VAC/1 Phase or 3 Phase)
- Phase protection monitoring by LED in case of reverse wiring
- Easy application for WE-Series Actuators
- Various options available



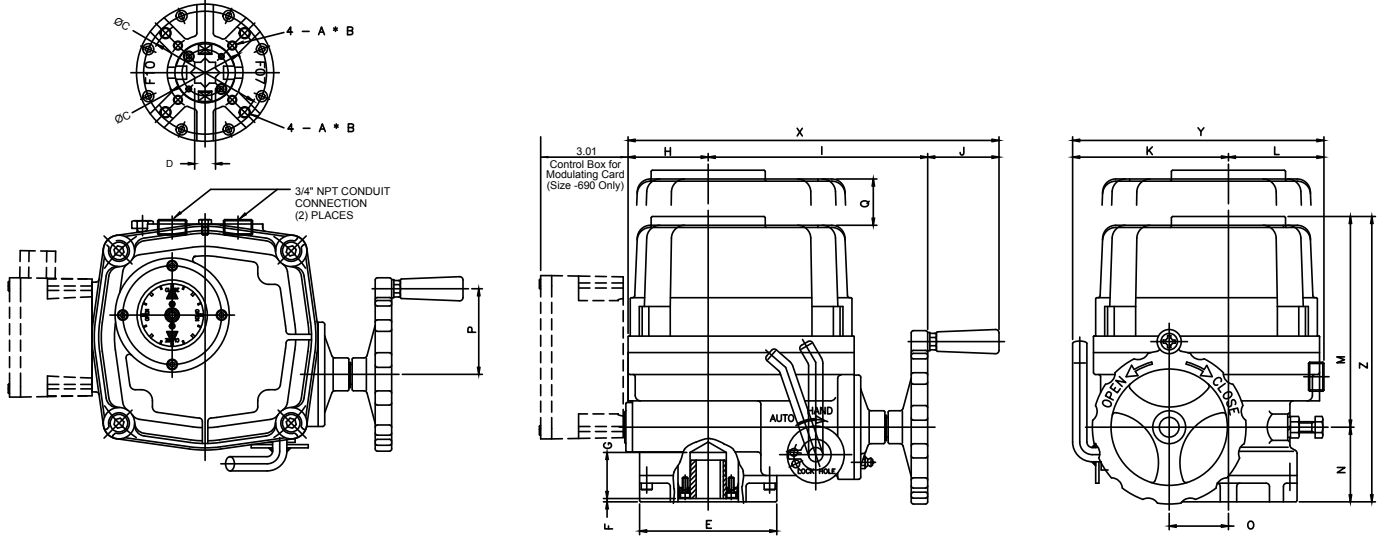
LED lamp signal	
White	○ :Power
Blue	● :Remote
Yellow	● :Fault
Red	● :Open/Opening
Green	● :Close/Closing



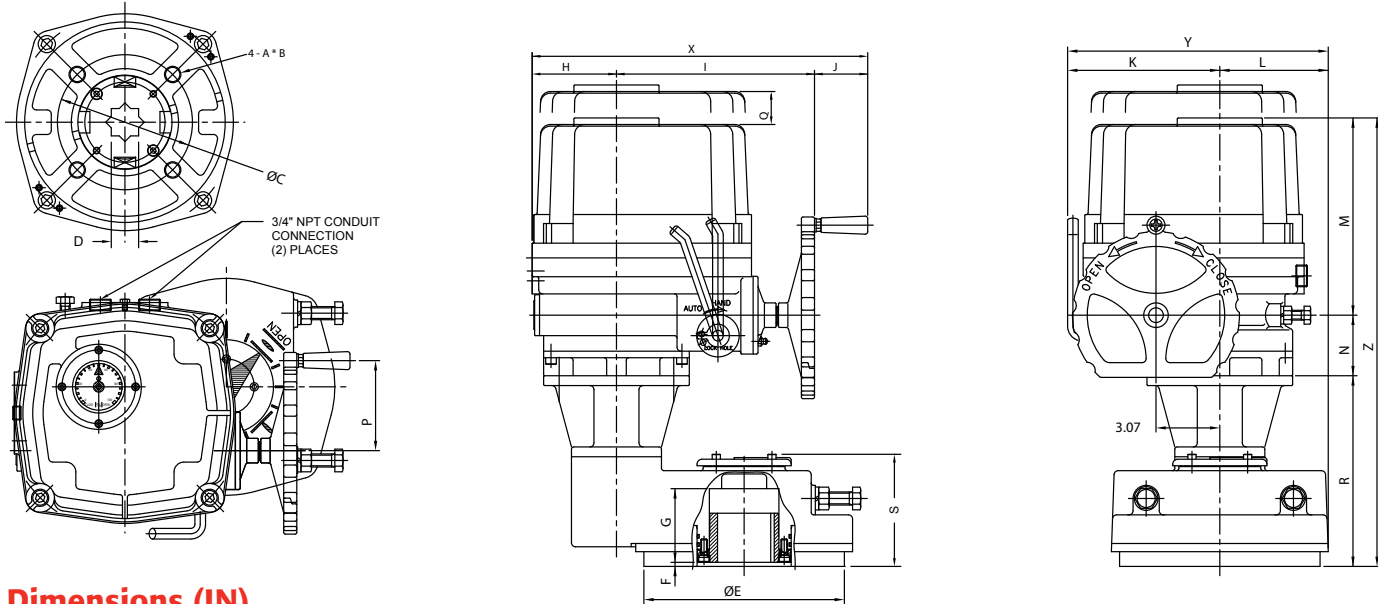
# WE & XE Series

## Dimensional Drawing

**WE/XE-690, 1350, 1700, 2640, 4400, 5200, 6900, 10500**



**WE/XE-17500, 25900**



### Dimensions (IN)

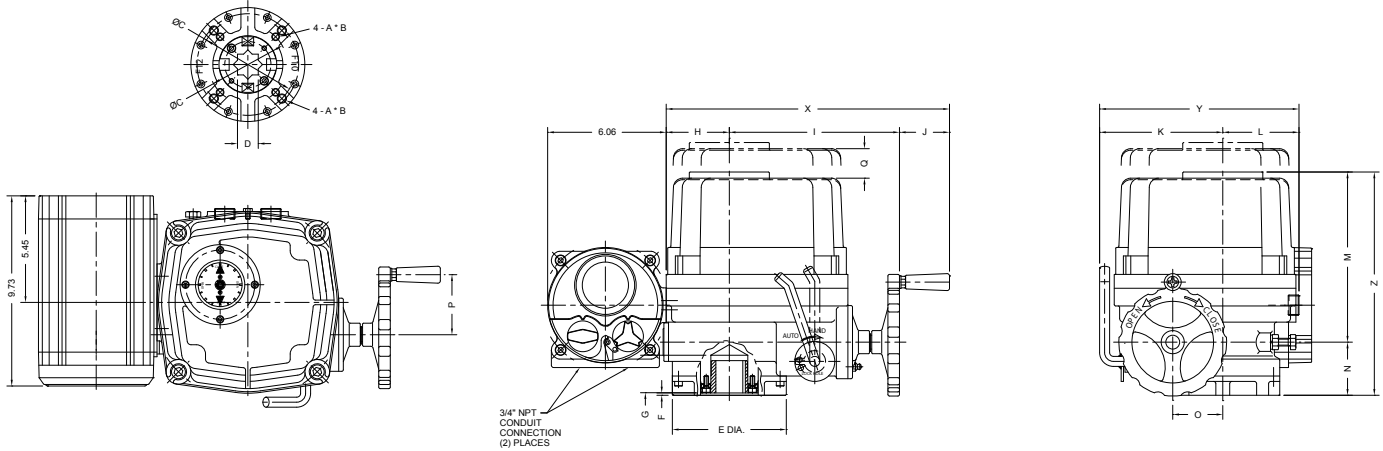
Model WE/XE	ISO 5211	A	B	C	D sq	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
-690	F07	M8	0.47	2.756	0.669	3.46	0.12	1.26	1.97	6.18	2.01	3.94	2.76	6.57	2.09	1.57	2.36	4.72	-	-	10.16	6.69	9.25
-1350	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-1700	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-2640	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.42
-4400	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-5200	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-6900	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-10500	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-17500	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17
-25900	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17

# WE Series

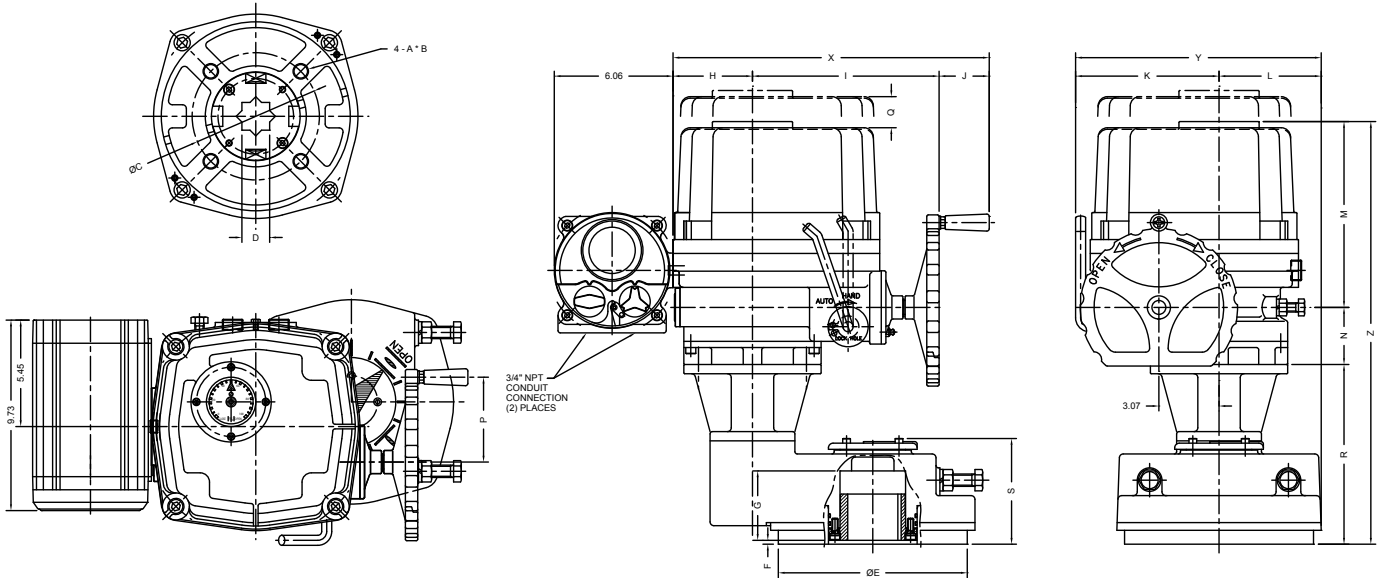
ELECTRIC ACTUATORS

## Dimensional Drawing

**WE-1350, 1700, 2640, 4400, 5200, 6900, 10500** *Intelligent Digital Control Unit*



**WE-17500, 25900** *Intelligent Digital Control Unit*



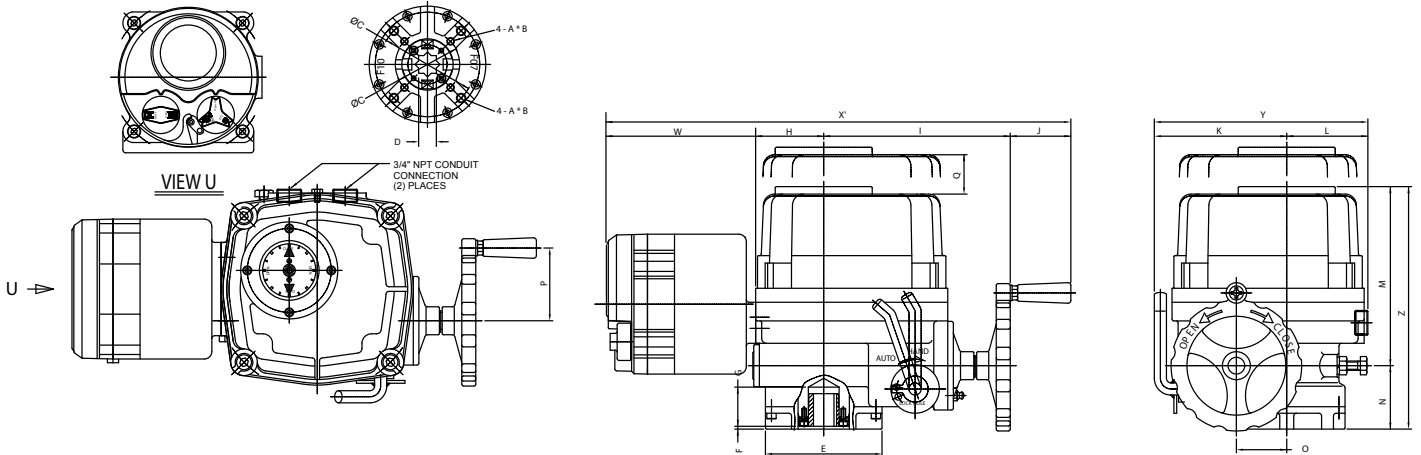
### Dimensions (IN)

Model WE	ISO 5211	A	B	C	D sq	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
-1350	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-1700	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-2640	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.42
-4400	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-5200	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-6900	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-10500	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-17500	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17
-25900	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17

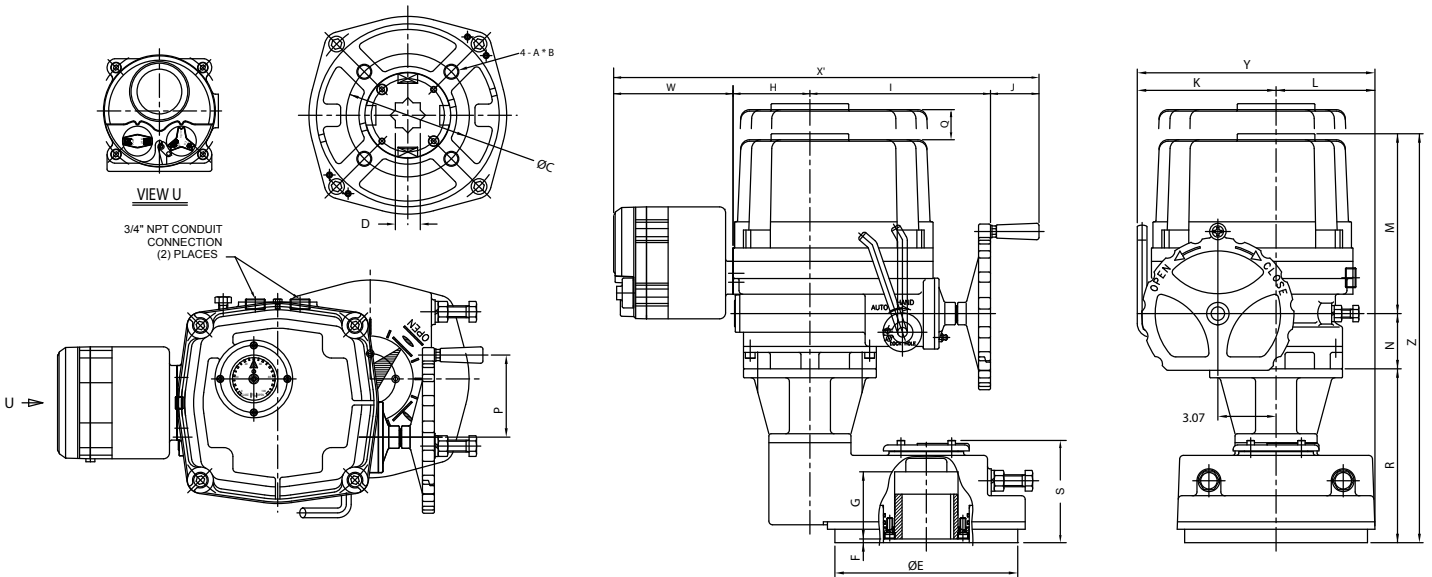
# WE Series

## Dimensional Drawing

**WE-1350, 1700, 2640, 4400, 5200, 6900, 10500** *Semi-integral Control Unit*



**WE-17500, 25900** *Semi-integral Control Unit*



## Dimensions (IN)

Model WE	ISO 5211	A	B	C	D sq	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
-690	F07	M8	0.47	2.756	0.669	3.46	0.12	1.26	1.97	6.18	2.01	3.94	2.76	6.57	2.09	1.57	2.36	4.72	-	-	10.16	6.69	9.25
-1350	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-1700	F07/F10	M8/M10	0.47/0.59	2.756/4.016	0.748	4.92	0.12	1.65	2.87	7.87	2.56	5.59	3.43	7.56	2.68	2.13	3.07	6.30	-	-	13.31	9.02	10.55
-2640	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.42
-4400	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-5200	F10/F12	M10/M12	0.59/0.71	4.016/4.921	1.063	5.83	0.12	1.93	3.23	8.70	2.56	6.30	3.90	8.70	2.72	2.56	3.07	7.09	-	-	14.49	10.20	11.97
-6900	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-10500	F14	M16	0.95	5.512	1.417	7.01	0.12	2.24	4.06	9.53	2.56	7.32	4.37	9.49	2.91	3.07	4.33	8.27	-	-	16.14	11.69	12.99
-17500	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17
-25900	F16	M20	1.18	6.496	1.417	9.65	0.20	3.54	4.06	9.53	2.56	7.32	5.24	9.49	2.91	3.07	4.33	8.27	9.17	5.24	16.14	12.56	22.17

See wiring drawings reference on page 15 or call factory for special requests.

# WE-53000 & WE-80000

ELECTRIC ACTUATORS

## Technical Information

Actuator Model	Output Torque In-Lbs	90° Cycle Time 60/50Hz	Mounting Size ISO 5211	Rated Current(A) 60Hz			Motor Insulation Class AC 1PH 50/60Hz	Maximum Bore Size (mm)		Duty Cycle S2	Number of Handwheel Turns 39	Weight Lbs.
				1 Phase 220V	3 Phase 380V 440V			Key (ø)	Square (ø)			
WE-53000	53000	149 sec.	F25/30*	3.15	1.8	2.2	F	120	100	30%	39	335
WE-80000	80000			3.85	2.0	2.4						

\*Four mounting holes only

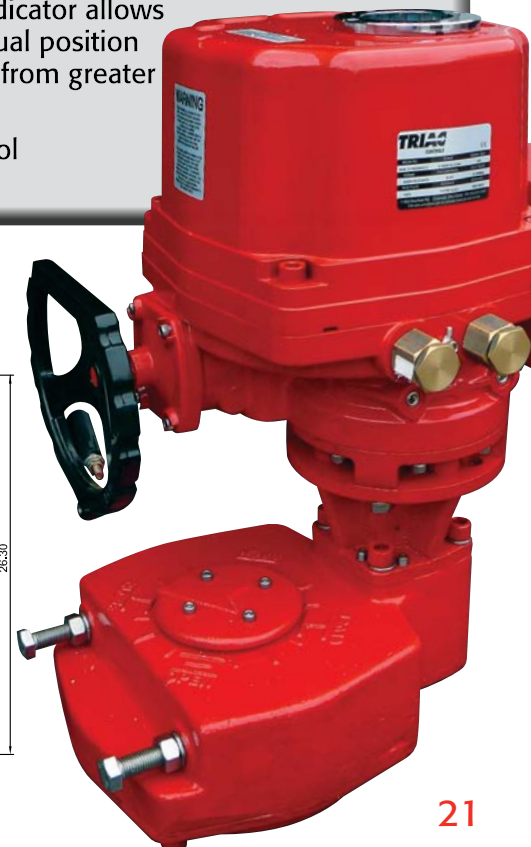
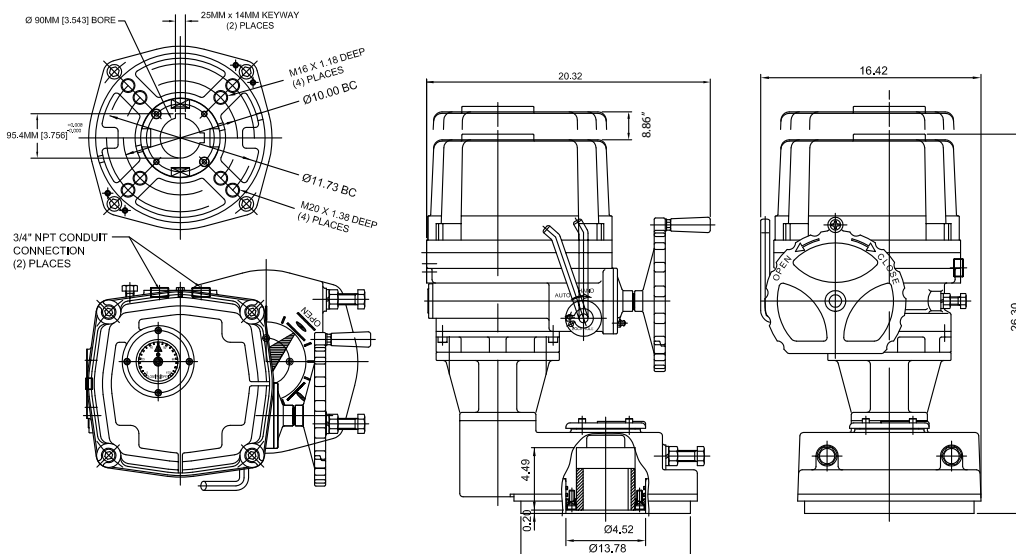
## Standard Specifications

<b>Enclosure</b>	Weatherproof enclosure IP67, Type 4, 4X & 6, O-ring Sealed
<b>Power Supply</b>	220VAC/1PH/60Hz, 380/440/VAC/3Ph/60Hz ± 10%, 24VDC
<b>Duty Cycle</b>	30%
<b>Motor</b>	Squirrel Cage induction motor
<b>Aux. Limit Switches</b>	2 each for Open/Close, SPDT, 250 VAC, 10A Rating
<b>Torque Switches</b>	1 each for Open/Close, SPDT, 250 VAC, 10A Rating
<b>Space Heater</b>	5W (220VAC) Anti-condensation
<b>Manual Override</b>	Dec clutchable
<b>Cable Conduit</b>	Two 3/4" NPT
<b>Movement Angle</b>	90° ± 5°
<b>Ambient Temperature</b>	-4°F to 158°F (optional -40°F Low Temp Kit)
<b>Ambient Humidity</b>	90% RH Max (Non-Condensing)
<b>Position Indicator</b>	Continuous mechanical indicator with arrow
<b>Self Locking</b>	Provided by double worm gearing (no brake)
<b>Mechanical Stopper</b>	1 for each travel end (open/close), external & adjustable
<b>Stall Protection / Set Temp</b>	Built in thermal protection, Open 302°F (150°C) / Close 207°F (97°C)
<b>Terminal Block</b>	Spring loaded lever push type
<b>Eternal Coating</b>	Polyester powder coating
<b>Lubrication</b>	EP type grease
<b>Anti-Vibration</b>	XYZ 10g, 0.2~34Hz, 30 minutes

## Features

- Compact, robust and lightweight construction covers a wide range of torques up to 80,000 In-lbs.
- Polyester powder coated exterior and hard anodized aluminum interior provides excellent protection from the most severe industrial environments.
- Double worm gear design prevents any valve movement from dynamic forces within the pipeline.
- Standard ISO 5211 mounting configuration for direct mount.
- Dec clutchable manual override with hand wheel.
- Mechanical torque switches prevent motor and gear set damage during excessive torque scenarios.
- Large visual indicator allows for positive visual position identification from greater distances.
- Digitized control components.

## Dimensions



# How to order WE/XE Series

## TRIAC® WE / XE Series Part Number Reference

1. Model	
WE	Weather Proof, CSA TYPE 4, 4X, IP67
XE	Explosion Proof Design, ATEX & IECEx Ex d IIB T4 Gb, IP67
FE	Fire Proof Unit (1050°F for 50 Min)
SE	Submersible unit (IP68, 10 meters for 72 Hours)

3. Actuator Size	
Size	
350	350 In-Lbs
350HS	270 In-Lbs
500	500 In-Lbs
690	690 In-Lbs
1350	1350 In-Lbs
1700	1700 In-Lbs
2640	2640 In-Lbs
4400	4400 In-Lbs
5200	5200 In-Lbs
6900	6900 In-Lbs
10500	10500 In-Lbs
17500	17500 In-Lbs
25900	25900 In-Lbs
53000	53000 In-Lbs
80000	80000 In-Lbs



2. Main Control	
<i>(n/a on XE-500 and XE/SE-690)</i>	
Blank	2-Position Control (Open / Close)
M	Standard Modulating Control Card with 4-20mA transmitter
D	High Resolution Modulating Card (TDC) (TDC-100 or TDC-400; see Misc. Options for transmitter)
P	Profibus DP On/Off
Q	Profibus DP Proportional Control/Position Feedback
R	Modbus RTU (RS485) On/Off
Z	Modbus RTU (RS485) Proportional Control/Position Feedback
L	Boiler Feed (4-20mA) <i>TSM extension recommended</i>
S	Boiler Feed (0-135ohm) <i>TSM extension recommended</i>

4. Motor		
X	110VAC / 1PH*	<i>Place holder; Omit when at end of part number</i>
A	24VDC/VAC - On/Off*	(Sizes 500 - 2640)
B	12VDC	(Size 690)
C	24VDC	WED/XED/SED models only (Sizes 500 - 2640)
D	24VAC / 1PH	WED/XED/SED models only (Sizes 500 - 2640)
E	220VAC / 1PH*	(Sizes 500 - 80000)
H	440/460/480VAC / 3PH	(Sizes 1350 - 80000)
N	12VDC/VAC - On/Off	(Size 690)

6. Miscellaneous Options 1		
Blank	No options (Place holder only)	<i>Omit when at end of part number</i>
X	Multiple Option Designation	
T	0-10VDC / 4-20mA Transmitter	(On/Off or modulating control "D")
N	1000 Ohm Potentiometer*	
O	5000 Ohm Potentiometer*	
P	10K Ohm Potentiometer*	
Y	180° Operation	(Sizes 500 - 10500)
Z	270° Operation	(Sizes 690 - 10500)
3	180° Operation, 3-Position Control	(Sizes 500 - 10500)
4	270° Operation, 4-Position Control	(Sizes 690 - 10500)
8	180° Operation, 3-Position Control Board	For WE-500 Wine Application
9	90° Operation, 3-Position Control	(Sizes 690 - 10500)
L	-40°F Low Temp Kit	(Sizes 500 - 25900)
I	Visual LED Indicator (Open, Close, Power)	(Sizes 690 - 10500)
S	(4) Auxillary limit switches (6 total)	(Sizes 690 - 25900)

5. Secondary Control Options		
X	No options (Place holder only)	<i>Omit when at end of part number</i>
B	Semi-integral Control Unit (1PH/3PH)	(Sizes 1350 - 25900)
C	Intelligent Digital Control Unit (3PH)	(Sizes 1350 - 80000)
D	Local / Remote Control Switches	(Sizes 500 - 25900)
E	RCT Electronic Speed Control Module	- 110 VAC only (Sizes 500 - 25900)
F	AMI 2-Wire Relay & Speed Control	- 110 VAC only (Sizes 500 - 25900)
G	AST Sequence Timer	(Sizes 500 - 25900)
HS1	High Speed 1	(See High Speed Options)
HS2	High Speed 2	(See High Speed Options)
R	2-Wire Control Relay*	- 110 VAC control voltage
S	2-Wire Control Relay*	- 24 VAC control voltage
T	2-Wire Control Relay*	- 24 VDC control voltage

\*XE-500 is only available as On/Off; applicable options marked with (\*).  
 Floor Drive Mounting Configuration - See Floor Drive Catalog  
 Other options available upon request

7. Conduit Thread Options	
Blank	No Designation, Actuator Series Standard
X	Multiple Option Designation
M	M20
A	M25

8. Drive Bushing	
Blank	Standard
X	Multiple Option Designation
N	Non Standard Drive Bushing Size
6	316 Stainless Steel Standard Drive Size

9. Miscellaneous Options 2	
Blank	Standard
X	Multiple Option Designation
2	F12 Mounting (Sizes 6900-10500)
4	F14 Mounting (Sizes 17500-25900)
C	Corrosion Resistant NANO Polymer Coating



### HOW TO ORDER ELECTRIC ACTUATORS

1 2 - 3 4 5 6 - 7 - 8 - 9  
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**WE M - 2640 X X X - X - X - C**

### Examples

**WEM-1350**  
 (Weather Proof Housing, Modulating Control, model size 1350, 110VAC / 1PH)

**WEM-1350XXT**  
 (Weather Proof Housing, Modulating Control, model size 1350, 110VAC / 1PH, 4-20mA Transmitter)

# Specials and Applied Solutions

## ELECTRIC ACTUATORS

While you have come to know A-T Controls for superior service in automated valves and day-to-day automation and controls, we specialize in offering solutions to your more unique and difficult applications. Listed below are some of the electric specials and solutions oriented products and services we offer.

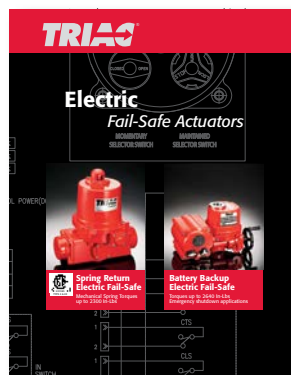


**Electric Floor Damper Drive**



**Butterfly Valve Tee Assemblies**

See these catalogs for additional offerings included in the TRIAC® Electric Actuator product line:





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