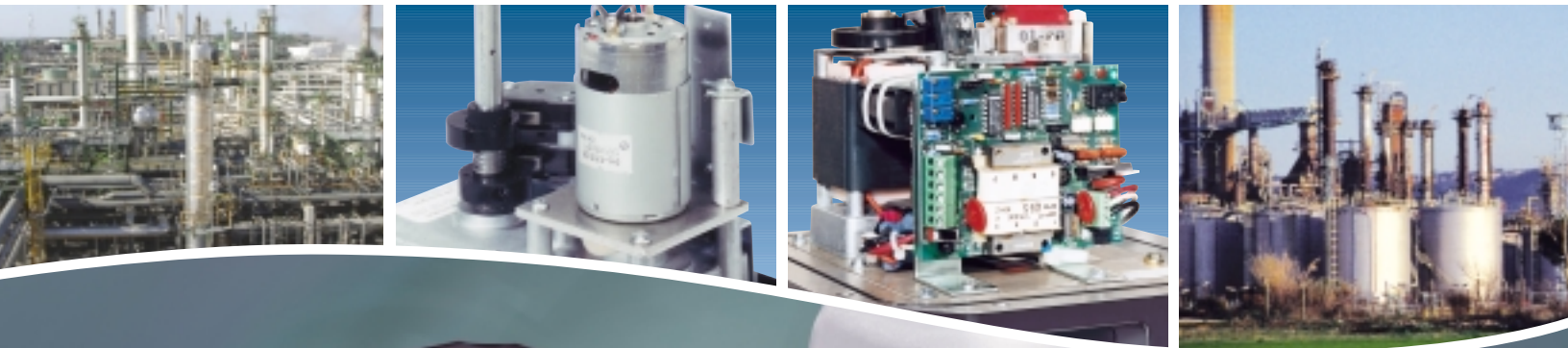




# *Electric Rotary Actuators*



*Experience In Motion*

# Flow Control Division Automax Valve Automation Systems

**F**lowserve Corporation  
Automax valve automation systems provide service valve and damper automation to the worldwide oil and gas, pulp and paper, chemical processing and energy-related industries. We provide maximum value to the end user through a broad offering of products, services, application engineering and our systematic approach to automation.



### **When Productivity Counts**

Automax electric actuators are the first choice of plant superintendents and maintenance personnel the world over.

They are used with confidence in hostile environments where only the best will do and working conditions where safety, durability and ease of operation are not only required, but are essential.

Automax Centura Series actuators have proven themselves tough and reliable in oil and gas, pulp and paper, chemical processing and metal producing industries, to name a few.

Dependable Centura Series electric rotary actuators are the result of Automax's proven technologies and quality manufacturing processes. The Centura Series is ideal for On/Off and modulating services, and for use with any quarter turn valve. Models range in output torques from 100 to 3500 inch-pounds.

**Automax Centura • Tough • Dependable • Safe !**



### **Centura CE Series**

The Centura CE electric rotary actuator is available with output torques from 250 to 1500 inch-pounds, ideal for use in a wide range of industrial applications. The CE Series is UL listed and CSA Approved for NEMA 4, 4x, 7, 9 and is available with an optional ESP3 controller card for modulating service.



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### **Centura CPL Series**

The Centura CPL Series electric rotary actuator is available with output torques of 100 and 225 inch-pounds. It is an excellent choice for small ball valves and butterfly valves. The corrosion resistant Zytel housing is CSA approved for NEMA 4 and 4x.



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### **Centura "E" Series**

The "E" Series electric rotary actuator is available with output torques of 1500 and 3500 inch-pounds. "E" Series actuators are designed to meet NEMA 4 and 4x requirements. Options available include heaters, handwheels and ESP3 controller card for modulating applications.



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### **Centura ESP3 Modulating Card**

When used in conjunction with Automax electric actuators, the ESP card provides valve positioning in response to variable signals generated by process control devices. The ESP3 card is designed to fit easily inside all "CE" and "E" series housings and can also be supplied in a NEMA 4 or NEMA 7 enclosure for use with other Automax actuators.



Page 10

### **Control Boxes**

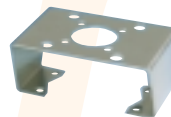
Control Boxes provide various local control options for local/remote, Open-Off-Close or jogging for manual operation.



Page 11

### **AutoBrakits**

Automax custom mounting hardware packages permit mounting adaption to most valves and dampers.



Page 11

**S**ales and service facilities are strategically located in industrial centers throughout the world.

# Centura CE Series

**T**he Automax CE Series electric rotary actuators are ideal for heavy-duty applications where failure is not an option. Watertight and explosion proof, the CE's electrostatic powder coated, die cast aluminum housing resists attack by corrosives and meets all NEMA 4, 4x, 7 and 9 standards.



The Centura CE's precision cut, hardened steel gears transmit a maximum of 1500 inch-pounds of torque from its powerful gearmotor, providing safe, accurate control of valves and dampers. Simple to mount and easy to adjust, Centura CE actuators can also be fitted with Automax ESP servo positioners to give positive, modulating control.

**NEMA 4, 4x, 7, 9 Design**

The housing of the Automax Centura CE Series actuator is both explosion proof and weatherproof. The aluminum die-cast housing is electro-static polyester powder coated for superior corrosion resistance.

**Electrical Cut-Off Switch**

An automatic electrical cut-off switch is provided to prevent electrical operation while the manual override is engaged.

**Motor**

The Centura CE Series rotary actuator contains a rugged, single phase permanent split capacitor gearmotor. The AC motor contains an automatically resetting thermal cut-out. An extended duty version of the gearmotor is also available for modulating applications.

**Captive Cover Bolts**

The cover contains 8 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.

**Massive Gear Train**

All models contain a permanently lubricated, precision cut, heat treated alloy steel gear train for a long, reliable cycle life and are designed to withstand motor stall torque.

**Quickset Cams**  
Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Close positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.

**3/4 inch NPT Conduits**

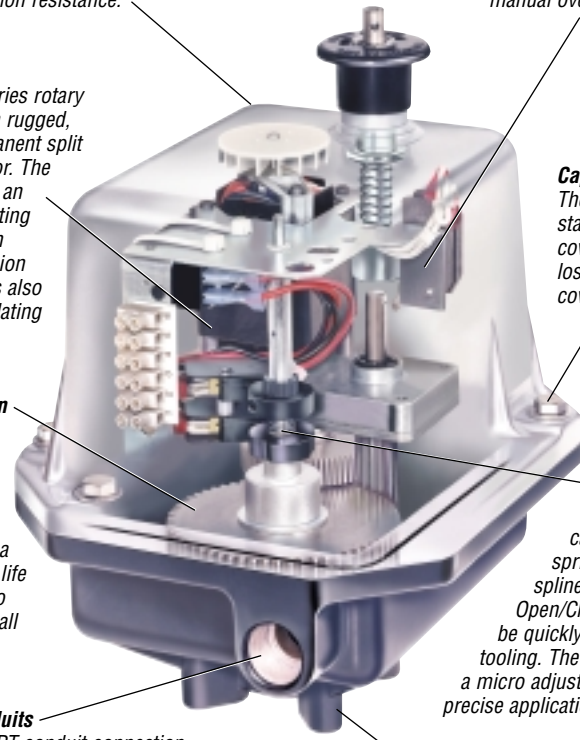
One 3/4-14 inch NPT conduit connection is supplied as standard; however, an additional conduit connection is available.

**Simple Mounting Arrangements**

Standard mounting is interchangeable with the Automax SuperNova SNA100. Additional mounting pads and shafts including a 70 mm ISO bolt circle are available on request.

**Heavy-Duty Brake**

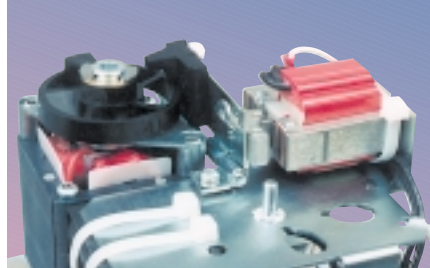
An optional heavy-duty positive latching brake is available for rubber-lined butterfly and damper applications. The brake is declutched during manual operation and is continuous duty rated during electrical operation.



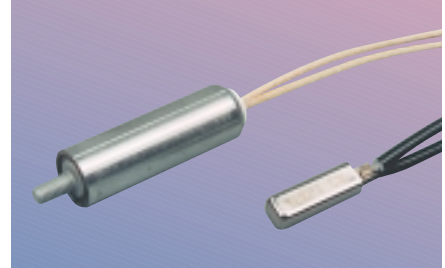
# Options



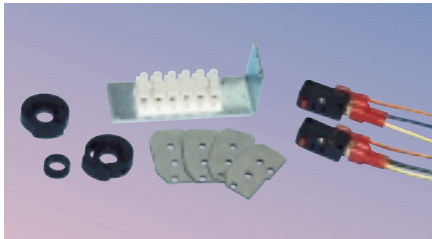
**Manual Override Handwheel**



**Heavy-Duty Brake for Dampers and Butterfly Valves**



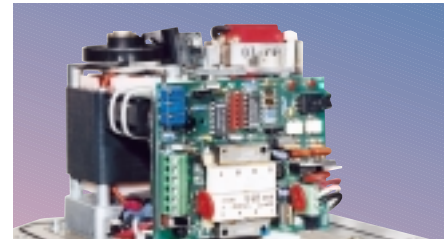
**Heater & Thermostat To Eliminate Condensation**



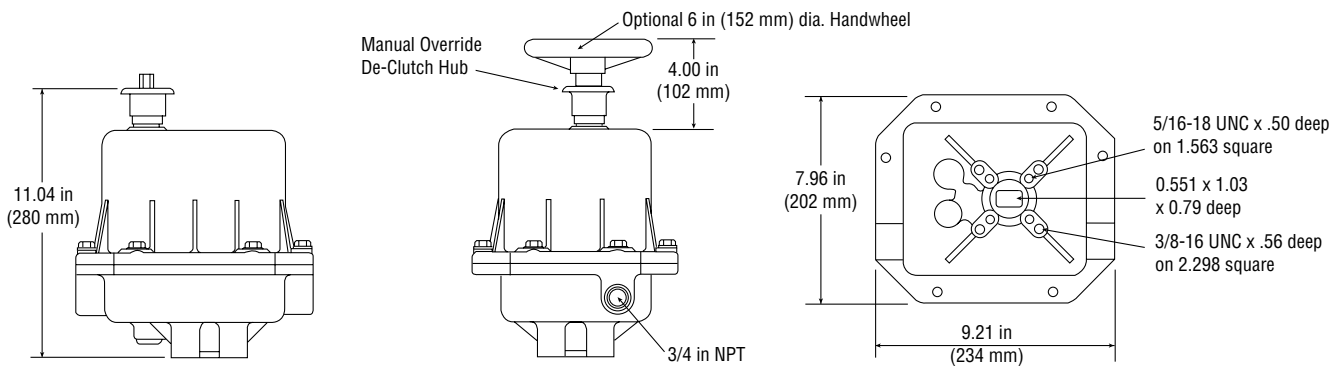
**Auxiliary Switches for Remote Position Feedback**



**Pharos Visual Position Indicator**



**ESP3 Modulating Option**



## How To Order (Select **Bold Type Code** from each column that applies)

Valve Interface Mounting	Output Torque in-lbs (N-m)	Supply Voltage	Switch	Position/Feedback Options	Other Options
<b>CE</b> - UNC Thread	2 250 (28)	- - 115 VAC 50/60 intermittent duty	<b>1</b> - One extra (dry contact)	<b>Input Control</b> <b>TA</b> - ESP3 Electronic Positioner (4/20 mA, 0-10 V, etc.)	<b>X</b> - (2) 3/4 NPT Connections
<b>C17</b> - ISO F07	4 400 (45)	<b>A</b> - 115 VAC 50/60 extended duty	<b>2</b> - Two extra	<b>TT</b> - ESP3 with TX option	<b>E</b> - Epoxy Coating
<b>C15</b> - ISO F05	7 700 (79)	<b>B</b> - 12 VDC	<b>3</b> - Three extra	<b>TB</b> - 0-135 Ohm ESP3	<b>H</b> - Heater & Thermostat
	1 1000 (113)	<b>C</b> - 24 VDC	<b>4</b> - Four extra	<b>DC</b> - DC Motor Speed & Torque Controller	<b>Z</b> - Manual Handwheel
	5 1500 (169)	<b>D</b> - 230 VAC 50/60 intermittent duty	<b>5</b> - Dribble Control Three Position	<b>DS</b> - Low Power DC Controller	<b>G</b> - Breather & Drain
		<b>F</b> - 230 VAC 50/60 extended duty		<b>Output Signal</b> <b>TX</b> - 4-20 mA Transmitter	<b>K</b> - Heavy Duty Brake
		<b>J</b> - 24 VAC 50/60		<b>P1</b> - 0-135 Ohm Potentiometer	<b>P</b> - Pharos Indicator
				<b>P2</b> - 0-1K Ohm Potentiometer	<b>Two Wire Relay Control</b>
				<b>P3</b> - 0-5K Ohm Potentiometer	<b>R</b> - CW Relay
				<b>P4</b> - 0-10K Ohm Potentiometer	<b>S</b> - CCW Relay
				<b>FA</b> - AS-i Protocol	<b>T</b> - 24 VDC CW
				<b>FF</b> - FOUNDATION Fieldbus	<b>U</b> - 24 VDC CCW
				<b>FD</b> - PROFIBUS DP	<b>RFS</b> - Relay for UPS Battery Backup

# Centura CPL Series

*The Centura CPL electric actuator is the specifier's choice for reliable, trouble free control of small ball and butterfly valves.*



Centura CPL actuators with their quick-set cams are characterized by ease of setup and adjustment, and by their ability to resist attack in harsh corrosive environments, such as those found in chemical plants and pulp and paper operations. The CPL Series also incorporates automatic resetting thermal protection to prevent motor overload.

**Corrosion Resistant Housing**  
Reinforced Zytel enclosure. Unique Labyrinth cover design with O-ring ensures a tight seal.

**Motor**  
The CPL Series contains a rugged, single phase, permanent split capacitor gearmotor. Available in 115 VAC, 230 VAC and 24 VDC, consult factory for other options. The AC motors contain an automatically resetting thermal cut-out.

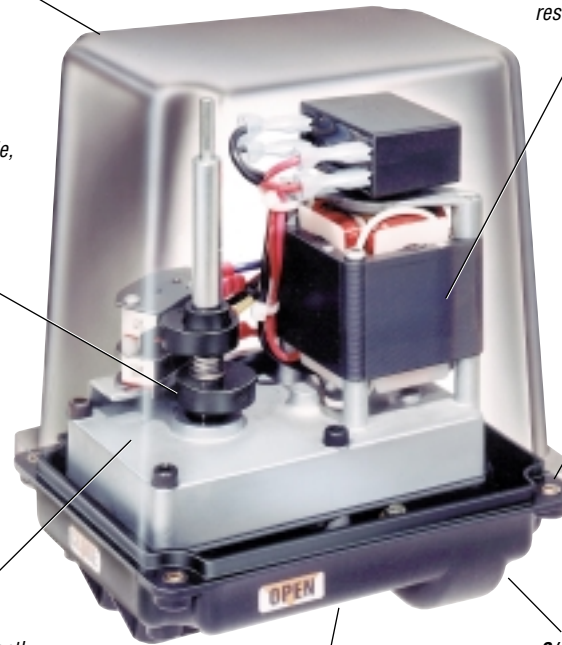
**Quickset Cams**  
Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Close positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.

**Captive Cover Bolts**  
The cover contains 4 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.

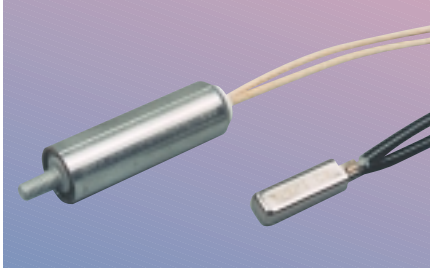
**Gear Train**  
Enclosed, permanently lubricated, hardened steel gear trains providing 100 inch-pounds (CPL1) and 225 inch-pounds (CPL2) of torque means zero maintenance of moving parts over the CPL's useful life.

**Simple Mounting Arrangements**  
Standard mounting includes nickel plated brass threaded inserts. The mounting pattern is interchangeable with the Automax SuperNova SNA050.

**3/4 inch NPT Conduit Entry**  
One 3/4-14 inch NPT conduit connection is supplied as standard.



# Options



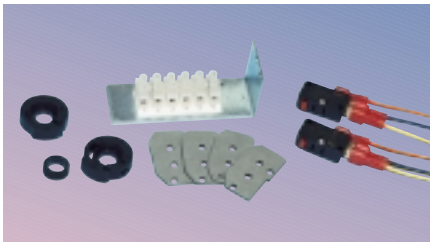
**Heater & Thermostat  
To Eliminate Condensation**



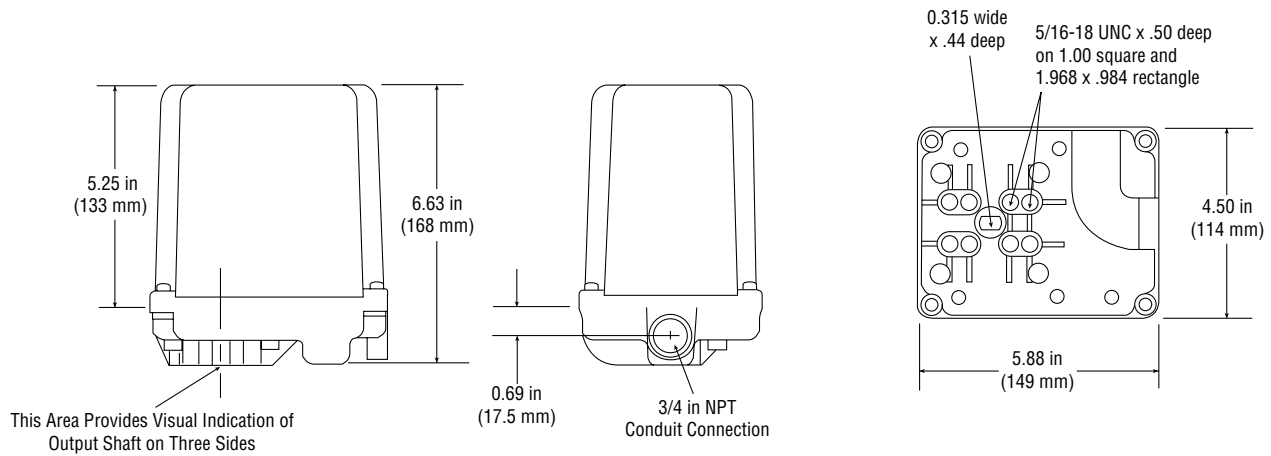
**DC Motor**



**ESP3 Modulating Option**



**Auxiliary Switches for Position Feedback**



## How To Order (Select **Bold Type Code** from each column that applies)

Valve Interface Mounting	Output Torque in-lbs (N-m)	Supply Voltage	Switch	Position/Feedback Options	Other Options
<b>CPL</b> - UNC Thread <b>CPI</b> - ISO F04	<b>1</b> 100 (11) <b>2</b> 225 (25)	<b>Blank</b> - 115 VAC 50/60 <b>B</b> - 12 VDC <b>C</b> - 24 VDC <b>D</b> - 230 VAC 50/60 <b>J</b> - 24 VAC 50/60	<b>1</b> - One extra (dry contact) <b>2</b> - Two extra <b>5</b> - Dribble Control Three Position	<b>Input Signal</b> <b>TA</b> - 4/20 mA ESP3 <b>TT</b> - 4/20 mA ESP3 with TX <b>TB</b> - 0-135 Ohm ESP3 <b>Output Signal</b> <b>TX</b> - 4-20 mA Transmitter <b>P1</b> - 0-135 Ohm Potentiometer <b>P2</b> - 0-1K Ohm Potentiometer <b>P3</b> - 0-5K Ohm Potentiometer <b>P4</b> - 0-10K Ohm Potentiometer <b>P5</b> - 0-10K Ohm Potentiometer (ESP3 Option) <b>P6</b> - 1K, 0-10K Dual Potentiometer <b>FA</b> - AS-i Protocol <b>FF</b> - FOUNDATION Fieldbus <b>FD</b> - PROFIBUS DP	<b>H</b> - 25W Heater & Thermostat <b>G</b> - Breather & Drain <b>Two Wire Relay Control</b> <b>R</b> - 115 VAC CW <b>S</b> - 115 VAC CCW <b>T</b> - 24 VDC CW <b>U</b> - 24 VDC CCW

# Centura "E" Series

**T**he Automax "E" Series electric rotary valve actuators are ideal for larger torque applications where flows must be controlled with accuracy and dependability. The two standard "E" Series actuators boast of 1500 and 3500 inch-pounds of torque.



All "E" Series actuators are designed to provide maximum performance in a very compact package, thus providing complete control of quarter turn valves, dampers and other rotary devices. "E" Series electric actuators offer a permanently lubricated, sealed gear train, which protects against the disabling effects of moisture, corrosion and breakage. Long life and dependability are designed into every Automax "E" Series electric actuator.

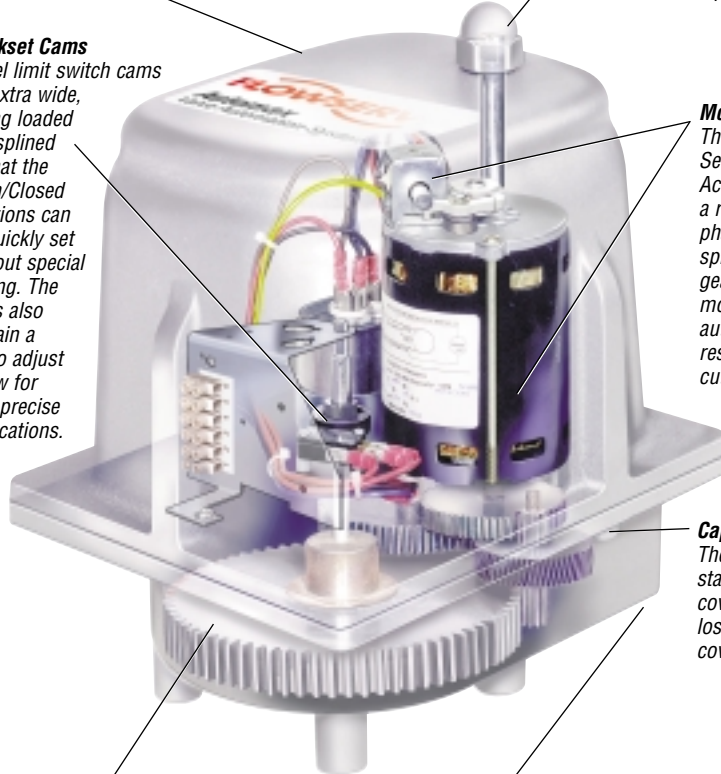
**Corrosion Resistant Housing**  
The housing of the Automax "E" Series actuator is cast aluminum and polyurethane coated for superior corrosion resistance.

**Quickset Cams**  
Travel limit switch cams are extra wide, spring loaded and splined so that the Open/Closed positions can be quickly set without special tooling. The cams also contain a micro adjust screw for very precise applications.

**Manual Override**  
A protected manual override is provided as standard and a hand wheel option is available.

**Motor**  
The Centura "E" Series Rotary Actuator contains a rugged, single phase permanent split capacitor gearmotor. The AC motor contains an automatically resetting thermal cut-out.

**Captive Cover Bolts**  
The cover contains 6 stainless steel captive cover bolts to prevent loss of bolts when the cover is removed.

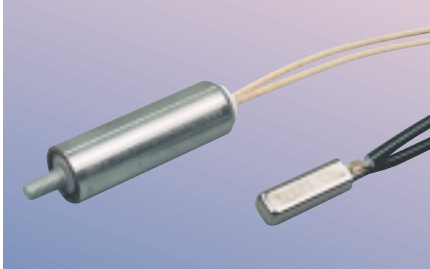


**Massive Gear Train**  
All models contain a permanently lubricated, precision cut, heat treated alloy steel gear train for a long, reliable cycle life and are designed to withstand motor stall torque.

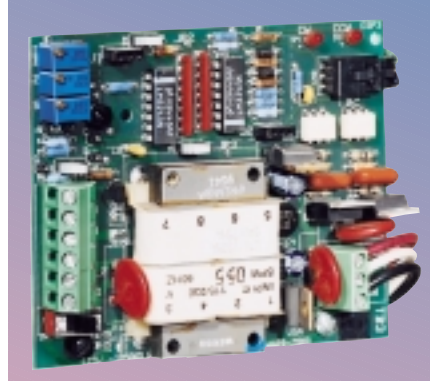
**1/2 inch NPT Conduits**  
One 1/2 inch NPT conduit connection is supplied as standard.

**Brake**  
A positive latching brake is provided as standard. The brake is continuous duty rated during electrical operation.

# Options



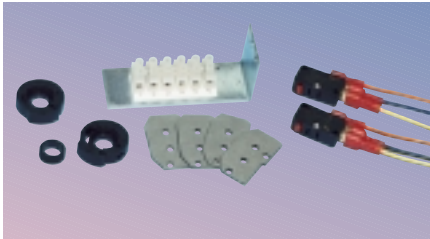
**Heater & Thermostat  
To Eliminate Condensation**



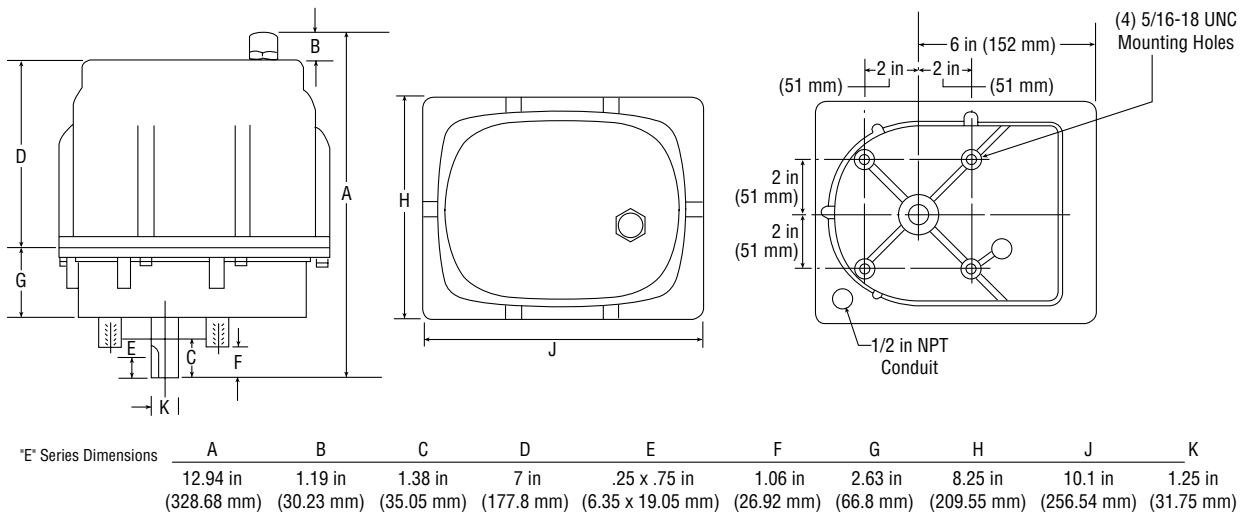
**ESP3 Modulating Option**



**Manual Override Handwheel**



**Auxiliary Switches for Position Feedback**



## How To Order (Select **Bold Type Code** from each column that applies)

Output Torque in-lbs (N-m)	Supply Voltage	Switch	Heater & Thermostat	Position/Feedback Options	Two Wire Relay Control	Other Options
<b>E1500</b> 1500 (169) <b>E3500</b> 3500 (395)	- 115 VAC 50/60 extended duty	1 - One extra (dry contact) 2 - Two extra 3 - Three extra 4 - Four extra 5 - Dribble Control	-- None <b>H</b> - 25W Heater & Thermostat	<b>Input Signal</b> <b>TA</b> - ESP3 (4/20 mA, 0-10 V, etc.) <b>TT</b> - ESP3 with TX option <b>TB</b> - 0-135 Ohm ESP3 <b>Output Signal</b> <b>TX</b> - 4-20 mA Transmitter <b>P1</b> - 0-135 Ohm Potentiometer <b>P2</b> - 0-1K Ohm Potentiometer <b>P3</b> - 0-5K Ohm Potentiometer <b>P4</b> - 0-10 Ohm Potentiometer <b>FA</b> - AS-i Protocol <b>FF</b> - FOUNDATION Fieldbus <b>FD</b> - PROFIBUS DP	<b>R</b> - CW Relay <b>S</b> - CCW Relay	<b>E</b> - Epoxy Coating <b>G</b> - Breather & Drain <b>Z</b> - Manual Override Handwheel

# Centura Series/ESP3 Positioner

**T**he ESP3 is a servo positioner that allows Automax electric actuators to be used in modulating applications. The ESP3 is activated by variable input signals sent by process monitoring devices including: flow meters, liquid level sensors, programmable controllers and computers.

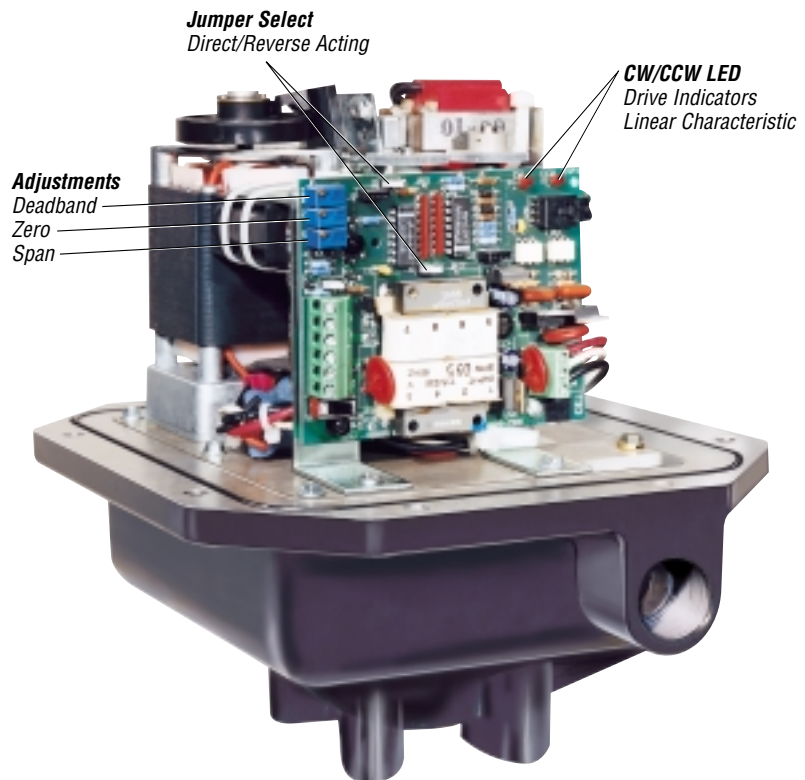


The ESP3 Positioner compares incoming command signals with a position feedback signal from a self-contained potentiometer to determine precise modulating settings.

The ESP3's servo amplifier directs the unit's reversing motor to realign the valve or damper until the two signals are reconciled and the required rate of flow is achieved. In this way, valve and damper settings are continually corrected to optimize flow rates.

The compact ESP3 fits easily inside many Automax actuators and, when used with smaller actuators, the ESP3 can be supplied with a NEMA 4x housing of its own. Calibration of the ESP3 is always quick and easy with separate deadband, span and zero adjustments.

Where precise modulating control is required, Automax's ESP3 is the answer.



## Centura Series/ESP3 Positioner Specifications

**Power Requirement**  
110-125 VAC, 60 Hz  
5W @ 115 VAC

**Input Signals**  
4-20 mA DC into 250 Ohm  
4-12 mA DC into 250 Ohm  
1-5 mA DC into 1000 Ohm  
0 to 5 VDC  
2 to 10 VDC  
0 to 10 VDC  
1.5 to 1000 Ohm  
1.5 to 135 Ohm (Special)  
10 to 50 mA DC into 1000 Ohm (Special)

**Adjustments**  
Zero, Span, and Deadband

**Temperature**  
-40°F (-40°C) when used with optional heater to 160°F (70°C)

**Isolation**  
Control to Power Line: 1500 V 10M Ohm  
Control to Output: 1500 V 1000M Ohm

**Transmitter PCB 4-20 mA DC (Optional)**  
with Zero and Span Adjustments  
600 Ohm Load Impedance

**ESP3 Features**  
Jumper Select: Direct/Reverse Acting  
Input Signal Conditioning

On Board Current Source for Resistive Inputs  
CW/CCW LED Drive Indicators  
Linear Characteristic

# Control Boxes and AutoBrakits



NEMA 7



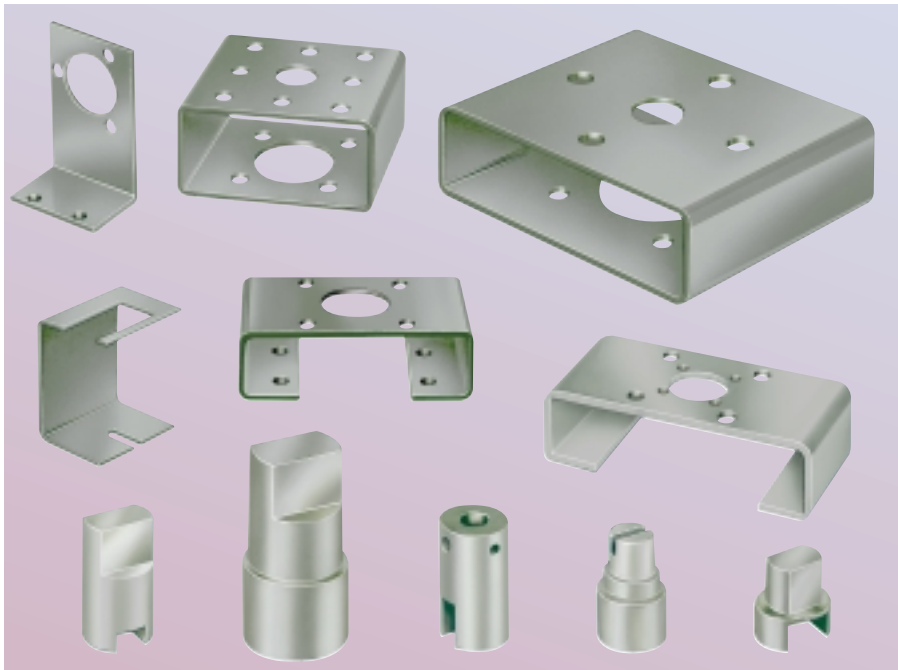
NEMA 4

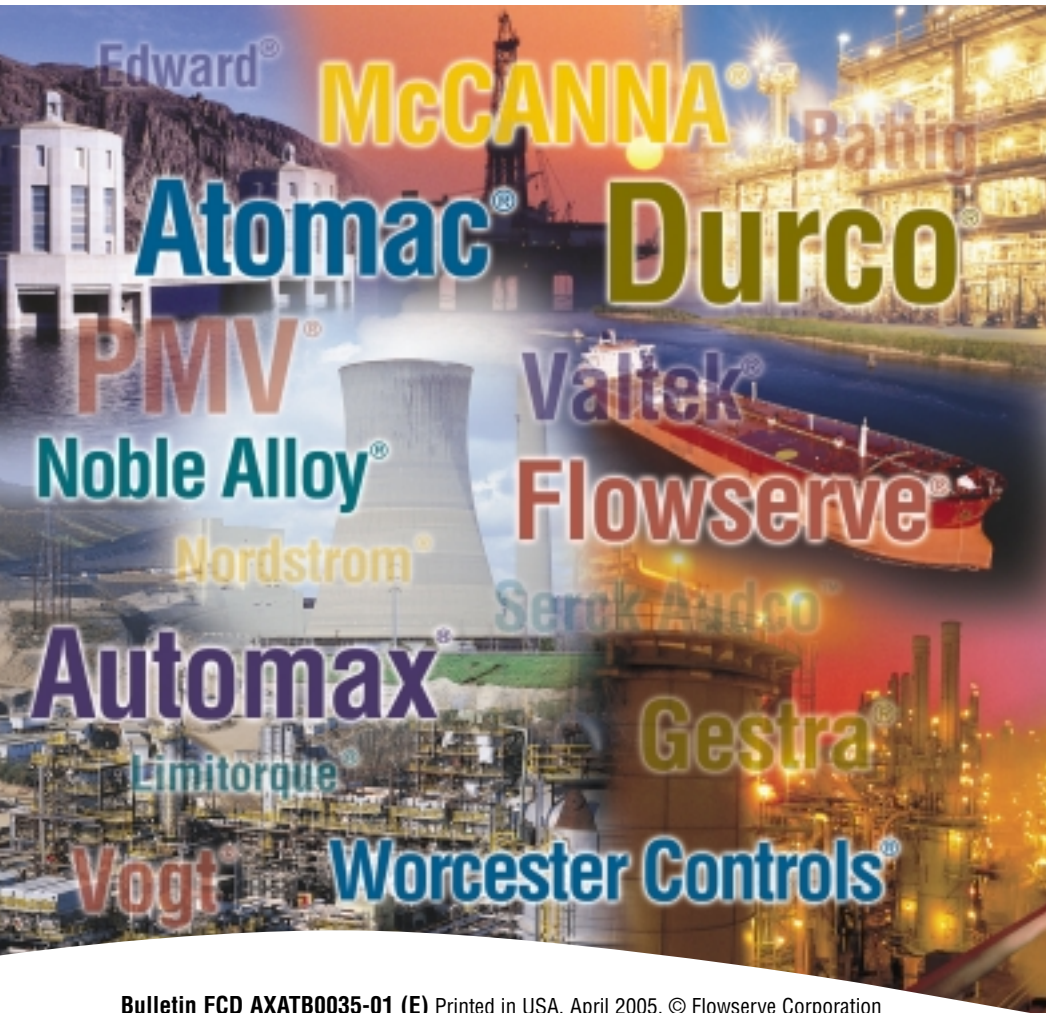
**C**ontrol boxes are available for a variety of local control options, such as Local/Remote Open-Off-Close and jogging control. NEMA 4 housings are used as standard, but other housings are available upon request, including resin and stainless steel.

## AutoBrakits

Automax custom mounting hardware packages are designed to close tolerances to assure consistency and proper alignment, which are essential to ensure maximum actuator and

valve life. The designs allow for proper fit and easy assembly in the field, or Automax will assemble and calibrate actuators and controls to customer's valves.





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