

VTE®

## TEC2000

First Came Intelligent Actuators. Now Comes One With Common Sense.





Bettis™ is a world leader in pneumatic and hydraulic quarter-turn and linear valve actuators as well as quality electric actuators. With more than 50 years of experience in the industry, Bettis actuators are used in virtually every application where valves are operated automatically. Emerson's electric brand, established in 1949, has pioneered the industry with innovation and technical performance. Bettis actuators and controls have a myriad of applications and can be found in virtually every part of the energy and hydrocarbon processing industries - oil and gas, power, refining chemical and petrochemical. Customers also rely on Bettis actuators and controls for their established track record for outstanding performance in water/wastewater, food and beverage, pulp and paper, and marine applications.

## TEC2000 Electric Actuator Offers Electronic and Mechanical Reliability

The TEC2000 actuator blends the latest digital valve control technology with mechanical components used for decades. The TEC2000 power transmission gear train has over a half-century track record of dependability with industry recognized bronze worm gear, heat-treated steel rolled worm and steel motor gears. Coupled with the latest technology, the TEC2000 still relies on mechanical displacement torque sensing rather than relying on software algorithms, this direct-sensing approach offers the reliability the industry demands.

Smart actuators built with the latest technology to withstand the most hazardous operating environments. Yet, actuator set up functions including position limits, control and indication functions and torque settings can easily be programmed through the actuator display. Simple non-intrusive commissioning.

## Logical Design Simplifies Installation and Offers Long-term Operations

- Quarter-turn or multi-turn control using Absolute Position Detector (APD) continuously monitors valve position without the need for batteries
- Torque measurement is responsive during motor and hand wheel operation
- Separate, dual-sealed terminal chamber houses primary fuses apart from the main actuator compartment ensuring safety in hazardous environments
- Highly legible terminal blocks with pre-inserted, plated screws
- Local control knobs do not penetrate controls compartment
- Set-up using local control knobs, PC or Bluetooth can be password protected to ensure tamperproof programming
- Standard discrete control and Controlinc™ digital network communication including Modbus, Foundation™ fieldbus, Profibus & DeviceNet
- 1-ph and 3-ph models
- Emergency Shut Down and Partial Stroke Testing Functionality
- Motors, gears, and torque springs are easily replaced in the field if speed changes are required

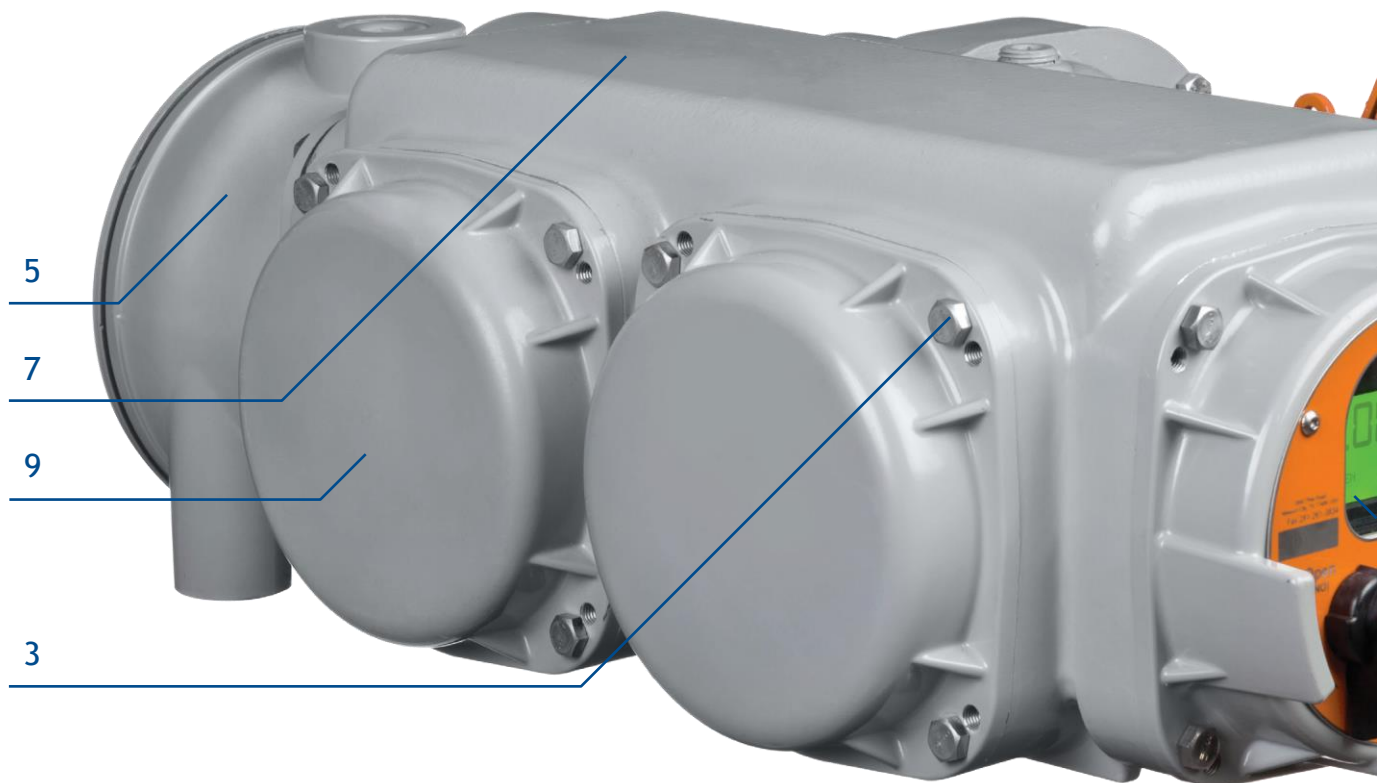
*For over 50 years, Bettis electric actuators have been operating quarter-turn and multi-turn valves.*

*With a broad range of frame sizes, horsepower ratings and output speeds, there's an electric actuator designed to fit your application.*

*ISO-9001 certified actuators are internationally qualified for various weathertight and hazardous environments.*

## Easy-to-read and Understand Local and Remote Display

- Local Display Module (LDM) with IconoText screen simultaneously shows simple language and icons for easy setup, diagnostics and parameter checks on two 16-character text lines
- Continuous position indication, torque bar graph, moving animation symbol, actuator direction moving and LED status indicators standard
- Patented Remote Display Module (RDM) can network two modules up to 4000 feet (1.2 km) from actuator. Ideal for hazardous and inaccessible areas. RDM functions same as the Local Display Module (LDM). One RDM operates using TEC2000's 24VDC power supply. Second RDM requires 115/220 VAC
- Programmable multilingual display to any roman character language offers an intuitive graphical display, real-time access to historical operating logs and is easily configured



## Common Sense Features Set a New Standard for Smart Actuators

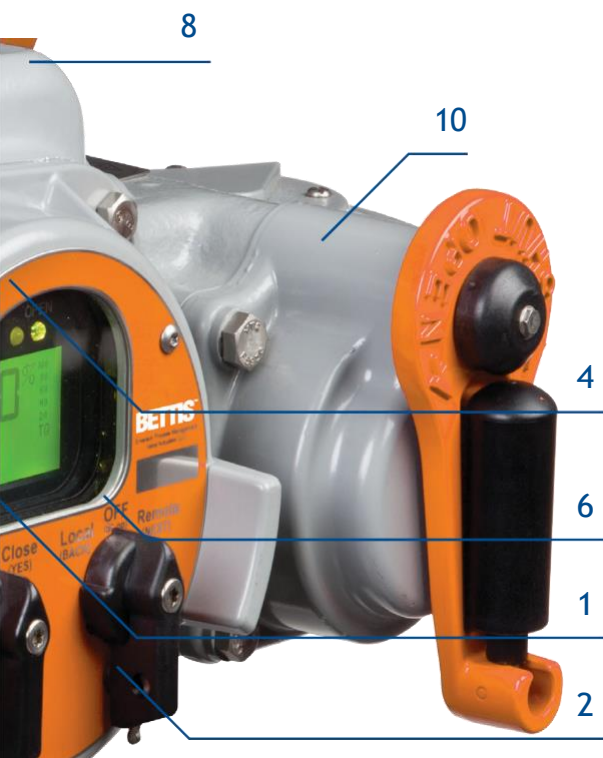
1. The industry's largest, easy-to-see and easy to-read LCD screen
  2. Non-penetrating, vibration-resistant Hall Effect switches enable setup without opening control compartments
  3. Corrosion resistant, 316 stainless steel fasteners throughout
  4. Convenient, multiple mounting configurations for local display module allows for easy access and ease of use
  5. Separate Terminal Chamber, dual-sealed, allows installation wiring to be performed without exposing control components to hazardous environments
  6. Optional battery backup allows LCD to remain powered during electrical outages; no battery required to maintain any data or position calibration
  7. Control enclosure is made of low-copper aluminium alloy, powder coated, salt resistant, and certified by F.M., C.S.A., Cenelec, and TSA for all gas groups in explosion-proof environments. Also rated for IP68 submersible service
  8. The industry's most convenient declutch lever can be locked out with a padlock in either Hand or Motor position
  9. Twin access ports give users the freedom to easily access internal components
  10. Rugged ductile iron gear housing is shock and vibration-resistant
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# TEC2000 Model Options

Model Name	Actuator Type	Torque Range	Power Supply	Mounting Options	Bus Options
TEC2000	Quarter-turn	400-400,000 Ft-Lbs (542 to 542,300 Nm)	115-230VAC (Single-phase, 50-60Hz)	Direct-Mount, Side-Mounted	Modbus RTU
	Multi-turn	130-16,000 Ft-Lbs (176 to 21,693 Nm)	210-660VAC (Three-phase, 50-60Hz)	Direct-Mount, Side-Mounted	FOUNDATION™ fieldbus
	Multi-turn thrust	10-1,056K Lbs (44 to 4,700 KN)	12VDC - 250VDC	Direct-Mounted / Rising Stem	PROFIBUS

## Other key features:

- **Absolute Position Detector** (patented) requires no battery, provides consistent and accurate position feedback—with no loss of calibration during power failures
- **Space heater** prevents internal condensation (thermostatically controlled; turns off at 105° F [40° C])
- **Emergency shutdown**—independent safety circuits (“stay-put” mode) monitor all modules and shut down the actuator if an unsafe condition is detected
- **Internal wiring uses no insulation displacement connectors.** All terminals are crimped, gold pin and socket contacts; every connector is uniquely polarity keyed and locked, so you cannot plug two incompatible cables together



For a full list of Sizes, Specifications and Features, please visit our website or scan the QR code



### Numerous hazardous area certifications are available for the TEC2000 series

European (ATEX - 94/9/EC) Certification; Cenelec Norm EN60079-0; EN60079-1 and EN60079-31

EEx d IIB T4. ATEX II 2G  
 EEx d IIB + H2 T4. ATEX II 2G  
 EEx d IIB T4A. ATEX II 2G  
 EEx d IIB + H2 T4A. ATEX II2G  
 ATEX - II 2 GD, EEx d IIB T4 or EEx d IIB 120° C (T4), IP68

### USA (Factory Mutual) Certification; NEC Article 500

Class I, II and III, Groups C, D, E, F, G, Division 1, T4  
 Class I, II and III, Groups C, D, E, F, G, Division 1, 120° C (T4)  
 Class I, Group B, Division 1, T4

### Canada (Canadian Standard Association) Certification

Class I, II and III, Groups C, D, E, F, G, Division 1, T4  
 Class I, II and III, Groups C, D, E, F, G, Division 1, 120° C (T4)  
 Class I, Group B, Division 1, T4



## Rely on Worldwide Service

A leading brand of Emerson Process Management – Valve Automation, Bettis™ products are sold and serviced through Emerson's strategically located World Area Configuration Centers, distribution partners and knowledgeable technical service teams. Local inventory is available in order to ensure a swift response to any customer requirement.

## Gold Seal Promise

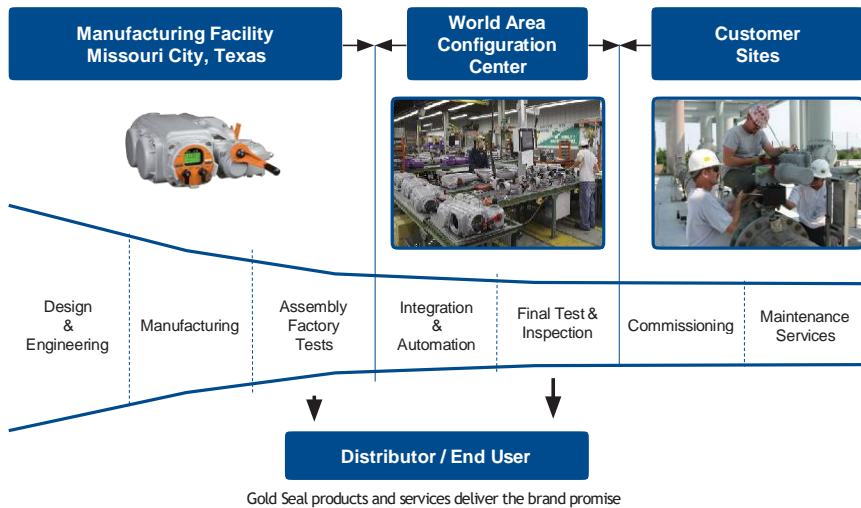
Gold Seal service is a benefit that customers have come to expect over the years. It represents the company's goal to consistently deliver its brand promise of providing reliable, quality products that are backed up by competent local service. The adopted Gold Seal quality standards and concept resonate through the manufacturing process and into our WACC, where a fair degree of integration and automation take place, and ultimately to customer locations where site commissioning work is performed. The Gold Seal philosophy is founded on an extensive service and maintenance training program that must be successfully completed by all personnel responsible for delivering this service to our customers. The training program covers all Bettis actuator maintenance and repair details, focusing on both mechanical and electrical aspects. Recertification is mandated every two years to ensure unparalleled, consistent customer service.

With Gold Seal expertise, our service personnel are also capable of providing essential support to network providers and beyond, to contribute to a successful plant start-up.

*Fully-equipped test labs allow Emerson manufacturing facilities to load test actuators at any electrical supply.*

*Quality assurance standards are strictly followed at all stages of manufacture.*

*Emerson Process Management has an extensive network of field service personnel using factory - approved parts. Full Retrofit Capability is available from our World Area Configuration Centers.*



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