



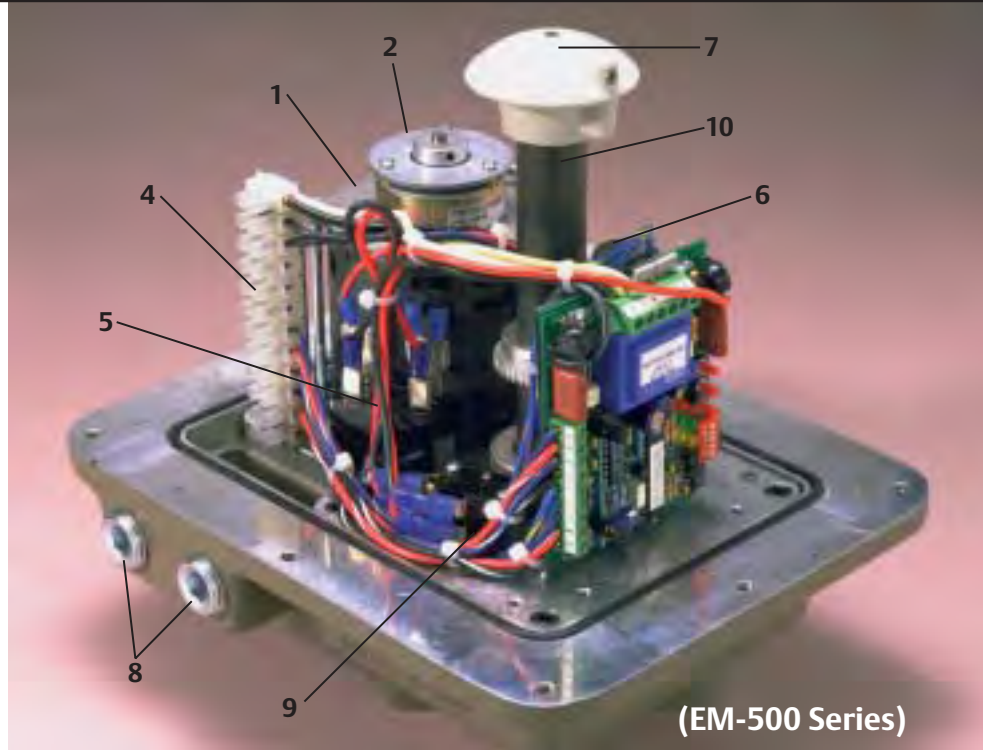
**BETTIS™**

**TorqPlus™**  
Electric Valve  
Actuators  
and Controls

  
**EMERSON.**  
Process Management

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## DESIGN AND CONSTRUCTION



These very rugged and versatile electric actuators take full benefit of precision-machining which allows every model to provide maximum torque output relative to its compact design configuration and contains a minimum of parts to reduce vibration, lessen noise and resist harsh service. Utilizing a combination of spur, worm and planetary power gearing reduction systems, the Bettis TorqPlus actuators incorporate the most efficient, powerful and appropriate drive design for service excellence.

**1. Motors.** Available in Single Phase, 3 Phase and DC voltages, all motors are custom built for high-torque, low current draw and the highest duty cycle ratings offered. Single phase motors are capacitor run type and three phase are squirrel cage induction type both having integral self resetting thermal cut-outs.

**2. Brakes.** Offered for all AC and DC motors, they are capable of a holding force equal to the output torque ratings of each actuator model.

**3. Heater and Thermostat.** Securely mounted and appropriately sized to insure ample protection even in the worst environments (not visible in photo).

**4. Terminal Strips.** Standard in all models and allow

easy plus efficient actuator installation.

**5. Capacitors.** Used on all single phase AC units, each capacitor is peak voltage rated and of improved design for maximum service life.

**6. Potentiometers.** Precision mechanically linked to actuator output drive for continuous position signaling.

**7. Position Indicator.** Mechanically driven and easily viewed at top of actuator to insure or confirm actual actuator and driven device position at all times (not available on compact Model EM-100).

**8. Dual Conduit Connections.** Standard on all models, except EM-100, allows full electrical code access of all wiring through two NPT connections.

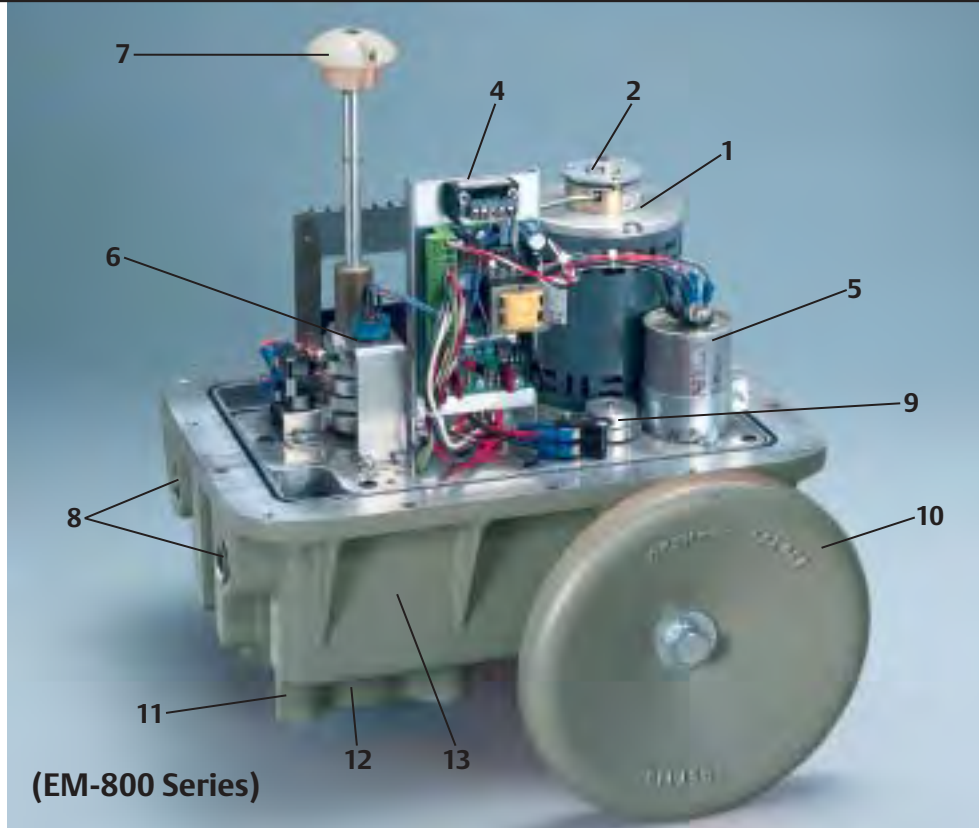
**9. Torque Limit Switches.** Standard for the high-torque 800-Series of Bettis TorqPlus actuators. These mechanical switches eliminate potential driven device damage due to over torque conditions in either direction of operation.

**10. Manual Override.** Standard in all models except the EM-100, manual override capability is offered in two forms; Declutchable and Direct Acting.

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**Model EM-300 and the complete 500-Series** offer a Declutchable design which disengages the power gear drive from the output shaft. Manual operation is accomplished by rotating the exposed output shaft drive flats with an open end wrench after the position indicator knob is pulled up. Return to full automatic operation is as easy as removing the wrench and lowering the position indicator knob to allow the mechanism to re-engage upon application of power. Should power be applied during manual operation, the declutchable design will not allow the output shaft to rotate.

**The 800-Series** offers a Direct Acting handwheel design which allows completely safe operation at any time and with never more than 50 pounds of rim pull force. Operating independent of the motor but directly into the power gear drive, the handwheel does not rotate during automatic operation of the actuator, requires no engagement action for manual operation and may be rotated with or without power to the unit.

**11. Enclosures.** Made from high strength sand castings, enclosures are rated for applications in both Non-hazardous and Hazardous locations. As an option, the Bettis TorqPlus is also available with a CSA Certified combination Hazardous and Non-hazardous enclosure for indoor and outdoor protection in locations classified Class I and II, Groups C, D, E, F and G as defined in the National Electrical Code plus protects against wind-blown dust, wind-blown rain, splashing water and hose-directed water.

**12. Output Drives** are corrosion resistant. Female drives are available in a variety of DIN/ISO 8-point sizes. Male drives are also available on models 300 and 500. The EM-800 series is provided with bored drive sleeve with double keyways.

**13. Powder Coat Finish.** A polyester external coating developed to serve as both a high durability impact and chemical resistant finish. With up to 160 lb-in ASTM D2794 impact resistance, over 1000 hours ASTM B117 salt spray rating and 1000+ hours ASTM D2247 humidity resistance, this protective finish will stay in place and do the job.

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**Important:** Due to Emerson's continuing commitment to engineered product advancement, data presented herein is subject to change.

Certified dimensional drawings and wiring diagrams are available on request. Consult factory with model designation and serial number.

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