



**Operate Submerged
Actuators Confidently**

Aquanaught - Submersible Electric Actuator
Reliable Underwater Operations



Performance & Reliability for Safe Continuous Underwater Operation

Emerson's second generation Aquanaught submersible electric actuator is designed to meet the demands of critical isolation applications that are regularly submerged, providing dependable, reliable operation.

Building off Bettis Series 2000 proven mechanical design platform, this actuator incorporates waterproof enclosures with hermetically sealed connections insuring continued plant operations during flood and high flow events. Remotely installed, separate control module protects critical components providing a robust, repeatable solution for long term submerged applications.

Ease Of Installation

Utilizing Bettis's modular design concept enables installation of controls in a safe, remote location. Simplified wiring between the SCM and AEE with optional quick connectors guarantees an efficient, less error prone process.

Waterproof Electrical Enclosure

State of the art, water sealed switches and hall effect sensor provides a completely rugged solution and certainty for continued functionality even when the device is flooded in water. In addition, the waterproof sensor provides an additional level of protection for early diagnostic and preventive maintenance.

Maintenance Friendly

Thoroughly tested, IP68 Certified design is guaranteed to work through the most harsh water conditions even if the cover is left open. But if ever needed, the simple and easy to replace modular electrical enclosure package and the cable entries, make the maintenance and service process easy to manage.

Applications

Designed for extended submergence under "dirty water", Aquanaught is the right choice for gate or valve isolation applications.

- **Wastewater**
 - Trash gates; Grit chambers; Sewage pumps
- **Water**
 - Influent gates; pump stations
- **Collection Systems**
 - CSO diversion; Airport glycol recovery
- **Hydropower**
 - Turbine isolation
- **Flood Control**
 - Levee control, River and Coastal flood plains
- **Desalination Plants**



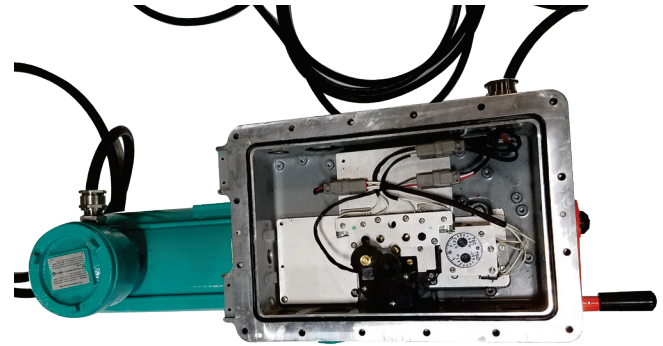
Current Aquanaught Units still operating after more than 10 years at a Waste Water Plant in New York City

Aquanaught Major Components



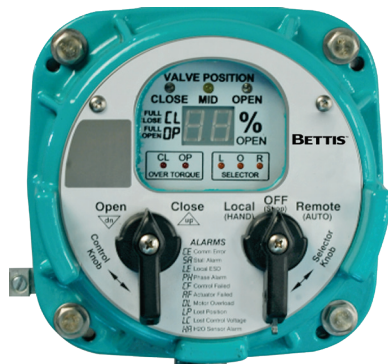
SCM – Separate Control Module

- Mounted above the flood level
- Reversing contactor
- Circuit breaker disconnect switch per NEC
- Motor overload relays
- Space heater
- Modular with 24VDC option



AEE – Actuator Electric Enclosure

- Waterproof limit, torque switch and hall effect sensor
- Will work with water in the enclosure
- Water sensor for early diagnostics, and preventive maintenance
- Gear box: ~90% grease filled for better service life



LCM – Local Control Module

- User Interface for configuration
- Local – Off – remote selector
- Open – close selector control
- Solid state LED for position indication
- Displays alarms, over torque and constant, in step position feedback
- For failsafe 24VDC actuators, indication continues with AC main power failures
- Optional Remote Display Module (RDM)



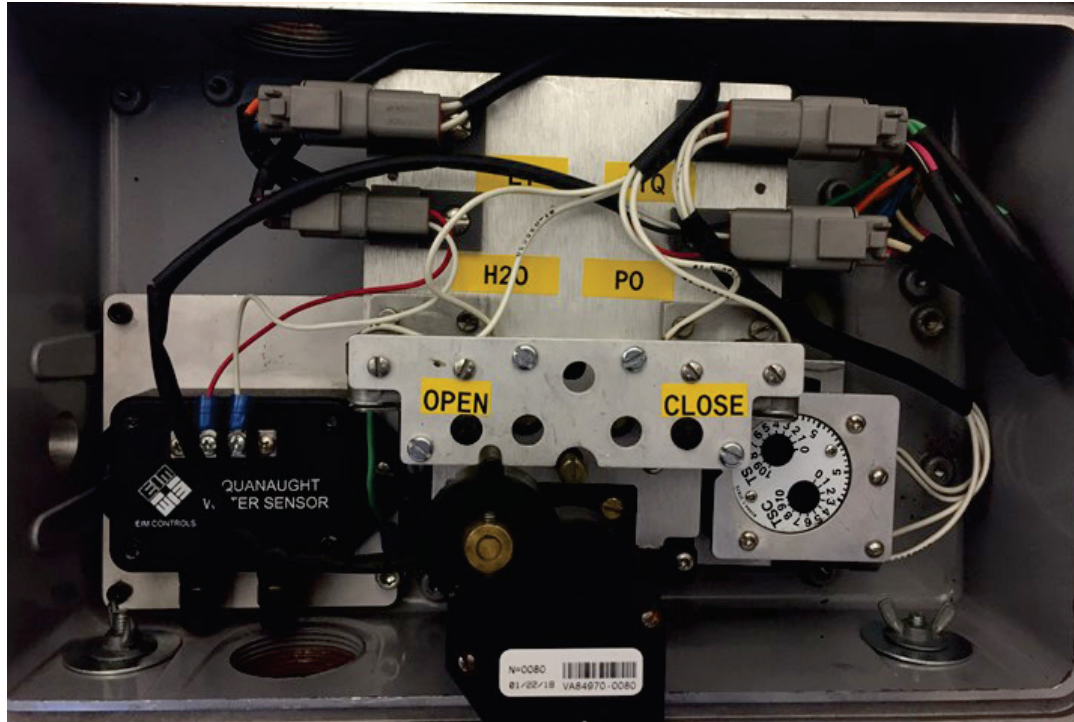
MCB – Motor Conduct Box

Modular:

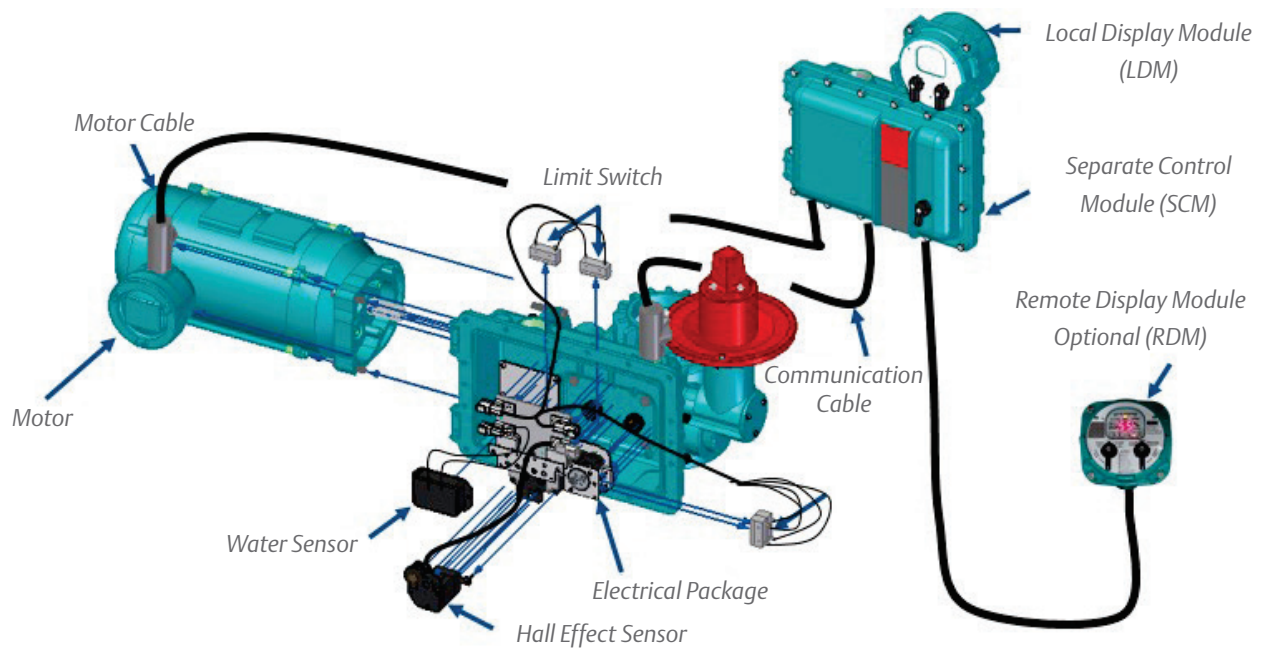
- Motor wire splicing with quick connectors
- Motor can be easily removed for service

Each motor is helium leak tested to ensure water proof

Aquanaught Technical Capability



Bettis Aquanaught actuators - with cover opened - can withstand extended submersion – 70 feet of marine water head submersion, continuous operation for 7 days.



Bettis Aquanaught actuators are a modular design – all critical components (motor, water sensor, limit and torque switches, hall effect sensor and electrical package) can be quickly disconnected for service at ease.

Aquanaught Technical Capability

Aquanaught Technical Specification	
Torque	Max Torque up to – 449,910 (Higher Ranges Available on review)
Speed	Max 192 RPM, 600 seconds (Higher Speeds available on review)
Main Power	Max 192 RPM, 600 seconds (Higher Speeds available on review) 3 phase, 208V, 220V, 230V, 400V, 415V, 460V, 550V, 575V, 380V, 60 Hz and 50 Hz Single phase, 115V, 208V, 220V, 230V, 60 Hz and 50 Hz 24 VDC
Motor Testing	Helium Leak Test
Communication Length	Up to 100 meter between the actuator and control

Aquanaught Technical Capability

NEMA 4, 4X, 6, 7 & 9

- Standard Temperature Rating:
-40°C to +70°C
- Optional Low-Temperature Rating:
-50°C to +60°C
- IP68 Submersible Service:
- 150 ft. (45m) 168 hrs. Continuous Operation

FM Factory Mutual (USA)

- Classes I, Division 1,
- Groups D, E, F & G T4 135°C

CSA (Canada)

- Classes I, Division 1,
- Groups D, E, F & G T4 135°C



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