Proven Pneumatic Actuators for Air Operated Valves (AOVs) in Nuclear Service

Bettis™ N-Series Pneumatic Actuators
Proven for Nuclear Service
Bettis™ valve actuators have been the standard for many industrial and energy-related applications for more than 50 years. Bettis actuators were qualified through independent accreditation to meet the IEEE 382 standard when the standard was first drafted in 1969. Since then, they have been an industry standard by maintaining environmental qualification from the 1980 IEEE specifications, to the current 1996 criterion to meet the IEEE 382-2006 standard.

Emerson’s quality assurance program for nuclear service conforms to the specifications of 10 CFR 21 and 10 CFR 50 Appendix B.

The Bettis N-Series Environmentally Qualified (EQ) actuators are uniquely constructed and have undergone rigorous testing and qualification programs to validate and document product performance for use within the containment and safety-related areas. This series has been subjected to environmental qualification testing and are aged to the service life required by the IEEE specifications through thermal aging, radiation aging, Loss of Coolant Accident (LOCA), Main Stream Line Break (MSLB), seismic simulations, and other functional tests.

Currently, Emerson has a global installed base of more than 5,500 actuators in more than 75 nuclear power plants, many of which are the environmentally qualified NT, NHD, NCB models. These models were tested and qualified in 1980 to the current IEEE standards and are still available today. The new generation NCBB, NCBA300, and NG Series are available in double-acting and spring-return qualified for nuclear power plant design criteria and the current IEEE standards:

- IEEE Std 382-2006
- IEEE Std 344-2004
- IEEE Std 323-2003
- ASME QME-1
- ASME NQA-1

**Benefits:**

- Modular design for parts interchangeability
- Five-year material and workmanship warranty
- IP66 and IP67M water ingress protection
- PED/97/23/EC compliance
- ATEX certification
- Compact footprint
- Guaranteed torque outputs
- Broad torque range
Emerson offers a broad range of actuators for environmentally qualified (EQ), seismic and general applications.

Emerson’s Actuation Technologies’ Crossridge facility, located in Houston, Texas, with its select sales channel, have been successfully audited by the Nuclear Procurement Issues Committee (NUPIC) and Nuclear Industry Assessment Committee (NIAC) as a supplier of products to the nuclear industry.

The Bettis N-Series is distributed and serviced by the most experienced technicians in the industry, trained to operate in containment areas and with a solid understanding of the regulatory requirements so that compliance is assured.

Bettis actuators are backed by Emerson and its extensive worldwide distribution network, to provide spare parts and service when you need it. Consider Emerson as your trusted nuclear partner.

**NG-Series**

Reliable spring-return or double acting compact actuators with an optimized center of gravity and lighter weight than others of equal or less torque output. With advanced corrosion resistance, water ingress protection, high wear resistance, the NG-Series provides a long service life that meets plant lifecycle. The NG-Series design facilitates ease of service while the actuator is valve-mounted. NG-Series actuators provide up to 900,000 lb-in of torque output in a double-acting configuration.

**NCBB-Series**

Available in spring-return or double acting configurations, with superior seals for water ingress and corrosion resistance. Available with dual-mounting valve interface for easy installation in any position - parallel or at right angles to the flow line, in a vertical or horizontal plane. NCBB-Series actuators provide up to 11,500 lb-in of torque output in a double-acting configuration.

**NCBA300-Series**

Available in spring-return or double acting configurations with advanced water ingress and corrosion protection, with superior seals. The model has no gaskets, and its all-bearing design helps enhance its total cycle life capabilities. NCBA300-Series actuators provide up to 20,000 lb-in of torque output in a double-acting configuration.
Your Actuation Solution Partner

Emerson has been an industry standard in the nuclear power industry for decades with brands such as Fisher, Rosemount, Micro Motion, Dietrich Standard and PI Components.

- Control Valves
- Pressure Management
- Flow Measurement
- Temperature Measurement
- Process Automation Systems
- Analytical Instruments
- Maintenance and Configuration Software

This product is only intended for use in large-scale fixed installations excluded from the scope of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS 2).

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For complete list of sales and manufacturing sites, please visit www.emerson.com/actuationtechnologies/locations
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