

# N-Series Pneumatic Actuators

Proven for Nuclear Service



**BETTIS™**

  
**EMERSON™**

# Your Nuclear Power Partner

■ ***EQ-Qualified Actuators***

■ ***More Than 35 Years Nuclear Experience***

■ ***Pioneers in Scotch-Yoke Valve Actuation***

■ ***Complete Product Range***

Bettis™ valve actuators have been the standard for many industrial and energy-related applications for more than 50 years. In nuclear service, Bettis™ actuators were perhaps the first ever qualified through independent accreditation to meet the IEEE 382 standard when it was first drafted in 1969. Since then, Bettis™ actuators have been an industry standard by maintaining environmental qualification from the 1980 IEEE specifications, to the current 1996 criterion, and pending final notification, will meet the IEEE 382-2006 standard.

Bettis™ quality standards continue to be its hallmark. Our quality assurance program for nuclear service conforms to the specifications of 10 CFR 21 and 10 CFR 50 Appendix B.

The N-Series Environmentally Qualified (EQ) and safety-related actuators are uniquely constructed and have undergone a rigorous testing and qualification program to validate and document product performance for use within the containment and safety-related areas. This actuator 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.

Bettis™ currently 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 actuators which are available in double-acting and spring-return configurations are currently undergoing qualification testing against published nuclear power plant design criteria and the current IEEE standards:

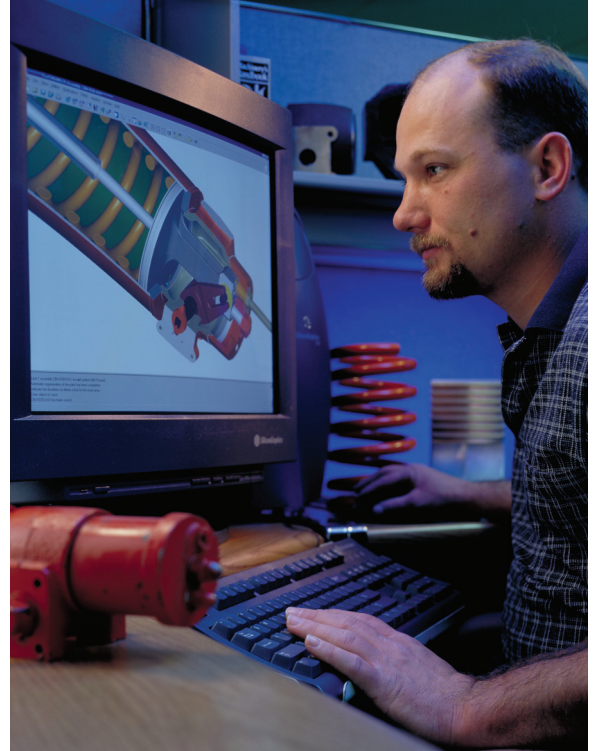
IEEE Std 382-2006

IEEE Std 344-2004

IEEE Std 323-2003

We offer numerous advantages for this critical service. Among them are:

- Modular design for parts interchangeability
- Five-Year materials and workmanship warranty
- IP66 and IP67M water ingress protection
- PED/97/23/EC compliance
- ATEX certification
- Compact foot print
- Guaranteed torque outputs
- Complete torque range



# Proven Products for Nuclear Application

Emerson Actuation Technologies has a continuous presence in the nuclear industry of more than 35 years. It has a broad product offering for environmentally qualified use within the containment dome or in non-containment areas of the facility. Each of the valve actuators is rugged and specifically designed to perform with complete reliability in critical applications.

The Bettis™ Waller, Texas facility and select sales channels 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.



All Bettis™ N-Series actuators are 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. This capability provides you with the assurance that spare parts inventory is always available and that you have a fully supportive nuclear partner.

## NG-Series

NG-Series actuators are 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, this actuator series provides a long service life. The design of the NG-Series 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

The NCBB-Series actuators are available in spring return or double acting configurations, compact, lightweight, with superior sealing for water ingress and corrosion resistance. They come with a dual-mounting valve interface to be installed 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

The NCBA300-Series actuators are available in spring return or double acting configurations and have advanced water ingress and corrosion protection, with superior sealing. 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.





## Emerson brings solutions to nuclear power

Familiar Emerson brands have been standards in the nuclear power industry for decades. Fisher, Rosemount, Micro Motion, Dietrich Standard and PI Components are just a few. Our offerings include:

- 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).

**World Area Configuration Centers (WACC) offer sales support, service, inventory and commissioning to our global customers. Choose the WACC or sales office nearest you:**

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