WNE
WORLD NUCLEAR EXHIBITION

28-30 JUNE 2016
LE BOURGET - PARIS

by BERNARD® CONTROLS

> 50+ years of continuous experience in the nuclear industry.

Invest in Confidence

Participating again in this second edition of WNE, which is undoubtedly the key meeting point for the whole sector in Europe, Bernard Controls reinforces its partner position within the nuclear industry. Years after years, the trust granted by major companies from the energy sector such as Alstom, Areva, EDF, Tractebel ... confirms and stimulates the willingness of the Group to continuously improve its offer.

Frequent strategic boosts to energy policies impose to find smart solutions associating improved safety level with optimised performance.

In this perspective, facing new global projects and the Chinese program which keeps on moving forward, Bernard Controls focuses on key qualification projects, while strengthening strong expertise and abilities regarding tests, calculations and techniques to reproduce real conditions of use of products.

In the inside pages you will find details about our SN multi-turn range, flagship of our product portfolio and designed according to the latest safety requirements and for optimised maintenance operations.

Qualified for applications in the whole nuclear island and according to latest safety standards (RCC-E, IEEE), this range proves to be a well-known reference in electric actuation.

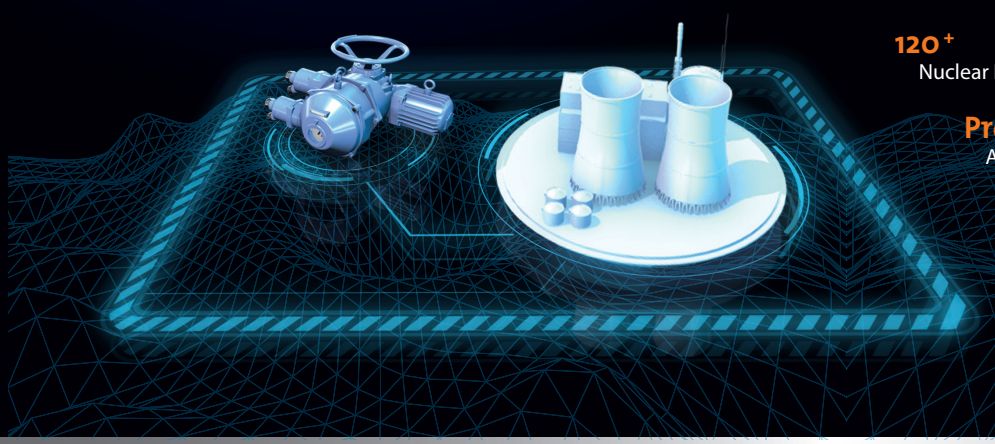
Adaptibility means offering solutions for the waste treatment, for the maintenance of existing NPPs, or related to uranium enrichment. Special projects such as the MOX project (fuel production plants), nuclear powered submarines and aircraft carriers (Charles de Gaulle aircraft carrier) testify of BC capabilities to propose customized solutions.

In terms of customer support, close relationships is our motto and is emphasized by our "Strong Customer Support" commitment (See p.4).

In short, Bernard Controls keeps on gathering this long-time experience on which the nuclear sector can rely. We share the same challenges than many people and partners who are strongly passionate about this business. Even though this sector has been challenged, we can see a future for a core industry which remains a vital generator of an effective and reliable energy for final consumers.

We wish you a pleasant visit.

Bernard Controls,
Always by your side.



120+
Nuclear Power Plant reactors equipped over the world

Products qualified
According to the latest nuclear safety standards (RCC-E and IEEE)

Reliable Solutions
For the latest generation of reactors such as EPR, ACP1000, HPR1000, AP1000, CPR1000, VVER (...)

50+ years of expertise to provide solutions for improved nuclear safety.

As one device directly involved in the control of the Nuclear Power Plant (NPP) and its whole process, an electric actuator must be fully designed with safety in mind. Key features can be decisive for the overall reliability of the reactor, as well as for the security of people working on site. That is why Bernard Controls has designed the SN range of qualified electric actuators relying on years of close relationships with customers and return on experience to offer enhanced NPP safety.

Multi-turn SN Range: Nuc IC/1E/K1 qualified electric actuators

PROVEN RELIABILITY

Bernard Controls SN Range has been designed to address safety issues. Therefore, product qualification includes **resistance to critical accidents**[1], of which:

- Seismic accidents and LOCA (Loss of Coolant Accident)
- Severe Accident (qualification for EPR)
- MSLB "Main steam line break"
- Flooding scenario (up to 60 meters depth)

REDUCED & OPTIMIZED MAINTENANCE

Bernard Controls SN range has been designed to maximize the availability of the NPP for operation, especially thanks to technologies designed to reduced maintenance downtime and frequency:

- Availability of the manual override at any time thanks to the torque transmission chain with differential mechanism
- **Modular and quick disconnect design**[2] for fast intervention so as to minimize the risk of radiation exposure for the maintenance staff

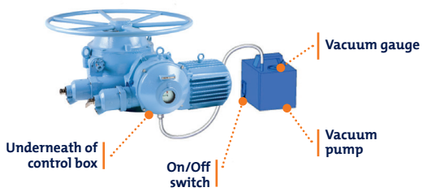
[1] Focus on resistance to critical accidents

Bernard Controls proposes patented and qualified solutions to address the ingress of steam through the cable during a Loss of Coolant Accident (LOCA) including during Severe Accident. These solutions also address flooding scenario (up to 60 meters depth).

Ingress of steam test

Flooding scenario qualification

In order to strengthen the safety level of the NPP control process, Bernard Controls also provides a qualified solution to check waterproofness of the actuator.



[2] Focus on modular and quick disconnect design

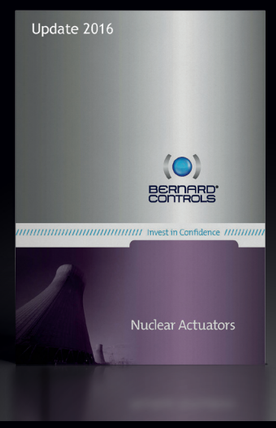
Bernard Controls proposes patented and qualified solutions in order to reduce time of intervention by the maintenance staff:

Integrated motor, interchangeable with other speed/power and easy & quick to remove & assemble

Pluggable connectors, identical for the whole series, are easy & quick to remove & assemble

Control box, identical for the whole series, is easy & quick to remove & assemble

Latest product developments presented in the new catalogue: Direct current motors, K3 AD and separated control box qualification, high torque (6000Nm) multi-turn actuator...



BERNARD CONTROLS EXPERTISE & STRONG CUSTOMER SUPPORT FOR THE NUCLEAR INDUSTRY

For more than 50 years, BERNARD CONTROLS has been continuously designing electric actuation solutions for the nuclear market in close partnership with its customers and all key players of this industry.

Strong Customer Support has been a commitment since the beginning and results in processes & teams focused on customers' needs. Thus, a special sales team is dedicated to nuclear projects and customers. In addition, Project Managers from our R&D Department are available to accompany clients in all their needs and coordinate Projects amongst all involved company Departments in order to design new products, adapt standard ranges to customer needs, prepare new product qualifications....

Our engineers are also available to validate design of sites or solve customers' on-site issues thanks to:

- Test bench to simulate valve operation,
- Calculation tools & calculation experts to estimate resistance of materials or evaluate over torques due to switch-off delay and valve stiffness, etc.

STRONG CUSTOMER SUPPORT