





Contents

## ACTUATION

- 4 BC Technology
- 5 Product ranges
- 6 Certifications & Approvals
- 7 BC Markets

## DEDICATION

- 8 Global partner always by your side
- 10 Invest in Confidence
- 11 Strong Customer Support

## INNOVATION

- 12 Ability to adapt is the best way to innovate
- 13 Two is better than one
- 14 Bringing meaning to innovation
- 16 Solutions for all processes
- 17 GPS Actuator



# We commit to supply both proven technology and strong customer support

Why have to decide on reliable products or dedicated service?

Do not compromise on anything and get both proven technology and strong customer support with Bernard Controls.



“ Since its beginnings over 75 years ago, Bernard Controls has earned its leading position in electric actuator technology step by step.

This success is primarily due to our Group's commitments to productivity, innovation, quality and safety. We have respected these commitments without compromise in an increasingly demanding industrial environment. Over the last decade, Bernard Controls has increased the rhythm of its investments and innovations to make it an exemplary group, a group that has maintained and nurtured both the quality of its relationships and its eminent technological reputation.

Recent key dates:

**In 2010** we changed our identity to highlight our prowess in controls and, in parallel, we optimised our production and manufacturing processes (Lean Manufacturing).

**In 2011/2012** we grew from strength to strength on markets including oil and gas, buoyed by our international leadership on the nuclear market. New offices were also opened in Russia and in the Middle East.

**In 2012 /2013**, we segmented our offer through the First BC and BC Premium labels to provide technical and economical solutions perfectly adapted to the different sectors who wanted to remain loyal to our brand.

**In 2014** we rethought the Group organisation as part of our customer promise of better and faster service.

We have created the Strong Customer Support approach to federate Bernard Controls' increasingly asserted sense of service.

**In 2015**, we propose a Duty and Modulating Classification to guide customers in their product selection, and then get the electric actuator fitting perfectly to their need. We are also developing a web application called GPS Actuator, an online guide to help users find the most precise actuation solution in record time.

There can be no compromise between high technology and high customer satisfaction. That is the philosophy behind our mission statement: Always by your side. ”



**Etienne Bernard**  
Bernard Controls C.E.O.

Bernard Controls is a leader in the world electric actuation market. We are number one in the nuclear sector and also close partner of the most demanding industries: Power, Water, Industry and Oil & Gas.

## BC Technology

Bernard Controls designs and manufactures electric actuators and control systems for industrial valves' automation. More than mere products, Bernard Controls offers innovative solutions that assess each type of movement, environment, operation and control requirements, in order to perfectly meet customers' needs.

### What is an electric actuator?

An electric actuator allows to command and control the motion of industrial valves and dampers. Depending on the required applications, it can drive the valve from fully opened to fully close positions, or modulate a flow precisely.

# Product ranges

**Solutions always by your side:** In order to meet the specific needs of each customer and each application, Bernard Controls offers a wide range of electric actuators and associated control technologies. Two product labels guide your selection: FIRST BC for moderate environmental & operational conditions and BC PREMIUM for demanding applications with panel of options and services.

## FIRST BC SIMPLE, STURDY, ECONOMICAL



1

## BC PREMIUM DEDICATED SOLUTIONS



2



3



4



5



6



7

1 Weatherproof Quarter-turn Actuators  
*EZ Range*

2 Special Design & Nuclear Qualified Actuators  
3 Failsafe Quarter-turn Actuators  
*FQ Range*

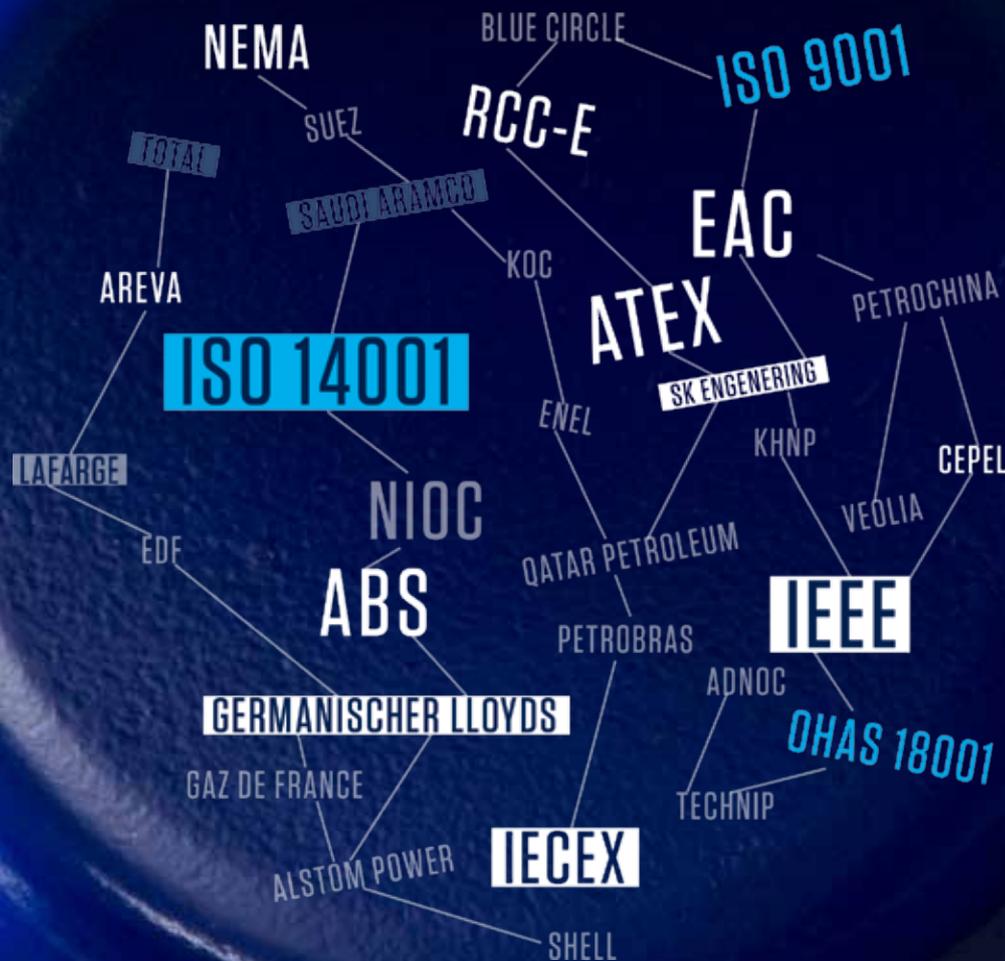
4 Weatherproof Quarter-turn & Multi-turn Actuators  
*SQ, ST & ASM Ranges*

5 Explosionproof Quarter-turn & Multi-turn Actuators  
*SQX & STX Ranges*

6 Continuous Modulating Actuators

7 Controls & Fieldbus Technologies

# Certifications & Approvals



## Certified and recognized quality

Our products and organization have been certified by major international bodies and according to main standards :

- ISO 9001, ISO 14001, OHSAS 18001,
- ATEX, NEMA, IEEE, RCC-E, SIL (...)
- ABS, CSA, BUREAU VERITAS, GERMANISCHER LLOYDS, GOST, INERIS, TÜV (...).

Working with the most demanding industries, Bernard Controls has also been approved by the largest prime-contractors and industrials players worldwide, such as : ADNOC, ALSTOM POWER, AREVA, BLUE CIRCLE, EDF, ENEL, GAZ DE FRANCE, GAZPROM, KNPC, KOC, LAFARGE, NIOC, PETROBRAS, PETROCHINA, QATAR PETROLEUM, SAUDI ARAMCO, SHELL, SOFRESID, TRACTEBEL, TECHNIP, TOTAL, VEOLIA (...)

Innovation is at the heart of our business. Our expertise lies on a strong experience combined with a product specialization strategy - the electric actuator. Certifications and customers' approvals are the best labels of quality for us.

# BC Markets

## Oil & Gas

Every stage of the oil or gas production cycle requires effective and reliable solutions for a maximal security. For the production, storage, transport and distribution, Bernard Controls proposes explosion proof certified ranges including intelligent and intuitive controls, to guarantee to every user an installation under control.

### They trust us

Adnoc, Aramco, Exxon, Gaz De France, Koc, Petrobras, Petrochina, Rosneft, Shell, Sonatrach, Total (...)



## Power

World leader in the Nuclear industry, Bernard Controls also provides solutions for thermal (cooling towers, steam circuits), hydroelectric or geothermal power plants.

### They trust us

Alabama Power, Areva, Atomstroyexport, Cgnpc, Edf, Electrowatt-Ekono, Enel, Huaneng Group, Mapna, Mitsubishi, Westinghouse (...)



## Water

Bernard Controls actuators are used for several applications throughout the water cycle: for the pumping, the production and distribution of drinking water, but also for the treatment of waste water or the process of seawater desalination.

### They trust us

Adwa, Aquafin, Degremont, Marafiq, Nitra, Suez...  
Cities of Bangkok, Houston, Masan, Montréal, Moscow, Paris, Shijiazhuang, Urumchi (...)

## Industry

Bernard Controls supplies a wide range of actuators and associated controls allowing to address the many types of applications of this sector:

**Building Automation** (urban heating, HVAC),  
**Civil Engineering** (heating or ventilation system),  
**Industries** (ovens in steelworks and cement works, painting cabins in the car industry...)  
or **Shipbuilding** (ships, submarines, tankers...).

### They trust us

→ Cement plants: Blue Circle, Conch Group, Lafarge, Sinoma, PTT Indocement...  
→ Industries: Arcelor-Mittal, General Motors, Pechiney, Varel...  
→ Shipbuilding: Chantiers de l'Atlantique, Daewoo, Mitsubishi, Petronas (...)

# Global partner, always by your side

global presence, local support

## AMERICAS OPERATING AREA

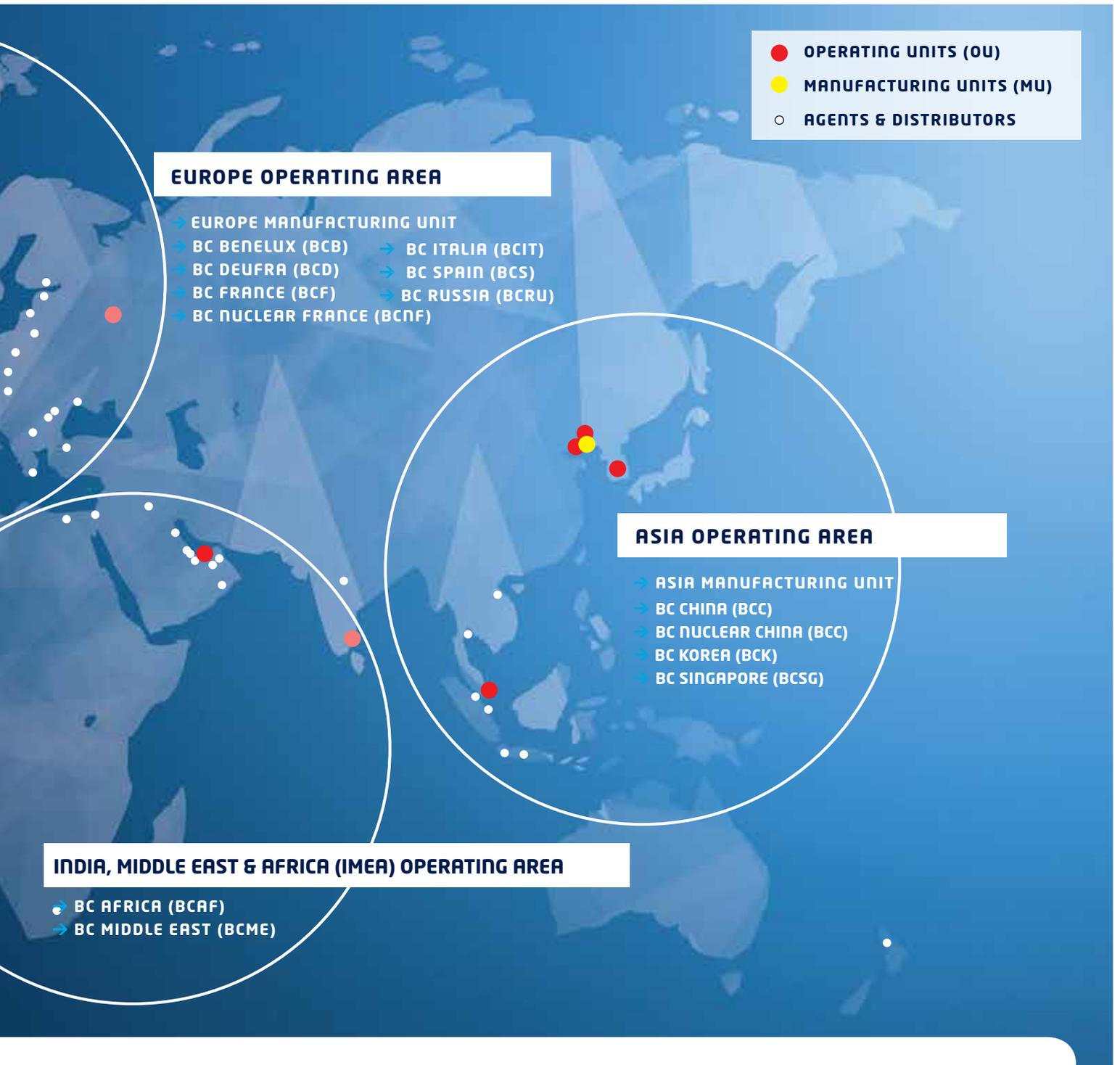
- AMERICA MANUFACTURING UNIT
- BC UNITED STATES (BCUS)
- BC SOUTH AMERICA (BCLA)

## A Group Organization focused on customer support & satisfaction

Reliability, availability and responsiveness are the key patterns that turn sales contacts into close trusting relationships. BC's global Group organization aims at building up this kind of relationships, thus enhancing customer service and satisfaction.

New processes combined with this organization enable improved response time and appropriate technical & commercial solutions to market needs.

While our global presence is the guarantee of a strong customer support everywhere on earth, especially for global projects, the creation of Operating Areas with Operating Units proves to be the relevant response to local market needs.



1

Corporate Headquarters

4

Operating Areas

16

Operating Units

3

Manufacturing Units

Satisfy regional market needs

Local contacts for dedicated customer support

Deliver to customers all around the world

# Invest in Confidence

Relationship, Expertise, Loyalty, Innovation and Dedication are the brand values of Bernard Controls, the values that constitute the DNA of the company and build up our motto "Invest in Confidence" over the years. Today, «Bernard Controls, always by your side» is a new piece of our identity, a new dimension of the "Invest in Confidence".



## Invest in **RELATIONSHIP**

Number One in terms of service performance. This simple ambition has been ours ever since the firm was established, and has allowed us to develop a relation of trust within our teams, with our customers as well as with our partners.

## Invest in **EXPERTISE**

Expertise is our business specialty. Our products are qualified and approved by the largest prime contractors and industrial players in France and abroad.

Expertise is all about people, people who have not been content with just doing their job, people eager to look beyond and write a new story.

## Invest in **LOYALTY**

Almost 75 years in the business. This figure speaks volumes about the dedication and consistency of our Group which followed the path plotted by L. Bernard and will continue with Bernard Controls.

## Invest in **INNOVATION**

If we design and manufacture products with such a high technical profile, as the INTELLI+®, it is because innovation is present at all levels of the production. By improving our competencies and the efficiency of our processes, we enhance the quality of our products and services.

## Invest in **DEDICATION**

Our business is changing and the same goes with our customers' expectations. Our aim is not simply a matter of making actuators or designing tailor-made solutions, it is about sharing the same mission statement.

# Strong Customer Support



Nowadays, product quality and efficiency are essential conditions, but they are not always enough to guarantee full customer satisfaction. In order to create a serene and trusting environment, our machines and our workers must give their absolute best. Given this premise, our teams also strive to develop a high quality customer support every day, over and above technological commitment.

Therefore, regardless of your location, our customer support teams are available and ready to listen to you and guide you along each step of the way: from the design stage to installation, commissioning, maintenance and training, Bernard Controls teams are truly dedicated to your satisfaction and commits to delivering strong customer support everywhere around the globe.

## Bernard Controls at your service

Our experts support you at each step of your project, as soon as the design phase and all along the product life cycle.

### Installation and commissioning

Commissioning electric actuators requires specific and careful expertise.

This is specially true when the motorized valve is controlled by a complex system such as a fieldbus.

That is the reason why our specialists are available to provide the adequate support to our customers for:

- adaptation on the valve
- installation
- set-up
- start-up

### Maintenance and repair

Everyday, our technicians are available to quickly go on site for :

- periodic actuator functional check-up
- preventative maintenance operations
- diagnosis and repair

### Training

Regular training sessions are organised for our customers and our distribution network. These sessions are held either in France, at our local service centre or at customer site. Actuator technology, setting, operating and maintenance are among the most popular topics covered.

# Ability to adapt is the best way to innovate



**Etienne Bernard** Bernard Controls C.E.O.

**Our vision is that innovation arises from the ability to adapt. Ability to adapt to markets needs, to new regulations and to customers’ technological and financial requirements. But also ability of our teams to adapt to new challenges, new market demands and new working environments in order to work everyday to provide Service Excellence to our clients and partners.**

If we design and manufacture products with such a high technical profile, such as Intelli+®, it is because innovation is present at all levels of the production. By improving our competencies and the efficiency of our processes, we enhance the quality of our products and services. For instance, we have chosen to implement the Lean Manufacturing and Kaizen methodologies to streamline our organization and encourage everyone to embrace our daily quest for progress and productivity.

Customer-oriented innovation has always been the focus of Bernard Controls. Close relationships with customers and market watch turn into deep expertise of our teams over the years. The ability to adapt is crucial to turn these feedbacks & knowledge into new products and technologies that will serve customers’ demands. The results is a dynamic innovative spirit which leads for instance to the creation of product labels, the design of a new EZ range, the launch of a new web application to ease customer product selection... And, above all, to a large panel of key technologies that constitute BC technological identity.

# Two is better than one

The automation of industrial machinery and equipment addresses human and financial challenges of security and productivity.

Our understanding of industrial processes drives the design and manufacturing of our electrical actuators. So our vision of controls furthers the appearance of solutions fully adapted to markets' evolutions and to our customers' budgetary and technological requirements. That is why our electromechanical profile has developed into an expertise in the management of evermore complex systems.

Bernard Controls propose 2 labels which federate well different ranges of actuator solutions. These 2 labels, First BC and BC Premium, identify specific uses. With them, our technological commitment will be doubly appreciated by our customers and the 4 main markets for which we are producing: Power-Water-Industries and Oil & Gas.

**FIRST BC** SIMPLE, STURDY, ECONOMICAL



## New EZ LOGIC

In 2014, Bernard Controls enlarges its FIRST BC EZ range of weatherproof electric actuators with a new integrated control named LOGIC.

**BC PREMIUM** DEDICATED SOLUTIONS



## Enhanced reliability, security & user-friendliness

These are the claims of the BC Premium label, guarantee of top level quality and tailored-made solutions for demanding applications such as Oil & Gas processes or Nuclear Power Plants. There, customer-oriented innovation makes us develop enhanced security features such as special design for SIL certified products to address market need for functional safety, or the SN nuclear qualified range designed with safety in mind and with optimized maintenance. It also makes us develop user-friendly features to ease site management and adapt for example to new fieldbus communication such as Hart.

## Bringing meaning to innovation



Whether technological, practical or security-oriented, BC gives meaning to every innovation to ensure customer productivity is safe and optimised.

Behind our design, our labels, our applications and our standards, technological challenges are met and performances stretched.



**Guillaume Faure**

Bernard Controls Exec VP, R&D.



### 1 Gear transmission system

High transmission efficiency & self-locking capacity

Electric actuators generally use a worm drive because of its advantages of high drive ratio and self-locking. To reduce the motor's power consumption, BC actuators combine worm drive and high transmission efficiency planetary.

### 2 Travel limitation systems

User-friendly & reliable travel limitation system

Bernard Controls proposes a patented cam block system, which offers the following advantages:

- Fast & easy setting
- Vibration proof
- Precise indication

### 3 Torque limiters

User-friendly & reliable torque limitation system

Bernard Controls design of torque limiters is using proven technology offering:

- Full reliability
- Ease of adjustment
- High precision & repeatability

### 4 Manual override

Easy maintenance with BC manual override technology

Depending on the markets and types of facilities, the features of emergency manual control - key functions of the actuator - can be very different. However, several features have a prime significance : it must be possible to operate the handwheel at any time & the number of turns on the handwheel must not be too high.

### 5 S4 Motor Duty cycle

The only representative duty cycle for electric actuator operation

The IEC 60034 standard defines the electric motors' standard duty cycles. S2 duty rating is short time duty: motors adapt to constant load. Temperature rises fast during the operation and quickly reaches its limit. Motor needs long stop for total cooling between each start. S4 duty cycle is intermittent duty with starting. Motors start with a large output torque. Temperature slowly decreases once operating torque has been reached. Therefore, the motor can be restarted shortly after shutdown. BC has chosen the S4 duty rating because it is the most representative duty cycle for actuators operations.



7



9



10



## 6 INTELLI+®, intelligent & intuitive control

Improved reliability, security & user-friendliness for efficient site management

BC INTELLI+® is an intuitive & intelligent integrated control which offers key benefits to end users such as non-intrusive settings, intuitive interface, accurate information with absolute sensors, increased security with constant self-monitoring, ESD, PST or Alarms indication, preventive maintenance, fieldbus communication or infra-red/Bluetooth communication.

## 7 Absolute sensors

Accurate information at any time

Thanks to absolute sensors, which constantly measure the position & torque of your valve, you can get precise and reliable information.

## 8 ESD

Increased security for fluid control systems

In the process, some control valves need to be equipped with Emergency Shutdown Device (ESD) in order to protect the pipeline and equipment from damage.

## 9 Open fieldbus systems

Easy site management

BC chooses the «open» fieldbus system for all its fieldbus solutions. Our actuators can be connected to most of the standard fieldbus available on the market: PROFIBUS DP, FOUNDATION FIELDBUS, MODBUS RTU, HART and other fieldbus on demand.

## 10 SIL DESIGN

More than safety commands, SIL certified signaling functions

The SIL - Safety Integrity Level - is a measure of the level of security provided by a technical measurement of a risk control system (cf. IEC 61508 & 61511 standards). BC offers weatherproof & explosionproof quarter-turn and multi-turn actuators specially designed (fully dedicated control board and absolute position encoder with built-in self-test) and SIL certified according to the latest & more demanding revision of the standard (Ed 2).

# Solutions for all processes

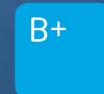
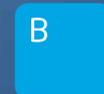
## Duty & Modulating Classification

### STANDARD DUTY CLASSIFICATION



### BERNARD CONTROLS DUTY & MODULATING CLASSIFICATION

ENDURANCE +



### Increase Endurance

Considering On-Off (Class A) and Inching/ Positioning (Class B), process requirements imply to set Endurance as the decisive criterion. Therefore, to address market needs, BC offers products which just comply with the Standard Class A or B, and products with increased endurance, **longer lifetime** A+ or B+.

### Improve Performance

Modulating & Continuous Modulating applications require specific expertise to define the most appropriate solution. For many years, Bernard Controls has been a leader in electric actuation and a forerunner in modulating technology. Our modulating classification is now well-known from our customers and has, in fact, inspired the EN 15714-2 Standard. Duty Performance is the decisive criterion, but needs to be specified and completed with a key additional criterion: **resolution**. Then BC defines dead band, response time and linearity as other criteria of the modulating process. For many years, BC has offered improved performance compared to Standard design requirements for Modulating & Continuous Modulating: Class III, Class II & Class I. Now BC also completes the Modulating Classification with Modulating Classes for more demanding modulating performances: Class III+ and Class II+.



PERFORMANCE +



## Operation: a decisive step in your electric actuator selection

EN 15714-2 Standard defines a Duty Classification with basic design requirements for an electric actuator to operate the valve. Relying on its expertise and on years of customers' feedbacks, BERNARD CONTROLS defines a Duty & Modulating Classification with key criteria in order to define the appropriate & unique solution corresponding to customers' Process Requirements. BC thus goes further and proposes a more precise classification.



# gpsactuator.com

The web application developed by Bernard Controls that helps you find your way to your electric actuation solution

Using the GPS Actuator, you will end up with a range of Bernard Controls' electric actuators.

This range meets all criteria selected throughout the 5 key steps of this application. To finalize your selection up to a product reference, a simple contact form is proposed at the end of the process.

Bernard Controls' solutions and sales teams are available all around the world. As soon as you send your form, you will be contacted within 48h.



A new interactive User's guide optimized for all devices: stay connected on your computer, your tablet and your smartphone

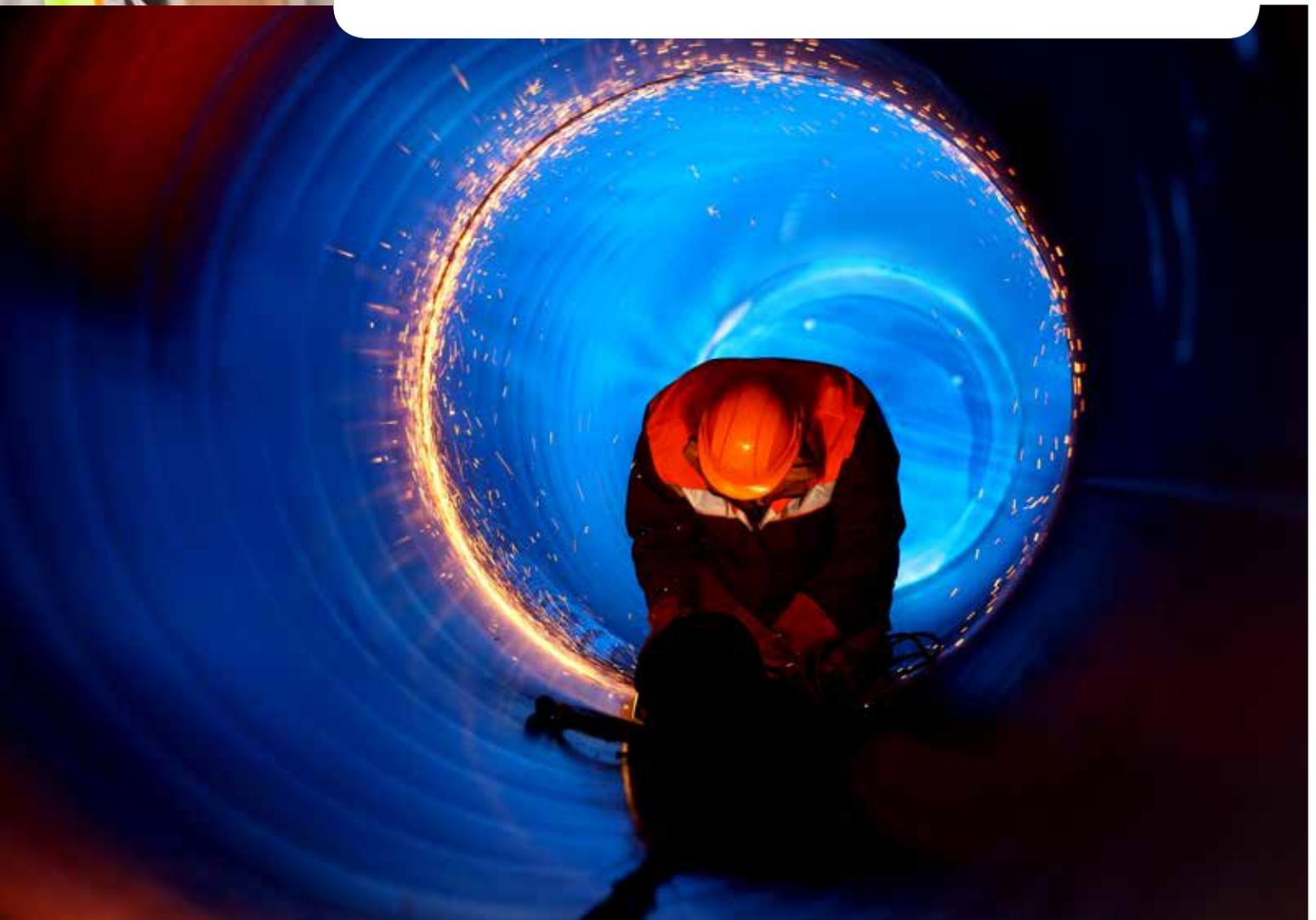






“ Bernard Controls is the true expression of diversity with mastery, making the most of everyone’s personality and intelligence. This is the key to having a team resolutely geared for the future, both for its customers and partners. The wealth of our diversity, embodied in our values, allows each team and every individual to embrace in full confidence the new challenges that lie ahead of us. ”

**Guillaume Bernard**  
Bernard Controls C.O.O.



# BERNARD CONTROLS GROUP

## CORPORATE HEADQUARTERS

4 rue d'Arsonval - CS 70091 / 95505 Gonesse CEDEX France / Tel. : +33 (0)1 34 07 71 00 / Fax : +33 (0)1 34 07 71 01 / mail@bernardcontrols.com

## CONTACT BY OPERATING AREAS

### > AMERICA

#### **NORTH AMERICA**

BERNARD CONTROLS UNITED STATES  
HOUSTON

inquiry.usa@bernardcontrols.com

Tel. +1 281 578 66 66

#### **SOUTH AMERICA**

BERNARD CONTROLS LATIN AMERICA

inquiry.southamerica@bernardcontrols.com

Tel. +1 281 578 66 66

### > ASIA

#### **CHINA**

BERNARD CONTROLS CHINA &  
BERNARD CONTROLS CHINA NUCLEAR  
BEIJING

inquiry.china@bernardcontrols.com

Tel. +86 (0) 10 6789 2861

#### **KOREA**

BERNARD CONTROLS KOREA

SEOUL

inquiry.korea@bernardcontrols.com

Tel. +82 2 553 6957

#### **SINGAPORE**

BERNARD CONTROLS SINGAPORE

SINGAPORE

inquiry.singapore@bernardcontrols.com

Tel. +65 65 654 227

### > EUROPE

#### **BELGIUM**

BERNARD CONTROLS BENELUX  
NIVELLES (BRUSSELS)

inquiry.belgium@bernardcontrols.com

inquiry.holland@bernardcontrols.com

Tel. +32 (0)2 343 41 22

#### **FRANCE**

BERNARD CONTROLS FRANCE &  
BERNARD CONTROLS NUCLEAR FRANCE  
GONESSE (PARIS)

inquiry.france@bernardcontrols.com

Tel. +33 (0)1 34 07 71 00

#### **GERMANY**

BERNARD CONTROLS DEUFRA  
TROI SDORF (KÖLN)

inquiry.germany@bernardcontrols.com

Tel. +49 2241 9834 0

#### **ITALY**

BERNARD CONTROLS ITALIA  
RHO (MILANO)

inquiry.italy@bernardcontrols.com

Tel. +39 02 931 85 233

#### **RUSSIA**

BERNARD CONTROLS RUSSIA

inquiry.russia@bernardcontrols.com

Tel. +33 (0)1 34 07 71 00

#### **SPAIN**

BERNARD CONTROLS SPAIN  
MADRID

inquiry.spain@bernardcontrols.com

Tel. +34 91 30 41 139

### > INDIA, MIDDLE EAST & AFRICA

#### **AFRICA**

BERNARD CONTROLS AFRICA  
ABIDJAN - IVORY COAST

inquiry.africa@bernardcontrols.com

Tel. + 225 21 34 07 82

#### **INDIA**

BERNARD CONTROLS INDIA

inquiry.india@bernardcontrols.com

Tel. +971 4 880 0660

#### **MIDDLE-EAST**

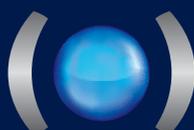
BERNARD CONTROLS MIDDLE-EAST

DUBAI - U.A.E.

inquiry.middleeast@bernardcontrols.com

Tel. +971 4 880 0660

More than 50 agents and distributors worldwide. Contact details on [www.bernardcontrols.com](http://www.bernardcontrols.com)



**BERNARD<sup>®</sup>  
CONTROLS**

[www.bernardcontrols.com](http://www.bernardcontrols.com)