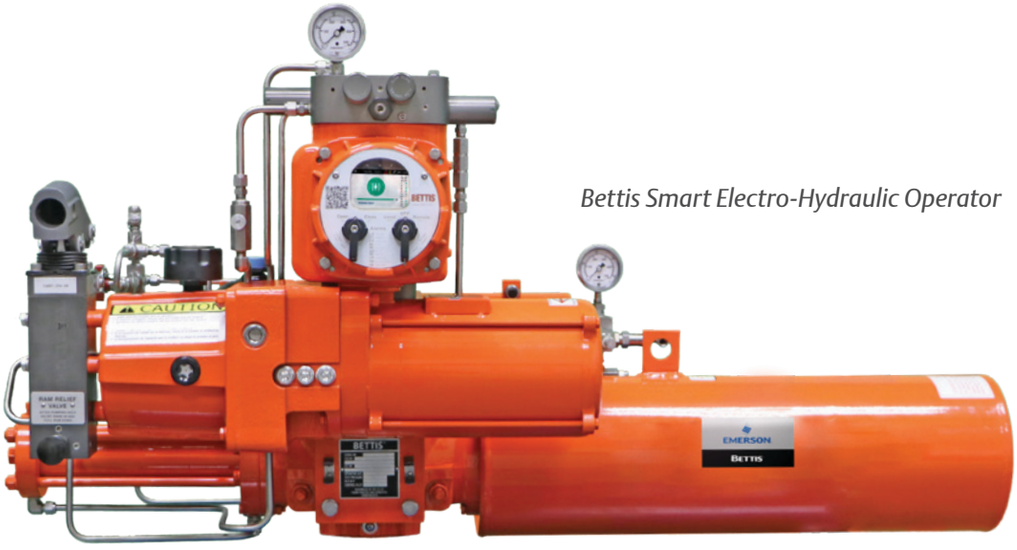
Automate ESD Valves Confidently

Bettis™ EHO Electro-Hydraulic Operator

Intelligent scotch yoke actuation for emergency shutdown (ESD) valves

EMERSON™

Enhance safety with a reliable ESD valve automation solution



Bettis Smart Electro-Hydraulic Operator

When it comes to protecting your people, your facility and your community, seconds matter. A reliable emergency shutdown (ESD) valve automation solution that quickly isolates process failures is a crucial element of any safety system.

The Bettis™ Electro-Hydraulic Operator (EHO) delivers the speed, reliability and efficiency needed for ESD applications. It combines proven final control innovation with the best in critical and process shutdown reliability. Plus, the efficient electric power design operates with low power consumption and no emissions from the actuator, supporting your organization's environmental goals.

BETTIS™

Designed to enhance safety

The EHO is made to mitigate system risk, even in the most severe, inaccessible or remote locations. Its inboard spring design, relief valves and safety features ensure problems are detected and reported well in advance of them becoming a safety issue.

Safety ▶ p4

Reliability you can count on

Reduce production interruptions and prevent problems from developing into costly emergency clean-up efforts. The EHO utilizes a quick, dependable spring-return actuator for the fail-safe stroke, combined with an integrated hydraulic power pack and electronic control module.

Reliability ▶ p6

Lower environmental impact

The EHO combines zero emission electric actuation with the high torque output of modern hydraulic actuation. Units can be powered by solar panels for locations without access to the power grid or when a renewable energy source is preferred.

Zero Emissions ▶ p8

Intelligent actuation made simple

An intuitive display makes setup, commissioning and operation simple. With the Smart EHO, intelligent device diagnostics are available at the point of use with onboard data storage.

Intelligence ▶ p10

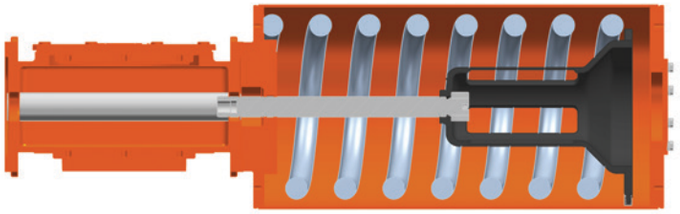
Safety you can trust

For any operation to remain viable, you need to minimize downtime, safeguard your employees, and prevent the loss of assets and revenue. This is why we design our emergency shutdown solutions to meet your most stringent safety and reliability requirements.

The EHO is designed to protect people, equipment and the environment by stopping a process flow as soon as a command signal is received or when power is lost. The device also continually scans for abnormalities in your system and will alert you if one arises.

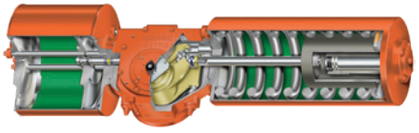
Certified to a number of worldwide hazardous zone safety standards, the EHO's safety features span both operations and maintenance activities. A hazardous enclosure allows the EHO to operate in even the most challenging environments.

Protect your people, equipment and processes

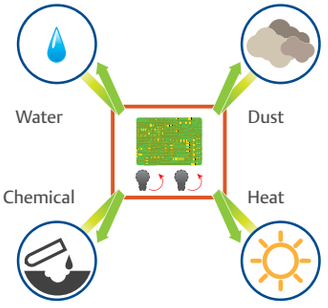


Benefits of both hydraulic and electric technologies. Get the torque and speed capabilities of hydraulic actuators with the remote control capabilities, zero emissions, light duty valve modulation and lack of compressor infrastructure that electric systems offer—all in one package with mechanical fail-safe capabilities.

Enhanced safety for maintenance



G-Series modular, reliable design enables safe field maintenance which reduces service time.

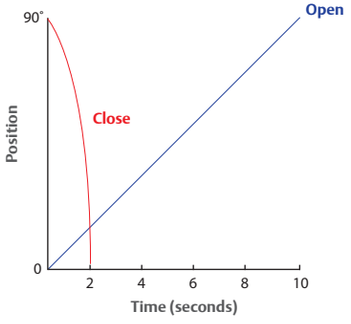


Non-intrusive design allows device configuration to be modified without exposing the electronics to the adverse elements and conditions.

With the dual-sealed Separate Terminal Chamber (STC), installation wiring can be terminated and fuses can be replaced without exposing the internal control components to hostile environmental conditions.

Safe operation in emergency situations

During an emergency power loss, the hydraulic hand pump can be used to stroke the actuator directly or recharge an accumulator.



Field-adjustable flow control valves enable fast closing and precise speed control to meet application requirements.

Safety Integrity Level
SIL3
IEC 61508 / IEC 61511

Safety system is suitable for use up to Safety Integrity Level SIL3 with a single actuator configuration.

Adapt to any environment with a reliable ESD solution

Valve operating systems must operate reliably in all environmental conditions. The Bettis EHO is designed using proven control components to meet or exceed international reliability and safety standards.

With its corrosion-resistant enclosure and low power consumption, the EHO consistently operates even in challenging and hostile environments. State-of-the-art drive shaft technologies in the spring return actuator reduce wear and increase reliability for fail-safe operations. And with low power requirements, it is an excellent choice for locations where power may be scarce.

Built for limited-space applications

A **lightweight design and smaller envelope** make the EHO an excellent choice in applications where space and weight are at a premium. With a compact hydraulic power unit (HPU) integrated into the actuator, the EHO has up to a 25% smaller footprint and 47% lighter weight than comparable systems.

Electrical system designed for reliability

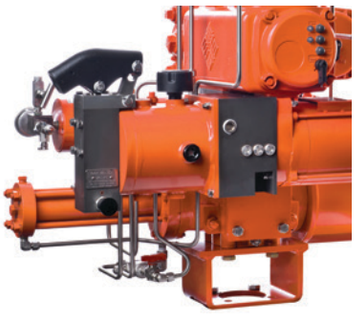
TopWorx™ GO switches provide reliable discrete position indication.

Tested and certified for use in hostile and extreme environments. Can operate in temperatures as low as -40°F to as high as +140°F (-40°C to +60°C).

Hall-Effect Position Sensing Technology

Hall-Effect position encoder on the Smart model provides consistent and accurate position feedback with no calibration loss during power failures.

Mechanical features to extend service life



Corrosion resistant materials ensure longevity. The control enclosure, hydraulic manifold and hand pump are constructed from marine grade aluminum with stainless steel trim.

Actuator and control components in a compact design have been used for decades in critical service applications.

The **field-proven reliability** of the Bettis EHO's mechanical fail-safe G-Series spring return actuator provides the actuation.

Zero emissions with low power consumption

The Bettis EHO operates with zero actuator emissions and is designed with the control versatility to be a direct replacement of your current actuation solution. The self-contained power system provides maximum efficiency while ensuring there is no hydraulic leakage that could cause process disruptions and environmental damage.

Because the EHO has low power requirements, the system can be powered by solar panels, which are available as an optional add-on. Its electric power source also means the EHO can be used in applications where air quality is poor or no reliable air supply is available.

Designed for low power consumption

Minimal power requirements, maximum uptime. Remote and offshore ESD systems are typically designed to use as little power as possible while still meeting exacting uptime requirements. The EHO meets these needs with low power design requirements, a spring-return fail-safe, low power motors and optimally designed electronic circuitry.

Leak-free design reduces environmental impacts

Zero emissions operation prevents noisy or environmentally damaging exhaust gas.

Self-contained design holds the valve in position without internal or external hydraulic leakage, eliminating costly spill cleanup.

Solenoids, speed controls, pressure transducers and pressure switches are integrated in a compact manifold block eliminating external tubing and connections.

Built to operate in remote locations

A **self-contained operating power supply** allows the EHO to be installed in locations where no external pneumatic or hydraulic power sources are available.

Low power motors and ESD solenoids allow the EHO to be used even in power scarce environments with minimal infrastructure.

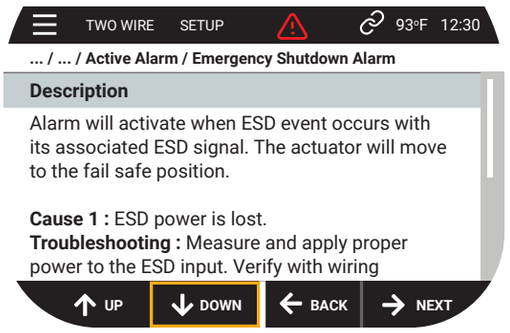
Solar panels are available for areas without existing electrical power.

Intelligent actuation made simple

Upgrading to an intelligent actuation solution should be simple, and your actuator data should be accessible at the point of use. Using the intuitive user interface of the Bettis Smart EHO, you can view and analyze the same data found in the control room on the actuator's local display.

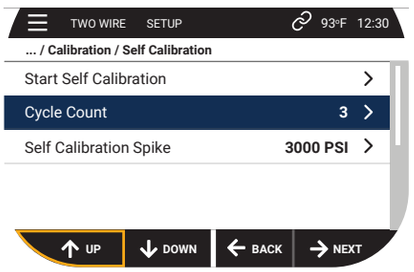
The Smart EHO is compatible with DCMlink Software, the diagnostic, configuration and monitoring tool for Emerson electric actuators. This application allows you to configure, calibrate, monitor and diagnose all your Bettis electric and electro-hydraulic actuators from a central location, independent of protocol, actuator or host system. It also integrates with Emerson's Plantweb™ digital ecosystem, allowing actuator data to feed into enterprise systems.

Intuitive configuration and diagnostics



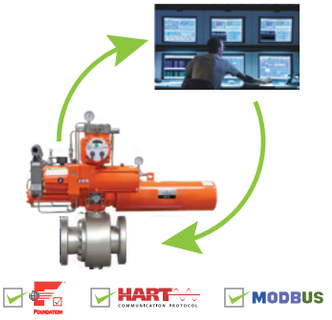
With **over 25 alerts and alarms,** the Smart EHO constantly monitors for abnormal conditions. Descriptions and troubleshooting advice are displayed right on the actuator itself, making it easier and faster for field technicians to resolve issues.

Plug and play with existing infrastructure



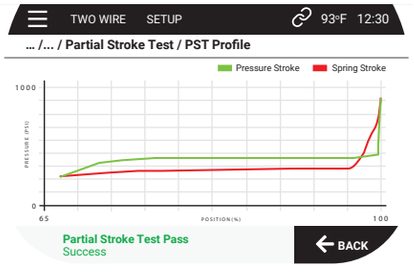
Quick commissioning and easy configuration minimize installation time, avoiding disruptions to your product flow.

Familiar control mode options from current and legacy systems make electrification simple.

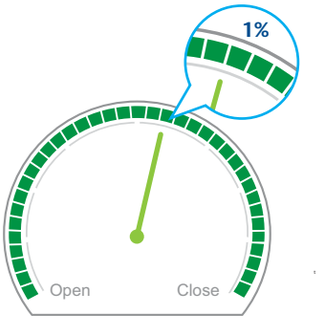


Compatibility with standard protocols allows the EHO to be easily integrated into your communication system.

Intelligent system monitoring



An onboard log with the results of up to 100 past partial stroke tests allow you to monitor system health right on the device.



Position accuracy of <1% guaranteed through 4-20mA input and output for precise control and instantaneous feedback.

Maintenance data viewable on DCMlink includes full internal data-logger records, operating data, alarms, valve torque curves, and provides important information on the performance and operating condition of valves and systems.

Reliability, efficiency and safety for critical ESD applications

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