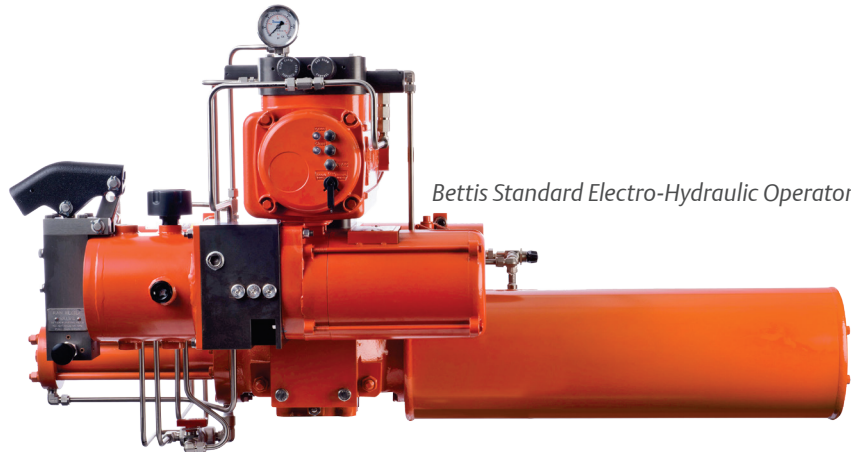
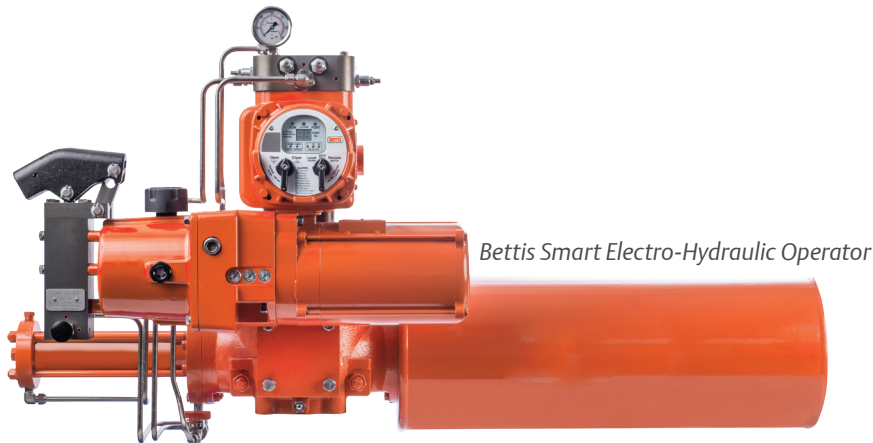


Bettis™ EHO is your reliable ESD valve actuation solution



Bettis Standard Electro-Hydraulic Operator



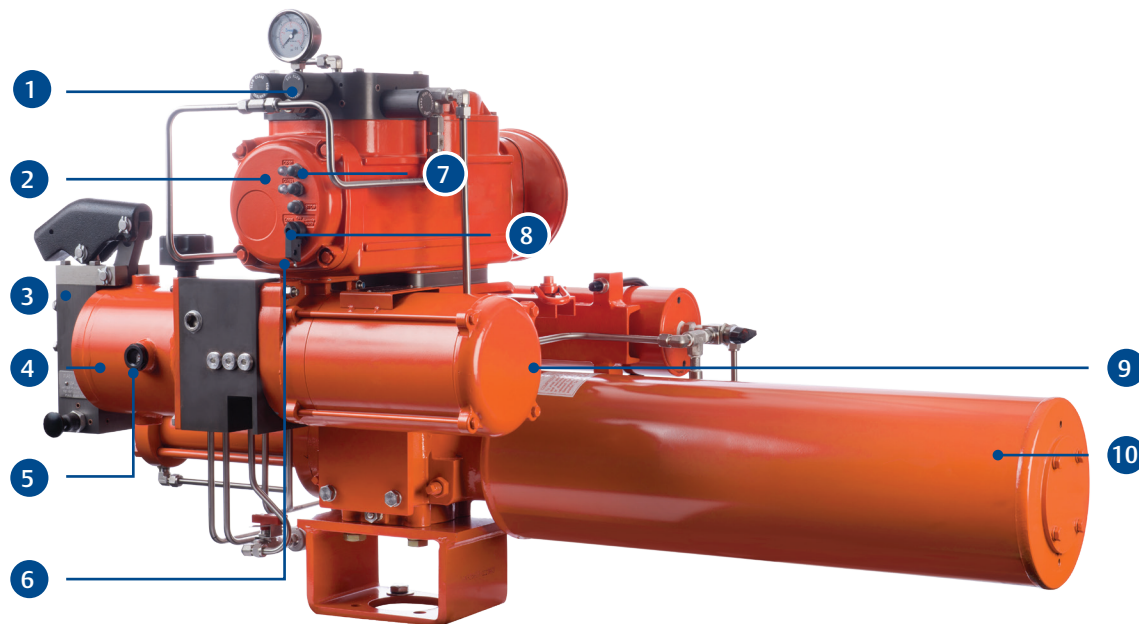
Bettis Smart Electro-Hydraulic Operator

Using time-proven, final control innovation and combining it with the best in critical shutdown and process shutdown reliability, the Bettis Standard EHO for On/Off applications and SMART EHO for modulating applications are an affordable and effective way to maintain and operate shutdowns in severe, inaccessible and remote locations.

Seconds matter in isolating failures that can adversely impact people, environment and communities. The EHO utilizes a quick, dependable spring-return actuator for the fail safe stroke combined with an integral hydraulic power pack and electronic control module ideal for ESD valve operation.



Bettis™ Standard EHO



No.	Description
1	Hydraulic Manifold
2	Local Open/Close Light Display
3	Hand Pump
4	Reservoir
5	Sight Level Gauge

No.	Description
6	Lockable (Local/Off/Remote) Selector Switch
7	Local Open/Close/Stop Push Buttons
8	Electrical Control Enclosure
9	Electric Motor
10	G-Series Hydraulic Spring-Return Actuator

Product Specifications:

Quarter Turn Torque Output:

Spring Return:

- 1,264 to 707,696 in-lbs

Double Acting:

- Up to 2,379,683 in-lbs

Maximum Operating Pressure:

- 3000 Psi (207 bar)

Operating Temperature:

- -20°F to +140°F (-29°C to +60°C)
- -40°F to +140°F (-40°C to +60°C) (optional)

Input Power:

- Multiple AC and 24V DC available

Remote Operation:

Input:

- Discrete: open, close, stop, and ESD

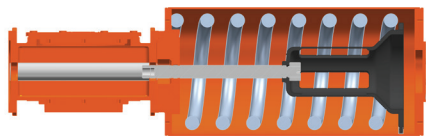
Output:

- Open, close position feedback
- 4 – 20mA hydraulic pressure (optional)

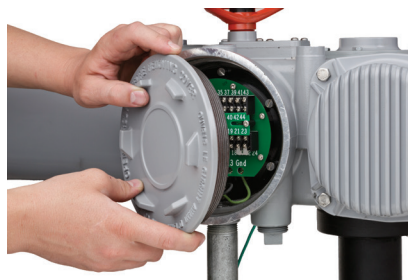
Limit Switches:

- 2 SPDT – 4A @ 120VAC, 3A @ 24VDC
- 4 SPDT – 4A @ 120VAC, 3A @ 24VDC (optional)

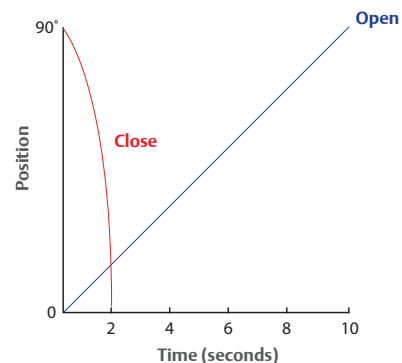
Compatible and reliable using spring power, utility power or solar power



Reliability is maximized by utilizing a spring-return actuator to stroke the valve after power failure or during an emergency event.



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.



Fast-closing or precise speed control is obtained through field-adjustable flow control valves to meet application requirements.

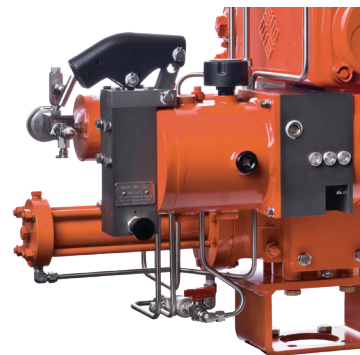
Designed for demanding modulation requirements



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



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



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

Environmental Protection:

- Control enclosure: IP68
- Hydraulic actuator: IP67M
- Motor: IP68
- Reservoir: IP54 (IP66 optional)

Local Operation and Display:

- Local Open/Close/Stop push buttons
- Lockable (Local/Off/Remote) selector switch
- Local Open/Close light display
- Local physical position indicator
- Lockable manual emergency fail-safe control valve

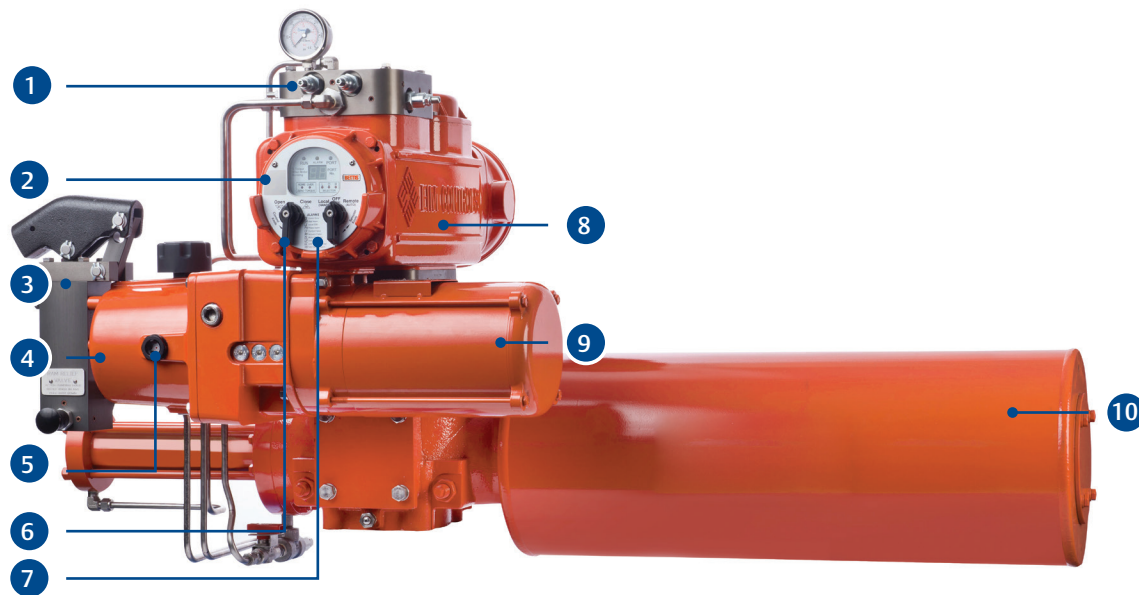
Hazardous Area Classification & SIL Certification

- CSA – Class I, Division I, Groups B (optional), C, and D
- FM – Class I, Division I, Groups B (optional), C, and D
- ATEX – EExd IIB T4
- IECEx – Ex d IIB T4
- SIL-2 Certification

Optional Features

- Accumulators
- Remote Display Module (RDM)
- Circuit breakers (close-coupled or remote mounted)
- Solar panels
- 4-20mA pressure transmitter
- Auxiliary internal pressure switches
- Low power ESD solenoids
- Redundant emergency shutdown

Bettis™ Smart EHO



No.	Description
1	Hydraulic Manifold
2	Digital Display and LED Alarm Indicators
3	Hand Pump
4	Reservoir
5	Sight Level Gauge

No.	Description
6	Local Open/Close Selector Knob
7	Lockable (Local/Off/Remote) Selector Switch
8	Electrical Control Enclosure
9	Electric Motor
10	G-Series Hydraulic Spring Return Actuator

Product Specifications:

Quarter Turn Torque Output:

Spring Return:

- 1,264 to 707,696 lbf-in.

Operating Temperature:

- -20°F to +140°F (-29°C to +60°C)
- -40°F to +140°F (-40°C to +60°C) (optional)

Input Power:

- Multiple AC available

Remote Operation:

Input:

- Discrete: open, close, stop, PST, and ESD
- Analog: 4-20mA positioning (1% accuracy)

Output:

- Discrete: 4 configurable, 1 ESD monitor
- Analog: 4-20mA hydraulic pressure feedback and position feedback

Communication Protocols:

- ModBus, HART™ and FOUNDATION™ Fieldbus
- DCMLink™ remote diagnostics, configuration and monitoring compatibility

Certifications:

- CSA - Class I, Division I, Groups B (optional), C, and D
- FM – Class I, Division I, Groups B (optional), C, and D
- ATEX – EExd IIB T4
- IECEx – Ex d IIB T4
- SIL-3 Certification

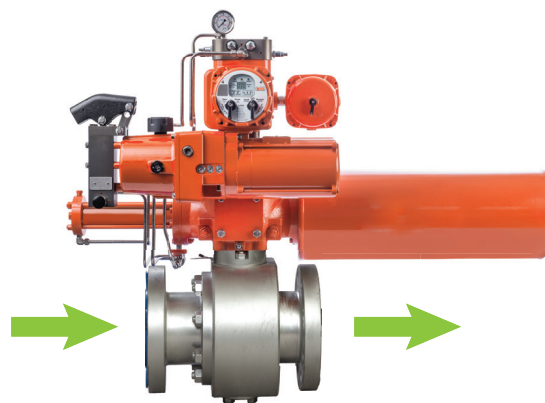
Limit Switches:

- 2 SPDT – 4A @ 120VAC, 3A @ 24VDC (optional)

Provides intelligent ESD system data

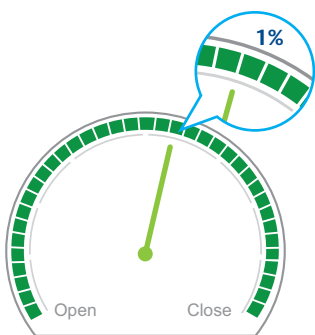


Over fifteen alerts and alarms to keep you informed on failures and abnormal conditions.

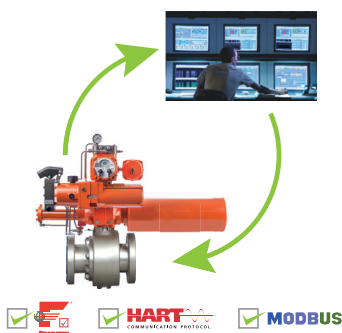


Partial stroke ensures rarely operated ESD valves function properly during an emergency situation.

Designed for demanding modulation requirements and remote locations

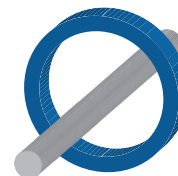


$\leq 1\%$ guaranteed accuracy when the valve needs to be precisely positioned. 4-20mA analog input and output to provide both precise control and instantaneous feedback.



Configurable to integrate into your existing communication system.

Hall-Effect Position Sensing Technology



Precise Hall-Effect position encoder; provides consistent and accurate position feedback with no loss of calibration during power failures.

Environmental Protection:

- Control enclosure: IP68
- Hydraulic actuator: IP67M
- Motor: IP68
- Reservoir: IP54 (IP66 optional)

Local Operation:

- Integrates with DCMLink™ remote monitoring diagnostics
- Lockable (Local/Off/Remote) selector switch
- Hydraulic hand pump manual override
- Lockable manual emergency fail-safe control valve

Diagnostics/Safety

- 15+ different alarms and alerts
- Self-calibration
- Partial stroke test
- Log jam
- Integral overpressure protection
- 4-20mA pressure transmitter
- Integrates with DCMLink™ remote diagnostics, configuration and monitoring software

Local Display

- 2 digit LED display
- LED alarm and alerts display
- Mechanical dial position indicator
- Sight level gauge
- Hydraulic pressure gauge

Optional Features

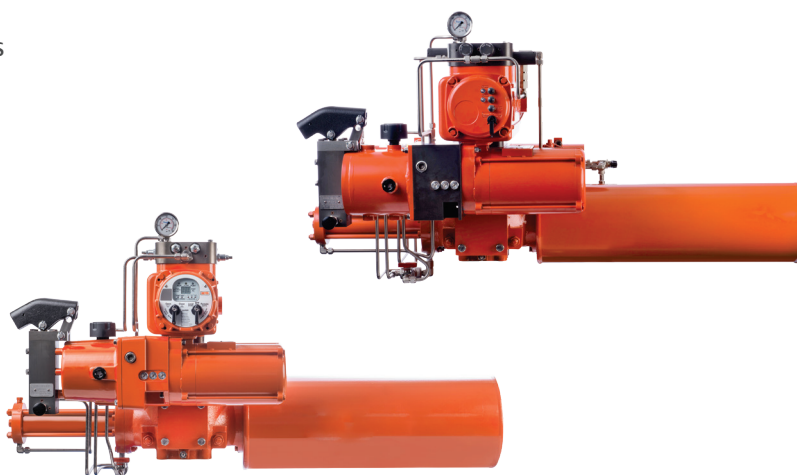
- Accumulators
- Remote Display Module (RDM)
- Circuit breakers (close-coupled or remote mounted)
- Solar panels
- Auxiliary internal pressure switches
- Low power ESD solenoids
- Redundant emergency shutdown

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).

Optimize reliability, energy efficiency, lower operational cost and safety

The Bettis™ EHO Electro-Hydraulic Operator is designed for the toughest environments and critical emergency shutdown applications. With the EHO, you have a field-proven ESD system with one single source of accountability.

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