



**Intelligently and Reliably Control
your Process**

ICON3000™
Intelligent and reliable multi-turn electric actuator



ICON3000: extreme reliability and flexibility.



The ICON3000 is an intelligent multi-turn electric actuator from the Biffi family of actuators. Specifically designed to meet the most challenging valve automation demands of the Oil & Gas, Power, Municipal, and Process industries, the ICON3000 is compliant with a wide range of international standards and is an ideal solution to your plant's safety and reliability requirements.

Basic features such as a double-sealed terminal board, non-intrusive adjustment, data-logging, predictive maintenance capabilities, an advanced display, Bluetooth™ communications interface, and an absolute encoder are always included as standard.

To strive for and maintain maximum levels of process efficiency, your valves always need to function as intended – no matter how much time has passed since you last activated them. Emerson provides its customers with highly reliable and innovative actuator technologies to drive their valves, with the ICON3000 electric actuator fitting the bill by combining robust mechanical versatility with programmable intelligence. Tailor your electric actuators for the depth of control you need in even the most extreme of environments.



Only the most **RELIABLE** actuators should drive your motorized valves.

The ICON3000 operates dependably in the harshest environments with minimal upkeep.

Reliability ▶ p3

Wide **VERSATILITY** to fit most applications.

The ICON3000 can slot right into the valve automation application you have in mind for it.

Versatility ▶ p5

Maintain full **CONTROL** and unlock intelligence in your valve applications.

The ICON3000 allows you to customize the level of control required for your valve automation application.

Control ▶ p7

Maximize **PRODUCTIVITY** with intuitive operation and reduced downtime.

The ICON3000 saves you time and money by being easy to use and maintain.

Productivity ▶ p9



Only the most **RELIABLE** actuators should drive your motorized valves.

Valve actuators absolutely must function all the time, every time – to do otherwise could result in thousands (if not millions) in lost production. Certified and designed to meet international standards, the simple yet rugged design of the ICON3000 ensures maximum reliability and safety even in the most extreme environments. Accordingly, the long service life of the actuator keeps maintenance requirements down to an absolute minimum.

Mechanical durability for a long service life



High-quality and specially-selected materials include an aluminum/low copper aluminum housing, cast-iron thrust bases, and cast-iron reduction gears (with bronze worm wheels where appropriate, to improve gear longevity and efficiency).



Simplified internal gear train is implemented as a single-stage reduction for transmission from motor to output shaft; extremely reliable, highly efficient, and easily maintainable.

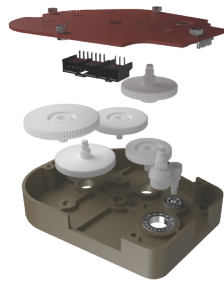


Oil bath lubrication maximizes mechanical component life. Said oil bath need never be replaced nor serviced during the actuator's entire service life.

Electrical system designed with reliability in mind



Simple and robust absolute position encoder sensor with high reliability and accuracy, which allows for position detection even when mains and back-up power are lost. Position accuracy is within 0.1% of true position, and position is recordable up to 8,580 full rotary cycles of the actuator's output shaft.

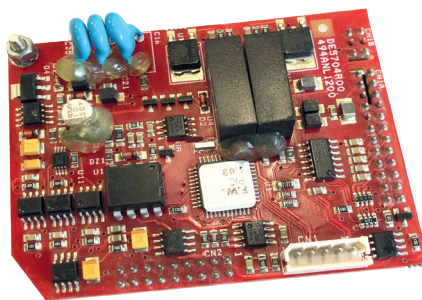


High performance and reliability due to solid-state controls. On the local interface, the push-buttons are robust and offer optional protective silicon covers to defend against build-up of deteriorative particulate over time.

Tested and certified for tough environmental conditions



Wide temperature range rated to working temperatures of -60°C (-76°F) to $+85^{\circ}\text{C}$ ($+185^{\circ}\text{F}$). **Hydrogen corrosion resistance** material protection and certification available.



Integrated heater equipped as standard to prevent damage to electronic boards caused by low temperatures.



Safety system is suitable for use up to Safety Integrity Level SIL 2 (one actuator) or SIL 3 (two actuators, one of which is for redundancy).



Wide VERSATILITY to fit most applications.

The ICON3000 is a versatile electric actuator, possessing the modularity and flexibility required to accommodate the physical compatibility demands of myriad industrial systems. ICON3000 is designed to meet most process requirements and its wide range of sizes offer torque and speed solutions for most valve automation requests.

A wide range of designed-for-purpose external gearboxes allow the ICON3000 to cover the torque requirements of most valve applications, and wide flexibility in orientation and mounting allow for installation of the ICON3000 combined actuator and gearbox “system” into tight and/or awkwardly-dimensioned parts of your plant.

Power and speed for a wide range of valve applications



Non-intrusive, intelligent multi-turn actuator with a user-friendly push-button panel for operation, configuration, and diagnostics.



Wide range of torque and speed (size-specific) from 30 to 1,440 Nm (22 to 1,062 ft lbs), up to 173 RPM.



Wide range of power supply options accommodate 208-575 VAC (3-ph, 60Hz), 220-690 VAC (3-ph, 50Hz), 120-240 VAC (1-ph, 60Hz), 110-230 VAC (1-ph, 50Hz) and 24-120 VDC.

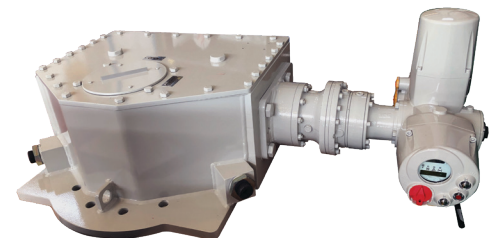
Gears to cover any application



Quarter-Turn Worm Gearbox
Output torque, ON/OFF duty:
 330 to 63,000 Nm (245 to 46,470 ft lbs)
Output torque, modulating duty:
 330 to 27,720 Nm (245 to 20,450 ft lbs)
 Speeds from 9 seconds/90° to 700 seconds/90°



Multi-Turn Spur Gearbox
Output torque:
 1,750 to 57,000 Nm (13,000 to 42,000 ft lbs)
 Speeds from 3 to 43 RPM
 ON/OFF and positioning (inching) duty



Quarter-Turn Scotch Yoke Gearbox
Output torque:
 15,000 to 1,000,000 Nm (11,000 to 737,500 ft lbs)
 Speeds from 32 seconds/90° to 1,700 seconds/90°
 ON/OFF duty



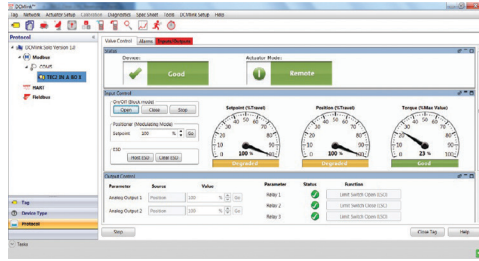
Maintain **CONTROL** and unlock **INTELLIGENCE** in your valve applications.

Your actuators need to do more than simply fully open and fully close valves. The configurable display of the ICON3000 is your interface with the actuator's software, which can be programmed to provide the depth of control that you require for your application. Field controls allow secure communication with site management systems, allowing for remote operation of the actuator.

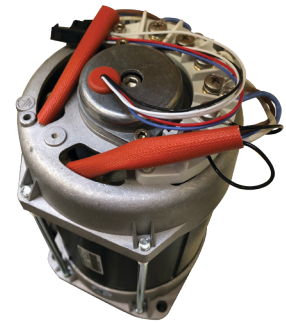
Built-in intelligence



Intelligent Protection against events with the potential to damage the actuator, such as: jammed valves, unseating of “sticky” valves, motor over-heating, “hammering” against a valve obstruction, and instantaneous valve reversal.



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



Speed sensor on the motor is equipped with a microprocessor to accurately record torque data. A thermostat also resides on top of the motor, which trips the motor if it over-heats (caused by the actuator being pushed beyond its rated torque).

All the connectivity you need

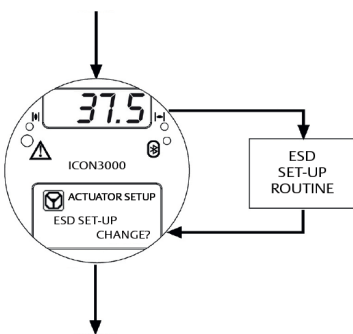


Wide range of networking protocols includes FOUNDATION Fieldbus, HART, wireless HART, Modbus, LonWorks, and PROFIBUS DPV0, DPV1, and redundant DPV2.

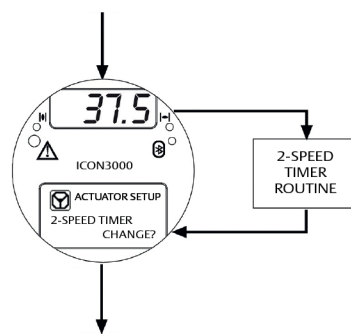


DCMLink connectivity for monitoring, diagnostics, and setup. The ICON3000 Modbus or Hart card (remote) and Bluetooth (local) are fully compatible with the Emerson standard configuration tool, allowing for operation of actuators in the field through the same interface.

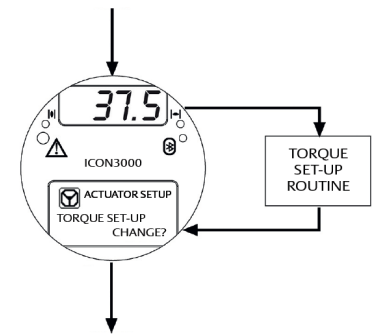
Control at your fingertips



Emergency Shut Down (ESD) signal can override any existing control and move the valve to a predetermined position of your choice (actuator must be connected to main power supply for ESD to function).



2-speed timer routine can extend valve operating time in the opening or closing direction.



Torque and valve position can have their endpoints customized as a function of valve position (anywhere from 0-100%) or set to specific torque values.



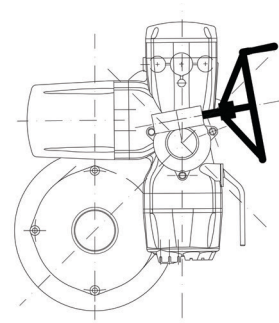
Maximize **PRODUCTIVITY** with intuitive operation and reduced downtime.

Simplicity in actuator design leads not only to improved reliability but also improved ease of use, which in turn improves your productivity. Avail yourself of the easy-to-access maintenance features of the ICON3000 to reduce downtime even further.

Easy to use and interact with



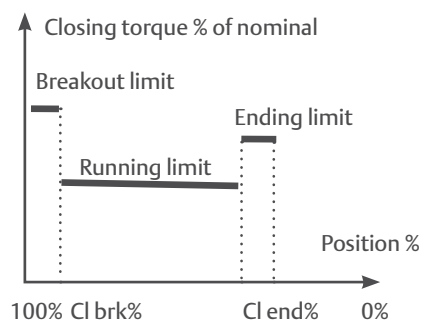
Easily-accessible terminal board is also double-sealed, which ensures maximum protection against dust and humidity.



Handwheel reducer (a side-mounted 10:1 bevel gear) enables easier and smoother manual operation by reducing the load required to turn the handwheel.



Multilingual interface in English, Italian, German, French, Portuguese, Spanish, Russian, and Turkish.

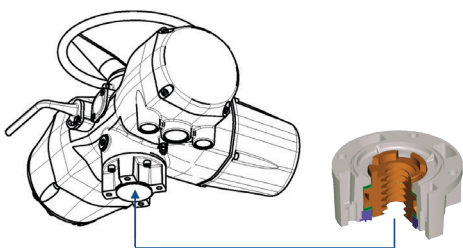


Limit position from 0% to 100% of the open position (0% = closed).

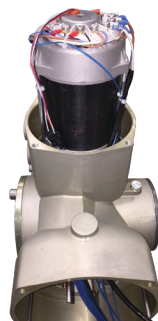


Intuitive user interface requires minimal training to use. The viewing glass is resistant to discoloration from strong sunlight, and the transfective LCD and OLED displays are easy to read in even the brightest or darkest environments.

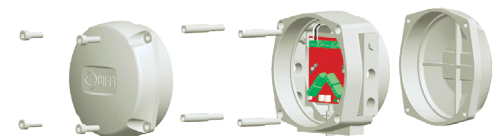
Convenient to maintain



Detachable coupling (thrust base) can be removed from the actuator and mounted to the valve independently, which means that the whole actuator does not need to be spun on to the valve during installation.



Open-frame electric motor is easy to access and is field-replaceable. No oil spillage will occur during motor service as the motor compartment is kept separate from the actuator oil bath.



Integrated bypass unit allows the ICON3000 to be removed from the field without opening the network loop, leaving just a small sealed unit on the ground to maintain bus continuity.

Biffi is a reliable partner for complete actuation solutions



AMERICAS

19200 Northwest Freeway Houston
Texas 77065
USA
Phone: +1 281 477 4100
Houston.Inquiries@Emerson.com

EUROPE

Strada Biffi 165
Fiorenzuola d'Arda (PC) 29017
Italy
Phone: +39 0523 944 411
Biffisales@Emerson.com

MIDDLE EAST & AFRICA

Emerson FZE
P.O. Box 17033
JAFZA South Zone
Dubai, UAE
Phone: +971 4811 8100
actuator.enquiries@emerson.com

INDIA

Plot No. C1 Talegaon MIDC Phase 2
Mindewadi Taluka Maval
Pune 27 Maharashtra 410506
India
actuator.enquiries@emerson.com

ASIA PACIFIC

No. 9 Gul Road #01-02 629361
Singapore
AP.Inquiries@emerson.com

Biffi Italia S.r.l.

Strada Biffi, 165 - 29017 Fiorenzuola d'Arda (PC) - ITALY
Ph: +39 (0)523 944 411
E-mail: Biffisales@Emerson.com

Biffi reserves the right to change product designs and specifications without notice.



www.linkedin.com/company/biffi-italia-srl



www.youtube.com/user/BiffitaliaSrl



www.biffi.it



THE HIGH-PERFORMANCE VALVE MOTION