

Actuators and Controls Product Overview

BIFFI

MORIN

KEYSTONE

WESTLOCK
CONTROLS



Pneumatic Actuators

MORIN

Morin actuators are constructed of ductile iron housing and end caps, 17-4 stainless steel yoke, with either 316 stainless steel barrels for the Series B or steel barrels with Xylan® coating for the Series C. Morin Series S actuators are constructed of stainless steel, offering high levels of corrosion protection.

Morin offers both symmetrical and canted yoke designs to allow suiting the output torque profile to the valve for more efficient and economic operation.

- Scotch yoke design using precision bearings eliminates dead band in the yoke mechanism, providing the greatest torque output at the beginning and end of stroke.
- Teflon® piston bearings, bronze piston rod bushings and output shaft bushings of either bronze or Teflon® provide longer life, help reduce maintenance and require no lubrication.
- Choice of canted or symmetrical yoke design puts the torque where it's most needed.
- Bi-directional travel stops provide accurate valve rotation adjustment.



Series B



Series C



Series S

Series B and C

Supply Pressure: 40 to 160 psig

Output Torques: Double Acting: up to 1,374,700 lb. in.
Spring Return: up to 583,288 lb. in.

Series S

Supply Pressure: 40 to 160 psig

Output Torques: Double acting – to 240,000 lb.in.
Spring return – to 104,125 lb.in.

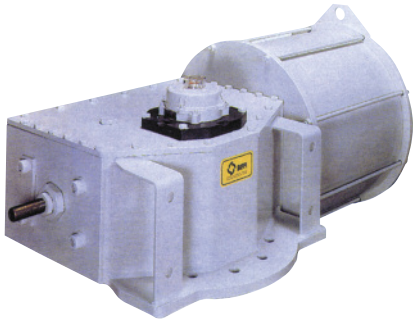
Series MRP, ISO 5211 Mounting

- Compact rack and pinion design delivers maximum output torques in a small compact package.
- Full bearing support on every moving part for long life.
- Unique spring design allows for easy adjustment in the field for different supply pressures.
- Hard Anodized (internal and external) with electrostatic powder coat finish for higher level of corrosive resistance.

Supply Pressure: 40 to 120 psig

Output Torques: Double Acting - to 27,624 in. lbs.
Spring Return - to 10,155 in. lbs.





Series Alga and ALGAS

Biffi pneumatic actuators utilize a scotch yoke design that generates high break torque needed for the automation of many quarter-turn valves. The Biffi actuator can be provided with a symmetric yoke or canted yoke design. The product line has low hysteresis and high response for enhanced modulating services.

- Six bearings provide reliability, smooth operation and extended service life.
- Guide bar supports the transverse forces and helps ensure support of the piston rod. Hard chrome plating on the guide bar helps provide corrosion resistance and minimal friction loads.
- Electroless nickel-plated cylinder bore is designed to deliver maximum corrosion resistance and reliability.

Supply Pressure: 40 to 150 psig

Output Torques: Double Acting: up to 2,655,000 in. lbs.
Spring Return: up to 1,327,500 in. lbs.

(Higher torque levels available)



Series MRP, Direct Mount

- Compact rack and pinion design helps deliver maximum output torques in a small compact package.
- Full bearing support on every moving part for long life.
- Unique spring design allows for easy adjustment in the field for different supply pressures.
- Hard Anodized (internal and external) with electrostatic powder coat finish for higher levels of corrosive resistance.
- Direct mounting to Keystone butterfly valves.

Supply Pressure: 40 to 120 psig

Output Torques: Double Acting: up to 27,624 in. lbs.
Spring Return: up to 10,155 in. lbs.



Series 79U

- Compact rack and pinion design helps deliver maximum output torques in a small compact package.
- Full bearing support on every moving part for long life.
- Encapsulated springs simplify assembly and helps ensure safety and reliability.
- Hard Anodized (internal and external) with electrostatic powder coat finish for higher levels of corrosive resistance.
- Direct mounting to Keystone butterfly valves.

Supply Pressure: 40 to 120 psig

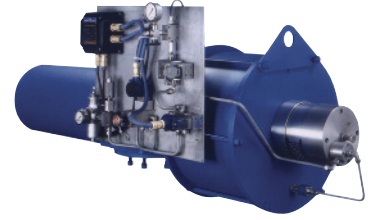
Output Torques: Double Acting: up to 27,624 in. lbs.
Spring Return: up to 10,155 in. lbs.

Pneumatic Accessories

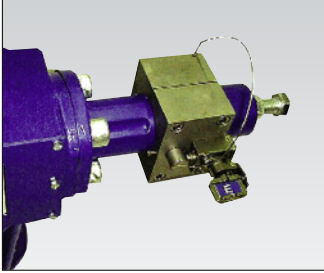
Control Package Solutions

Tyco Flow Control uses advanced engineering technology to design and manufacture pneumatic controls and accessories. The experience and knowledge we've acquired in the actuator industry allows us to meet the highest requirements for control operating systems.

ESD quick acting, control, and other packages are available.



Actuator Optional Accessories (partial listing)



Partial Stroke Test Device (PSTD)

Provides a method of testing ESD packages without shutdown.



Lockout

Integral lockout allows safe shutdowns for maintenance and isolation of systems.



Jackscrew Override (JSO)

Manual operation when power is lost. Simple and effective.



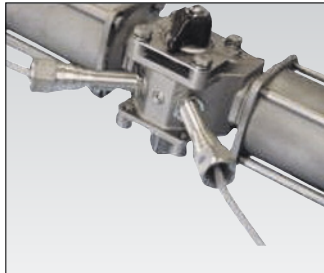
Hydraulic Override (MHP)

Manual operation when power is lost. Includes speed controls.



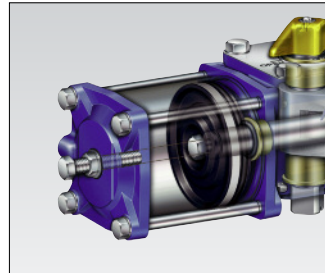
AWWA

Tested per American Waterworks Association C504. Available for pneumatic or water service operation.



Proximity Switch Preparation

Allows installation of cartridge style proximity switches. Leaves top works open for mounting of other devices.



Full Stroke Adjuster

Provides mechanical control of maximum and/or minimum valve stroke.



Epoxy Painting (EX)

Offshore rated, three-part coating system for high level of environmental protection.

Hydraulic Actuators

MORIN

Morin Scotch yoke actuators continue to meet customer needs by using a dependable corrosive resistance material. The HP takes the same proven technology but adapts it for use with high-pressure hydraulics. Morin also offers a complete line of accessories such as lockouts, ESD packages, overrides, and mounting hardware.

- Canted yoke models for torque seated valve requirements.

Hydraulic Supply Pressure: 1500 psig

Output Torques: up to 240,000 in. lbs.

Temperature Range: -22°F to 212°F



Series HP

Digital EPIC Position and Control Transmitters

D410/D420, Position Transmitters, Explosionproof
D430/D431/D450/D451, Control Transmitters, Non-incendive
D460/D470, Control Transmitters, Explosionproof

The EPIC Position Transmitter is a “smart” device with microprocessor-based intelligence providing both 4-20 mA signal for position and digital communications via the HART® and FOUNDATION Fieldbus™ protocols. The Emergency Shut Down/Partial Stroke Testing (ESD/PST) option provides for a discrete output via the Safety Information System (SIS) to control an ESD solenoid with integrated partial stroke test functionality; PST time, configurable PST stroke duration, time/date stamp of test and PST stroke timeout alarm. PST tests can be initiated via HART®, external trigger zones or internal push button. Unlike conventional position transmitters, the EPIC senses valve position without the need for linkages, levers, or rotary and linear seals. Position sensing is performed by non-contacting means via the use of an integrated Hall Effect sensor and magnet assembly.



Quantum Rotary Control Monitors*

764/784/864, Weathertight
765/789/865, Non-incendive
711/722/811, Intrinsically Safe
777/877/360, Explosionproof

Quantum products offer a fully integrated solution for the monitoring and control of process valves. Combining sensors, Falcon low-powered solenoids, junction housings and a local visual position indicator in one compact unit suitable for weatherproof and hazardous location service, Westlock offers an extremely efficient and cost effective method for the monitoring and controlling of rotary and linear valves.

AccuTrak™ Rotary and Linear Position Monitors*

1040/2004 and 9358/9044, Rotary Position Monitors, Weathertight
K-Switch, 9468, Rotary Position Monitor, Non-incendive
5004/5044 and 5050, Rotary Position Monitors, Intrinsically Safe
360, 2007 and 9479, Rotary Position Monitors, Explosionproof
3479 MOD3 and 9881, Linear Position Monitors, Explosionproof
316 Silver Bullet, Linear Position Sensor, All Classes and Groups

The AccuTrak™ family of products offers an integrated solution for the monitoring of process valves. By combining sensors, junction housings and local visual position indication in one compact unit suitable for weatherproof and hazardous location service, Westlock offers an extremely efficient and cost effective method of both monitoring and controlling linear and rotary valves.



* *Stainless Steel, AccuTrak, Quantum, Intellis Network Solutions and Positioners* - please consult your sales representative for the availability of global certifications such as ATEX, IEC, GOST, CSA and InMetro for specific configurations in these product lines, as approvals may vary.

Controls

WESTLOCK
CONTROLS

Stainless Steel Control Monitors and Transmitters*

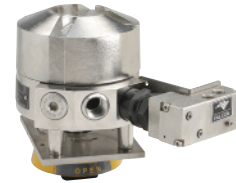
AccuTrak/Quantum 366, Stainless Steel Control Monitor, Explosionproof

Digital EPIC D450, Control Transmitter, Non-incendive

Digital EPIC D470, Control Transmitter, Explosionproof

Touch set cams in all control monitors are hand adjustable, spring loaded and self-locking providing quick calibration of position sensors. Terminal strips are pre-wired and color coded with generous working space for ease of use and extra wiring points for solenoid integration. All units are standard with multiple conduits for easy field wiring and accessory mounting. All AccuTrak™ and Quantum™ products utilize common bolt pattern for mounting to actuators and can be supplied with mounting hardware as needed. Low copper content aluminum enclosures (0.2% maximum copper content) insure robust performance in corrosive environments. Control transmitters utilize non-contact Hall Effect sensing technology and digital position transmission via 4-20 mA signal. Transmitters are available with both HART® and FOUNDATION Fieldbus™ digital communication protocols.

AccuTrak/
Quantum 366



Digital EPIC D470



Digital EPIC D450

Positioners*

ICoT 5200/5300, Intelligent SmartCal Positioners

ICoT 5400, FOUNDATION Fieldbus™ Positioner

K-10 EaziCal, Electro-Pneumatic Positioner

793, Pneumatic Positioners

Westlock Controls offers a variety of solutions for the precise positioning of rotary and linear pneumatic actuators. These positioners are suitable for use with either double acting or spring return actuators. Mounting options include the ModMount®, NAMUR standards (VDI/VDE 3845) or actuator special kits. These units also provide the simplest form of installation and calibration as standard, without the requirement for additional equipment. Positioners are available with both HART® and FOUNDATION Fieldbus™ digital communication protocols.

ICOT 5200



K10 EaziCal



793

Network Solutions*

Intellis Network Solutions, Control Monitors; Network Accessories

Intellis is a family of industrial control field Network Control Monitors which use embedded control systems to automate valves and link field I/O to the host PLC or DCS. Each monitor is assigned a unique address and accepts input/output signals from valve position sensors, solenoids and external alarm and control devices. Hall Effect sensors are utilized for valve position monitoring. Low-power Falcon solenoid valve provide integrated actuation control. Network interface modules Pacts allow communication via a protocol of choice. Westlock Intellis Network Control Monitors are available for linear or rotary applications in all area classifications.



Intellis
Control Monitor

* **Stainless Steel, AccuTrak, Quantum, Intellis Network Solutions and Positioners** - please consult your sales representative for the availability of global certifications such as ATEX, IEC, GOST, CSA and InMetro for specific configurations in these product lines, as approvals may vary.



ICON 2000



WGR



ELGA



ICON

- ICON multi-turn electric actuators with non-intrusive calibration, interrogation or operation via the local control interface, via the digital bus, handheld device with infrared port or handheld device with Bluetooth® wireless technology.
- Standard local controls with three position selector switch, open-stop-close push buttons and three LED indicator lamps.
- Two back-lit LED displays, one for position indication, the other for text messages.
- Self-diagnostics via an array of sensors. Simplifies field troubleshooting.
- Other standard features include a cycle timer, monitor relay, phase protection/correction, data logger and ESD relay.
- 40 digital I/O (inputs/outputs) for control, diagnostics, and status.

Output Torque:

Top-mount Multi-turn: Up to 12,744 in. lb. (1,062 ft. lb.)

Side-mount Multi-turn: Up to 408,000 in. lb. (34,000 ft. lb.)

Side-mount Quarter-turn: Up to 4.4 million in. lb. (366,667 ft. lb.)

Electric Fail Safe Quarter-turn: Up to 40,000 in. lb. spring end torque (3,333 ft. lb.)

F02

The BIFFI F02 series of quarter-turn actuators offers the market an innovative design which bridges the small quarter-turn actuators and the large multi-turn actuators. Features are standard which, up until now, have only been optional.

The universal voltage design allows one actuator to be used with 24 to 240 VDC and 24 to 240 VAC 50/60 Hz. The self locking epicyclic gear train eliminates the need of brakes. Options such as servo controls, feedback modules, monitor relays network cards and local pushbutton stations give the flexibility needed to integrate into most customers systems. ISO 5211 Mounting with Star drive.

Torque Range: 600 to 17,700 lb. in.

Universal Voltage Supply: 24 to 240 volt AC or DC

Optional 3 phase, 50/60 Hz supply in ranges of 208 to 240 VAC, 380 to 480 VAC, or 575 VAC are available.

Environmental Ratings: Standard Weatherproof: NEMA 4/4X/6 (IP66/68) + CSA 139 (CUS)
Optional – UL 873

Hazardous Environments: FM/CSA Approved for NEC500 (Class 1, Div 2) & NEC 505 (Class 1, Zone 1 & 2) + NEMA 4/4X/6 (IP66/68)

Electric Actuators

KEYSTONE

EPI₂

The Keystone EPI₂ series is the most innovative all-in-one actuator solution for the automation of quarter-turn valves and dampers. With a large number of standard features included in a small, compact design, this series of electric actuators greatly simplifies valve, actuator and control system integration. Available with both weatherproof and explosion proof environmental ratings allows for a wide range of applications in most plant environments. The unique epicyclical gear train eliminates the need for mechanical/electrical brakes and handwheel clutch mechanisms. The EPI₂ direct mounts to most Tyco valves, helping eliminate the need for expensive mounting brackets. The EPI₂ can be tailored to fit customer requirements with the addition of options such as servo controls, feedback modules, network cards and local pushbutton station. This flexibility gives customers the ability to meet many of their quarter-turn electric actuator needs with a single actuator line.



Torque Range: 600 to 17,700 lb. in.
Universal Voltage Supply: 24 to 240 Volt, AC or DC

Environmental Ratings:

Standard Weatherproof: NEMA 4/4X/6 (IP66/68) + CSA 139 (CUS) Optional - UL 873	Hazardous Environments: FM/CSA Approved for NEC500 (Class I, Div.2) & NEC 505 (Class I, Zone 1 & 2) + NEMA 4/4X/6 (IP66/68)
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Electric Accessories

Option modules are available for Biffi and Keystone electric actuators that provide additional functionality and/or integration of the actuator into a control system.

I/O Modules for control system integration:

Analog Position control and feedback: 4 to 20 mA or 0 to 10 VDC

Communication bus control and feedback:

- ASi 2.1 / 2.2
- Profibus DPV0
- Profibus DPV1
- Profibus DPV1 Redundant
- Foundation Fieldbus™
- Modbus RTU
- LONWORKS®

I/O Modules for additional functionality:

- Bluetooth® module for non-intrusive communication, calibration and interrogation
- Additional output contacts module
- Local control interface
- Three wire control module
- Lithium battery module



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