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Flow-Tek®
A Subsidiary of BRAY INTERNATIONAL, Inc.

Automation Selection Guide

Automator Products

Pneumatic & Electric
Actuators And Accessories

Pneumatic Actuators

Double Acting & Spring Return

Output Torque: 50 to 29,100 lb-in at 80 psi

Flow-Tek's Automator Series rack & pinion, opposed-piston pneumatic actuators have been designed to incorporate innovative, high performance features into a compact, rugged and reliable modular product line. These space saving, modular units are self contained with integral internal porting that reduces the cost of external tubing which can be easily damaged. Units are suitable for both on/off and throttling applications.

Automator Series Pneumatic Actuators offer the following specifications:

- Double Acting Rotation: 90°, 135°, 180°
- Spring Return Rotation: 90°
- Supply pressure up to 140 psi (10 bar)
- 1/8" - 1/4" NPT pneumatic supply ports
- Temperature Range: -40°F (-40°C) to +200°F (+95°C)
- Body Material: Extruded aluminum alloy, anodized or Stainless Steel
  End Caps: Die cast aluminum alloy with polyester coating or Stainless Steel

Stainless Steel Automator

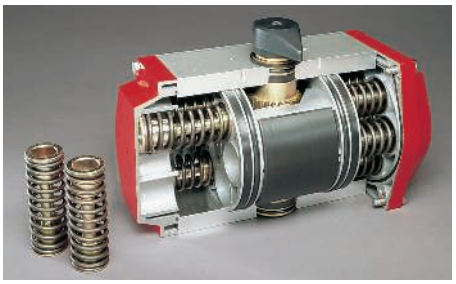
The Automator is offered with stainless steel body, end caps and hardware for superior internal and external corrosion resistance. These units are ideal for chemical, pulp & paper sanitary, food & beverage, marine, mining and pharmaceutical applications.

Automator

Features

The Automator Series pneumatic actuators deliver high output torque in an efficient, space-saving housing. With a low coefficient of friction, the Automator Series provides superior high-cycle, long lasting service. All piston cylinder walls are honed to a very fine finish and piston guides, piston rings and output shaft bearings are permanently lubricated and manufactured from acetal material.

Spring Return



Flow-Tek's spring return models employ a unique cartridge system. The spring cartridges offer safety, simplicity and reduced space requirements. The actuator can be easily disassembled and assembled without cumbersome equipment or any danger to the installer. Converting from double acting to spring return actuation is simply a matter of removing the end caps and adding the unique spring cartridges. The housing length of the spring return model is the same as the double acting model, except size 48 units.

Position Indicator / Manual Override

Position indicators provide clearly visible local indication of valve position through the full range of travel. With removal of the position indicator, the double D shaft is readily accessible for manual override of the actuator when required.

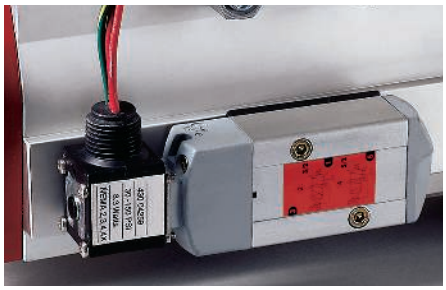
Actuator / Accessory Mounting

All Automator Series actuators comply with ISO 5211 standards for mounting of actuators to valves. A double square bore (star) in the ouput shaft is standard. Actuators meet NAMUR standards (VDI/VDE 3845) for accessory mounting.

Integral Travel Stops

Adjusting screws that contact a cam assembly on the output shaft precisely limit travel of the actuator to specific degrees of rotation. The travel stops permit bidirectional adjustment of actuator movement in both the open and closed positions.

Accessories



4-Way & 3-Way Solenoid Valves

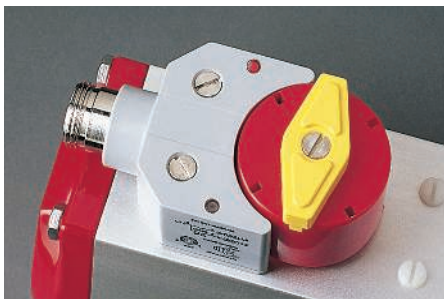
For electrical operation of pneumatic actuator on-off functions, Flow-Tek 4-Way Solenoids are direct mounted to the actuator by NAMUR interface, with no external tubing required. Both waterproof (NEMA 4) and explosion proof (NEMA 4,7,9) housings are standard. NPT and IP65 DIN connections are offered with both single and dual coils. The air supply connection is 1/4" NPT and the electrical connection is 1/2" NPT. A manual override lever is located on the top of the valve body. A 3-Way Solenoid is also available, please consult Flow-Tek factory.

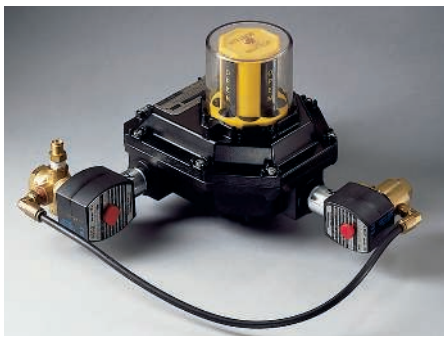
Moniteur Position Indicator

The Moniteur Series signals actuator and valve position to local and remote stations. The units have been designed for ease of wiring and adjustment in the field. The monitors can be mounted directly to the Automator pneumatic actuators or to manual valves. Features include completely enclosed wiring, dual conduit entries, stainless steel fasteners and a high visibility Beacon for local valve position indication throughout the full range of travel. A wide range of switches are available including mechanical switches and proximity sensors. Units are available in waterproof (NEMA 4,4X) or explosion proof (NEMA 4,4X,7,9) housings. NAMUR shaft is standard. All units are UL listed.

ProxSensor Position Indicator

The Flow-Tek 2N1 ProxSensor provides 2 inductive proximity sensors in 1 self-contained, fully sealed, compact enclosure. The 2 sensors are completely en-capsulated with epoxy resin in a nylon enclosure for superior moisture, chemical and corrosion protection. Features include open & closed LED indicators, high visibility pointer for local position indication, nonmagnetic target and multi-pin electrical cable connector. The ProxSensor mounts directly to Flow-Tek pneumatic actuators or can be mounted to manually operated valves. AC, DC and NAMUR intrinsically safe versions are available. AC Sensor units operate on 20-250 VAC with a maximum load current of 500 mA. DC Sensor units operate on 10-65 VDC with a maximum load current of 200 mA.





Dribble Control System

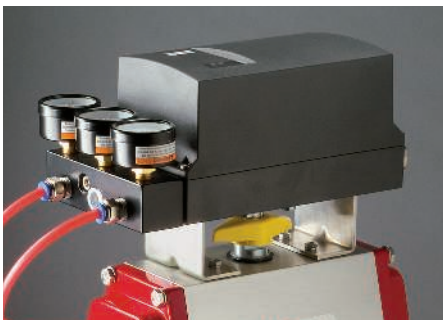
Flow-Tek's DCS effectively converts a ball valve into a two-stage shutoff valve for exact filling or metering of vessels and flow dampening. The two stage system is a complete unit consisting of a limit switch, a 3-way solenoid valve, a 2-way normally open solenoid valve and a spring return pneumatic actuator. The DCS precisely reduces flow rate for filling operations and reduces water hammer for dampening services. Solenoids are rated at 120 VAC-60-Hz. Waterproof (NEMA 4, 4x) and explosion proof (NEMA 4, 4x, 7 & 9) assemblies are available.

Pneumatic Positioners & Electro-Pneumatic Positioners

Flow-Tek Positioners are available in pneumatic, electro-pneumatic, explosion proof and fail freeze design.

Pneumatic Positioners are constructed with a NEMA 4X cast aluminum housing that is polyester coated for superior corrosion protection. With non-interactive span and zero adjustment, and an external zero adjustment, calibration is simple and time saving. These units provide accuracy, speed of response and repeatability to meet the most demanding industry standards for control. Optional features include a position feedback module, a gauge package, special cams for various control ranges and a raised indicator.

Flow-Tek's Electro-pneumatic Positioners offer precise, microprocessor driven flow control and advanced communication combined with the lowest air consumption on the market. For use with either double or single acting actuators, these positioners can accept an analog 4-20mA, Hart, Foundation Fieldbus or Profibus PA input signal. Features include an LCD display, keypad, auto calibration and adaptive control. Both waterproof (NEMA 4,4X) and explosion proof (NEMA 4,4x,7,9) housings are available.



All Flow-Tek Accessories comply with NAMUR recommendations (VDI/VDE 3845) as standard.

Electric Actuators

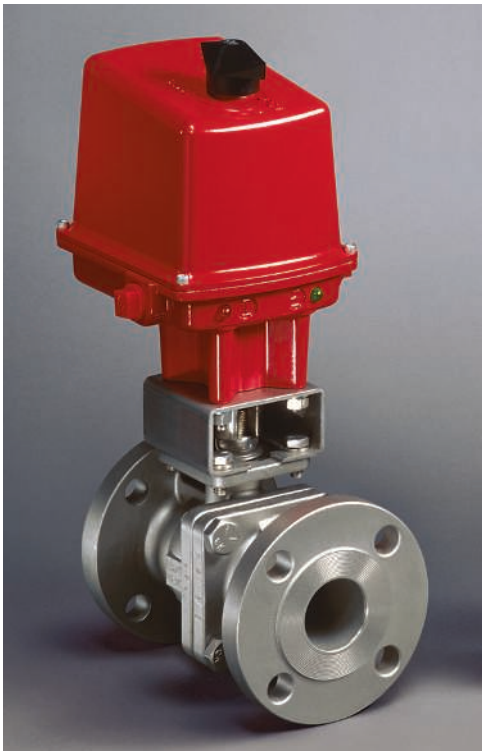
Rugged, Low Cost Electric Actuators

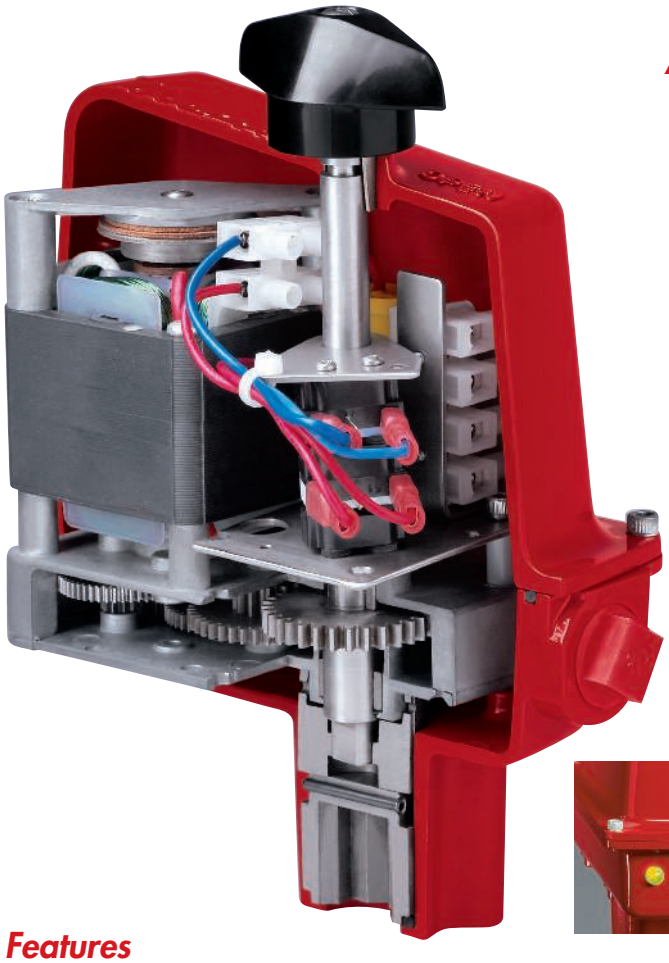
Three on-off models with 100, 300 or 600 lb-in Output Torque

Flow-Tek has specifically engineered the Automator Series 73 for convenience. Designed to offer easy, interference free access to terminal block wiring and cam adjustment, the Series 73 greatly reduces field start-up time. Installation and maintenance procedures can be performed with assured ease and safety.

Series 73 Electric Actuators offer the following specifications:

- Low profile, light weight waterproof housing designed to meet NEMA 4, 4x (IP 65) specifications
- 120 or 220 VAC single phase permanent split-capacitor reversible induction UL listed motor, 24 VDC motor optional
- 90° reversible rotation
- Two 1/2" NPT conduit entries
- Temperature Range: -40°F (-40°C) to +150°F (+65°C)
- Body Material: Die cast aluminum alloy with corrosion resistant polyester coating
- Limit Switches: 220 VAC, 10A, 1/2 HP
- Terminal Strip: 14-28 AWG, 105°C, 300V minimum rated wire





Automator Series 73

Features

Two LEDs, one for open and one for closed, are located on the unit side. The LEDs light up either red or green when the valve reaches the open and closed positions. Beside each LED, graphic icons indicating open and closed have been molded into the housing. The permanently lubricated spur gear train is composed of precision cut, multi-staged gears and shafts that will withstand locked rotor conditions. All AC motors feature an internal break. When power to the actuator is cut off the break stops the motor and holds the valve in position until power is restored. The Series 73 has two SPDT switches for AC motor control as standard. Two optional auxiliary switches, a heater and quick connect cordsets are available.

Position Indicator / Manual Override

Provides clearly visible local indication of valve position through the full range of travel. Open and Close lettering and a direction of travel arrow are molded into the housing for easy reference and permanent position indication. With removal of the position indicator, the double D shaft is readily accessible for actuator manual override when required.

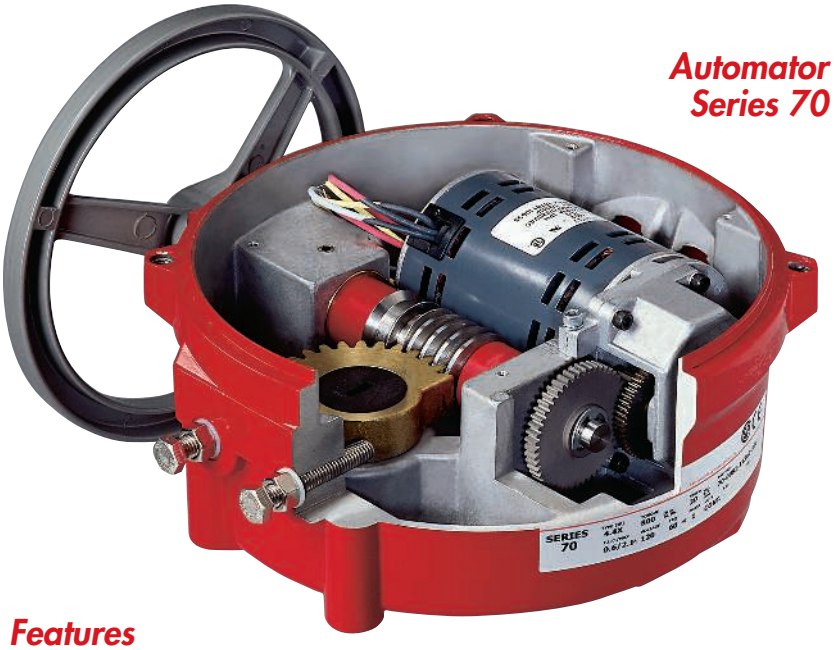
Actuator Mounting

All Series 73 actuators comply with ISO 5211 and NAMUR recommendations (VDI/VDE 3845). A double square bore (star) in the ouput shaft is standard. The actuators can be mounted and operated in any position.

Cams & Terminal Block

Cams are infinitely adjustable by a Hex key. Standard factory setting allows 90° reversible rotation between open and closed positions. The lever operated terminal block has been designed for ease of customer wiring. Terminal numbers are clearly marked. The block has been placed near the two conduit entries with ample room for running wire leads.

Electric Actuators



Automator Series 70

Features

The Automator Series 70 features a permanently lubricated self-locking worm and worm gear drive train located in a low profile UL NEMA 4,4X listed die cast aluminum housing. Additional features include externally adjustable travel limit stops and captive housing screws.

Position Indic ator & Manual Override

The Series 70 features a highly visible valve status display. Prominently labeled and color coded, the display indicates valve position through the full range of travel. Made of high impact, heat and chemical resistant clear polycarbonate, this display withstands caustic washdown and offers excellent corrosion protection. A manual override handwheel is standard on all models – a simple pull engages the handwheel for manual operation. When engaged, electrical power to the motor is cut off by the power cutout switch. Pushing the handwheel in re-engages the motor for power operation.

Actuator Mounting

All Series 70 actuators comply with ISO 5211 and NAMUR recommendations (VDI/VDE 3845). A double square bore (star) in the ouput shaft is standard. The actuators can be mounted and operated in any position.

Cams & Terminal Block

Patented, color–coded cams are infinitely adjustable by finger touch or screw driver. Standard factory setting allows 90° reversible rotation between open and closed positions. The terminal block has been designed for ease of customer wiring with clearly marked terminal numbers.

Travel Limit Switches

Two SPDT switches for motor control are standard. Two optional auxiliary switches are available. Switches are clearly labeled open or closed and are easily accessible.

Adjustable Torque Limiting Switching System (OPTIONAL)

The torque limiting switching system consists of 2 SPDT mechanical switches and 2 factory calibrated adjusting cams. The switches independently respond to predetermined loads in both the open and closed travel directions by sensing the movement of the worm shaft, and interrupting the electrical power to the motor. The switches can operate at any point of actuator travel.

Premier Electric Actuators

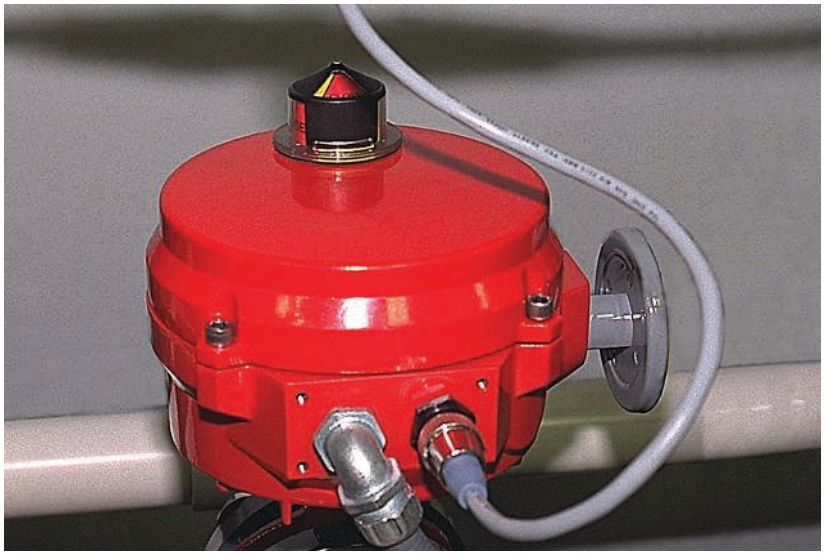
Eight on-off models with Output Torque from 300 to 6500 lb-in

Thorough research and many years of field experience have gone into the development of this state- of-the-art actuator – the product of the future. This design offers the advantages of greatly reduced space requirements, lighter weight and ease of installation and maintenance when compared to other electric actuators. Components not requiring customer access are protected underneath a cover plate for added safety and convenience.

Series 70 Electric Actuators offer the following specifications:

- Waterproof or explosion proof housings designed to meet NEMA 4, 4x (IP 65) or NEMA 4,4x,7,9 specifications
- 120 or 220 VAC single phase permanent split-capacitor reversible induction UL listed motor, 24 VDC motor optional
- 90° reversible rotation
- Two 1/2" NPT conduit entries
- Temperature Range: -40°F (-40°C) to +150°F (+65°C)
- Body Material: Die cast aluminum alloy with corrosion resistant polyester coating
- Limit Switches: 220 VAC, 5A, 1/10 HP
- Terminal Strip: 14-28 AWG, 105°C, 300V minimum rated wire
- Options: Torque Limiting System, Heater to prevent internal condensation, Servo for modulating control, Control Station for manual local electrical operation

Digital Controls

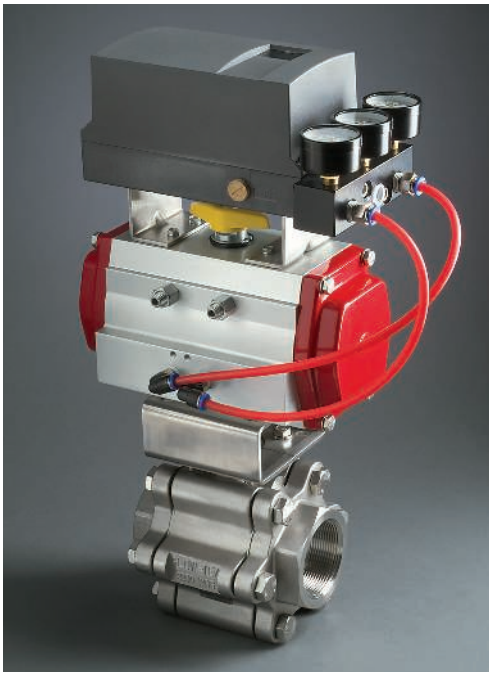


Automator Series 70 Digital Electric Actuators

The Flow-Tek Series 70 Electric Actuator can be equipped with a digital Servo for precise valve positioning and superior flow control. Two digital units are offered – an Analog Servo Plus II unit and a DeviceNet Servo unit. The Servos consist of a circuit board and feedback potentiometer assembly.

Analog Servo Plus II The analog Series 70 features the Servo Plus II that delivers all the benefits of digital electronics to an actuator that responds to analog signals. The unit positions the valve in response to an analog com-mand signal and produces an analog output signal of actual valve position. A microprocessor constantly compares the com-mand signal to the actual valve position and makes precise adjustments until the two measurements match within the user-selectable deadband. The Servo Plus II electric actuator features self-diagnostics checks and ***one touch*** calibration. With the touch of a button, the calibration module moves the actuator to the open and closed positions until the travel limit switches are reached. The optional Configuration Tool software visually presents via a PC actuator operational conditions and parameter settings, and allows the user to easily make adjustments.

DeviceNet Servo The Series 70 DeviceNet Servo is microprocessor controlled, continually responding to commands from the process controller. Information such as valve position, limit switch positions, and other parameters is supplied through a single network address (MAC ID). Each DeviceNet scanner card in a PC or PLC allows up to 64 devices to communicate with each other over a single DeviceNet cable. Multiple scanners can be used to connect as many devices as required. The DeviceNet Servo is easy to install and configure, similar to connecting a printer to a personal computer. Field wiring is accomplished by connecting AC power to the actuator motor and plugging in the DeviceNet connector. Configuration is achieved with the Electronic Data Sheet files and commercially available software. This unit is fully ODVA (Open DeviceNet Vendor Association) compliant.



Automator Digital Controlled Pneumatic Actuators

Flow-Tek's digitally controlled, intelligent Electro-pneumatic Positioners offer precise, microprocessor driven flow control and advanced communication. These units feature the lowest air consumption on the market, therefore operating costs are greatly reduced. Positioners that accept an analog 4-20mA or a BUS network input signal are available. BUS network protocols include Hart, Foundation Fieldbus and Profibus PA. Features include an LCD display and keypad that ease control function adjustments, auto calibration and on-line adaptive control that increases efficiency and service life. The modular line is easily customized for specific applications. Housings are available in waterproof (NEMA 4,4X) and explosion proof (NEMA 4,4x,7,9) and intrinsically safe versions.

Note: For additional technical information refer to Flow-Tek Technical Bulletins in the Product Manual in the Actuators & Controls section.

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