

Flow- Quip

**A Critical Service
Valve Actuator Company**





“Flow-Quip is a valve automation company that has committed the people, technology and capital to develop a wide range of critical service valve actuators and automation systems to meet the stringent demands of modern plants and pipelines.”

***Milton T. Fore
President***

Flow-Quip

Critical Service Valve Automation From *Flow-Quip*



Modulating

Solar Powered

Stored Energy

Linebreak Protection

ESD[®] Valve Automation

Hydraulic Power Units



ESD is a registered trademark of Flow-Quip, Inc.

Rotary Actuators

Fail-Safe Operation For **Ball Valves** • **Plug Valves** • **Butterfly Valves** • **Dampers**



Flow-Quip Rotary Series Actuators are designed to provide direct-mounted, compact, powerful fail-safe automation for a wide range of quarter-turn valves and dampers. **Flow-Quip's wide range of rotary actuators eliminates the need for stored air, high pressure natural gas or nitrogen power sources, to substantially reduce field maintenance.** They are always ready for emergency service and can be frequently operated for normal automation duty.

All rotary units utilize a powerful self-contained electro-hydraulic power module that pressurizes the hydraulic cylinder(s) and causes actuator rotation. The module is enclosed in a weatherproof lockable enclosure which has an easily removable cover should maintenance be needed. A wide range of rugged high-duty motors and electrical ratings are available to meet the requirements of the application. Torque is produced by a scotch-yoke torque mechanism with a sealed center-body for high torque output. A direct-mounted limit switch and a visible position indicator beacon give actuator position indication.

SR SERIES **Spring Return**

SR Series Actuators incorporate an electric motor hydraulic drive to stroke the valve in one direction, and a powerful self contained spring to stroke the actuator in the opposite direction. The security of spring return operation gives SR Series actuators high reliability and mechanical simplicity.

SE SERIES **Stored Energy**

SE Series Actuators utilize an electric motor driven hydraulic power module to generate and store hydraulic energy. When sufficient pressure is held in storage the system stops the motor which maintains a stand-by mode until more hydraulic energy is needed. When fail-safe operation is required, hydraulic energy is drawn from the self-contained accumulator storage unit and operates the actuator. After operation, the power module again regenerates stored energy for future stroking needs. Multiple operations of the actuator are possible utilizing stored energy. Even without electrical power 2, 3, 4 or more fail-safe actuator operations can be achieved with SE Series actuators.

M DRIVE SERIES **Motor Driven Actuators**

The **M-DRIVE Series Actuators** are powered by a bi-directional motor driven hydraulic pump which strokes the actuator in both directions. Using DC motors and simplified hydraulic circuitry the M-DRIVE Series is a cost effective solution for systems with stand by battery systems for fail-safe operation.

man POWER SERIES **Manually Operated Fail-Safe**

manPOWER Actuators utilize a powerful self-contained manual hydraulic module that pressurizes a hydraulic cylinder and causes actuator rotation. A powerful self-contained spring strokes the actuator in the opposite direction. The hydraulic module may be enclosed in a weatherproof lockable enclosure, which has an easily removable cover should maintenance be needed.



Linear Actuators

For Wedge Gate Valves • Pipeline through Conduit Valves • Globe Valves



SE Series with separate Power Module.



SE Series with self-contained Power Module.

Flow-Quip Linear Actuators are designed to provide direct yoke mounted, powerful fail-safe automation for a wide range of gate valves. **Their wide range of fail-safe actuators eliminates the need for stored air, high pressure natural gas or nitrogen power sources, to substantially reduce field maintenance.** They are always ready for emergency service and they can be regularly operated for normal automation duty.

All Flow-Quip Linear units utilize a powerful, compact electro-hydraulic Power Module that pressurizes the hydraulic cylinders and causes actuator stroking. The Power Module is either mounted separate from the valve, or self contained on the valve. Both configurations are shown here. A wide range of rugged high-duty motors and electrical ratings are available to meet the requirements of each application. Thrust is produced by a heavy duty linear cylinder with a direct drive coupling and adjustable stroke mechanism. Direct-mounted hermetically-sealed limit switches and a highly visible position indicator make these actuators ideal for shop or field mounting.

SR SERIES **Spring Return**

SR Series Actuators incorporate an electric motor hydraulic drive to stroke the valve in one direction, and a powerful self-contained spring to stroke the actuator in the opposite direction. The security of spring return operation gives SR Series actuators high reliability and mechanical simplicity.

SE SERIES **Stored Energy**

Type **SE linear Actuators** utilize an electric motor-driven hydraulic power module to generate and store hydraulic energy. When sufficient pressure is obtained in storage, the system stops the motor and it maintains a stand-by mode until more hydraulic energy is needed. When fail-safe operation is required hydraulic energy is drawn from the self-contained accumulator storage unit to operate the valve. After operation the power module again regenerates stored energy for future stroking needs. Multiple operations of the actuator are possible utilizing stored energy. Even without electrical power 2, 3, 4 or more fail-safe actuator operations can be achieved with SE linear actuators.

M DRIVE SERIES **Motor Driven Actuators**

The **M-DRIVE Linear Series** is powered by a bi-directional motor-driven hydraulic pump to stroke the actuator in both directions. Using DC motors and simplified hydraulic circuitry, the M-DRIVE series is a cost-effective solution for systems with stand-by battery systems for fail-safe operation.



Solar Powered Actuators

Remote SCADA Control • Fail-Safe Stored Energy



For the reliable automation of remote pipeline valves where electrical power is not available or is unreliable, Flow-Quip Solar Powered actuators should be considered. Flow-Quip engineers custom-size solar arrays for each application so that these systems will provide reliable autonomous control for a wide range of pipeline valves.

For valve actuator power, Flow-Quip utilizes their wide range of low power electro-hydraulic rotary or linear actuators. They can be field or shop mounted on a wide range of pipeline gate or ball valve sizes. Each system is then custom engineered and built to fit the application.

A long list of options includes:

- Fast valve stroking times
- Stored energy for multiple valve operations without recharge
- Interface with, and power for, site-mounted SCADA units, signaled from a remote control center
- System monitor functions to remotely display operating status
- Manual override for valve operation during maintenance or start-up
- Helicopter lifting lugs for transportation to remote areas without roads
- Power Module enclosures with hinged doors or walk-in portable buildings for ease of site maintenance and security

Eliminate the need to run commercial power for long distances to remote valve sites. Let the Flow-Quip Solar Power option provide reliable valve automation when there is no power.



Digital Valve Control

**Electro-hydraulic modulating actuator system,
microprocessor driven for fast accurate control service.**



Flow-Quip's DVC Series Actuators provide the reliability, power and accuracy to modulate and position a wide range of rotary and linear control valves. Valves from 2" to 42" can be easily automated for control service.

The DVC microprocessor controller continually measures valve position vs. valve command signal from the process control system. When the valve command signal changes the controller sends a "position error" signal to the hydraulic control pack to move the valve to a new position. Once the proper position is reached the "position error" signal is cancelled and the valve is hydraulically "locked" in place for extremely stable control.

High torques, high thrust or high speed valve operations are no problem for DVC actuators.

Applications for the DVC include:

- Pipeline pump station suction and discharge pressure control
- Measurement systems flow control
- Water level control in geothermal power plants
- Turbine speed control in thermoelectric combined cycle power plants
- Steam lines in power plants

A wide range of options are available on DVC actuators, including:

- Local Controls
- Manual Override
- Fail-Safe valve operation from a separate digital signal
- Valve position re-transmission by 4-20 ma signal
- Two wire communication via various serial communication protocols



Hydraulic Power Units

Valve Automation • Stored Energy • Compact Skid Mounted



Flow-Quip **Hydraulic Power Units, (HPUs)**, are used in a wide range of applications around the world. For multiple valve automation, they provide an economical and reliable way to power groups of valves from one central power supply. When fast valve operation without shock, fail-safe reserve power, accurate speed control or precise valve modulating are required, Flow Quip's HPUs become a logical selection.

Starting with the application requirements, Flow-Quip engineers custom-design a system that is ideally suited to the job. Stored energy requirements, electrical area classification, electric power availability and speed of valve operation are all considered as the design develops. Special service requirements such as marine environments, space limitations and environmentally safe hydraulic fluids are all within the Flow-Quip scope of supply.

Once the system configuration is fixed, Flow-Quip fabricates each system from the highest quality fluid power components. Complete factory testing is carefully conducted and documented to insure proper system performance. If requested, our field service engineers will follow the system into the field for start-up assistance and personnel training.



Company Profile



Flow-Quip, Inc. was founded in 1967 in Tulsa Oklahoma as a manufacturer of high quality valve automation products and systems. We specialize in the design, engineering, fabrication and assembly of complex custom-engineered valve automation systems. The highest standard of quality control is constantly maintained.

Flow-Quip, Inc. has assembled a team of qualified and experienced sales, engineering and manufacturing personnel, current in applied technology and competent in their professional trade to meet the demands of today's industry. All of our products and services are backed by skilled inside sales, customer service and technical personnel to process customers' orders in a timely and quality-controlled manner.

Our experienced field service technicians are available for supervision of installation, troubleshooting and maintenance. We also specialize in the training of site personnel on our products. Personnel are available 24 hours a day, seven (7) days a week.

Flow-Quip or its representatives are available to survey existing valves, recommend new actuator replacements, supervise installation or provide turn-key installation of new actuators on customers existing valves.

Flow-Quip operates from our 20,000 sq. ft. (1,858 sq. meters) building complex in southeast Tulsa, Oklahoma, consisting of sales and engineering offices plus warehouse and manufacturing assembly facilities. Domestic and International Factory Representatives are located throughout the United States and around the world. For a Flow-Quip representative near you contact us by phone, fax or e-mail.

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