

Quarter-Turn Direct Gas Actuator



GEVALCO

*PIPELINE VALVE AUTOMATION
PRODUCTS AND SERVICES*

The Gevalco Advantage

▲ Canted Scotch Yoke Design

Maximum Breakaway Torque-Lower Cost

Lower Gas Consumption

▲ Closed-Loop Hydraulic Override System

No Oil Emission to the Environment

No Oil Change Required-Low Maintenance

No Oil Consumption

▲ Chrome-Plated Guide Bar

Eliminates Side Loads

Longer Cycle Life

▲ Linear Travel Stops

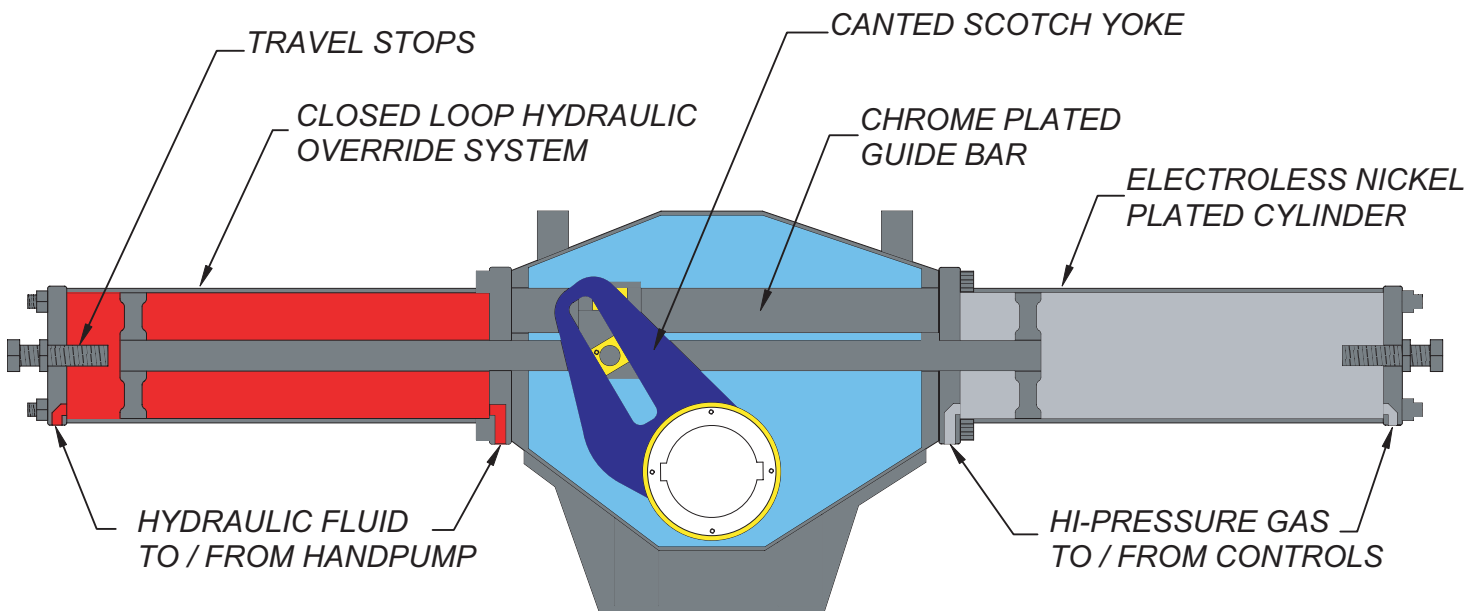
No Side Loads

Precise Adjustment in Both Directions

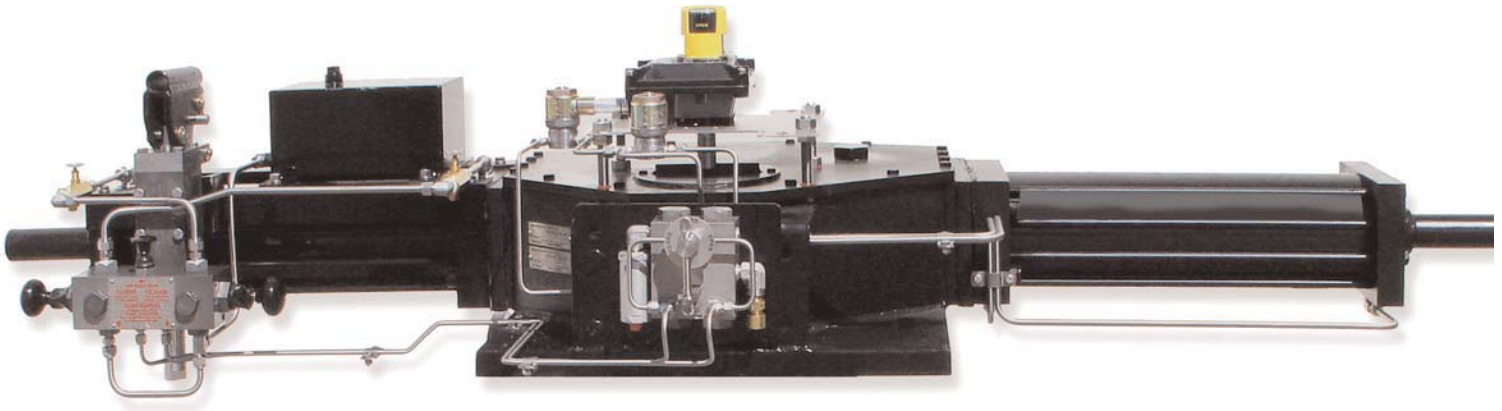
▲ Electroless Nickel-Plated Cylinders

Corrosion Resistant

Lower Maintenance



The Gevalco Advantage



The Gevalco "Quarter-Turn Hi-Pressure Direct Gas" valve actuator is designed to operate using direct pipeline natural gas with pressures up to 1500 psi, providing torque outputs over 1 million inch-pounds. The unique Gevalco design utilizes the best features of the traditional "gas-over-oil" actuator while solving some of the problem areas associated with these designs. The Gevalco design is based on separate gas and hydraulic cylinders to provide simple, reliable, low maintenance actuation for pipeline valves.

Separate Gas Power and Hydraulic Override Systems

Utilizing separate cylinders for the high pressure power gas and the hydraulic hand pump eliminates the mixing of gas and oil, and therefore stops the release of oil to the atmosphere during valve operation. The Gevalco direct gas actuator utilizes 50% to 75% less natural gas during operation than the traditional "gas-over-oil" system, primarily because there is no dead tank space to fill at the beginning of the actuator stroke. The completely sealed, closed-loop hydraulic system for the hand pump provides smooth, efficient operation. When pipeline pressure is not available, the hydraulic hand pump can be used to safely and reliably open and close the valve at its maximum torque requirement. Independently adjustable opening and closing speed controls are built into the hand pump module and are easily adjusted in the field without the need for special tools. This closed-loop hydraulic circuit eliminates the costly maintenance process to regularly drain collected con-

densation from the gas/oil tanks, the costs of refilling tanks, the costs of spillage, and the problems associated with disposal of the used oil. In addition, this system utilizes 75% less on-board oil than a gas/oil system.

Canted Scotch Yoke Design

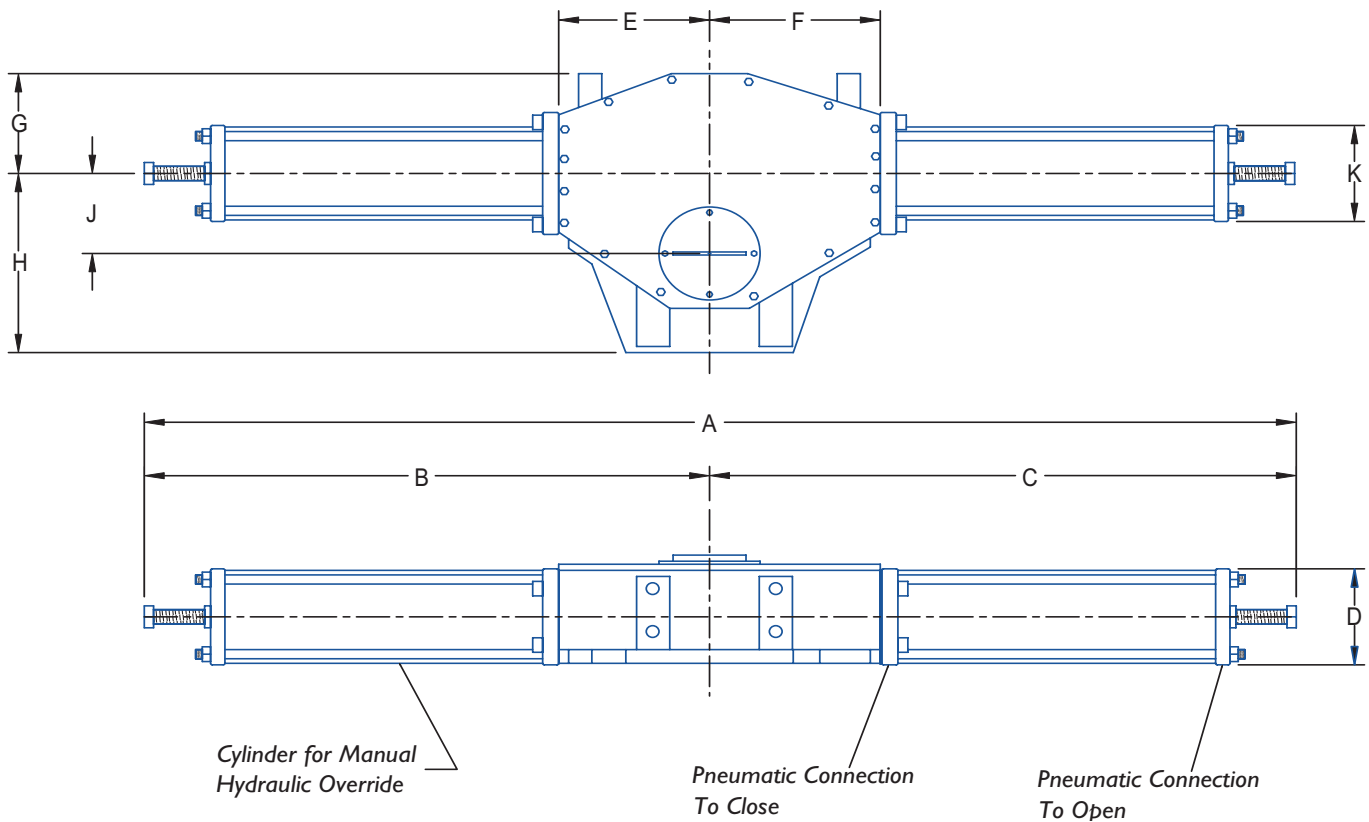
The canted scotch yoke mechanism provides high breakaway torque at the beginning of the stroke resulting in smaller cylinders, which reduces cost and gas consumption. All Gevalco actuators utilize teflon impregnated, sintered bronze bushings on a heavily chrome-plated guide bar to absorb any side loads, guaranteeing smooth operation and longer cycle life.

Linear Travel Stops

The externally adjustable travel stops are on center with the piston rod, eliminating side loading on the scotch yoke. Located at either end of the actuator, these travel stops provide precise adjustment. Both the 'open' and 'close' travel stops are independently adjustable.

Electroless Nickel-Plated Cylinders

Both the gas and hydraulic cylinder walls are electroless nickel-plated and precision honed to ensure long lasting, trouble free service. All pistons are furnished with a teflon impregnated graphite guide ring (wear band) that eliminates any possible metal to metal contact. The piston and rod seals are made of teflon rings preloaded by an "O" ring suitable for the most severe working conditions.



Dimensions (inches)

Actuator Model	A	B	C	D	E	F	G	H	J	K	Pneumatic Conn, (NPT)	Weight (lbs)
1.5-135MHP135	77.5	38.2	39.3	6.5	7.4	8.5	7.3	7.3	3.94	8.75	1/2	375
1.5-175MHP175	80.7	39.8	40.9	8	7.4	8.5	7.3	7.3	3.94	9.75	1/2	450
3.0-135MHP135	85.4	42.0	43.4	6.5	11.2	12.6	8.3	8.5	6.3	8.75	1/2	550
3.0-175MHP175	88.6	43.6	45.0	8	11.2	12.6	8.3	8.5	6.3	9.75	1/2	675
6.0-175MHP175	92.1	45.3	46.8	8	12.9	14.4	11.7	10.2	7.28	9.75	1/2	1020
6.0-200MHP200	93.9	46.2	47.7	9	12.9	14.4	11.7	10.2	7.28	12	3/4	1190
14-200MHP200	98	48.1	49.9	9	14.8	16.6	13.5	11.6	7.87	12	3/4	1655
14-235MHP235	98	48.1	49.9	10	14.8	16.6	13.5	11.6	7.87	15	3/4	1720
14-280MHP280	98	48.1	49.9	12	14.8	16.6	13.5	11.6	7.87	15	3/4	1810

Mechanical Data (Maximum Allowable Pressure 1500psig)*

Actuator Model	Max. Operating Torque (lb. In.)	Max. Operating Pressure (psig)**	Gas Consumption (cu. In.)	Oil Content (cu. In.)
1.5-135MHP135	130500	514	430	490
1.5-175MHP175	130500	320	755	815
3.0-135MHP135	261000	663	430	490
3.0-175MHP175	261000	407	755	815
6.0-175MHP175	522000	688	755	815
6.0-200MHP200	522000	533	1030	1220
14-200MHP200	1044000	959	1030	1220
14-235MHP235	1044000	740	1305	1425
14-280MHP280	1044000	492	1950	2070

*Maximum allowable pressure is the maximum static pressure that may be applied to the cylinder with the piston against travel stops.

**Maximum operating pressure is the pressure required to produce the maximum operating torque of the actuator.



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