



CONOFLOW FULL REVERSAL POSITIONER GJ21 and GJ22

The Conoflow Full Reversal Positioner is used with springless piston or diaphragm actuators. This unit utilizes a force-balance principle providing accurate positioning of an actuator stem. The totally enclosed design allows use in various indoor or outdoor environments.

This unit incorporates a two-stage pilot which offers stability, fast response and excellent positioning accuracy. The spool valve section of the positioner permits full reversal of the supply pressure to either actuator chamber allowing use of maximum supply air pressure, thereby developing greater thrust.

Modified forms of this positioner offer direct or reverse acting modes of operation. Refer to the chart below for details.

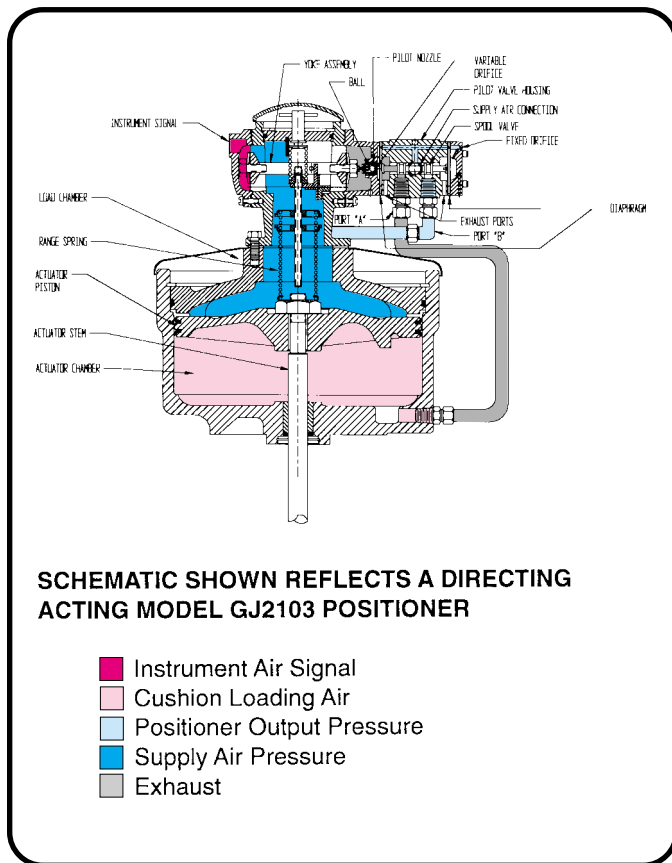
These Full Reversal positioners are adjustable for actuator stroke lengths of 1/4" to 10" (other strokes are available, consult the factory) and instrument spans of 6 to 24 PSI (41 to 166 kPa).

Performance of these positioners is backed by Conoflow's years of experience as a leading producer of precision instruments.

MODEL		GJ2103	GJ2215 GJ2230
As Instrument Signal Increases	Positioner Output	Increases Pressure in Top Chamber	Decreases Pressure in Top Chamber
		Decreases Pressure in Bottom Chamber	Increases Pressure in Bottom Chamber
	Actuator Stem	Extends	Retracts
On Air Failure (With Airlock) Actuator Stem		Retracts or Extends. Specify when Ordering.	

DIMENSIONAL DATA - ADVERTISING DRAWINGS:

Fail Safe Schematic: A50-16
GJ21/GJ22: A50-13



PRINCIPLE OF OPERATION

The spool valve section of the positioner permits full reversal of the supply air pressure to either actuator chamber allowing use of maximum air pressure against the effective area of actuator piston or diaphragm. The spool in the spool valve assembly is pressure balanced between two diaphragms when instrument air signal remains steady, because air flow through the pilot nozzle is equal to air flow through the fixed orifice. With diaphragms in balance, spool position is such that air pressures and stem load are maintained dynamically balanced. As soon as a change in the instrument air signal or stem load occurs, the variable orifice in pilot nozzle is opened or closed thereby causing diaphragms to move to the left or right. This action changes position of the spool, opening or closing Port A or B, supplying or exhausting air pressure to upper or lower actuator chamber until balanced condition is again reached.

In the direct-acting Model GJ21, increasing instrument air signal moves the yoke assembly to the right, seating ball in pilot nozzle, causing the spool to move to the right, opening Port B. Supply air flows through Port B to upper actuator chamber extending stem. This movement increases tension on range spring thereby restoring yoke to initial balanced position. Air displaced from bottom actuator chamber flows to atmosphere through Port A and adjacent spool valve exhaust ports.

In the reverse-acting Model GJ22, increasing instrument air signal moves the yoke to the left, unseating ball in pilot nozzle, causing spool to move to the right, opening Port A. Supply air flows through Port A to the lower actuator chamber retracting stem. This movement reduces tension on range spring thereby restoring yoke to initial balanced position. Air displaced from upper actuator chamber flows to atmosphere through Port B and adjacent spool valve exhaust ports.

SPECIFICATIONS

Sensitivity: Responds to signal changes as low as .05 PSI (0.35 kPa)

Supply Pressure Effect: Less than 0.15% per PSI

Linearity: Less than 1% of full stroke

Reproducibility: 0.2% of full stroke

Power Amplification: Less than 2.0% deviation in signal or stroke produces full output pressure change

Ambient Temperature Range: -20°F to +150°F (-29°C to +66°C)

Flow Capacity (Dynamic): Up to 5.0 SCFM in either direction with a 100 PSI (690 kPa) supply

Air Consumption (Static): 1.0 SCFM at 40 PSI supply
(0.03 m³/min at 276 kPa)

Air Supply: 20 PSI to 100 PSI (138 to 690 kPa)

Zero Suppression: 2 to 20 PSI (14 to 138 kPa)

Control Actions: Direct or reverse; full reversal

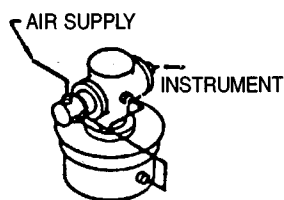
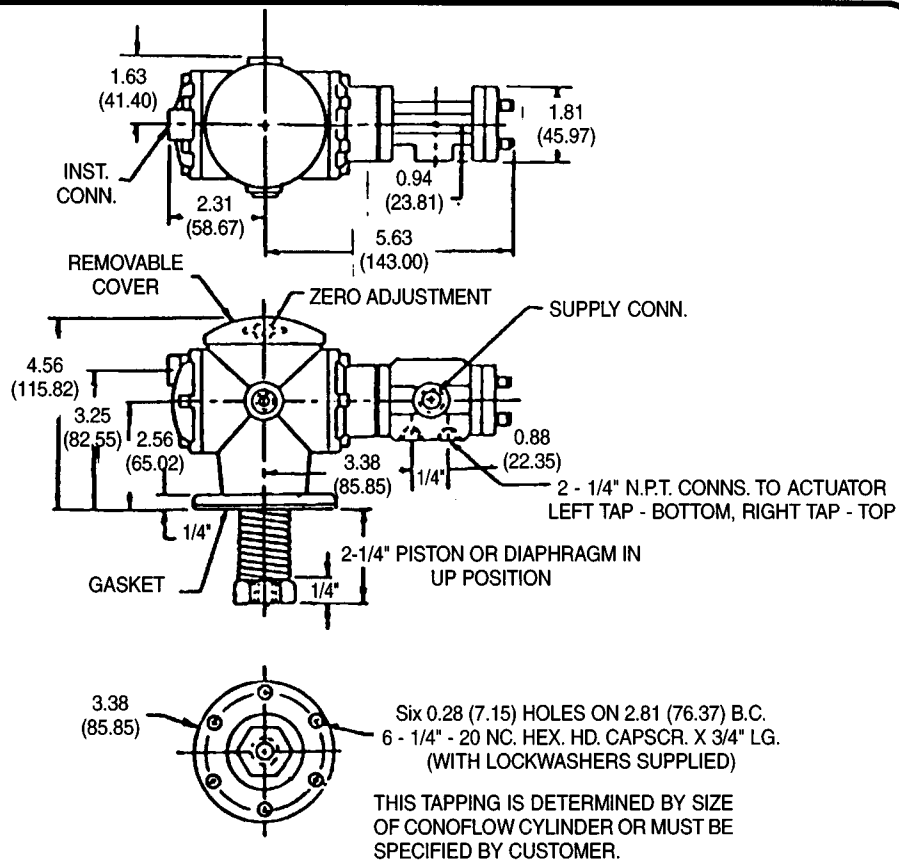
Actuator Travels: 1/4" to 10" (6.35 to 254 mm)

Connections: 1/4" NPT

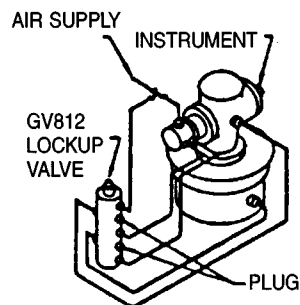
Adjustment: Zero adjust is external and can be made without tools.

Weight: Approximate Shipping Weight: 3 lbs. (1.36 Kg)

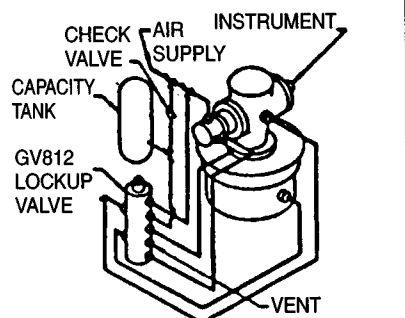
NOTE: Specifications are typical values based on the use of a Conoflow GB50 Series Actuator. Use of other actuators may affect performance.



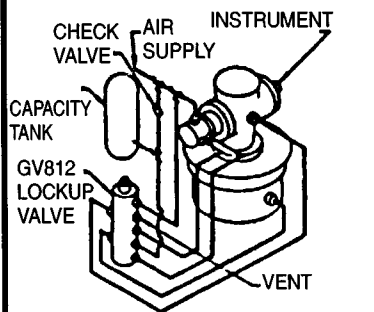
① BASIC



② LOCK IN LAST POSITION



③ AIRLOCK-STEM EXTENDS ON AIR FAILURE



④ AIRLOCK-STEM RETRACTS ON AIR FAILURE

() DIMENSIONS IN MILLIMETERS
NOTE: ALL CONNECTIONS ARE 1/4" NPT

For Certified Dimensional Data, Refer to Drawing A50-16.