



VALVE ACCESSORIES & CONTROLS, INC.

Principal of Operation

V100 P Pneumatic Positioner

The very simple design of the unit produces a simple operation.*

Supply pressure up to 145 PSI is connected to the supply port of the unit (marked S on the gauge block side), and the actuator ports (marked C+ and C-) are connected to either a double or single acting (spring) return actuator (rotary or linear). The C+ port is the opening port. An instrument signal (generally 3-15 psi) is then connected to the I_p port of the unit. With no signal on the unit, the positioner is stable, but no actuator movement has occurred. Once the signal begins to increase (or change) the signal diaphragm responds to the change and causes the pilot assembly to move and direct air to the actuator through the C+ port. As the actuator moves, feedback to the positioner is provided through the actuator linkage and the positioner spindle/cam assembly. As the actuator moves, the spindle/cam rotates and turns to the desired "set point" based on the input signal. Once the set point is achieved a steady state position is maintained. Once a signal (somewhere between 3-15 psi) change occurs again, the signal diaphragm moves, the pilot assembly moves and the spindle/cam rotates into the next steady state position. This continues based on the system requirements or until system stability is maintained. This "force balance" principal of operation is very simple, but very reliable. There are only a few moving parts in this design, with no tiny orifices or "weak" components that can fail or damage under normal operating conditions.

*We are making the assumption that the unit has been properly mounted and calibrated.

Housing

