

# Throttling Type A Pinch Valves

## Technical Information



### CONTROLLING WITH RELAYS

Non-critical throttling control can be achieved simply and economically with a Type A Pinch Valve by the addition of a simple booster or proportional relay. A booster relay controls a pinch valve by supplying air pressure to the valve body. The air pressure squeezes the sleeve closed. It requires from one to five psi above line pressure to begin the flexing action, and another 25 psi above line pressure to reach 99% closure. An additional 10 to 15 psi is needed to achieve full closure and sealing.

The control signal comes from a pneumatic controller or I/P transducer that supplies a 3-15 psi signal to the booster relay. The control signal pressure operates on a diaphragm in the booster (A), when control pressure increases, the diaphragm moves and opens a pilot valve that admits pressure from the plant air supply to the pinch valve (B). When the pressure on the other side of the booster's diaphragm matches the control signal pressure (C), the pilot valve closes.

The booster relay system maintains a balance between the control signal and pressure inside the body. Booster relays can be used instead of positioners in many different kinds of control applications.

### RELAY SELECTION

Booster relays are available in several fixed output ratios, including 1:2, 1:3, 1:4, 1:5, and 1:6. The ratio represents the amount of plant air pressure supplied for a given control signal. For example, a 1:6 booster output of 18-90 psi from a 3-15 psi control signal. Booster relays can be selected for throttling only, or for both throttling and full closure system. For added system flexibility, proportional or booster relays are available with adjustable ranges of up to 30:1.

### PRESSURE DROP CONSIDERATIONS

Generally speaking, Red Valve Type A Pinch Valves are applied for non critical control and have limited pressure drop capabilities. Generally, pressure drops of 25%-40% of the inlet pressure should not be exceeded. For higher pressure drops, Red Valve Series 5200 and 5400 Control Pinch Valves with a positioner and reduced port or cone sleeve should be selected.

