

North American Positioner for 1600 Diaphragm Air Motors



Valve positioners employ the full force of their air supply to drive the piston or diaphragm in a pneumatic actuator to the position called for by a control instrument—and to hold that position, regardless of the forces which tend to change valve position.

Each positioner receives a signal from a control instrument; and using an air supply as high as 100 psig, the built-in valve positioner strokes the valve actuator to the required position. (For more-detailed information on operation, see the appropriate side of this page.)

Like all valve positioners, the R620-2101 has a feedback circuit which measures the position of the actuator's piston or diaphragm. The built-in valve positioner supplies or exhausts air to make the actuator obey the control-instrument signal.

The positioner is a pneumatic booster. It requires 26-30 psi clean supply air, which it applies directly to the motor.

The motor is set to go from fully closed to fully open with a range of 7-19 psi. Control instrument signals are the same 3-15 psi as when operating without a positioner, but the positioner boosts them to as much as 30 psi to the motor, thereby increasing motor torque and assuring appropriate control motor response.

The positioner also allows customizing of the span to match various controllers. The standard full travel span of 12 psi (3-15 psi control signal) can be altered by changing the

spring in the positioner. Springs are available to yield 3, 4, 5, 6, 8, 10, or 24 psi spans. See Parts List 1600-1 for spring part numbers.

Interchangeable Range Springs

The position of the piston or diaphragm in the valve actuator is sensed by the amount of compressive force exerted by a range spring on the valve positioner's diaphragm assembly. By selecting the appropriate range spring, from a wide selection which is available, almost any combination span (from 2 to 24 psi) may be obtained.

Materials of Construction

Aluminum, brass, stainless steel, neoprene and/or Buna-N.



SPECIFICATIONS

Input Range: 3-15, 3-9, 9-15, 3-27, 6-30 psig

Valve Travel: Minimum ¼"
Maximum 4"

Supply Pressure: Minimum 3 psi above required actuator pressure
Maximum 50 psig

Air Consumption: 73N-F 0.25 scfm
(in balance condition with 73N-B 0.6 scfm
20 psig supply and 9 psig dead-ended output).

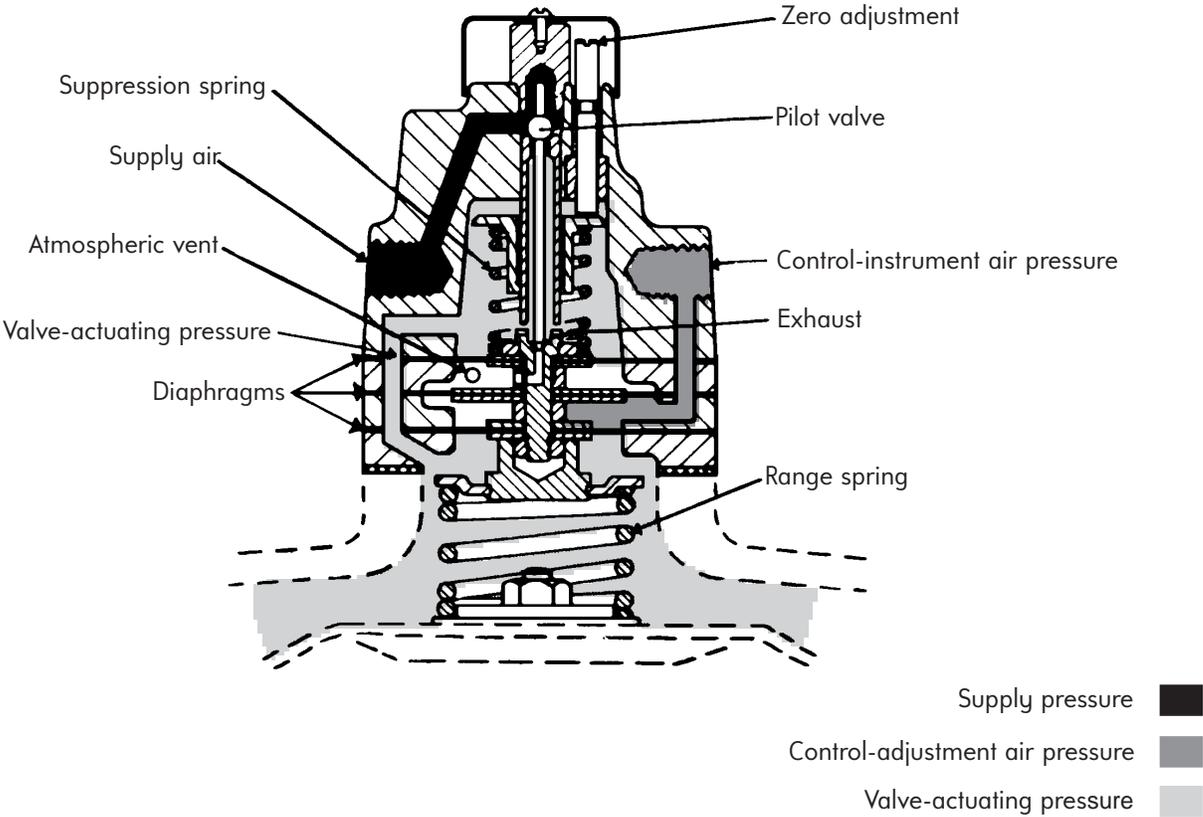
Overrange Limit: 150 psig to any connection

Response Level: 0.1% of input span
(Output sensitivity to input pressure changes)

TOP-LOADING, DIRECT-ACTING

Air pressure from the control instrument (indicated as dark gray in the above schematic drawing) is exerted between the two lower diaphragms. Because of the difference in diaphragm areas, the resultant force is exerted in an upward direction. In a balanced condition, the pneumatic force on the diaphragm assembly-plus the upward force exerted by the range spring-will be balanced by the downward force of the zero-adjustment spring.

When control-instrument pressure increases, the diaphragm assembly will move upward and the pilot valve will be moved upward; closing the exhaust port and opening the supply port to admit supply air directly to the actuator. The supply air will drive the actuator downward. As the actuator moves down, the range spring will relax until its force decreases enough to offset the increase in control-instrument pressure.



WARNING: Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters' recommendations, and care in operation.



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