



Pneumatic Actuator Options & Accessories For Diaphragm Valves



ENGINEERING GUIDE

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Actuated Valves Technical Options & Accessories Overview



3 to 15 psi Pneumatic Positioner (for Ball & Butterfly Valves)

Positioner is used to control or throttle flow by modulating the air to the actuator in response to an external 3-15 psi control signal input. Available with NEMA 4 or 4X rated enclosure mounted on top of actuator with flat top green/black indicator or optional high visibility Dome Indicator. Includes pressure gauge set of one (1) input gauge 0-30 psi and two (2) output gauges 0-160 psi. Optional Stainless Steel gauge set available.



Dome Indicator

Dome style beacon with high visibility green/red indicator for improved viewing of valve position. Indicator only. Note: Dome indicators may be included with certain selections of positioners or limit switches.



Electro-Pneumatic Positioner 4-20mA, 0-5 VDC, or 0-10 VDC

Positioner is used to control or throttle flow by modulating the air to the actuator in response to an external 4-20 milliamp (current), 0-5 VDC (resistive), or 0-10 VDC (resistive) control signal input which is converted to a proportional 3 - 15 psi pneumatic signal used by the positioner. Available with NEMA 4, 4X, 7 or Intrinsically Safe NEMA 7 rated enclosure mounted on top of actuator with flat top green/black indicator or dome indicator with green/red 180° high visibility. Includes pressure gauge set of one (1) input gauge 0-30 psi and two (2) output gauges 0-160 psi. Optional Stainless Steel gauge set available.



3 & 4-Way Solenoid Valves

This combination valve operates either as a 3-way or 4-way pilot valve mounted to the actuator. The 3-way valve is a normally closed poppet design to insure tight shut-off. These valves are designed for use with spring return actuators. The 4-way valve can be used as either a 4-way 2 position design or a 3-way normally closed design merely by rotating a gasket located in the sub-base prior to assembly to the actuator. The 3-way operation routes the exhaust pressure to the spring side of the actuator to prevent corrosion problems within the actuator. An optional speed control can be purchased. Air inlet connection is 1/4" NPT. Thermoplastic composite enclosure is NEMA 4, 4x (standard) or NEMA 4, 4x, 7, 9 combination with 1/2" male conduit connection. Standard 115 VAC with voltage options of 230 VAC, 24 VAC, 12 VDC, and 24 VDC.



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Dual Power Solenoid Valves

This configuration of 3 & 4-way solenoid valves accepts two separate power sources, one to open and one to close the valve, for use on Air-to-Air (double acting) actuators only.



Limit Switch with Indicator



Output Signal Limit Switches

Mechanical SPDT (2) or DPDT (2)
Proximity SPDT (2) or DPDT (2)

Set of two (2) auxiliary limit switches. Switches deliver a specified output current signal of 4-20mA or resistive signals of 0-5 or 0-10 VDC. Mechanical switches are SPDT or DPDT rated at 10 amp 125/250 VAC. Proximity (non-contact) switches are SPDT or DPDT rated at 1 amp 120 VAC. These limit switches are available with or without 180° visual indicator. Switch enclosure is NEMA 4/4x or NEMA 7/9 rated.



Stainless Steel Gauge Set

Three (3) gauge set. Stainless steel gauge replacement for use on Pneumatic and Electro-Pneumatic Positioners. Includes one (1) input pressure gauge 0-30 psi, and two (2) output pressure gauges 0-160 psi.



Custom ID Tag

Stainless steel valve/actuator ID Tag imprinted to user specified identification criteria. Each tag is 1/2" x 3" and accommodates up to 3 lines of text, maximum of 12 characters and spaces per line.



Transmitter

The Transmitter is an internally mounted module for use in the Positioner. The module is designed to give a 4-20 milliamp linear output signal with a 0-90° Positioner shaft rotation. The unit is environmentally sealed and loop powered. Transmitter is designed for use in General Purpose Locations and is not approved for Hazardous Locations as classified by the NEC.

Actuated Valves Technical
Options & Accessories Overview



The basic options and accessories listed in this section represent many of the most commonly used for Pneumatic actuation of Pneumatic Diaphragm Valves (see previous section for Pneumatic Ball Valves and Butterfly Valves) factory configured to order on the actuation package. Contact Spears® for any desired accessories, options, functions, or special controls not listed.

Overview of Basic Options & Accessories Available

Pneumatic Actuator Features	Premium Pneumatic Diaphragm Valves
Spring Return	✓
80 psi Operating Pressure	✓
Declutchable Manual Override	✓
Pneumatic Positioner	✓
Electro-Pneumatic Positioner	✓
Micro Limit Switch Module	✓
3 & 4-Way Solenoid Valve	✓
Stainless Steel 3-Gauge Set	✓
ID Tag - SS	✓

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Spring Return (Fail Safe)

An internal spring in the actuator is configured to either open or close upon loss of air supply. Spring return can be specified as either Air-to-Open when spring return close is desired or Air-to-Close when spring return open is desired.

Operating Pressure (for Diaphragm Valves)

Spears® Diaphragm Valves use a 80 to 90 psi standard operating pressure. Other optional pressures are available. Specify pressure requirements at time of order.

3 to 15 psi Pneumatic Positioner (for Diaphragm Valves)



Positioner is used to control or throttle flow by modulating the air to the actuator in response to an external 3-15 psi control signal input. Available with NEMA 4x enclosure mounted on top of actuator with 180° visual indicator. Positioner can be top or bottom loading, with or without gauges. Gauge set includes: 1 input pressure gauge 0-30 psi and 2 output pressure gauges 0-160 psi. Optional Stainless Steel gauge set available.



Actuated Valves Technical
Options & Accessories Overview



**Electro-Pneumatic Positioner
 (for Diaphragm Valves),
 not for air-to-air
 4 to 20 mA**

Positioner is used to control or throttle flow by modulating the air to the actuator in response to an external 4-20 milliamp control signal input which is converted to a proportional 3-15 psi pneumatic signal used by the positioner. Available with NEMA 4x, enclosure mounted on top of actuator with 180° visual indicator. Used with air-to-spring only



**3-Way Solenoid Valves
 4-Way Solenoid Valves
 (for Diaphragm Valves)**

Universal operation design allows pressure to any port. 4-way solenoid valve is used for double acting (air-to-air) actuators. 3-way solenoid valve is used for spring return (fail open/fail close) actuators. Air inlet is 1/4" NPT. Enclosures are molded epoxy NEMA 4, 4x (standard) or NEMA 4/4x/7/9 combination with 1/2" conduit connection and brass body (stainless steel body available by special order). Standard 115 VAC with voltage options of 230 VAC, 24 VAC, 12 VDC, and 24 VDC.



**Micro Limit Switch Module
 (for Diaphragm Valves)
 SPDT (2) or DPDT (2)**

Module of two (2) auxiliary mechanical limit switches. Switches are SPDT rated at 10 amp 125/250 VAC. Switch module includes 180° visual indicator. Switch enclosure is NEMA 4/4x/7/9 rated.



Custom ID Tag

Stainless steel valve/actuator ID Tag imprinted to user specified identification criteria. Each tag is 1/2" x 3" and accommodates up to 3 lines of text, maximum of 12 characters and spaces per line.