

## Pneumatic Valve Actuator Positioners

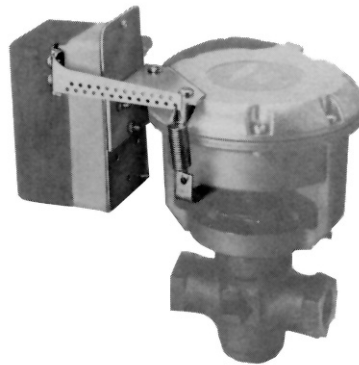
### Description

V-9502 Series Pneumatic Valve Actuator Positioners are precision relay devices designed to operate pneumatic valve actuators in applications requiring stable, accurate control. These positioners provide maximum positioning power to resist external forces that might otherwise overcome the positioning power of the actuator. Adjustable operating span (on all pneumatic valve actuators except the V-3000 Series) and starting point also make the V-9502 ideal for valve sequencing applications. The V-9502 Series can be mounted directly to V-3000 Series, 3R, 4R, 5R, 8R, or MP8000 Series pneumatic valve actuators. In many instances, the positioner can be ordered factory installed on these actuator and valve assemblies.

Feedback from the actuator stem (through the positioner spring and lever arm assembly) activates the V-9502 Pneumatic Valve Actuator Positioner to compensate for flow surges in the piping system, and holds the valve at the position dictated by the controller. The V-9502 modulates the stroke of the actuator in relation to a pressure change from the controller. Repositioning is very precise for small changes in the output pressure from the controller.

The span and starting point adjustments of the V-9502 Pneumatic Valve Actuator Positioner determine the operating range. The lower value of the operating range is the control signal pressure at which the actuator just begins to stroke. The upper value of the operating range is the control signal pressure at which the actuator reaches its maximum stroke. The difference between the upper and lower values of the control signal pressure is the operating span.

The operating span of the V-9502 Pneumatic Valve Actuator Positioner is field selectable from 3 to 13 psi (21 to 90 kPa) on 3R, 4R, 5R, 8R, and MP8000 Series pneumatic valve



V-9502 Positioner Installed on a Typical V-3000 Type Valve Actuator

actuators. The operating span is determined by the location of the spring in the positioner operating span lever arm. When the spring is installed in the hole closest to the V-9502 Positioner cover, the spring allows a span of 3 psi (21 kPa). When the spring is installed in the hole furthest from the positioner cover, the spring allows a span of 13 psi (90 kPa).

The operating span for V-3000 Series Pneumatic Valve Actuators is determined by the positioner spring used with the actuator. To change the operating span, simply select a different positioner spring from the *Positioner Springs for V-3000 Actuated VG7000 Series Valves* and the *Positioner Springs for All Other V-3000 Actuated Valves Except VG7000 Series* tables that follow.

The starting point is the input pressure (Pilot P pressure) at which the actuator just begins to stroke. The starting point is field adjustable from 2 to 12 psig (14 to 83 kPa) using the starting point adjusting screw located under the V-9502 Positioner cover. Turning the screw clockwise decreases the starting point and turning the screw counterclockwise increases the starting point.



V-9502 Positioner Installed on a Rubber Diaphragm Type Valve Actuator

### Features

- maximum positioning power compensates for flow surges in the piping system, and holds the valve at the position dictated by the controller
- field-selectable operating span (all pneumatic valve actuators except V-3000 Series) provides application flexibility and allows for easy valve sequencing from a single control signal
- field-adjustable starting point provides accurate control since it can be tailored for the specific application
- can be mounted directly to V-3000 Series, 3R, 4R, 5R, 8R, or MP8000 Series, expanding usability and providing application flexibility

### Selection Charts

#### V-9502 Series Pneumatic Valve Actuator Positioners (Part 1 of 2)

Code Number	Valve Type	Stem Diameter, in. (mm)	Diaphragm Size
V-9502-1 <sup>1</sup>	V-5250, V-5460, V-5650, V-5840 Valves	1/4 (6)	3R
V-9502-2 <sup>1</sup>		1/4 (6)	4R
V-9502-3 <sup>1</sup>		5/16 (8)	4R
V-9502-4 <sup>1</sup>		5/16 (8)	5R
V-9502-5 <sup>1</sup>		3/8 (10)	5R
V-9502-6 <sup>1</sup>		1/2 (13)	8R
V-9502-90 <sup>1</sup>	V-3000-8011 Actuated Valves	---	---
V-9502-91 <sup>1</sup>	V-3000-8001 Actuated Valves	---	---
V-9502-15 <sup>1</sup>	V-3000-1 Actuated Valves	---	---
V-9502-95 <sup>2</sup>	MP8000 Actuated VG2000 and VG7000 Series Valves	---	---

## V-9502 Series Pneumatic Valve Actuator Positioners (Continued)

### V-9502 Series Pneumatic Valve Actuator Positioners (Part 2 of 2)

Code Number	Valve Type	Stem Diameter, in. (mm)	Diaphragm Size
V-9502-23 <sup>1</sup>	V-5252, V-5254, V-5462, V-5464, V-5652, V-5842, V-5844 Valves	All	All
V-9502-16 <sup>1</sup>	V-5210, V-5216, V-5230, V-5410, V-5416, V-5430, V-5810, V-7216, V-7416 Valves	All	4R, 5R, 8R
V-9502-76 <sup>3</sup>	V-400 and V-500 Actuated Valves	---	---
V-9502-8033 <sup>1</sup>	V-3000 Actuated V-7216 and V-7416 Valves	---	---

1. Positioner kit includes positioner, interconnecting linkage, and mounting hardware (order positioner spring separately).
2. Positioner kit does not include positioner spring or mounting hardware (order positioner spring and mounting kit separately).
3. Positioner kit does not include positioner spring (order positioner spring separately).

### Positioner Springs for 3R, 4R, 5R, and 8R Pneumatic Valve Actuators; or Kieley & Mueller Actuator and Valve Assemblies Manufactured Prior to January, 1975

Code Number	Valve Stroke, in. (mm)
V-510-100	3/16 through 5/16 in. (5 through 8 mm)
V-510-101	3/8 through 7/16 in. (10 through 11 mm)
V-510-102	15/32 through 5/8 in. (12 through 16 mm)
V-510-103	11/16 through 3/4 in. (17 through 19 mm)
V-510-104	13/16 through 1-1/4 in. (21 through 32 mm)
V-510-105	1-3/8 through 1-1/2 in. (35 through 38 mm)
V-510-106	1-5/8 through 2 in. (41 through 51 mm)
V-510-107	2-3/8 through 2-1/2 in. (60 through 64 mm)

### Positioner Springs for MP8000 Actuated VG2000 and VG7000 Series Valves

Code Number	Valve Stroke, in. (mm)	Positioner Spring Color Code
V-9502-610	5/16 (8)	Yellow
V-9502-611	1/2 (13)	Blue
V-9502-612	3/4 (19)	White
V-9502-613	1 (25)	Gray
V-9502-614	1-1/4 (32)	Green
V-9502-615	1-1/2 (38)	Red
MP8000-6002 <sup>1</sup>	All	All

1. Kit includes all mounting hardware and all six color-coded positioner springs.

### Positioner Springs for V-400 and V-500 Actuated VG7000 Series Valves

Code Number	Valve Size, in.	Valve Stroke, in. (mm)
V-9502-8100	1/2 or 3/4	5/16 (8)
V-9502-8102	1 or 1-1/4	1/2 (13)
V-9502-8106	1-1/2 or 2	3/4 (19)

### Positioner Springs for V-3000 Actuated VG7000 Series Valves

Code Number	Valve Stroke, in. (mm)	5/16 (8)	3/8 (10)	1/2 (13)	3/4 (19)
V-9502-6801	Spring Span, psig (kPa)	3.0 (21)	---	5.0 (34)	10.0 (70)
V-9502-6802		8.0 (55)	---	12.0 (83)	---
V-9502-6803		---	---	---	4.0 (28)

### Positioner Springs for All Other V-3000 Actuated Valves Except VG7000 Series

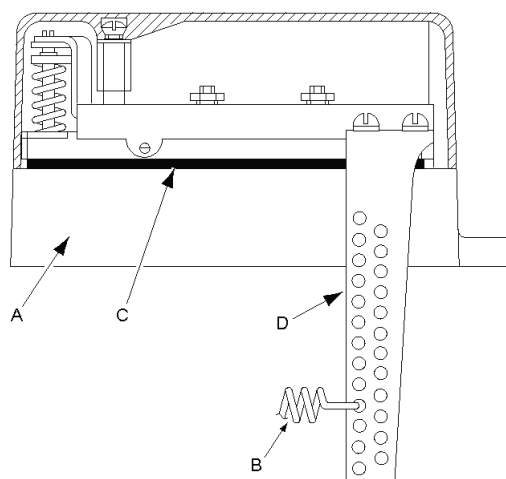
Code Number	Valve Stroke, in. (mm)	5/16 (8)	3/8 (10)	1/2 (13)	3/4 (19)
V-9502-19	Spring Span, psig (kPa)	8.0 (55)	9.5 (65)	12.0 (83)	---
V-9502-20		3.0 (21)	4.0 (28)	5.0 (34)	---
V-9502-100		---	---	3.6 (25)	5.1 (35)
V-9502-101		4.3 (30)	5.2 (36)	7.0 (48)	10.6 (73)

## Repair Information

### Repair Parts for V-9502 Series Positioner

Code Number	Item	Description	Ship. Wt, lb <sup>1</sup>
C-9506-1	A	Positioner Movement Complete (Less Items B and D)	1.5
---	B	Positioner Springs (Refer to Positioner Spring Tables)	---
V-9502-600	C	Diaphragm Assembly: Includes Diaphragm, Six Diaphragm Reinforcements, One Seat, Three Nuts, One Spring, Two Metal Balls, One Ball Retainer, Two Screws, and One Gasket.	0.03
		For Old-Style Positioners with Air Connections on Three Sides	
D-9502-611		For New-Style Positioners with Air Connections on One Side	0.03
D-9502-604	D	Positioner Operating Span Lever Arm Assembly	0.01

1. lb x 0.454 = kg.



V-9502 Repair Parts

## V-9502 Series Pneumatic Valve Actuator Positioners (Continued)

### Technical Specifications

V-9502 Pneumatic Valve Actuator Positioner		
<b>Operating Span</b>	Field Selectable from 3 to 13 psi (21 to 90 kPa) on 3R, 4R, 5R, 8R, and MP8000 Series Pneumatic Valve Actuators; Fixed on V-3000 Series Pneumatic Valve Actuators	
<b>Starting Point</b>	Field Adjustable from 2 to 12 psig (14 to 83 kPa)	
<b>Supply Pressure</b>	20 psig (138 kPa) Nominal; 25 psig (172 kPa) Maximum	
<b>Air Consumption</b>	5 scim (1.4 mL/s)	
<b>Output Flow Capacity</b>	<b>With Dual Barbed Fitting</b>	1,000 scim (273 mL/s)
	<b>With 1/4 in. Fitting</b>	1,600 scim (437 mL/s)
<b>Air Connections</b>	1/8 in. NPT Dual Barbed Fittings for 5/32 or 1/4 in. O.D. Poly tubing	
<b>Ambient Operating Temperature Limits</b>	-20 to 150°F (-29 to 66°C)	
<b>Materials</b>	<b>Body</b>	Die Cast Aluminum with Iridite Finish
	<b>Cover</b>	Noryl®
	<b>Diaphragm</b>	Fabric-Reinforced Rubber
<b>Shipping Weight</b>	2.0 lb (0.9 kg)	

### Valve Strokes for All Valves Except Encapsulated Spring Models

Valve Size, in.	Valve Type	Valve Stroke, in. (mm)
1/2 and 3/4	VG7000 Series Valves	5/16 (8)
1 and 1-1/4	VG7000 Series Valves	1/2 (13)
1-1/2 and 2	VG7000 Series Valves	3/4 (19)
1/2 and 3/4	All Except V-3754, V-3974, V-4324, V-4440, and VG7000 Series Valves	5/16 (8)
1 and 1-1/4	All Except V-3754, V-3974, V-4324, V-4440, and VG7000 Series Valves	3/8 (10)
1/2 and 3/4	V-3754, V-3974, and V-4324 Valves	1/2 (13)
1/2 and 5/8	V-4440 Valves	11/16 (17)
1	V-3754, V-3974, and V-4324 Valves	3/4 (19)
1-1/2 and 2	All Angle, Globe, and Three-Way Mixing Valves Except V-3754, V-3974, V-4324, V-5254, V-5464, and V-5844	1/2 (13)
1-1/2 and 2	V-3754, V-3974, V-4324, V-5254, V-5464, and V-5844 Valves	3/4 (19)
	Two-Way Normally Open (N.O.) and Normally Closed (N.C.) Valves	3/4 (19)
	Three-Way Mixing and Bypass Valves <sup>1</sup>	3/4 (19)
3	Three-Way Mixing and Bypass Valves	9/16 (14)
	Two-Way N.O. and N.C. Valves	7/8 (22) <sup>2</sup> and 1-1/8 (29)
	Three-Way Mixing and Bypass Valves <sup>&lt;superscript&gt;1.</sup>	7/8 (22)
4	Three-Way Mixing and Bypass Valves	13/16 (21)
	Two-Way N.O. and N.C. Valves	1-1/8 (29)
	Three-Way Mixing and Bypass Valves <sup>&lt;superscript&gt;1.</sup>	1-1/8 (29)
5	Three-Way Mixing and Bypass Valves	1 (25)
	Two-Way N.O. and N.C. Valves	1-3/8 (35)
	Three-Way Mixing and Bypass Valves <sup>&lt;superscript&gt;1.</sup>	1-3/8 (35)
6	Three-Way Mixing and Bypass Valves	1-3/16 (30)
	Two-Way N.O. and N.C. Valves	1-1/2 (38)
	Three-Way Mixing and Bypass Valves <sup>&lt;superscript&gt;1.</sup>	1-1/2 (38)
8	Three-Way Mixing and Bypass Valves	1-7/16 (37)
	Two-Way N.O. and N.C. Valves	1-1/2 (38)
	Three-Way Mixing Valves	2 (51)

- For V-5850, V-5852, and V-5820 Series Valves only.
- With 4R top.

### Valve Strokes for V-5252, V-5254, V-5462, V-5464, V-5652, V-5842, and V-5844 Valves

Valve Size, in.	Valve Stroke, in. (mm)
1-1/4	3/8 (10)
1-1/2 and 2 <sup>1</sup>	1/2 (13)
2-1/2	3/4 (19)
3 (4R)	3/4 (19)
3 (5R and 8R)	1-1/8 (29)
3 (V-5652)	7/8 (22)
4	1-1/8 (29)
5	1-3/8 (35)
6	1-1/2 (38)

- V-5254, V-5464, and V-5844 Series Valves have a stroke of 3/4 in. (19 mm).

### Valve Strokes for V-5210, V-5216, V-5410, V-5416, V-5810, V-7216, and V-7416 Valves

Valve Size, in.	Valve Stroke, in. (mm)
1/2	5/16 (8)
3/4 and 1	3/8 (10)
1-1/4, 1-1/2, and 2	1/2 (13)
2-1/2	3/4 (19)
3 and 4	1-1/8 (29)

### Valve Strokes for V-5230 and V-5430 Valves

Valve Size, in.	Valve Stroke, in. (mm)
1/2 and 3/4 <sup>1</sup>	5/16 (8)
1 and 1-1/4	3/8 (10)
1-1/2 and 2	1/2 (13)

- Up to Cv = 4.7.