V-9502 Series Pneumatic Valve Actuator Positioners Catalog Page

2019-10-29

LIT-1924100

Description

Figure 1: V-9502 Positioner Installed on a Typical V-3000 Type Valve Actuator



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 theV-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 psi to 13 psi (21 kPa to 90 kPa) on 3R, 4R, 5R, 8R, and MP8000 Series pneumatic valve 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 appropriate selection chart that follows.

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 psig to 12 psig (14 kPa 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.

Refer to the *V-9502 Series Pneumatic Valve Actuator Positioners Product Bulletin (LIT-977265)* for important product application information.

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

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- Can be mounted directly to V-3000 Series, 3R, 4R, 5R, 8R, or MP8000 Series, expanding usability and providing application flexibility

Selection charts

Table 1: V-9502 Pneumatic Valve Actuator Positioners

Code number	Valve type	Stem diameter, in. (mm)	Diaphragm size
V-9502-1[1]	V-5250, V-5460, V-5650, V-5840 Valves	1/4 (6)	3R
V-9502-2[1]		1/4 (6)	4R
V-9502-3[1]		5/16 (8)	4R
V-9502-4[1]		5/16 (8)	5R
V-9502-5[1]		3/8 (10)	5R
V-9502-6[1]		1/2 (13)	8R
V-9502-90[1]	V-3000-8012 actuated valves		
V-9502-91[1]	V-3000-8001 actuated valves		
V-9502-15 [1]	V-3000-1 and V-3000-8012 actuated valves		
V-9502-95[2]	MP8000 actuated VG2000 and VG7000 Series valves		
V-9502-23[1]	V-5252, V-5254, V-5462, V-5464, V-5652, V-5842, V-5844 valves	All	All
V-9502-16[1]	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[3]	V-400 and V-500 actuated valves		
V-9502-8033[1]	V-3000 actuated V-7216 andV-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).

Table 2: 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 (5 through 8)
V-510-101	3/8 through 7/16 (10 through 11)
V-510-102	15/32 through 5/8 (12 through 16)
V-510-103	11/16 through 3/4 (17 through 19)
V-510-104	13/16 through 1-1/4 (21 through 32)
V-510-105	1-3/8 through 1-1/2 (35 through 38)
V-510-106	1-5/8 through 2 (41 through 51)
V-510-107	2-3/8 through 2-1/2 (60 through 64)

Table 3: 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	1-1/8 (29)	Green
V-9502-615	1-1/2 (38)	Red
MP8000-6002[1]	All	All

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

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Table 4: 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)

Table 5: 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)

Table 6: 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)

Accessories/maintenance parts

Code number	Item	Description
C-9506-1	A	Positioner movement complete (less items band D)
	B	Positioner springs (See the *Positioner Springs*charts.)
	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
V-9502-600		For old-style positioners with air connections on three sides
D-9502-611		For new-style positioners with air connections on one side
D-9502-604	D	Positioner operating span lever arm assembly

Repair information

If the V-9502 Series Pneumatic Valve Actuator Positioner fails to operate within its specifications, replace the unit. For a replacement positioner, contact the nearest Johnson Controls® representative.

Technical specifications

V-9502 Series Pneumatic Valve Actuator Positioners		
Operating span		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
Starting point		Field adjustable from 2 to 12 psig (14 to 83 kPa)
Supply pressure		20 psig (138 kPa) nominal;25 psig (172 kPa) maximum
Air consumption		5 scim (1.4 mL/s)
Output flow capacity	With dual barbed fitting	1,000 scim (273 mL/s)
	With 1/4 in. fitting	1,600 scim (437 mL/s)
Air connections		1/8 in. NPT dual barbed fittings for 5/32 in. or 1/4 in. O.D. polytubing
Ambient operating temperature limits		-20°F to 150°F (-29°C to 66°C)
Materials	Body	Die cast aluminum with iridite finish
	Cover	Noryl
	Diaphragm	Fabric-reinforced rubber
Shipping weight		2.0 lb (0.9 kg)

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Table 7: 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)
2-1/2	Two-way Normally Open (N.O.) and Normally Closed (N.C.) valves	3/4 (19)
	[1] Three-way mixing and bypass valves[1]	3/4 (19)
	Three-way mixing and bypass valves	9/16 (14)
3	Two-way N.O. and N.C. valves	[2] 7/8 (22)[2] and 1-1/8 (29)
	Three-way mixing and bypass valves[1]	7/8 (22)
	Three-way mixing and bypass valves	13/16 (21)
4	Two-way N.O. and N.C. valves	1-1/8 (29)
	Three-way mixing and bypass valves[1]	1-1/8 (29)
	Three-way mixing and bypass valves	1 (25)
5	Two-way N.O. and N.C. valves	1-3/8 (35)
	Three-way mixing and bypass valves[1]	1-3/8 (35)
	Three-way mixing and bypass valves	1-3/16 (30)
6	Two-way N.O. and N.C. valves	1-1/2 (38)
	Three-way mixing and bypass valves[1]	1-1/2 (38)
	Three-way mixing and bypass valves	1-7/16 (37)
8	Two-way N.O. and N.C. valves	1-1/2 (38)
	Three-way mixing valves	2 (51)

1 For V-5850, V-5852, and V-5820 Series valves only
2 With 4R top

Table 8: 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[1]	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)

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

Table 9: 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)

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Table 10: Valve strokes for V-5230 and V-5430 Valves

Valve size, in.	Valve stroke, in. (mm)
1/2 and 3/4[1]	5/16 (8)
1 and 1-1/4	3/8 (10)
1-1/2 and 2	1/2 (13)

1 Up to Cv = 4.7

WARNING

This product is made of copper alloy, which contains lead. The product is therefore not to be used on drinking water.

WARNING

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer, birth defects, or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

WARNING

WARNING: BRASS MAY CONTAIN LEAD

To fulfill our obligations towards Article 33, in accordance to the European REACH Regulation No 1907/2006 EC, we hereby inform you that this article contains the following Substances of Very High Concern mentioned on the Candidate list: Lead

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

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