

# Valve Positioners

## Series 74 Valve Positioners

### Introduction

#### Features & Benefits

- ▶ Double-acting or single-acting service accommodates installation in a variety of environments
- ▶ Field reversibility reduces downtime and simplifies maintenance
- ▶ Choice of continuously adjustable standard stroke ranging from 1/4" to 48" and continuous span and zero adjustability within range spring limits provide application versatility
- ▶ Extra high capacity pilots ensure maximum frequency response and optimum stroking speeds for all actuator sizes
- ▶ Negative feedback pilot circuit allows the positioner to operate with a push-pull gain of more than 900:1 (using 100 psig supply) with no sacrifice in stability (gain of 650:1 with 74S models)

#### Description

The Model Series 74 Valve Positioners are universal positioners that provide versatility, dynamic performance, and high positioning accuracy. They use the piston or diaphragm in a pneumatic actuator to position a valve to what is required by a control instrument and hold that position, regardless of the presence of forces that change valve position. As such, supply pressure variations have little or no effect on the positioner output, which eliminates the need for a supply pressure regulator.

These valve positioners are two-stage, pilot-operated instruments. The pilot circuit activates dual-output boosters, which perform opposite actions (when one booster is supplying air, the other is exhausting air.) This "push-pull" action applies to a full differential (supply pressure to atmosphere) across the actuator to drive the valve to the position required by the control instrument signal.

Model 74 Valve Positioners can also be used for single-acting service on a spring-loaded actuator. In this case, one of the pilot-booster connections is plugged. See below for rotary-type actuators.

#### Specifications

##### Input Ranges

3-15, 3-9, 3-27, 0-15, and 0-30 psig including split ranges within these basic ranges

##### Valve-Stroke Ranges<sup>1</sup>

1/4" minimum  
48" maximum

##### Supply Pressure

3 psig above full actuator pressure minimum  
150 psig maximum

##### Air Consumption

0.2 scfm (in balanced condition with 20 psig supply)



##### Overload Protection

150 psig at any connection

##### Response Level

Output is sensitive to control signal changes as small as 0.1% of full range

##### Ambient Temperature Range

-40 to 180°F (-40 to 82°C)

##### Materials of Construction

Aluminum, brass, stainless steel, and Buna-N

##### Rotary Actuators Kit

The Series 74 Rotary Actuator Kits allows for compact installation of a complete assembly (positioner and mounting) to fit inside a 5" x 5" x 2-2/3" envelope. The kit's direct connected feedback spring eliminates error-prone connections and levers, while its spiral feedback spring provides inherent reliability.

##### Response Level

0.1% F.S.

##### Linearity

±1.5% F.S.

##### Input Range

3-9, 9-15<sup>2</sup>, 3-15 psig

##### Actuator Motion

90° Rotation

1) See next page for additional performance data, design specifications, and a range spring selection chart.

2) 9-15 psig range requires a suppression spring.

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### Ordering data

#### Model Number

Order No.

Valve Positioner

#### Sensitivity

Standard Pilot & Standard Gain

- Stabilizing Pilot & Reduced Gain

#### Gauge Option

- With 3 Gauges
- Without Gauges

#### Intermediate Sensitivity

- Standard Pilot & Reduced Gain (74S only)

74-



S

G

N

1

#### Accessories

- ▶ Rectilinear Range Spring Kits - Rectilinear range spring kits include a range spring, zero screw, (2) range spring seats, and instructions. All kits include the (2) range spring seats, P/N 12372-384 (not listed below).
- ▶ Rotary Range Spring Kits - The table below lists the kit numbers, spring assembly numbers, and their color codes.
- ▶ Zero Suppression Spring Kits - Zero suppression spring kits include a suppression spring and a spring seat. All kits include the P/N 12372-254 spring seat (not listed below).

3

### Range Spring Kit Table

Actuator Stroke - Inches -	Kit and Parts	Instrument Input Pressure Range - psig				
		3-15	3-9	3-27	0-30	0-15
1/4 to 1-1/2	Kit No. Spring No. Color Code Screw No.	14995-101 14996-1 Black 12372-274	14995-114 14996-4 Black-Red 12372-274	14995-104 14996-7 Black-Yellow 12372-274	14995-107 14996-10 Black-Orange 12372-274	14995-110 14996-13 Black-Green 12372-274
1-1/2 to 2-3/4	Kit No. Spring No. Color Code Screw No.	14995-102 14996-2 White 12372-273	14995-115 14996-5 White-Red 12372-273	14995-105 14996-8 White-Yellow 12372-273	14995-108 14996-11 White-Orange 12372-274	14995-111 14996-14 White-Green 12372-274
2-3/4 to 4	Kit No. Spring No. Color Code Screw No.	14995-103 14996-3 Blue 12372-273	14995-116 14996-6 Blue-Red 12372-273	14995-106 14996-9 Blue-Yellow 12372-273	14995-109 14996-12 Blue-Orange 12372-292	14995-112 14996-15 Blue-Green 12372-273
4 to 6	Kit No. Spring No. Color Code Screw No.	14995-119 14996-102 Brown 12372-292	Consult Siemens			
6 to 9	Kit No. Spring No. Color Code Screw No.	14995-117 14996-104 Green 12372-292	14995-128 14996-16 Brown-Red 12372-303	14995-126 14996-107 Green-Yellow 12372-303	Consult Siemens	
9 to 12	Kit No. Spring No. Color Code Screw No.	14995-120 14996-106 Red 12372-3034	14995-129 14996-17 Yellow-Red 12372-303	14995-127 14996-108 Green-Red 12372-303	Consult Siemens	
12 to 19	Kit No. Spring No. Color Code Screw No.	14995-118 14996-110 Orange 12372-303	Consult Siemens			
48	Kit No. Spring No. Color Code Screw No.	14995-121 14996-111 None 12372-296	Consult Siemens			

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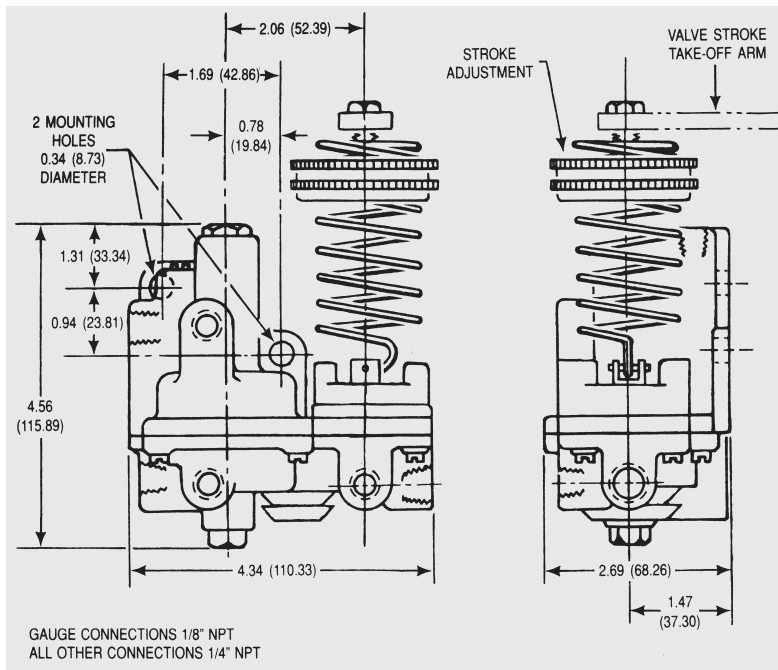
## Series 74 Valve Positioners

Technical data

### Rotary Range Spring Kit

	Rotation of Actuator Shaft	Clockwise		Counterclockwise	
	Instrument Input Range -psig-	3-9	3-15	3-9	3-15
Kit Supplied Without Mounting Plate	Kit No.	14923-152	14923-154	14923-102	14923-104
	Spring No.	14923-72	14923-70	14923-73	14923-71
	Color Code	Green	White	Black	Red
Kit Supplied With Mounting Plate	Kit No.	14923-151	14923-153	14923-101	14923-103
	Spring No.	14923-72	14923-70	14923-73	14923-71
	Color Code	Green	White	Black	Red

### Mounting Dimensions



### Mounting Dimensions, Rotary Kit

The actuator extension shaft must be  $0.3125" \pm 0.0010"$  and capable of withstanding 100 inch-pounds of torque (pinned assembly recommended).

Installer to drill and mount the base plate so that the appropriate feedback hole (clockwise or counter-clockwise rotation) is concentric with actuator extension shaft.

