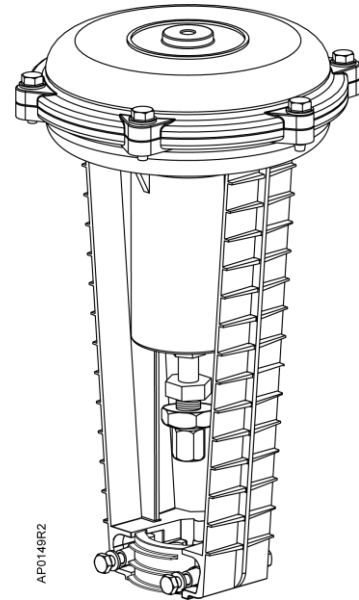


# Flowrite™ AP 599 Series

## 8-inch Pneumatic Valve Actuator



### Description

The Flowrite AP 599 Series 8-inch pneumatic valve actuator is designed for use with the Flowrite VF 599 Series valves with a 3/4-inch (20 mm) stroke. This actuator is available with two diaphragm options.

### Features

- Completely enclosed actuator housing protects the diaphragm, spring, and start point adjuster.
- Positioning relay is available factory mounted or as an accessory.
- Start point of the actuator spring is adjustable. This allows the valve to be sequenced.
- Easy installation.

### Application



These 8-inch actuators are designed to be used on Flowrite VF 599 Series valves in liquid service and steam service applications.

### Product Numbers

Table 1.

Product Numbers	Actuator Codes	
	8-inch Pneumatic	8-inch Pneumatic with Factory Mounted Positioner
599-01050 Normal Duty	277	283
599-01051 High Temperature	278	284

## Warning/Caution Notations

<b>WARNING:</b>		Personal injury/loss of life may occur if a procedure is not performed as specified.
<b>CAUTION:</b>		Equipment damage, or loss of data may occur if the user does not follow a procedure as specified.

<b>Specifications</b>	Effective diaphragm area	28 inches <sup>2</sup> (180 cm <sup>2</sup> )
<b>Operating Temperatures</b>	Normal duty service – media temperatures 25°F to 300°F (–4°C to 149°C)	Buna-N
	High temperature service – media temperatures 25°F to 366°F (–4°C to 186°C)	Silicone rubber
	Ambient operating and storage temperature	35°F to 180°F (2°C to 85°C)
<b>Operating</b>	Nominal spring range	
	Fixed span	
	Normal duty service	5 psi (34 kPa)
	High temperature service	10 psi (68 kPa)
	Adjustable start point	3 to 10 psi (21 to 69 kPa)
	Factory setting	3 to 8 psig (21 to 55 kPa) NO valves 10 to 15 psig (69 to 103 kPa) NC valves
	Nominal stroke	3/4-inch (20 mm)
Maximum diaphragm pressure	35 psi (241 kPa)	
Air Connection	1/8-inch NPT	
<b>Miscellaneous</b>	Mounting location	NEMA 1 (interior only)
	Dimensions	14-1/8-in H x 8-3/4-in diameter (359 mm H x 222 mm diameter)
	Shipping weight	8.7 lbs. (4 kg)
<b>Accessories</b>	Stem Heating Element	ASZ6.6
	Positioning Relay and Mounting Kit	599-00426
	Instructions for mounting are included with the accessory.	
	Spring Clamp (secures 1/4-inch O.D. polytubing to barb-fitting at higher control pressures or elevated temperatures)	531-833
<b>Service Kits</b>	Diaphragm replacement kit (package of one)	
	Normal duty	599-01060
	High temperature service	599-01061
	Stem adapter kit for 8-inch Pneumatic Actuator	599-00435
	Stem retainer kit	599-10048
	Actuator Retainer Kit	599-00436

**Operation**

The control air signal upon the diaphragm causes the valve to modulate whenever the air pressure is within the spring range of the actuator. The actuator spring provides the necessary force to hold the stem in the stem up (direct acting) position.

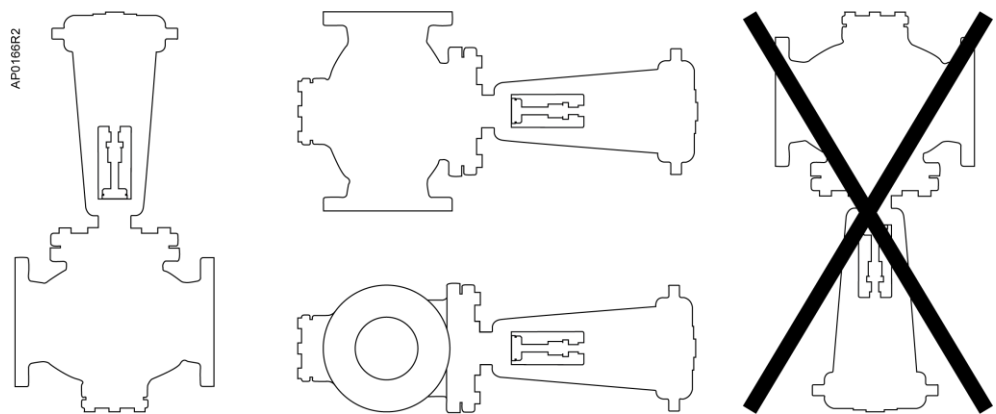
**Mounting and Installation**

Allow 12 inches (300 mm) headroom and six inches (150 mm) on either side for servicing the actuator.

For best performance install the actuator vertically above the valve. The actuator may be installed in any position between vertical and horizontal. Siemens Building Technologies does not recommend installing the actuator below horizontal or up side down. See *Figure 1* for allowable mounting positions.

Complete instructions for field mounting the actuator are included with the actuator.

The top edge of the stem nut indicates the valve stem position. The “0” marking on the actuator yoke indicates stem up position. The “1” mark indicates stem down position. See *Figure 2*.



**Figure 1. Acceptable Mounting Positions.**

**Service**

Complete instructions are included in the diaphragm replacement kit.

**Diaphragm Replacement**



**WARNING:**

Relieve spring tension before removing the actuator upper housing.

## Spring Adjustment

With the actuator in an upright position and the stem visible as shown in *Figure 2*, use a 3/4-inch (.75 mm) open end wrench to turn the adjustment screw.

- Normally Open Valves: To increase the start to close pressure, turn the adjustment screw from right to left. To decrease, turn the adjustment screw from left to right.
- Normally Closed Valves: To increase the start to open pressure, turn the adjustment screw from right to left. To decrease, turn the adjustment screw from left to right.

**NOTE:** As the line pressure differential across the valve increases, the spring span decreases.

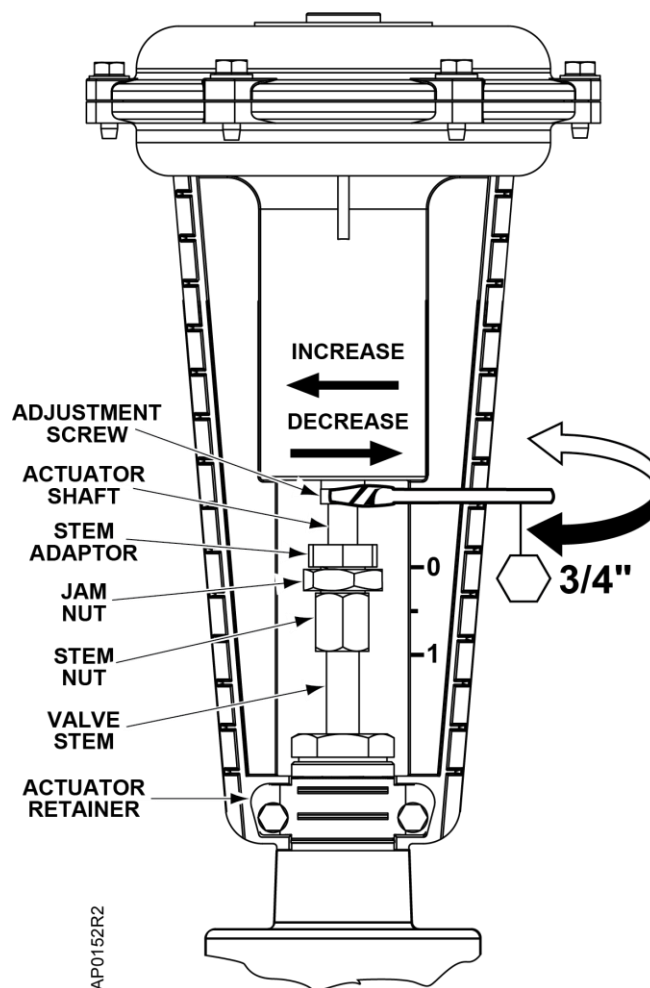
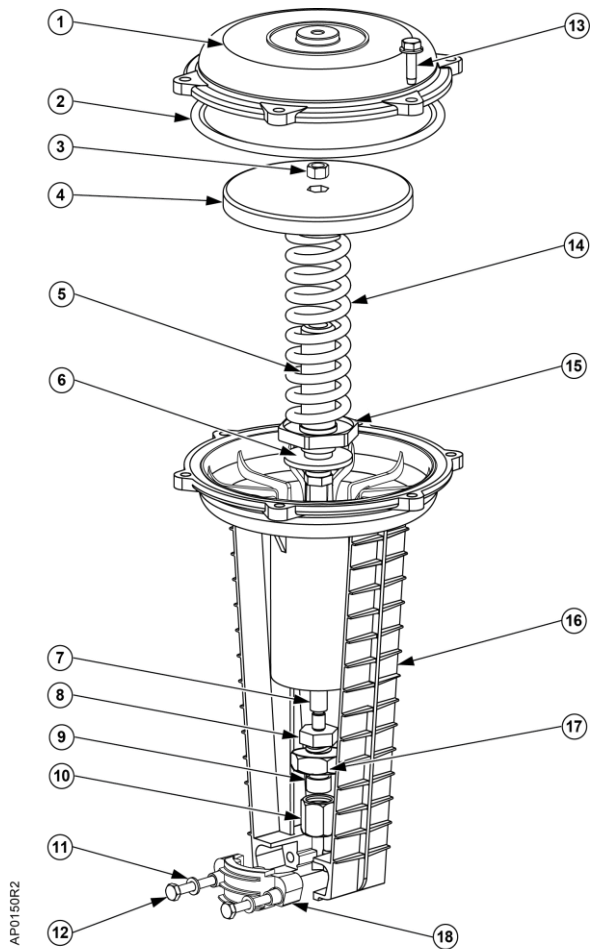


Figure 2. Spring Adjustment.

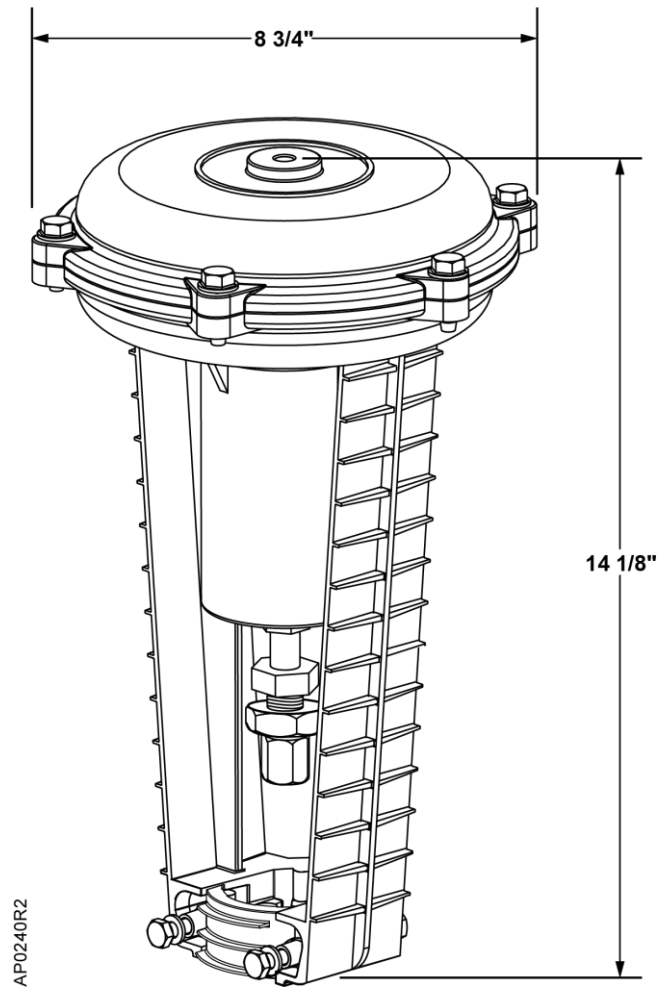
**Parts of the 8-inch Actuator**



**Figure 3. Flowrite AP 599 Series 8-inch Pneumatic Valve.**

Item	Description	Qty	Material	Item	Description	Qty	Material
1	Upper housing	1	Aluminum	11	1/4-20 external tooth lock washer	2	Plated Steel
2	Diaphragm (Normal duty) (High temperature)	1	Neoprene silicone	12	1/4-20 hex head cap screw	2	Plated Steel
3	3/8 x 24 hex nut	1	Plated steel	13	5/16-18 thread forming screws	6	Plated Steel
4	Piston plate	1	Aluminum	14	Spring	1	Chrome Van. Steel
5	Adjust. Screw Ass'y	1	Steel and bronze	15	Spring seat	1	Carbon Steel
6	Thrust washer	1	Carbon steel	16	Lower housing	1	Aluminum
7	Actuator shaft	1	Plated steel	17	Jam nut	1	Plated Steel
8	Stem adapter	1	Plated steel	18	Actuator retainer	1	Aluminum
9	Stem retainer clip	1	Stainless steel	Diaphragm replacement kit		Item 2	
10	Stem nut	1	Stainless steel	Normal duty		599-01060	
				High temperature		599-01061	
				Stem retainer kit (One each of items 9 and 10)		599-10048	
				Stem adapter kit (items 8,9,10, and 17)		599-00435	
				Actuator retainer kit ( items 11, 12, and 18)		599-00436	

## Dimensions



**Figure 4. Dimensions in Inches (Millimeters).**

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