

V-3000-8012 (Exposed) and V-3000-8003 (Enclosed) Pneumatic Valve Actuators

Product/Technical Bulletin

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The V-3000-8012 and V-3000-8003 Pneumatic Valve Actuators are designed to accurately position steam or water valve modulating plugs in response to a pneumatic signal from a controller. A V-9502 Valve Positioner can be ordered separately for use with the V-3000-8012 only, in applications where sequential operation is desired or additional positioning power is necessary. The actuators have a molded synthetic rubber diaphragm design. This molded diaphragm provides a constant effective area throughout the actuator stroke. All parts are protected by a sturdy die-cast aluminum housing.

Two models are available. The exposed model (V-3000-8012) is designed for installations in a protected location, and the enclosed model (V-3000-8003) is designed for installation in a location where the actuator could be subjected to tampering.



**Figure 1: Exposed V-3000-8012 and V-3000-8003
Pneumatic Valve Actuators**

Table 1: V-3000-8012 and V-3000-8003 Pneumatic Valve Actuators Features and Benefits

Features	Benefits
Universal Valve Mounting Design	Allows for use on all Johnson Controls® valves with V-3000 mounting configurations.
Rolling Diaphragm Design	Provides constant effective diaphragm area throughout the actuator stroke for optimal force output.
Integral Stroke Position Indicator	Provides visual reference to valve position.

Operation

Air pressure from a pneumatic controller is applied to the diaphragm of the actuator, which moves the piston against the valve stem. The piston moves the valve stem and plug until the diaphragm pressure balances the valve return spring force and the fluid forces. Reducing the air pressure permits the valve spring to return the valve plug to its normal position. With no control air pressure applied to the diaphragm, the valve is in the normal position.

Interchangeability

Exposed Models

The V-3000-8012 Pneumatic Valve Actuator replaces the V-3000-8011. The V-3000-8012 can also replace the V-3000-1 and V-3000-8001.

The V-3000-1 does not replace the V-3000-8001, V-3000-8011, and V-3000-8012 on VG7000 Series Bronze Valves, or on valves with an upper-spring seat with an outside diameter greater than 1-3/4 in. (44 mm).

Enclosed Models

The V-3000-8003 Pneumatic Valve Actuator can replace the V-3000-2. However, the V-3000-2 cannot replace the V-3000-8003 on VG7000 Series Bronze Valves, or on valves with an upper-spring seat with an outside diameter greater than 1-3/4 in. (44 mm).



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Valve Compatibility

The following valves series are compatible with V-3000-8012 and V-3000-8003 Pneumatic Valve Actuators.

- VG7000 Series
- TM Series
- V-3752 Series
- V-3754 Series
- V-3762 Series
- V-3766 Series
- V-3966 Series
- V-3974 Series
- V-4324 Series
- V-4332 Series
- V-4334 Series
- V-4440 Series

Mounting

The V-3000 Series Pneumatic Valve Actuators can be easily field mounted to the valve bonnet with a single setscrew. The actuators can also be ordered factory mounted to VG7000 Series Bronze Control Valves. The V-9502 can be purchased separately and field mounted to the V-3000-8012. A positioner is not available for the V-3000-8003 Pneumatic Valve Actuator.



WARNING: Risk of Personal Injury and Property Damage. Do not connect control air pressure to the actuator until the actuator is properly secured to the valve body using the set screw. Personal injury and/or property damage may occur if the actuator is stroked when it is not properly secured to the valve body.

Dimensions

See Table 2 on page 4 for a description of the callouts provided with the dimensions.

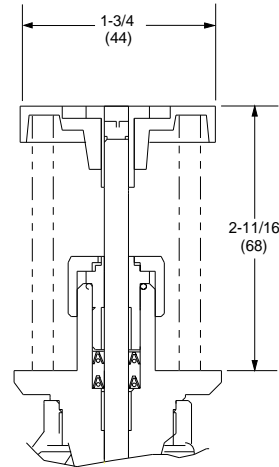


Figure 2: Upper Spring Plate Dimensions, in. (mm)

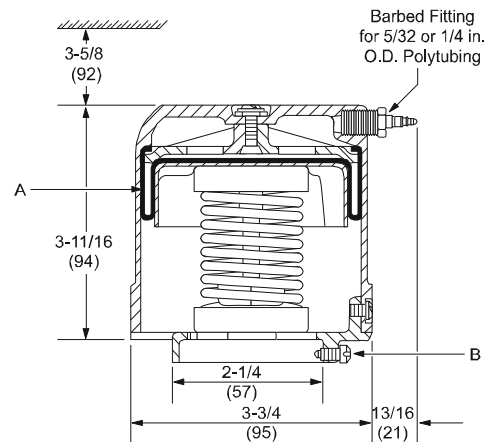


Figure 3: Enclosed V-3000-8003 Pneumatic Valve Actuator Dimensions, in. (mm)

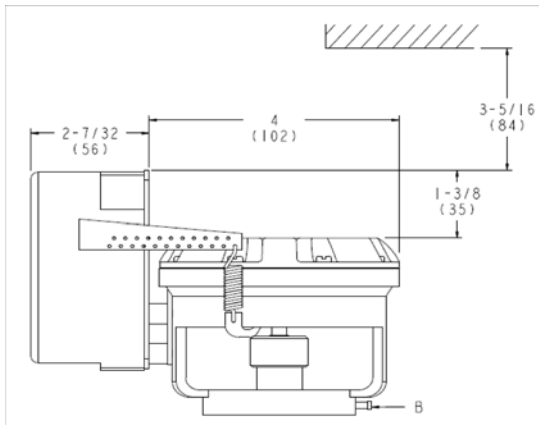


Figure 4: V-3000-8012 Pneumatic Valve Actuator with V-9502-90 Valve Positioner Dimensions, in. (mm)

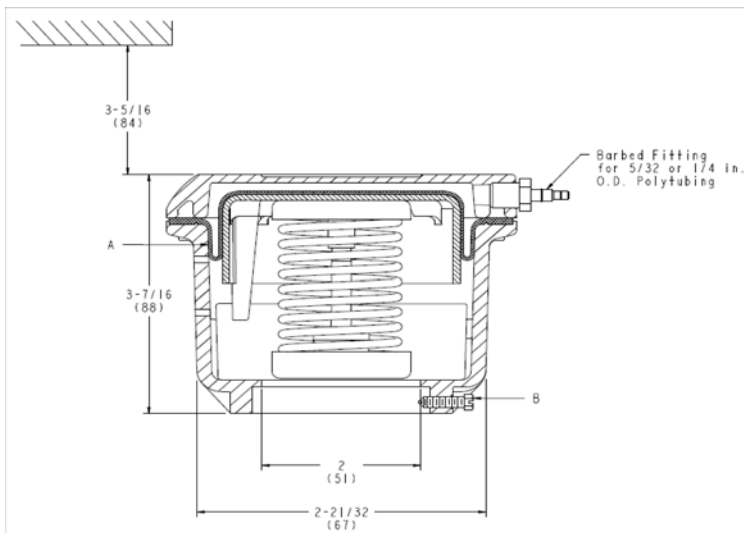


Figure 5: Exposed V-3000-8012 Pneumatic Actuator Dimensions, in. (mm)

Repair Information

See the *Accessories* selection table for replacement diaphragms. For a replacement actuator, contact the nearest Johnson Controls representative.

Table 2: Repair Parts

Item	Description	Shipping Weight, lb (kg)	Code Number
A, Figure 3	Diaphragm, V-3000-8003	0.09 (0.04)	V-3000-601
B, Figure 3, Figure 4, Figure 5	10 - 32 x 1/2 UNF-2A Set Screw	0.01 (0.004)	V-3100-643
A, Figure 5	Diaphragm, V-3000-8012	0.07 (0.03)	V-3000-600

Accessories

Code Number	Description
Exposed Model (V-3000-8012) Accessories	
V-3000-600	Replacement Diaphragm for V-3000-8012
V-9502-90	Pilot Positioner (Less Spring), Mounts to V-3000-8012 Only
V-9502-6801	Pilot positioner springs: 5/16 in. stroke (8 mm lift) - 3 psi (21 kPa) span 1/2 in. stroke (13 mm lift) - 5 psi (34 kPa) span 3/4 in. stroke (19 mm lift) - 10 psi (69 kPa) span
V-9502-6802	Pilot positioner springs: 5/16 in. stroke (8 mm lift) - 8 psi (55 kPa) span 1/2 in. stroke (13 mm lift) - 12 psi (83 kPa) span
V-9502-6803	Pilot positioner springs: 3/4 in. stroke (19 mm lift) 4 psi span
	Valve spring kits: Refer to the specific valve product for spring kit code numbers.
Enclosed Model (V-3000-8003) Accessory	
V-3000-6001	Replacement Diaphragm for V-3000-8003

Technical Specifications

Maximum Control Pressure	25 psig (172 kPa)
Air Connection	Barb Fitting: 5/32 or 1/4 x 1/8 National Pipe Thread (NPT)
Ambient Operating Temperature Limits	-20 to 150°F (-29 to 66°C)
Maximum Storage Temperature	150°F (66°C)
Effective Diaphragm Area	8 in. ² (51.2 cm ²)
Materials	Housing: Die-cast Aluminum Diaphragm: Synthetic Rubber
Shipping Weight	V-3000-8012: 1.1 lb (0.49 kg) V-3000-8003: 1 lb (0.45 kg)



Building Efficiency

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