Product Bulletin VA-3100
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VA-3100 Series
Electric Valve Actuators

VA-3100 Series Electric Valve Actuators use a synchronous motor to accurately position Johnson Controls VG2000 Series Cast Iron Flanged Globe Valves in HVAC and industrial applications. These non-spring return electric actuators provide a 675 lb (3,000 N) force output for on/off (floating) or proportional control. Integral auxiliary switches are available for indicating end stop position or for performing switching functions. Position feedback is also available through an isolated 2,000 ohm potentiometer. All models feature a hand crank for manual positioning of the valve, independent of a power supply.



Figure 1: VA-3100 Series Electric Valve Actuator

Features and Benefits		
q	**Synchronous Motor with Pressure Switches**	Provides a constant running speed and establishes fixed closeoff forces
q	**Two-Bolt Coupler Clamp**	Provides quick and easy coupling of the actuator to the valve stem
q	**On/Off (Floating) or Proportional Control**	Allows optimal choice of control signal
q	**Adjustable Starting Point, Span, and Action (Proportional Control Model Only)**	Provides application flexibility and allows for easy sequencing from only one output signal
☐	**0 to 10 VDC Position Feedback Signal (Proportional Control Model Only)**	Indicates accurate valve position in response to an input signal up to 10 VDC
q	**Auxiliary Switches and Feedback Potentiometer Available on Select Models**	Provides independent verification of actuator position
q	**Manual Hand Crank**	Allows for manual positioning of the valve, independent of a power supply

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Table 1: Ordering Data

Actuator Model	Description					
	On/Off (Floating) Control	Proportional Control	Feedback		Stem and Valve Size	
			2,000 ohm Potentiometer	Two Auxiliary Switches	"M" Stem (3/8 in.), 2-1/2 through 4 in. Valves	"N" Stem (1/2 in.), 5 and 6 in. Valves
VA-3100-AGA	X	---	---	---	X	X
VA-3100-AGC	X	---	X	X	X	X
VA-3100-HGC	---	X	---	X	X	X

Table 2: Accessories (Order Separately)

Code Number	Shipping Weight lb **Note**: lb x 0.454 = kg	Description
VA-3100-101	0.1	Auxiliary Switch Cam Adjusting Wrench (Used on VA-3100 Series Electric Actuators – One Wrench is Supplied with Each Actuator)
VA-3100-500	3.0	Mounting Kit for Field Mounting VA-3100 Series Electric Actuators to 2-1/2 through 4 in. VG2000 Series Cast Iron Flanged Globe Valves with 3/8 in. "M" Stem (Kit Includes One Stem Jam Nut, One Yoke Adaptor, One Packing Nut, One 2-1/4 in. Length Stem Adaptor for 2-1/2 in. Valves, and One 2-1/2 in. Length Stem Adaptor for 3 and 4 in. Valves)
VA-3100-501	3.5	Mounting Kit for Field Mounting VA-3100 Series Electric Actuators to 5 and 6 in. VG2000 Series Cast Iron Flanged Globe Valves with 1/2 in. "N" Stem (Kit Includes One Stem Jam Nut, One Yoke Adaptor, One Packing Nut, and One Stem Adaptor)

Product Guidelines

Before mounting the VA-3100 Series Electric Valve Actuator to a VG2000 Series Cast Iron Flanged Globe Valve, please note the following:

- Mount the valve in an upright position in a conveniently accessible location. When mounted horizontally, orient the yoke so that the yoke supports are positioned vertically, one above the other (as illustrated in Figure 2).

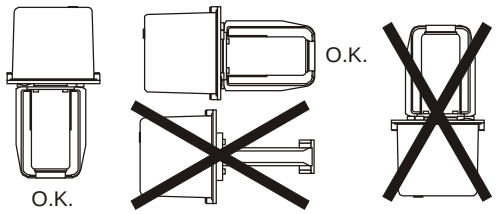
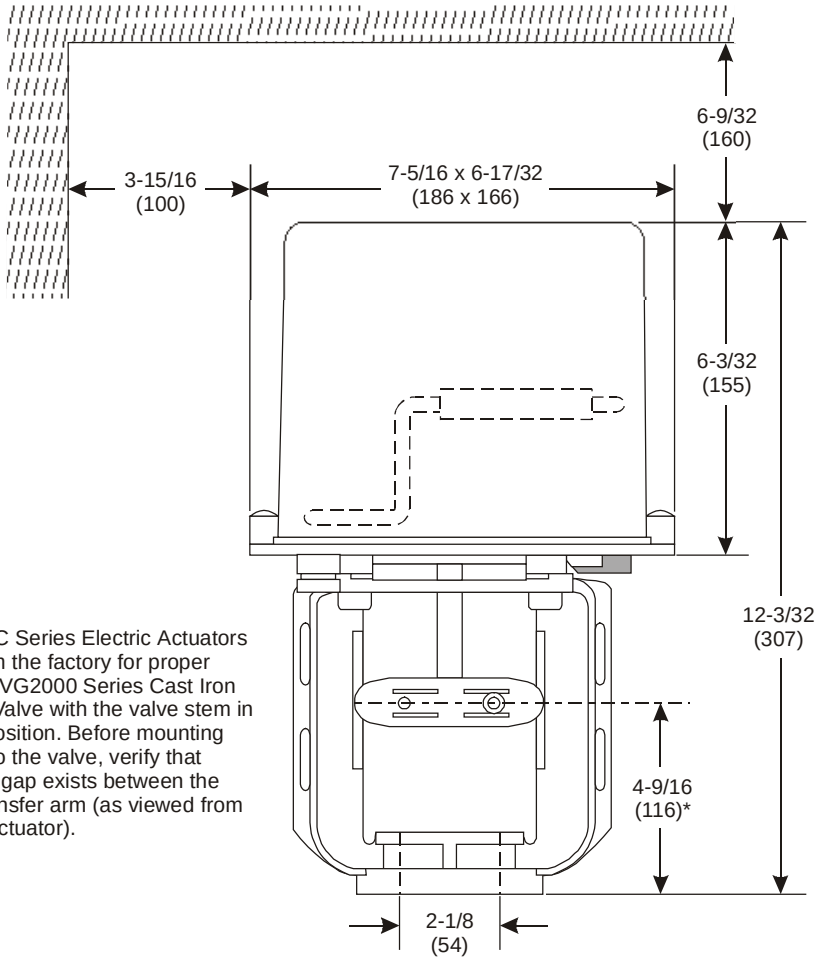


Figure 2: Proper Yoke Orientationfig2.cdr

- Protect the actuator from dripping water that could enter the actuator housing and damage the mechanism or motor.
- Do not cover the actuator with insulating material.
- Allow sufficient clearance to remove the actuator (as illustrated in Figure 3).
- Pipe the valve with the flow in the direction of the arrow on the valve body, so that the plug seats against the flow.

CAUTION: Risk of Equipment Damage. Disconnect all power supplies before making wiring connections or prior to performing maintenance. Check all wiring connections before applying power to the system. Short-circuited or improperly connected wires will result in permanent damage to the equipment.



* All VA-3100-xGC Series Electric Actuators are shipped from the factory for proper mounting to the VG2000 Series Cast Iron Flanged Globe Valve with the valve stem in the fully down position. Before mounting the actuator onto the valve, verify that a 1/8 in. (3 mm) gap exists between the gear and the transfer arm (as viewed from the side of the actuator).

Figure 3: VA-3100 Series Electric Valve Actuator Dimensions, in. (mm)fig3.cdr

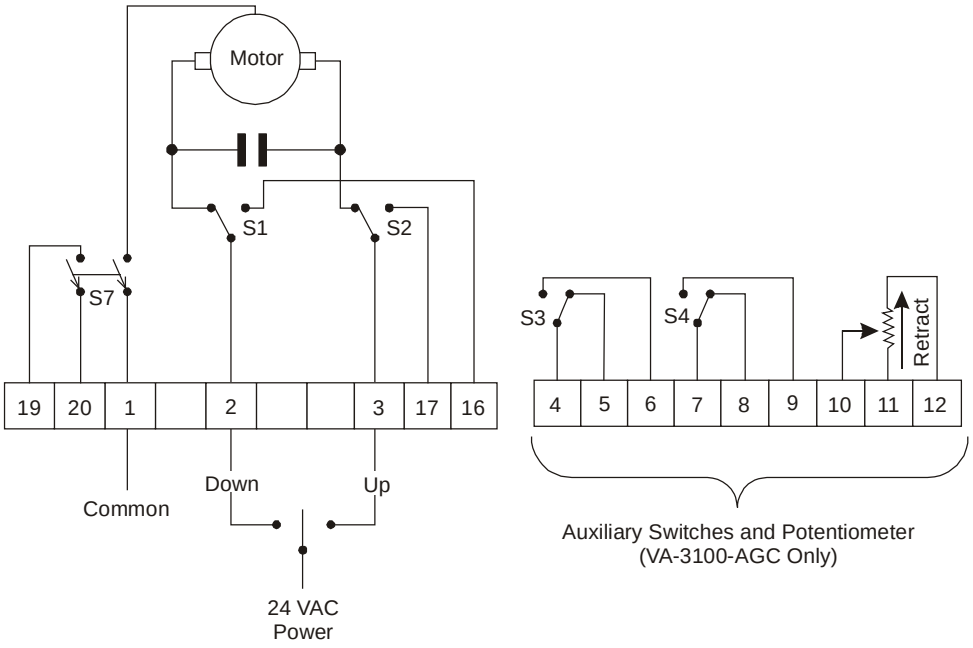


Figure 4: VA-3100-AGx Wiring Diagram for On/Off (Floating) Controlfig4.cdr

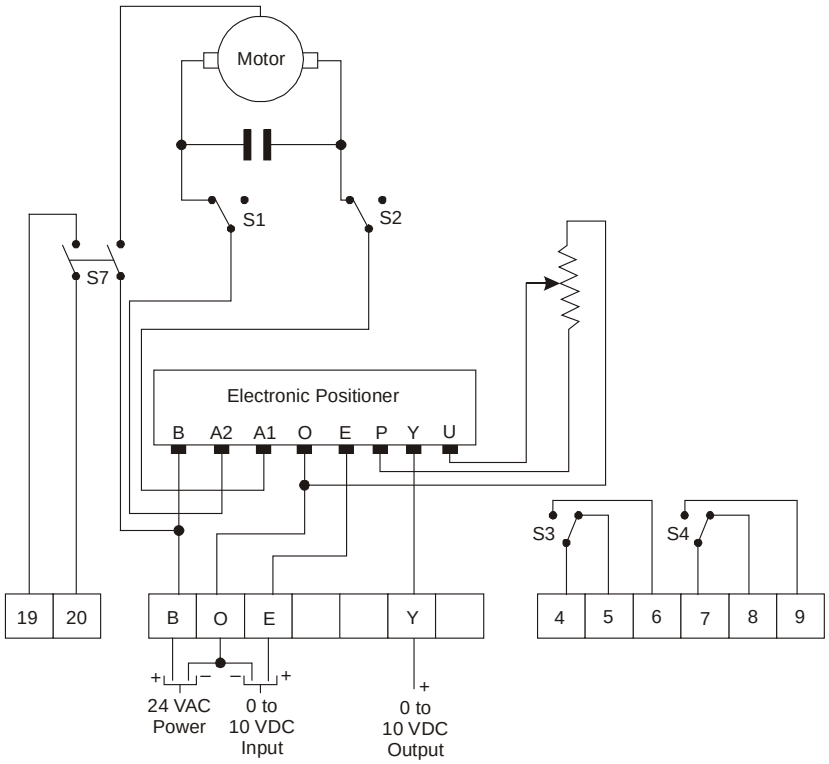


Figure 5: VA-3100-HGC Wiring Diagram for Proportional Controlfig5.cdr

Technical Specifications

Product		VA-3100 Series Electric Valve Actuators
Force Output		675 lb (3,000 N)
Power Requirements	**On/Off (Floating) Control Models**	20 to 28 VAC, 60 Hz; 16 VA Minimum
	Proportional Control Models	20 to 28 VAC, 60 Hz; 18 VA Minimum
Input Signal	**On/Off (Floating) Control Models**	20 to 28 VAC, 60 Hz
	Proportional Control Models	0 to 10 VDC
Input Impedance	**Proportional Control Models Only**	5,600 ohms
Feedback Signal	**VA-3100-AGC Only**	0 to 2,000 ohms
	VA-3100-HGC Only	Approximately 9 VDC Span (0.5 VDC with Valve Stem Fully Down; 9.5 VDC with Valve Stem Fully Up)
Switch Contact Rating		5 A, 24 VAC
Maximum Stroke		1-21/32 in. (42 mm)
Nominal Timing for 1 in. Stroke		92 Seconds
Ambient Operating Temperature Limits (Limited by the Actuator)	**On/Off (Floating) Control Models**	14 to 140°F (-10 to 60°C)
	Proportional Control Models	14 to 122°F (-10 to 50°C)
Agency Compliance		UL 873 Listed, File E27734, CCN XAPX; cUL C22.2 No. 24-93 Listed, File E27734, CCN XAPX7
Enclosure Rating		NEMA 3/3R, IP 54
Shipping Weight		9.7 lb (4.4 kg)

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, shall not be liable for damages resulting from misapplication or misuse of its products.

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