

VA9300 Series Electric Non-Spring Return Valve Actuators Catalog Page

Description

The VA9300 Series Electric Non-Spring Return Actuators are direct mount actuators for valves with ISO Flange mounting such as the VG1000 Series Valves.

The series provides Automatic Signal Input Detection which allows automatic recognition of input signals for on/off, floating, and proportional control.

An optional line voltage auxiliary switch kit can be field installed to indicate an end-stop position or perform switching functions within the selected rotation range. The VA9300 Actuators also feature a NEMA 4X weathershield for applications in harsh environments.

Refer to the *VA9300 Series Electric Non-Spring Return Actuators Product Bulletin (LIT-12012265)* for important product application information.

Features

- automatic signal input detection, on/off, floating, and proportional control with adjustable span and offset
- line voltage on/off and floating models
- high speed on/off and floating models
- easy conversion to valve operation—same actuator used for dampers or valves

- optional accessory kit
- backward compatible auxiliary switch kits and auxiliary potentiometer
- self-calibrating input signal to adjust stroke
- electronic stall detection
- microprocessor-controlled brushless DC motor
- mode configuration switches
- integral cables with colored and numbered conductors
- optional integral 1/2 in. (13 mm) threaded conduit connectors
- plenum-rated models
- small footprint
- M9106, M9109, and M9108 series actuators replacement
- position indicator handle
- same weathershield as M9203 and M9208 series actuators
- NEMA5/IP54 enclosure
- underwriters laboratories Inc.® (UL), CE Mark, and RCM compliance
- manufactured under international standards organization (ISO) 9001 quality control standards
- 100,000 cycles and 2.5 million repositions
- 5-year warranty

VA9310 Series Electric Non-Spring Return Actuator



Repair Information

If the VA9300 Series Electric Non-Spring Return Valve Actuator fails to operate within its specifications, replace the unit. For a replacement actuator, contact the nearest Johnson Controls® representative.

Selection Chart

Table 1: Selection Chart

Code Number	Torque lb.in. (N·m)	Rotation Time For 90° Running (Seconds)	Power Supply		Input Signal			Position Feedback				Electrical Connection		Auxiliary Switches		
			AC/DC 24 V	AC 85 to 264 V	On/Off	Floating	Proportional DC 0 (2) to 10 V (with Adjustable Span)	DC 0 (2) to 10 V	140 Ω	1 k Ω	2 k Ω	10 k Ω	120 in. (3 m) Plenum Cable	48 in. (1 m) Halogen Free Cable	1 x SPDT, AC 3 (0.5) A, 240 V	2 x SPDT, 3 (0.5) A, AC 240 V
VA9308-AGA-2Z	70 (8)	8	X		X	X			X ¹	X ¹	X ¹	X ¹	X		X ¹	X ²
VA9308-AUA-2Z	70 (8)	8		X	X	X			X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9310-AUA-2	90 (10)	90		X	X	X			X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9310-GUA-2	90 (10)	90		X	X	X	X	X ³	X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9310-HGA-2	90 (10)	90	X		X	X	X	X ²	X ¹	X ¹	X ¹	X ¹	X		X ²	X ²
VA9320-AUA-2	180 (20)	90		X	X	X			X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9320-GUA-2	180 (20)	90		X	X	X	X	X ³	X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9320-HGA-2	180 (20)	90	X		X	X	X	X ²	X ¹	X ¹	X ¹	X ¹	X		X ²	X ²
VA9335-AUA-2	310 (35)	150		X	X	X			X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9335-GUA-2	310 (35)	150		X	X	X	X	X ³	X ¹	X ¹	X ¹	X ¹		X	X ²	X ²
VA9335-HGA-2	310 (35)	150	X		X	X	X	X ³	X ¹	X ¹	X ¹	X ¹		X	X ²	X ²

1. With optional external feedback potentiometer kit (M9300-140, M9300-1K, M9300-2K, or M9000-10K).
 2. With optional external auxiliary switch kit (M9300-1 or M9300-2).
 3. Feedback is available when 0 (2) to 10 V proportional input is used.

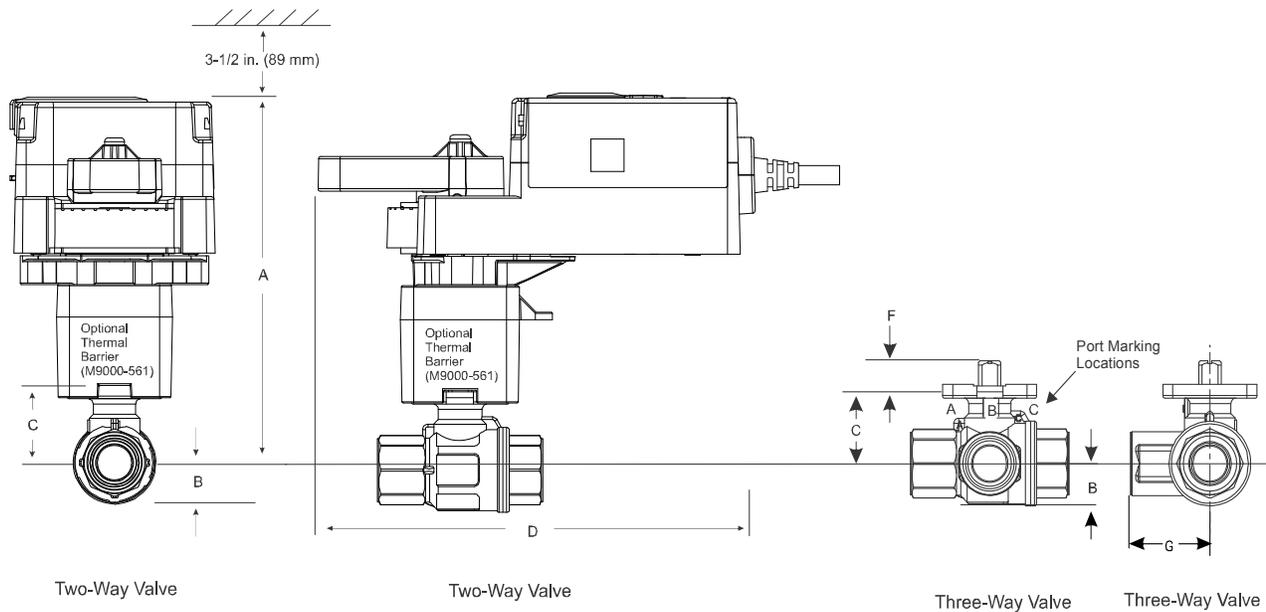
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Accessories

Code Number	Description
M9000-342	NEMA 4X, IP66/67 weathershield kit for VG1000 Series Ball application of VA9104, VA9300, VA9203, and VA9208 Series Electric Actuators (quantity 1)
M9000-343	NEMA 4X, IP66/67 weathershield for 2 1/2" to 6" VG1000 Series Ball Valve application of VA9320 and VA9335 Series Electric Actuators
M9000-561	Thermal barrier kit, extends the VA9104, VA9300, VA9203, and VA9208 Series Electric Actuators applications to include low pressure steam
M9000-700	Universal Ball Valve Linkage Kit
M9300-1	External auxiliary switch kit (one single-pole, double-throw)
M9300-2	External auxiliary switch kit (two single-pole, double-throw)
M9300-100	Threaded conduit adapters for 1/2 in. electrician's fittings (quantity 5)
M9300-140	External auxiliary feedback potentiometer 140k ohm
M9300-1K	External auxiliary feedback potentiometer 1k ohm
M9300-2K	External auxiliary feedback potentiometer 2k ohm
M9310-10K	External auxiliary feedback potentiometer 10k ohm
M9310-600	Coupler kit for transformation from VA9308 to M9308 and from VA9310 to M9310 Series Actuators
M9320-600	Coupler kit for transformation to 9320 Series Actuators

VA9300 Dimensions

VA9300 Series Electric Non-Spring Return Actuator and Valve Dimensions
(with Optional M9000-561 Thermal Barrier)

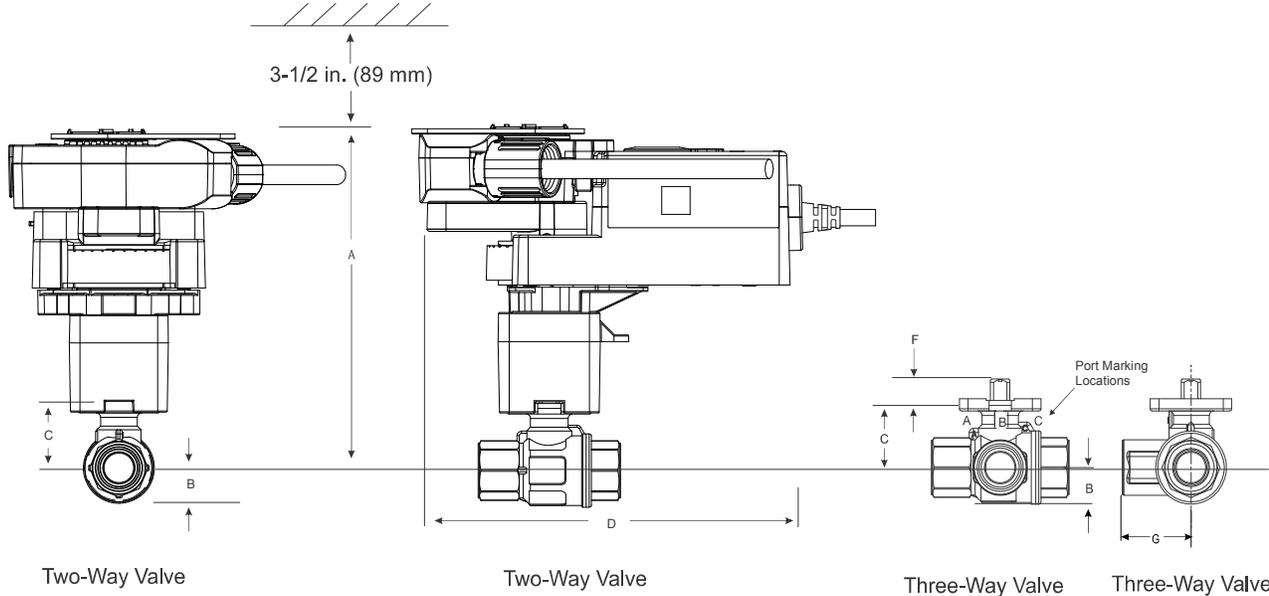


VA9300 Actuated VG1241, VG1245, VG1841, and VG1845 Series Ball Valve Dimensions, in. (mm)

Valve Size, in. (DN)	A (with Thermal Barrier)	A (without Thermal Barrier)	B	C	D	E	F	G
1/2 (DN15)	5-3/4 (146)	4-3/8 (111)	21/32 (17)	1-7/32 (31)	6-13/32 (163)	2-33/64 (64)	11/32 (9)	1-1/4 (32)
3/4 (DN20)	5-3/4 (146)	4-3/8 (111)	21/32 (17)	1-7/32 (31)	6-13/32 (163)	2-51/64 (71)	11/32 (9)	1-13/32 (36)
1 (DN25)	5-13/16 (148)	4-7/16 (113)	3/4 (19)	1-5/16 (33)	6-13/32 (163)	3-13/32 (87)	11/32 (9)	1-45/64 (43)
1-1/4 (DN32)	6-1/4 (159)	4-7/8 (124)	1-1/32 (26)	1-23/32 (44)	6-13/32 (163)	3-15/16 (100)	11/32 (9)	1-31/32 (50)
1-1/2 (DN40)	6-13/32 (163)	5-1/32 (128)	1-1/8 (29)	1-7/8 (48)	6-13/32 (163)	4-21/64 (110)	11/32 (9)	2-11/64 (55)
2 (DN50)	6-5/8 (168)	5-1/4 (133)	1-15/32 (37)	2-1/16 (53)	6-13/32 (163)	4-27/32 (123)	11/32 (9)	2-27/64 (62)

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**VA9300 Series Electric Non-Spring Return Actuator and Valve Dimensions
(with Optional M9000-561 Thermal Barrier and M9300-2 Switch Kit)**



VA9300 Actuated VG1241, VG1245, VG1841, and VG1845 Series Ball Valve Dimensions (with Optional M9000-561 Thermal Barrier and M9300-2 Switch Kit)

Valve Size, in. (DN)	A (with Thermal Barrier)	A (without Thermal Barrier)	B	C	D	E	F	G
1/2 (DN15)	6-3/25 (155.7)	4-3/4 (120.7)	21/32 (17)	1-7/32 (31)	6-21/32 (169)	2-33/64 (64)	11/32 (9)	1-1/4 (32)
3/4 (DN20)	6-3/25 (155.7)	4-3/4 (120.7)	21/32 (17)	1-7/32 (31)	6-21/32 (169)	2-51/64 (71)	11/32 (9)	1-13/32 (36)
1 (DN25)	6-1/5 (157.7)	4-21/25 (122.7)	3/4 (19)	1-5/16 (33)	6-21/32 (169)	3-13/32 (87)	11/32 (9)	1-45/64 (43)
1-1/4 (DN32)	6-16/25 (168.7)	5-1/4 (133.7)	1-1/32 (26)	1-23/32 (44)	6-21/32 (169)	3-15/16 (100)	11/32 (9)	1-31/32 (50)
1-1/2 (DN40)	6-4/5 (172.7)	5-3/7 (137.7)	1-1/8 (29)	1-7/8 (48)	6-21/32 (169)	4-21/64 (110)	11/32 (9)	2-11/64 (55)
2 (DN50)	6 (177.2)	5-5/8 (142.7)	1-15/32 (37)	2-1/16 (53)	6-21/32 (169)	4-27/32 (123)	11/32 (9)	2-27/64 (62)

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Technical Specifications

VA9308-AxA-2Z and VA9310-AUA-2 Series Electric Non-Spring Return Actuators

Product Description	VA9308-AGA-2Z: Floating and on/off mode	VA9308-AUA-2Z: Floating and on/off mode	VA9310-AUA-2: Floating and on/off mode
Power Requirements	AC 24 V \pm 20% at 50/60 Hz, Class 2 (North America) or SELV (Europe), 12.7 VA running. DC 24 V \pm 10% Class 2 (North America) or SELV (Europe), 5.7 W running.	Nominal AC 120 V at 60 Hz: 0.11 A running	Nominal AC 120 V at 60 Hz: 0.04 A running
Transformer Sizing Requirements	\geq 13 VA	—	—
Input Signal/Adjustments	AC 19.2 to 28.8 V at 50/60 Hz or DC 24 V \pm 10% Class 2 (North America) or SELV (Europe)	AC 100 to 240 V (AC 85 to 264 V) at 50/60 Hz	
Rotation Range	Mechanically limited to 95° \pm 3°		
Rotation Time for 90° of Travel	8 sec, constant at all operating conditions		90 sec, constant at all operating conditions
Cycles	60,000 full stroke cycles; 1,500,000 repositions		100,000 full stroke cycles; 2,500,000 repositions
Audible Noise	<45 dBA at 0 to 70 lb·in (8 N·m) load, at a distance of 39-13/32 in. (1m)		<35 dBA at 39-13/32 in. (1m)
Electrical Connections	120 in. (3.05 m) UL 444 type CMP plenum rated cable with 19 AWG (0.75 mm ²) conductors and 0.25 in. (6 mm) ferrule ends	48 in. (1.2 m) halogen free cable with 18 AWG (0.82 mm ²) conductors and 0.25 in. (6mm) ferrule ends	
Conduit Connections	1/2 in. NPSM (13 mm) threaded conduit connectors with M9300-100 Conduit Connector (optional with the VA9308-AGA-2Z)		
Ambient Conditions	Operating: -22 to 140°F (-30 to 60°C), 95% RH, noncondensing Storage: -40 to 185°F (-40 to 85°C), 95% RH, noncondensing		
Fluid Temperature Limits (Actuator and Valve Assembly)	VG12x1 and VG18x1 Series: 23 to 203°F (-5 to 95°C) VG12x5 and VG18x5 Series: -22 to 212°F (-30 to 100°C) VG12x5 and VG18x5 Series with M9000-561 Thermal Barrier Installed: -22 to 284°F (-30 to 140°C) water; 15 psig (103 kPa) at 250°F (121°C) saturated steam		
Enclosure	IP54/NEMA 5		
Shipping Weight	2 lb (0.9 kg)		
Compliance	<p>United States: UL Listed, CCN XAPX, File E27734; to UL 60730-1: Automatic Electrical Controls for Household and Similar Use, Part 1; and UL 60730-2-14: Part 2, Particular Requirements for Electric Actuators. Plenum Rated (UL 2043). Suitable for use in Other Environmental Air Space (Plenum) in accordance with section 300.22 (c) of the National Electrical Code.</p> <p>Canada: UL Listed, CCN XAPX7, File E27734; to CAN/CSA E60730-1:02: Automatic Electrical Controls for Household and Similar Use, Part 1; and CAN/CSA-E60730-2-14, Particular Requirements for Electric Actuators.</p> <p>Europe: CE Mark—Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.</p> <p>Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant</p>		

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VA9310-HGA-2 Electric Non-Spring Return Actuators

Product Description	VA9310-HGA-2: On/off and floating mode	VA9310-HGA-2: Proportional mode
Power Requirements	AC 24 V $\pm 20\%$ at 50/60 Hz, Class 2 (North America) or SELV (Europe), 4.7 VA running. DC 24 V $\pm 10\%$ Class 2 (North America) or SELV (Europe), 1.3 W running.	
Transformer Sizing Requirements	≥ 6.5 VA	
Input Signal/Adjustments	AC 19.2 to 28.8 V at 50/60 Hz or DC 24 V $\pm 10\%$ Class 2 (North America) or SELV (Europe)	DC 0 (2) to 10 V or 0 (4) to 20 mA with field furnished 500 ohm 1/4 W resistor Offset: DC 0 to 10 V SPAN: DC 2 to 10 V
Control Impedance	4.7k ohm	100k ohm
Feedback Signal	—	DC 0 (2) to 10 V
Rotation Range	Mechanically limited to $95^\circ \pm 3^\circ$	
Rotation Time for 90° of Travel	90 seconds, constant for all operating conditions	
Rotation Time Auto-calibration	35 seconds	
Cycles	100,000 full stroke cycles; 2,500,000 repositions	
Audible Noise	< 35 dBA at 0 to 90 lb·in (10 N·m) load, at a distance of 39-13/32 in. (1 m)	
Electrical Connections	120 in. (3.05 m) UL 444 type CMP plenum rated cable with 19 AWG cable (0.75 mm ²) conductors and 0.25 in. (6 mm) ferrule ends	
Conduit Connections	1/2 in. NPSM (13 mm) threaded conduit connectors with M9300-100 Conduit Connector (optional with the M9310-HGA-2)	
Ambient Conditions	Operating: -22 to 140°F (-30 to 60°C), 95% RH, noncondensing Storage: -40 to 185°F (-40 to 85°C), 95% RH, noncondensing	
Fluid Temperature Limits (Actuator and Valve Assembly)	VG12x1 and VG18x1 Series: 23 to 203°F (-5 to 95°C) VG12x5 and VG18x5 Series: -22 to 212°F (-30 to 100°C) VG12x5 and VG18x5 Series with M9000-561 Thermal Barrier Installed: -22 to 284°F (-30 to 140°C) water; 15 psig (103 kPa) at 250°F (121°C) saturated steam	
Enclosure	IP54/NEMA 5	
Shipping Weight	2 lb (0.9 kg)	
Compliance	<p>United States: UL Listed, CCN XAPX, File E27734; to UL 60730-1: Automatic Electrical Controls for Household and Similar Use, Part 1; and UL 60730-2-14: Part 2, Particular Requirements for Electric Actuators. Plenum Rated (UL 2043). Suitable for use in Other Environmental Air Space (Plenum) in accordance with section 300.22 (c) of the National Electrical Code.</p> <p>Canada: UL Listed, CCN XAPX7, File E27734; to CAN/CSA E60730-1:02: Automatic Electrical Controls for Household and Similar Use, Part 1; and CAN/CSA-E60730-2-14, Particular Requirements for Electric Actuators.</p> <p>Europe: CE Mark—Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.</p> <p>Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant</p>	

VA9300 Series Electric Non-Spring Return Valve Actuators Catalog Page (Continued)

VA9310-GUA-2 and VA9320-xUA-2 Series Electric Non-Spring Return Actuators

Product Description	VA9310-GUA-2: Proportional mode	VA9320-GUA-2: Floating and on/off mode	VA9320-AUA-2: Floating and on/off mode	VA9335-GUA-2: Proportional mode
Power Requirements	Nominal AC 120 V at 60 Hz: 0.05 A running	Nominal AC 120 V at 60 Hz: 0.05 A running	Nominal AC 120 V at 60 Hz: 0.05 A running	Nominal AC 120 V at 60 Hz: 0.06 A running
Transformer Sizing Requirements	—	—	—	—
Input Signal/ Adjustments	AC 100 to 240 V (AC 85 to 264 V) at 50/60 Hz	AC 100 to 240 V (AC 85 to 264 V) at 50/60 Hz		
Rotation Range	Mechanically limited to 95° ±3°			
Rotation Time for 90° of Travel	90 sec, constant at all operating conditions		90 sec, constant at all operating conditions	150 second, constant at all operating conditions
Cycles	60,000 full stroke cycles; 1,500,000 repositions		100,000 full stroke cycles; 2,500,000 repositions	
Audible Noise	<35 dBA at 0 to 70 lb·in (8 N·m) load, at a distance of 39-13/32 in. (1m)	<45 dBA at 0 to 70 lb·in (8 N·m) load, at a distance of 39-13/32 in. (1m)	<45 dBA at 39-13/32 in. (1m)	
Electrical Connections	120 in. (3.05 m) UL 444 type CMP plenum rated cable with 19 AWG (0.75 mm ²) conductors and 0.25 in. (6 mm) ferrule ends	48 in. (1.2 m) halogen free cable with 18 AWG (0.82 mm ²) conductors and 0.25 in. (6mm) ferrule ends		
Conduit Connections	1/2 in. NPSM (13 mm) threaded conduit connectors with M9300-100 Conduit Connector (optional with the VA9308-AGA-2Z)			
Ambient Conditions	Operating: -22 to 140°F (-30 to 60°C), 95% RH, noncondensing Storage: -40 to 185°F (-40 to 85°C), 95% RH, noncondensing			
Fluid Temperature Limits (Actuator and Valve Assembly)	VG12x1 and VG18x1 Series: 23 to 203°F (-5 to 95°C) VG12x5 and VG18x5 Series: -22 to 212°F (-30 to 100°C) VG12x5 and VG18x5 Series with M9000-561 Thermal Barrier Installed: -22 to 284°F (-30 to 140°C) water; 15 psig (103 kPa) at 250°F (121°C) saturated steam			
Enclosure	IP54/NEMA 5			
Shipping Weight	2 lb (0.9 kg)			
Compliance	<p>United States: UL Listed, CCN XAPX, File E27734; to UL 60730-1: Automatic Electrical Controls for Household and Similar Use, Part 1; and UL 60730-2-14: Part 2, Particular Requirements for Electric Actuators. Plenum Rated (UL 2043). Suitable for use in Other Environmental Air Space (Plenum) in accordance with section 300.22 (c) of the National Electrical Code.</p> <p>Canada: UL Listed, CCN XAPX7, File E27734; to CAN/CSA E60730-1:02: Automatic Electrical Controls for Household and Similar Use, Part 1; and CAN/CSA-E60730-2-14, Particular Requirements for Electric Actuators.</p> <p>Europe: CE Mark—Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.</p> <p>Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant</p>			

VA9300 Series Electric Non-Spring Return Valve Actuators Catalog Page (Continued)

VA9320-HGA-2 and VA9335-HGA-2 Electric Non-Spring Return Actuators

Product Description	VA9320-HGA-2 & VA9335-HGA-2	
	On/off and floating mode	Proportional mode
Power Requirements	AC 24 V (AC 19.2 to 28.8 V) at 50/60 Hz, Class 2 (North America) or SELV (Europe) VA9320-HGA-2: 5.7 VA running; VA9335-HGA-2: 6.1 VA running DC 24 V (DC 21.6 to 26.4 V) Class 2 (North America) or SELV (Europe) VA9320-HGA-2: 2.1 W running; VA9335-HGA-2: 2.1 W running	
Transformer Sizing Requirements	≥7 VA	
Input Signal/Adjustments	AC 19.2 to 28.8 V at 50/60 Hz or DC 24 V ±10% Class 2 (North America) or SELV (Europe)	DC 0 (2) to 10 V or 0 (4) to 20 mA with field furnished 500 ohm 1/4 W resistor Offset: DC 0 to 10 V; SPAN: DC 2 to 10 V
Control Impedance	4.7k ohm	100k ohm
Feedback Signal	—	DC 0 (2) to 10 V
Running Torque	VA9320-HGA-2: 180 lb·in (20 N·m); VA9335-HGA-2: 310 lb·in (35 N·m)	
Rotation Range	Mechanically limited to 35...95° ±3° in 5° increments	
Rotation Time for 90° of Travel	VA9320-HGA-2: 90 seconds; VA9335-HGA-2: 150 seconds; constant for all operating conditions	
Rotation Time Auto-calibration	VA9320-HGA-2: 35 seconds; VA9335-HGA-2: 75 seconds	
Cycles	VA9320-HGA-2: 100,000 full stroke cycles; 2,500,000 repositions VA9335-HGA-2: 30,000 full stroke cycles; 750,000 repositions	
Audible Noise	<35 dBA at 0 to 90 lb·in (10 N·m) load, at a distance of 39-13/32 in. (1 m)	
Electrical Connections	120 in. (3.05 m) UL 444 type CMP plenum rated cable with 19 AWG cable (0.75 mm ²) conductors and 0.25 in. (6 mm) ferrule ends	
Conduit Connections	1/2 in. NPSM (13 mm) threaded conduit connectors with M9300-100 Conduit Connector (optional with the M9310-HGA-2)	
Ambient Conditions	Operating: -22 to 140°F (-30 to 60°C), 95% RH, noncondensing Storage: -40 to 185°F (-40 to 85°C), 95% RH, noncondensing	
Fluid Temperature Limits (Actuator and Valve Assembly)	VG12x1 and VG18x1 Series: 23 to 203°F (-5 to 95°C) VG12x5 and VG18x5 Series: -22 to 212°F (-30 to 100°C) VG12x5 and VG18x5 Series with M9000-561 Thermal Barrier Installed: -22 to 284°F (-30 to 140°C) water; 15 psig (103 kPa) at 250°F (121°C) saturated steam	
Enclosure	IP54/NEMA 5	
Shipping Weight	2 lb (0.9 kg)	
Compliance	<p>United States: UL Listed, CCN XAPX, File E27734; to UL 60730-1: Automatic Electrical Controls for Household and Similar Use, Part 1; and UL 60730-2-14: Part 2, Particular Requirements for Electric Actuators. Plenum Rated (UL 2043). Suitable for use in Other Environmental Air Space (Plenum) in accordance with section 300.22 (c) of the National Electrical Code.</p> <p>Canada: UL Listed, CCN XAPX7, File E27734; to CAN/CSA E60730-1:02: Automatic Electrical Controls for Household and Similar Use, Part 1; and CAN/CSA-E60730-2-14, Particular Requirements for Electric Actuators.</p> <p>Europe: CE Mark—Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.</p> <p>Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant</p>	

The performance specifications are nominal and conform to acceptable industry standard. 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.