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Động cơ van gió M9300

không lò xo hồi 8–35 Nm · M9308, M9310, M9320, M9335

M9300 Johnson Controls – động cơ van gió không lò xo hồi 8–35 Nm (M9308, M9310, M9320, M9335), tự nhận tín hiệu on/off, floating, 0–10 V, bản VA cho van.

Mã: M9300 · Hãng: Johnson Controls · Hotline: 093 797 2339

dlk.com.vn/m9300-johnson-controls-dong-co-van-gio.html



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Electric Damper Actuator

M9300 Series Electric Non-Spring Return Actuators

Introduction

The M/VA9300 Series Electric Non-Spring Return Actuators provide control of dampers in HVAC also control of valves such as ball valve and butterfly valve. All actuators in this series provide 8Nm to 35Nm torque.

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

The series are configured for direct mounting and do not require damper linkage. Actuators can be mounted directly to a damper shaft from 10mm to 27 mm diameter and 16 to 19 mm square with a universal clamp.

An accessory crank arm and remote mounting kit are available for applications where the actuator cannot be direct-coupled to the damper shaft.



Fig.1 M(VA) 9300 Series

Table 1: Features and Benefits

Features	Benefits
Automatic Signal Input Detection, On/Off, Floating, and Proportional Control with Adjustable Span and Offset	Increases availability at distributors and simplifies retrofits
Self-Calibrating Input Signal to Adjust Stroke	Eliminates the need for a complex calibration procedure when adjusting stops
Electronic Stall Detection	Protects from overload at all angles of rotation. The actuator may be stalled anywhere in its rotation range without the need for mechanical end switches
100,000 Cycles and 2.5 Millions Repositions	Assure long time reliability
Underwriters Laboratories Inc.® (UL), CE Mark, and RCM Compliance	Provides internationally recognized regulatory agency approvals



Technical Specifications

Code Number	Running torque	Rotation time for 90°	Power supply		Input signal			Position feedback	Mechanical connection			Electrical connection		Auxiliary switches
	N·m	Running (seconds)	24V AC/DC	85 to 264 VAC	On/off	Floating	Proportional Dc 0 (2) to 10 V(with adjustable Span and Offset)	DC 0 (2) to 10 V	Round: 9.5 to 19 mm Square: 8 to 16 mm	Round: 19 to 27 mm Square: 16 to 19 mm	Round: 10 to 19 mm Square: 10 to 16 mm	1.2m halogen free cable 82 mm ² conductors and 6 mm ferrule ends	13 mm NPSM threaded conduit connectors	1 x SPDT or 2 x SPDT
M9308-AGA-1Z	8 N·m	8	X		X	X			X			X	Optional1	Optional2
M9308-AUA-1Z	8 N·m	8		X	X	X			X			X	Optional1	Optional2
M9310-AUA-3	10 N·m	90		X	X	X			X			X	Optional1	Optional2
VA9310-AUA-3	10 N·m	90		X	X	X						X	Optional1	Optional2
M9310-HGA-3	10 N·m	90	X		X	X	X	X3	X			X	Optional1	Optional2
VA9310-HGA-3	10 N·m	90	X		X	X	X	X3				X	Optional1	Optional2
M9320-AUA-1	20 N·m	90		X	X	X				X		X	Optional1	Optional2
VA9320-AUA-3	20 N·m	90		X	X	X						X	Optional1	Optional2
M9320-HGA-1	20 N·m	90	X		X	X	X	X3		X		X	Optional1	Optional2
VA9320-HGA-3	20 N·m	90	X		X	X	X	X3				X	Optional1	Optional2
M9320-AUA-4	20 N·m	90		X	X	X					X	X	Optional1	Optional2
M9320-HGA-4	20 N·m	90	X		X	X	X	X3			X	X	Optional1	Optional2
M9335-AUA-1	35 N·m	150		X	X	X				X		X	Optional1	Optional2
VA9335-AUA-3	35 N·m	150		X	X	X						X	Optional1	Optional2
M9335-HGA-1	35 N·m	150	X		X	X	X	X3		X		X	Optional1	Optional2
VA9335-HGA-3	35 N·m	150	X		X	X	X	X3				X	Optional1	Optional2
M9335-AUA-4	35 N·m	150		X	X	X					X	X	Optional1	Optional2
M9335-HGA-4	35 N·m	150	X		X	X	X	X3			X	X	Optional1	Optional2

1. Order separately M9300-100 (quantity 5)
2. Order separately M9300-1 or M9300-2
3. Feedback is only available when 0(2) to 10V proportional input is used.

Electric Damper Actuator

Accessories (order separately)

Code number	Description
M9000-322	NEMA 4X, IP66/67 weather shield kit for damper application of M9104, M9310, M9203 and M9208 Series Electric Actuators
M9000-342	NEMA 4X, IP66/67 weather shield kit for VG1000 Series Ball application of VA9104, VA9310, VA9203 and VA9208 Series Electric Actuators (quantity 1)
M9000-561	Thermal Barrier Kit, extends the VA9104, VA9310, VA9203 and VA9208 Series Electric Actuators applications to include low pressure steam
M9000-604	Replacement anti-rotation bracket kit for M9310, M9203, M9208, M9210 and M9220 Series Electric Actuators
M9000-606	Position indicator (quantity 5)
M9300-1	External auxiliary switch kit, one single-pole, double-throw (SPDT)
M9300-2	External auxiliary switch kit, two (SPDT)
M9300-100	Threaded conduit adapters for 13 mm electrician's fittings (quantity 5)
M9300-140	External auxiliary feedback potentiometer, 140 ohm (optional for 140 ohm position feedback)
M9000-151	Remote mounting kit, with crankarm and damper linkage for M9108, M9116, M9124, and M9300 Series Electric Damper Actuators
M9300-1K	External auxiliary feedback potentiometer, 1k ohm (optional for 1k ohm position feedback)
M9300-2K	External auxiliary feedback potentiometer, 2k ohm (optional for 2k ohm position feedback)
M9300-10K	External auxiliary feedback potentiometer, 10k ohm (optional for 10k ohm position feedback)
M9310-500	Ball valve linkage kit for converting M9308 and M9310 Series Electric Damper Actuators into VA9308 and VA9310 Series Electric Valve Actuators to operate VG1000 ball valves
M9310-600	Standard coupler kit for M9308 and M9310 Series Electric Damper Actuators; round 10 to 19 mm and square 10 to 16 mm

Technical Specifications

M9308-AxA-1Z and M9310-AUA-1 Series Electric Non-Spring Return Actuators

Product description	M9308-AGA-1Z: Floating and on/off mode	M9308-AUA-1Z: Floating and on/off mode	M9310-AUA-1: Floating and on/off mode
Power requirements	AC 24 V+20% at 50/60 Hz, Class 2 (North America) or SELV (Europe), 12.7 VA running; DC 24V±10% Class 2 (North America) or SELV (Europe), 5.7 W running	Nominal AC 120 V at 60 Hz: 0.07 A running	Nominal AC 120 V at 60 Hz: 0.04 A running
Transformer sizing requirements	≥13 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)	AC 100 to 240 V (AC 85 to 264 V) at 50/60 Hz	
Running torque	8 N·m		10 N·m
Rotation range	Mechanically limited 35 to 95° (±3°) in 5° increments		
Rotation time for 90° of travel	8 seconds, constant at all operating conditions		90 seconds, 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	<52 dBA at 0 to 8 N·m load, at a distance of 1 m		<35 dBA at 1 m
Electrical connections	1.2 m halogen free cable with 18 AWG (0.82 mm ²) conductors and 6mm ferrule ends		
Conduit connections	13 mm NPSM threaded conduit connectors with M9300-100 Conduit Connector (optional with the M9308-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		
Enclosure	NEMA 5/IP54		
Shipping weight	2 lb (0.9 kg)		
Compliance 	United States: UL Listed, CCN XAPX, File E27734: 10 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. 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.		
	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.		
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant		

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.

Electric Damper Actuator

Technical Specifications

M(VA)9310-HGA-3 Electric Non-Spring Return Actuator

Product description	On/off and floating mode	Proportional mode
Power requirements	AC 24 V +20% at 50/60 Hz, Class 2 (North America) or SELV (Europe), 4.7 VA running; DC 24 V +10% Class 2 (North America) or SELV (Europe), 1.3 W running	
Transformer sizing requirements	≥6 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	10 N·m	
Rotation range	Mechanically limited 35 to 95° (±3°) in 5° increments	
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 10 N·m load, at a distance of 1 m	
Electrical connections	1.2 m halogen free cable with 18 AWG (0.82 mm²) conductors and 6mm ferrule ends	
Conduit connections	13 mm NPSM threaded conduit connectors with M9300-100 Conduit Connector (optional with the M9308-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	
Enclosure	NEMA 5/IP54	
Shipping weight	2 lb (0.9 kg)	
Compliance 	United States: UL Listed, CCN XAPX, File E27734: 10 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. 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.	
	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.	
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant	

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Technical Specifications

M(VA)9320 and M(VA)9335 Series Electric Non-Spring Return Actuators

Product description	M9320-HGA-x and M9335-HGA-x		M9320-AUA-x and M9335-AUA-x
	On/off and floating mode	Proportional mode	On/off and floating mode
Power requirements	AC 24 V (AC 19.2 to 28.8 V) at 50/60 Hz. Class 2 (North America) or SELV (Europe) M9320-HGA-x: 5.7 VA running M9335-HGA-x: 6.1 VA running DC 24 V (DC 21.6 to 26.4 V) Class 2 (North America) or SELV (Europe) M9320-HGA-x: 2.1 W running M9335-HGA-x: 2.1 W running		Nominal Ac 120 V at 60 Hz M9320-AUA-x: 0.05 A running M9335-AUA-x: 0.05 A 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	AC 100 to 240 V (AC 85 to 264 V) at 50/60 Hz
Control impedance	4.7k ohm	100k ohm	-
Feedback signal	-	DC 0 (2) to 10V	-
Running torque	M9320: 20 N·m M9335: 35 N·m		
Rotation range	Mechanically limited 35 to 95° (±3°) in 5° increments		
Rotation time for 90° of travel	M9320: 90 seconds; constant for all operating conditions M9335: 150 seconds; constant for all operating conditions		
Rotation time auto-calibration	M9320: 35 seconds M9335: 75 seconds		
Cycles	M9320: 100,000 full stroke cycles; 2,500,000 repositions M9335: 30,000 full stroke cycles; 750,000 repositions		
Audible noise	<45 dBA at maximum load, at a distance of 1 m		
Electrical connections	1.2 m halogen free cable with 18 AWG (0.82 mm ²) conductors and 6mm ferrule ends		
Conduit connections	Optional 13 mm NPSM threaded conduit connectors with M9300-100 Conduit Connector		
Mechanical connections	M93xx-xxA-3 Round: 19 to 27 mm Square: 16 to 19 mm M93xx-xxA-4 Round: 10 to 19 mm Square: 10 to 16 mm		
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		
Enclosure	NEMA 5/IP54		
Compliance 	United States: UL Listed, CCN XAPX, File E27734: 10 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. 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.		
	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.		
	Australia and New Zealand: RCM Mark, Australia/NZ Emissions Compliant		
Shipping weight	2 lb (0.9 kg)		

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