

M9109 Series

Electric Non-spring Return Actuators



M9109

Description

The M9109 Series direct-mount electric actuators operate on 24 VAC power and are available for use with floating or proportional controllers. These non-spring return actuators are easily installed on a Variable Air Volume (VAV) box, a round damper shaft up to 1/2 inch (13 mm) in diameter, or a 3/8 inch (10 mm) square shaft.

The M9109 models have 80 lb-in (9 N-m) running torque. They have a nominal 60-second travel time for 90° of rotation at 60 Hz (72 seconds at 50 Hz) with a load-independent rotation time. The M9109-xGC-2 models are available with integral auxiliary switches to perform switching functions at any angle within the selected rotation range.

Features

- 35 dBA rating meets audible requirements for open ceilings
- synchronous drive provides constant rotation time independent of load
- direct shaft mount with single-screw coupler simplifies installation and provides 3-point shaft gripping
- a magnetic clutch provides torque protection for the damper and actuator
- jumper-selectable rotation direction (GGx models only) simplifies installation
- adjustable rotation stops allow application versatility with 30 to 90° clockwise or counterclockwise rotation
- 1/2 in. NPT threaded conduit opening meets electrical code requirements and allows the use of armored cable
- a manual gear release simplifies setup and field adjustments
- output position feedback (GGx models) provides simple, closed-loop control with accurate position sensing

Applications

The M9109 is used to position balancing, control, round, and zone dampers in typical HVAC applications. The M9109 mounts

directly on the duct surface, round damper, or small rectangular damper with an anti-rotation bracket and two sheet metal screws (included). Additional linkages or couplers are not required.

For more information, refer to the *M9109 Series Electric Non-spring Return Actuators Product Bulletin, LIT-120112* or the *M9109 Series Electric Non-spring Return Actuators Installation Instructions, Part No. 34-636-1190*.

Repair Parts

Replace the unit.

To Order

Specify the code number from the following selection chart.

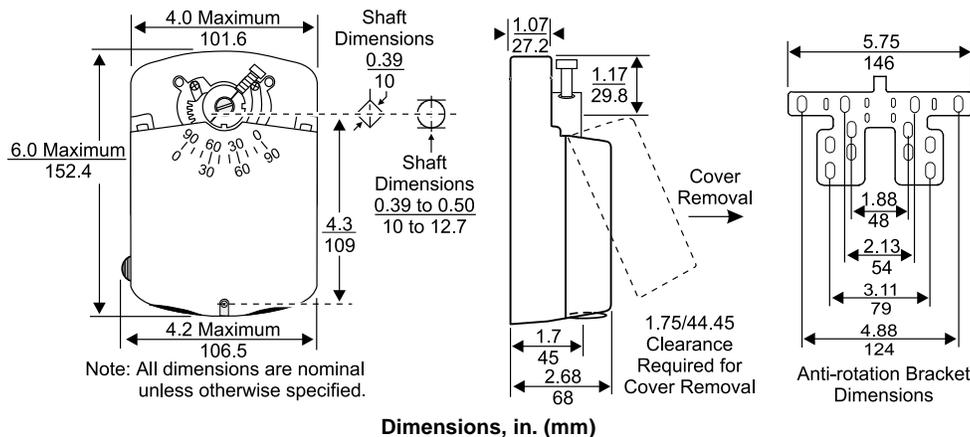
Selection Chart

M9109 Series Electric Non-spring Return Actuators 80 lb-in (9 N-m)	M9109-AGA-2	M9109-AGC-2	M9109-GGA-2	M9109-GGC-2
Floating Control	■	■		
Proportional Control			■	■
Feedback				
0 to 10 VDC Feedback			■	■
2 Auxiliary Switches		■		■

Accessories

Code Number	Description
DMPR-KC003 (a)	Blade Pin Extension without Bracket for Johnson Controls CD-1300 damper direct mount applications
DMPR-KR003 (a)	Sleeve Pin Kit for use with Johnson Controls round dampers with a 5/16 in. (8 mm) shaft
M9000-105	Pluggable 3-Terminal Block
M9000-106	Pluggable 4-Terminal Block
M9000-160	Replacement anti-rotation bracket for M9109 Series actuators
M9000-200	Commissioning Tool provides a control signal to drive on/off, floating, proportional, or resistive actuators.
M9000-512	Valve Linkage Kit for field mounting an M9109 actuator to a 1/2 and 3/4 in. 2-way and 3-way VG10 00Series ball valves

(a) Furnished with the damper and may be ordered separately.



M9109 Series Electric Non-spring Return Actuators (Continued)

Specifications

M9109 Series Electric Non-spring Return Actuators	
Power Requirements	AGx: 20 to 30 VAC at 50/60 Hz; 2.5 VA supply, Class 2 GGx: 20 to 30 VAC at 50/60 Hz; 3.2 VA supply, Class 2
Input Signal	AGx: 20 to 30 VAC at 50/60 Hz GGx: 0 to 10 VDC or 0 to 20 mA
Input Signal Adjustments	AGx: CW and COM Terminals, CW rotation; CCW and COM Terminals, CCW rotation GGx (Voltage Input or Current Input): Jumper Selectable: 0 (2) to 10 VDC or 0 (4) to 20 mA Factory Setting: 0 to 10 VDC, CW rotation with signal increase Action is jumper selectable Direct (CW) or Reverse (CCW) with signal increase.
Input Impedance	AGx: 200 ohms, nominal GGx: Voltage Input, 150,000 ohms; Current Input, 500 ohms
Feedback Signal	GGx: 0 to 10 VDC or 2 to 10 VDC for 90° (10 VDC at 1 mA); Corresponds to input signal span selection
Auxiliary Switch Rating	xGC: Two Single-Pole, Double-Throw (SPDT) switches rated at 24 VAC, 1.5 A inductive, 3.0 A resistive, 35 VA maximum per switch, Class 2
Mechanical Output	Running Torque: 80 lb-in (9 N-m)
Cycles	60,000 full cycles; 2,500,000 repositions rated at 80 lb-in (9 N-m)
Audible Noise Rating	35 dBA maximum at 1 m
Rotation Range	Adjustable from 30 to 90°, CW or CCW
Rotation Time	Nominal 60 seconds at 60 Hz and 72 seconds at 50 Hz for 90°
Electrical Connection	1/4 in. spade terminals (To order optional pluggable terminal blocks, see Accessories chart.)
Mechanical Connection	3/8 to 1/2 in. (10 to 12.7 mm) round shaft or 3/8 in. (10 mm) square shaft
Enclosure	NEMA 2, IP32
Ambient Operating Conditions	-4 to 125°F (-20 to 52°C); 90% RH maximum, non-condensing
Ambient Storage Conditions	-40 to 176°F (-40 to 80°C); 90% RH maximum, non-condensing
Dimensions (H x W x D)	5.9 x 4.2 x 2.64 in. (150.1 x 106.5 x 67 mm)
Shipping Weight	2.4 lb (1.08 kg)
Agency Compliance	UL 873 Listed, File E27734, CCN XAPX CSA C22.2 No. 139 Certified, File LR85083, Class 3221 02 CE Mark, EMC Directive 89/336/EEC