

M9000-330 and M9000-340 Series Weather Shield Enclosures

Installation Instructions

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Applications

The M9000-330 and M9000-340 Weather Shield Enclosures are cost-effective and durable weather shields designed to provide a degree of protection for a single Johnson Controls® M9000 Series Electric Actuator used in ball valve applications in conjunction with a M9000-51x Series Valve Linkage Kit. These weather shield enclosures are manufactured to National Electrical Manufacturers' Association (NEMA) 3R specifications and protect the electric actuator from corrosion, rain, freezing rain, sleet, and snow. The enclosure can be mounted indoors or outdoors; however, it may not prevent externally formed ice from restricting the motion of the rotary shaft.

Each enclosure is constructed of impact-grade ABS plastic that provides excellent impact resistance. The cover features ultraviolet inhibitors that extend service life by preventing the cover from becoming brittle or damaged by the sun or other environmental elements. The transparent cover provides an unobstructed view of the electric actuator without having to disassemble the enclosure. An appliance cord (for the M9000-330 model) enables installation of control wiring, and a form-fitting seal prevents water or moisture from entering the unit and damaging the actuator.

IMPORTANT: The M9000-330 and M9000-340 Weather Shield Enclosures only provide protection for the Johnson Controls M9000 Series Electric Actuator used in ball valve applications. To ensure proper operation, check that all associated equipment used in the application is suitable for the surrounding environment.

Installation

Refer to the following documentation for more information on the M9000 Series Electric Actuators and Valve Linkages used with the M9000-330 and M9000-340 Weather Shield Enclosures:

- *M9108, M9116, M9124, and M9132 Series Electric Non-Spring Return Actuators Installation Instructions (Part No. 34-636-399)*
- *M9210-Bxx-3 On/Off Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1638)*
- *M9210-GGx-3 Proportional Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1662)*
- *M9220-AGx-3 Floating Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1689)*
- *M9220-Bxx-3 On/Off Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1239)*
- *M9220-GGx-3 Proportional Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1697)*
- *M9000-51x Series Valve Linkage Kits Installation Instructions (Part No. 14-1201-13)*

Parts Included

Table 1: Parts Included in M9000-330 and M9000-340 Weather Shield Enclosure Kits

Quantity		Description
M9000-330 ¹	M9000-340 ¹	
1	1	Enclosure Base and Seal Assembly
1	1	Cover and Gasket
4	4	Cover Screw
1	1	Anti-Rotation Bracket
1	1	Weather Shield Enclosure Mounting Plate
2	4	M4 Plain Washer
2	4	M3-0.5 x 8 mm Machine Screw
4	–	#6-32 x 1/2 in. Fillister Screw
4	–	#6-32 Serrated Nut
–	4	#10-32 x 1-3/4 in. Fillister Screw
–	4	#10-32 Serrated Nut
3	4	M5 x 16 Serrated Hex Screw
3	4	M5 Serrated Nut
2	2	Terminal Block, 4 Position, Pluggable, 26-12 AWG
2	2	Terminal Block, 3 Position, Pluggable, 26-12 AWG
2	2	Strain Relief Conduit Fittings with 1/2 in. National Pipe Straight Mechanical (NPSM) Exit ²
1	1	Cap, Plug
–	1	M9210/M9220 Actuator Stand-off
1	–	Appliance Cord - 6 Conductor, 18 AWG Wire Gauge, 43 in. (109 cm)

1. This kit does not include the M9000-51x Series Valve Linkage Kit (Figure 2). This item must be ordered separately.
2. It is recommended that 1/2 in. liquid-tight conduit and 1/2 in. National Pipe Thread (NPT) liquid-tight fittings (purchased locally) be used to terminate the control wiring to the weather shield enclosure strain relief conduit fittings.

Dimensions

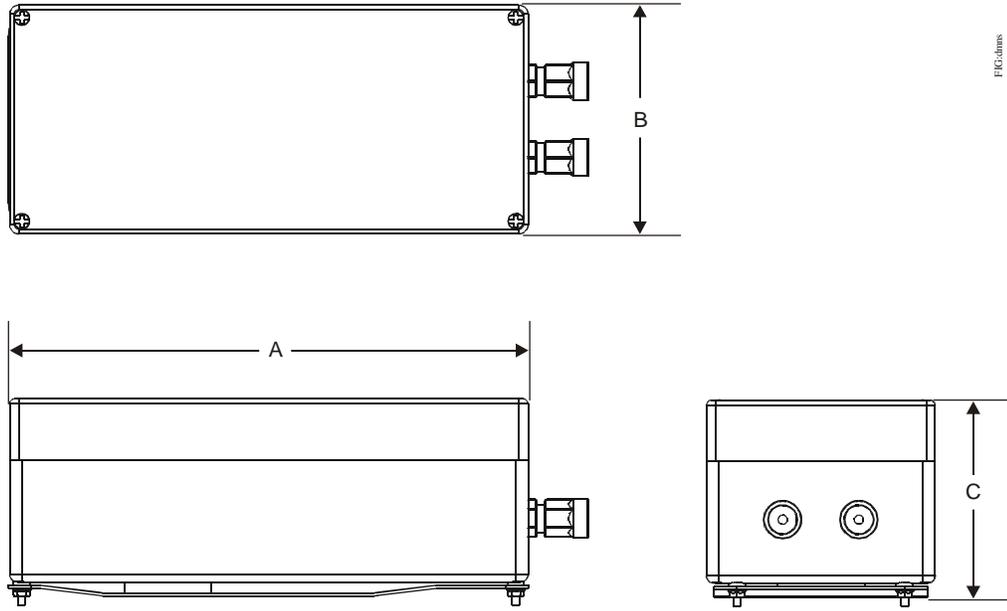


Figure 1: Weather Shield Enclosure Dimensions, in. (mm)
(See Table 2.)

Table 2: Weather Shield Enclosure Dimensions, in. (mm)

Dimension	Weather Shield Enclosure	
	M9000-330	M9000-340
A	7-7/8 (200)	13-3/8 (340)
B	4-23/32 (120)	5-29/32 (150)
C	3-29/32 (99)	5-1/16 (129)

Mounting

The M9000-330 and M9000-340 Weather Shield Enclosure Kits are shipped from the factory partially assembled, with the cover held in place using the four cover screws included with the kit. The remainder of the parts required for mounting can be found inside the enclosure.

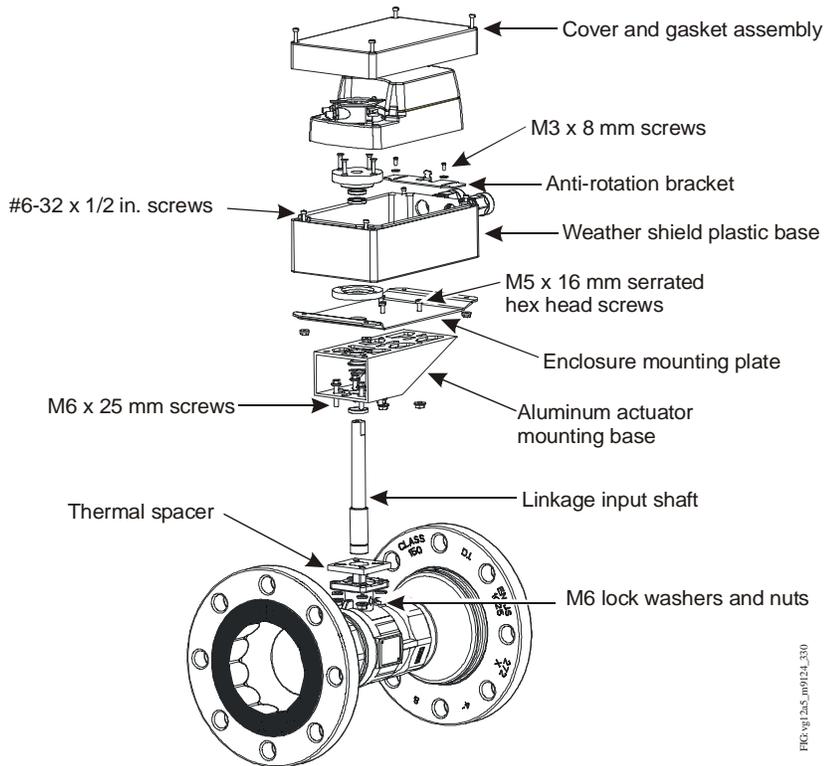


Figure 2: Exploded View of VG12A5 Series Flanged Ball Valve with M9124 Non-Spring Return Actuator and M9000-330 Weather Shield Kit

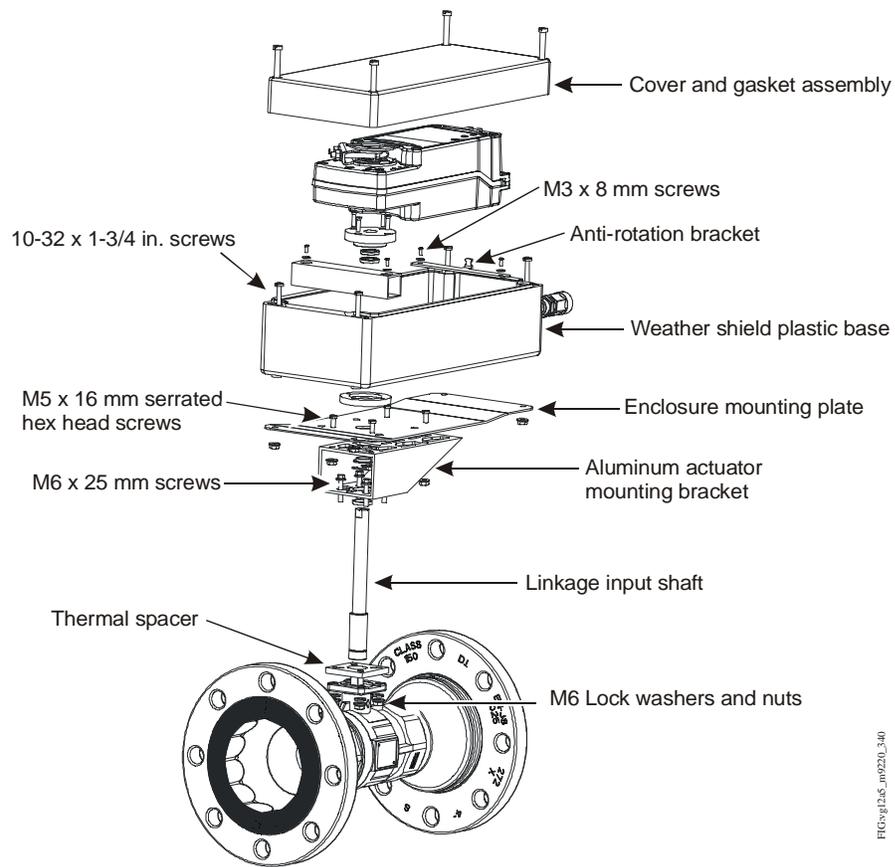


Figure 3: Exploded View of VG12A5 Series Flanged Ball Valve with M9220 Spring Return Actuator and M9000-340 Weather Shield Kit

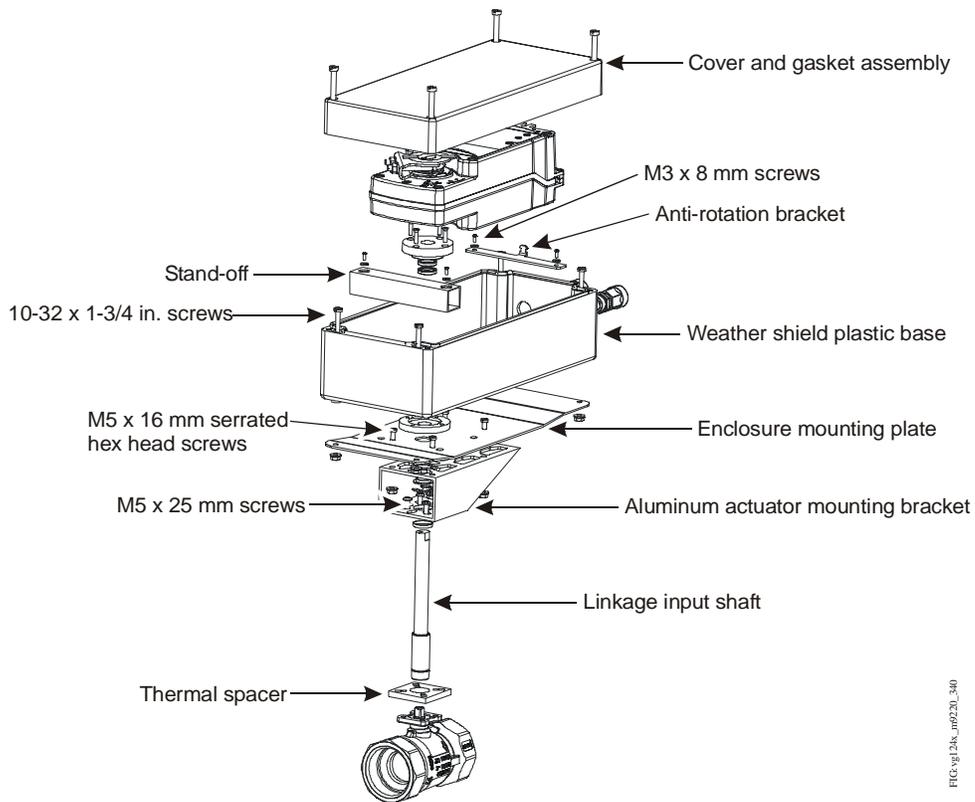


Figure 4: Exploded View of VG124x Series NPT Threaded Ball Valve with M9220 Spring Return Actuator and M9000-340 Weather Shield

Mount the weather shield enclosure onto the M9000-51x Series Valve Linkage as follows:

1. Loosen the four cover screws using a No.1 Phillips screwdriver, and remove the cover assembly from the enclosure base.
2. Insert the small brass expanding inserts into the weather shield plastic base as indicated on Figure 5 to provide threading for M3 screws.
3. Orient the anti-rotation bracket onto the enclosure as illustrated in Figure 5.

Note: The anti-rotation bracket must be oriented properly in order for the anti-rotation tab to align with the slot on the electric actuator.

4. Secure the anti-rotation bracket and the actuator standoff (standoff is for M9000-340 only) to the threaded brass inserts of the enclosure base using four M3 x 8 mm Phillips screws and M4 washers included with the kit. Tighten the Phillips screws to a torque of 5 to 8 lb-in (0.57 to 0.90 N·m).

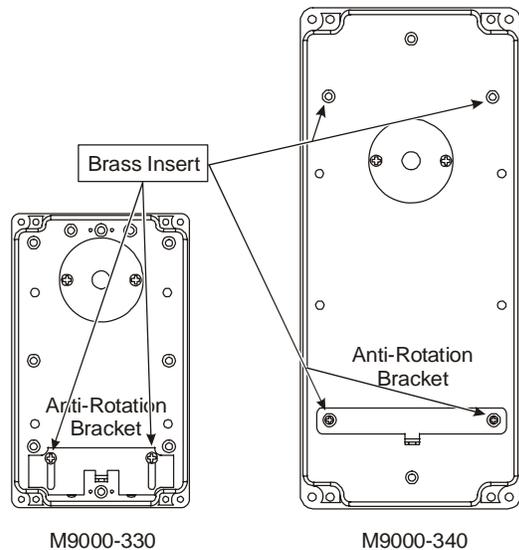


Figure 5: Proper Orientation of the Anti-Rotation Bracket

5. Place the thermal spacer on top of the ball valve mounting flange aligning the holes in the thermal spacer with the mounting holes of the valve. The inner holes of the thermal spacer are used for 1/2 through 2 in. ball valves and the outer holes are used for the 2-1/2 through 4 in. flanged ball valves.
 6. Mount the aluminum actuator mounting bracket to the thermal spacer and ball valve using either the four M5 x 25 mm or M6 x 25 mm screws. For some models, this may require the use of the four M5 or M6 serrated hex nuts.
 7. Mount the linkage plate to the mounting bracket using the M5 x 16 mm serrated hex head screws and M5 serrated nuts. Hand tighten only to allow the linkage plate to be aligned with the weather shield plastic base as in Step 8. The M9000-330 kit has three screws and the M9000-340 kit has four screws.
 8. Install the weather shield plastic base over the linkage input shaft. Move linkage plate until the holes in the weather shield base align with the holes in the linkage mounting plate. Remove the weather shield plastic base and tighten the M5 screws to torque of 41 to 45 lb-in (4.6 to 5.1 N·m).
 9. Replace the weather shield plastic base over the linkage input shaft and secure to the linkage plate using the #6-32 x 1/2 in. screws and #6-32 serrated hex nuts (M9000-330 kit) or the #10-32 x 1-3/4 in. screws and the #10-32 serrated hex nuts (M9000-340 kit) using a torque of 21 to 25 lb-in (2.4 to 2.8 N·m).
 10. Install the two conduit fittings included with the kit into the enclosure base and secure them in place using the threaded hex nuts.
- IMPORTANT:** The conduit fittings must be installed properly to ensure a tight seal. Water or moisture may damage or affect the operation of the electric actuator within the enclosure.
11. For the M9000-330 kit, insert the appliance cord into one of the conduit fittings so that the cable wrapping is visible inside the enclosure. For the M9000-340 kit, feed the appliance cord(s) of the actuator through the conduit fittings.
 12. Install the actuator to the enclosure/linkage assembly. Insert the actuator anti-rotation slots over the anti-rotation tab of the bracket from Step 4.
 13. Center the shaft in the actuator hub. Secure the actuator coupler assembly to the shaft following the actuator mounting instructions.
- Note:** Refer to the documentation included with the electric actuator and valve linkage for complete installation instructions.
14. Tighten the conduit fitting to a torque of 10 to 15 lb-in (1.1 to 1.7 N·m) to secure the appliance cord in place.
 15. Reinstall the cover and gasket assembly and secure it in place using the four cover screws included with the kit. Tighten the cover screws to a torque of 5 to 8 lb-in (0.6 to 0.9 N·m).
 16. If one of the conduit fittings remains unused, seal the fitting using the cap plug included with the enclosure kit.

Repair Information

If the M9000-330 or M9000-340 Series Weather Shield Enclosure fails to operate within its specifications, replace the unit. For a replacement weather shield, contact the nearest Johnson Controls representative.

Technical Specifications

M9000-330 and M9000-340 Weather Shield Enclosures

Materials	Enclosure	Impact-Grade ABS Plastic
	Enclosure Seal	Nitrile
	Cover	Transparent Impact-Grade ABS Plastic with Ultraviolet Inhibitors
	Cover Gasket	Neoprene
Weather Shield Rating		NEMA 3R, IP54
Actuator Ambient Operating Temperature Limits	M9108, M9116, M9124, and M9132	-4 to 122°F (-20 to 50°C)
	M9210 and M9220	-40 to 131°F (-40 to 55°C)
Weather Shield Enclosure Ambient Storage Temperature Limits		-40 to 176°F (-40 to 80°C)
Electrical Connections		Strain Relief Conduit Fittings with 1/2 in. National Pipe Straight Mechanical (NPSM) Exit
Shipping Weight	M9000-330	3.2 lb (1.45 kg)
	M9000-340	4.2 lb (1.9 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, Inc. shall not be liable for damages resulting from misapplication or misuse of its products.



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