

M9208-100 Remote Mounting Kit

Installation Instructions

M9208-100

Part No. 34-636-2197, Rev. —
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Applications

The M9208-100 Remote Mounting Kit enables remotely mounted, linkage-driven applications of the M9208 Series Electric Spring Return Actuators when the hardware needed for final connection to the damper is pre-existing or is supplied separately.

For applications requiring hardware to complete the connection to damper blades, especially Johnson Controls® D1300 Series Dampers, consider the more complete M9208-250 Remote Mounting Kit.

The M9208-100 Remote Mounting Kit is intended for applications that require displacement perpendicular or parallel to the mounting surface.

Mount the M9208-100 Remote Mounting Kit internally or externally on a duct, damper, or air handling unit. The factory installed actuator gripper and retaining ring must be discarded when the M9208-100 Remote Mounting Kit is used.

Installation

Parts Included

See Figure 1 for the parts included in the M9208-100 Remote Mounting Kit.

Note: Refer to the appropriate installation instructions listed in Table 1 for complete actuator mounting and adjustments.

Table 1: Mounting Kit, Actuators, and Corresponding Documentation

Mounting Kit	Actuator	Installation Instruction
M9208-100	M9208-Bxx	<i>M9208-Bxx-3 Series On/Off Electric Spring Return Actuators Installation Instructions (Part No. 34-636-2103)</i>
	M9208-AGx	<i>M9208-AGx-x Series On/Off and Floating Point Electric Spring Return Actuators Installation Instructions (Part No. 34-636-2170)</i>
	M9208-GGx	<i>M9208-GGx-x Series Proportional Electric Spring Return Actuators Installation Instructions (Part No. 34-636-2189)</i>

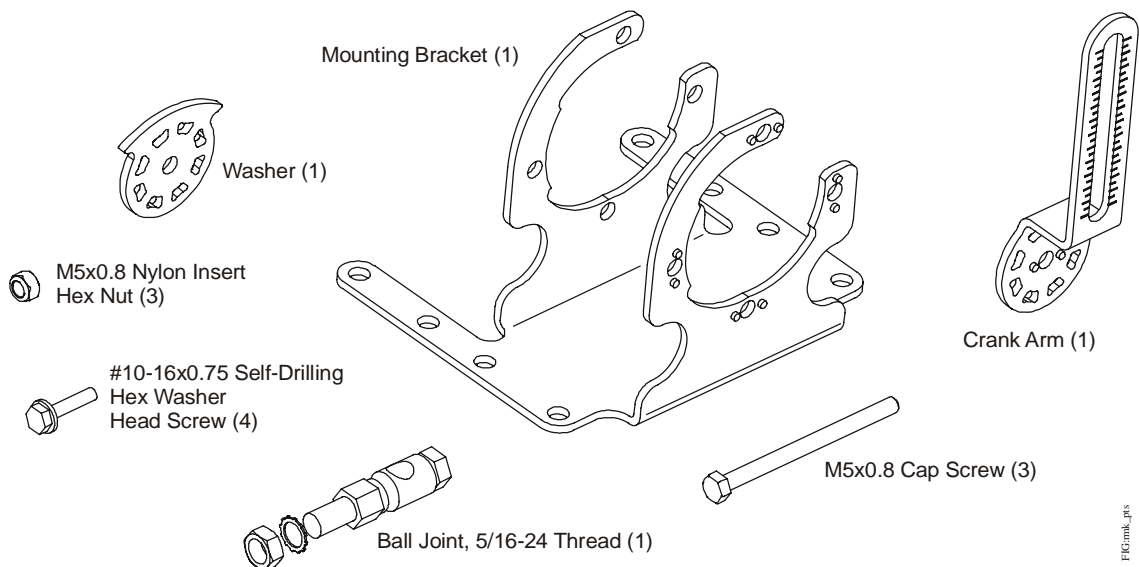


Figure 1: Parts Included in M9208-100 Remote Mounting Kit

Dimensions

See Figure 2 and Figure 3 for overall dimensions and proper mounting orientations.

The actuator has two general mounting positions, horizontal and vertical, but can be mounted in six different ways: horizontal left, vertical, and horizontal right, and all of which have the option of side A or side B direction. See Figure 3.

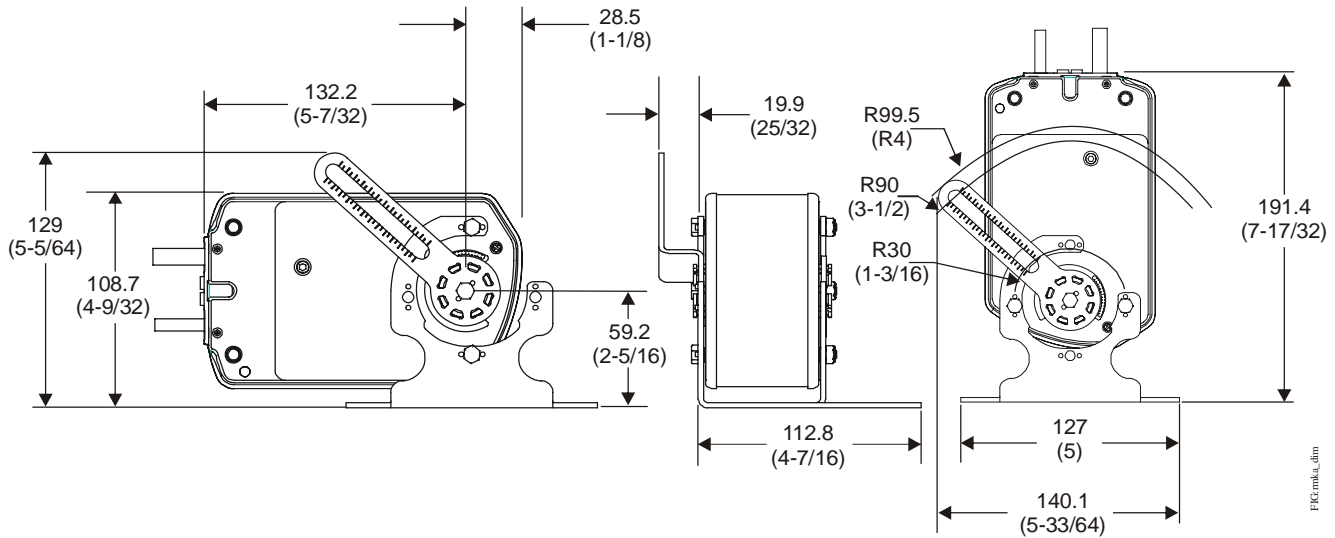


Figure 2: M9208-100 Remote Mounting Kit Overall Dimensions, mm (in.)

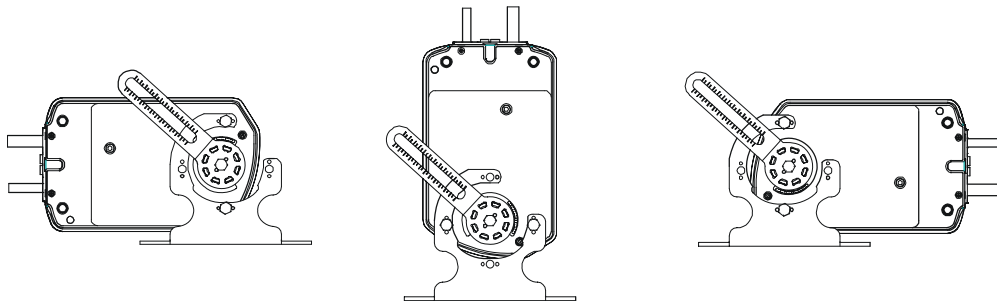


Figure 3: M9208-100 Remote Mounting Kit with Actuator, Horizontal Left, Vertical, and Horizontal Right

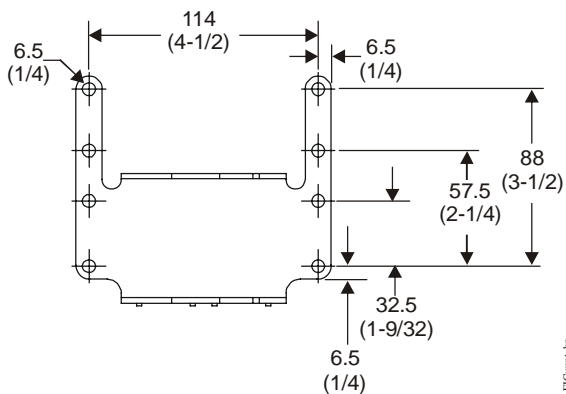


Figure 4: Hole Patterns in Mounting Brackets with Dimensions, mm (in.)

Mounting

Location Considerations

Prior to installation, consider the following factors to determine the best location:

- mounting position of the actuator: internal or external to the damper frame or duct
- mounting position of the actuator crankarm
- operation of the damper: normally open or normally closed
- direction of rotation for the damper
- actuator spring return direction: Clockwise (CW) or Counterclockwise (CCW)

Note: If the actuator is in a difficult-to-reach location, adjust the auxiliary switches and stroke settings before continuing with the installation. Adjustable stroke instructions are detailed in the section [Setup and Adjustments](#).

Mounting Positions

The M9208-100 Remote Mounting Kit allows the installer to select spring-return direction as required by the application. The label on the actuator indicates the spring-return direction.

To set the spring-return direction of the actuator when mounted in a bracket, rotate the actuator as required. Choose CW or CCW spring-return direction by flipping the actuator over.

Installing the Remote Mounting Kit

See Figure 4 for the hole mounting pattern of the mounting bracket. The hole pattern locates the actuator crankarm assembly with respect to the drive blade, jackshaft, or crankarm to be driven.

IMPORTANT: Remotely mounted M9208 Series actuators can develop high linear and rotational forces. Confirm that mounting surfaces are sufficiently rigid and strong before installing the remote mounting kit.

To install the mounting bracket:

1. Locate the mounting bracket in the desired position.
2. Use a center punch to mark the hole locations for the bracket in the duct or damper frame. See Figure 4.
3. Fasten the mounting bracket by drilling the No. 10-16 x 0.75 in. self-tapping screws through the holes in the mounting bracket and into the duct or damper frame.

IMPORTANT: All user adjustable features of the actuator are accessible when mounted in the bracket. Depending on the orientation and model used, the bracket may cover up the scale on the label for the adjustable switch.

Note: Ensure that the orientation of the actuator is correct with respect to the application. Observe the spring-return direction of the actuator during the installation.

4. Using two M5 cap screws, secure the actuator to the mounting bracket as shown in Figure 2 and Figure 3. The raised buttons on the mounting bracket are used for anti-rotation of the cap screw, allowing installation with only one wrench. Install the M5 nylon insert hex nuts using the recommended torque of 1.7 to 2.3 N-m (15 to 20 lb-in.).
5. Install the crankarm and washer using the M5 cap screw and nylon insert hex nut, as shown in Figure 5. The raised buttons on the crankarm are used for anti-rotation of the cap screw, allowing installation with only one wrench. Install the M5 nylon insert hex nut using the recommended torque of 1.7 to 2.3 N-m (15 to 20 lb-in.).

Note: Proper orientation of the crankarm is critical for correct operation. Observe the full open and close positions of the actuator, and ensure that the crankarm does not interfere with the mounting surface.

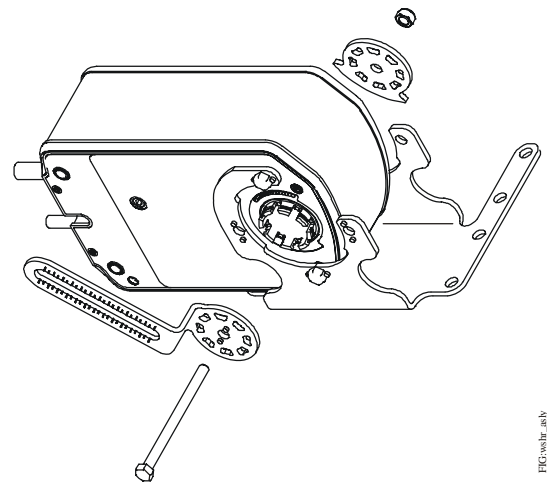


Figure 5: Actuator Crankarm with Washer Assembly

6. Placing the washer in the orientation shown in Figure 6 allows for use of the adjustable end-stop if desired.

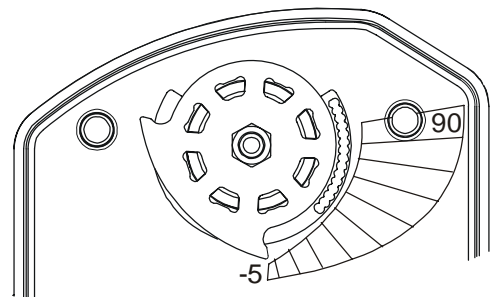


Figure 6: Washer Orientation on Actuator

7. Assemble the ball joint in the crankarm:
 - a. Remove the hex nut from the ball joint.
 - b. Insert the ball joint through the slot in the crankarm.
 - c. Add the serrated lock washer and tighten the ball joint hex nut using the recommended torque of 2.3 to 2.8 N·m (20 to 25 lb·in.).
8. Proceed with the installation of the remaining hardware required to connect the actuator crankarm to the drive blade, jackshaft, or crankarm to be driven.

Setup and Adjustments

Adjusting the Linkage



CAUTION: Risk of Property Damage.

Before applying power to an electric actuator that is installed in a damper application using a remote-mount linkage kit, confirm that the actuator end-stops are used to control the stroke applied to the damper linkage. Failure to use actuator end-stops to control the stroke can lead to premature equipment failure and/or property damage.

Make the necessary adjustments to fit the actuator's stroke limit to the application:

- Adjust the field-supplied linkage components to use the actuator's internal end-stops for stroke control whenever practical.
- Apply the external adjustable end-stop if linkage adjustment is not practical. An end-stop is supplied with the actuator or can be ordered separately (M9208-603 Adjustable Stop Kit). Refer to the Limiting Rotation Range Using M9208-603 Adjustable Stop Kit section of the actuator installation instructions, listed in Table 1, for limiting the stroke of the actuator. When using the M9208-100 Remote Mounting Kit, the washer is used to limit the stroke in place of the gripper.

IMPORTANT: Adjustable stop is for use with limiting the driving stroke only. Using the stop in the spring return direction could damage the actuator or linkage parts.

Checkout

Use the following steps to ensure that the actuator assembly components function properly, and that the actuator operates freely from one rotation limit to the other.

1. Connect all control wires to the actuator.
 - Note:** Refer to the Wiring section of the actuator installation instructions listed in Table 1.
2. Apply power to the actuator.
3. Cycle the actuator fully in both CW and CCW directions. Ensure that the mechanism's stroke is limited by the actuator internal or external end-stops.
4. Ensure that the crankarm properly exercises the full range of the drive blade, jackshaft, or crankarm as required by the application without over-driving the linkage hardware.

If the actuator is not operating properly, refer to the appropriate actuator installation instructions indicated in Table 1.



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