

## POWERS® Controls No. 6 Damper Actuator

### Product Description

The No. 6 Damper Pneumatic Actuator is a heavy duty, rolling diaphragm, spring return actuator designed to drive large dampers, centrifugal refrigeration inlet vanes, and other applications requiring a large, effective diaphragm area and long stroke.

### Required Tools

- Flat-blade screwdriver
- Adjustable crescent wrench
- Pliers

### Prerequisites

- Ensure all kits are ordered and available for installation. Kits are listed with each mounting application.
- Have the damper manufacturer drill mounting holes.
- Have the damper manufacturer weld mounting lug to damper frame for Frame Mounting installations.

### Product Numbers

Description	Mounting Style	Product Numbers		
		Nominal Spring Range		
		3-8 psi (21-55 kPa)	3-13 psi (21-90 kPa)	8-13 psi (55-90 kPa)
Actuator, integral pivot	Pivot	331-2793	331-2794	331-3060 <sup>1</sup>
Actuator, integral pivot and forward travel stops	Pivot	—	—	331-2988
Actuator with clevis	Pivot <sup>2</sup>	331-2857	331-2858	331-2856 <sup>1</sup>
Actuator with clevis and positioning relay	Pivot <sup>2</sup>	—	—	332-2856
Actuator, integral pivot with pivot post <sup>3</sup>	Extended Shaft	331-3012	331-3013	331-3011 <sup>1</sup>
Actuator, integral pivot with pivot post and positioning relay <sup>3</sup>	Extended Shaft with Positioning Relay	—	—	332-3011

<sup>1</sup> UL Recognized Components for Fire/Smoke Applications.

<sup>2</sup> Also order frame mounting kit accessories.

<sup>3</sup> Mounted on plate for extended shaft with clevis and crank for 3/8-inch (10-mm), 7/16-inch (11-mm), or 1/2-inch (13-mm) diameter shaft. Parts for frame mounting (blade drive) included with kit.

**NOTE:** When the actuator is ordered with universal mounting, the mounting plate, pivot post and hardware, clevis, damper crank, rocker arm, and all screws/nuts are included. Order other frame mounting accessories as required if not supplied by damper manufacturer.

## Installation

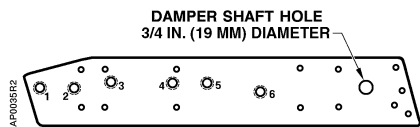
### Extended Shaft Mounting – Pivot Actuator

**Expected installation time:** 28 minutes

Actuators: 331-3012, 331-3013, 331-3011, or 332-3011. These assemblies are designed for 90° damper rotation.

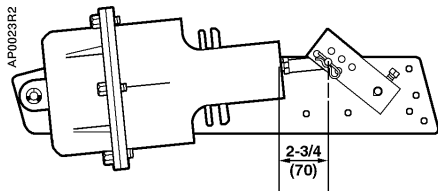
**NOTE:** Clevis mounts in crank radius hole No. 1 for 90° damper rotation.

1. Slip 3/4-inch (19-mm) diameter hole in the mounting plate over the damper shaft (Figure 1).



**Figure 1. Actuator Mounting Plate.**

2. Slip the crank over the 3/8-inch through 1/2-inch (10-millimeter through 13-millimeter) diameter damper shaft (Figure 2).



**Figure 2. Extended Shaft Mounting.**

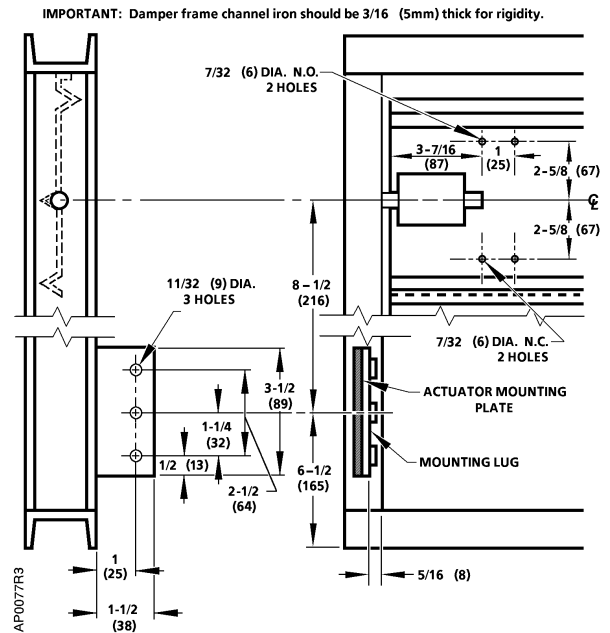
3. Position the mounting plate and attach it to the duct with 4 screws.

### Frame Mounting

**Expected installation time:** Three hours

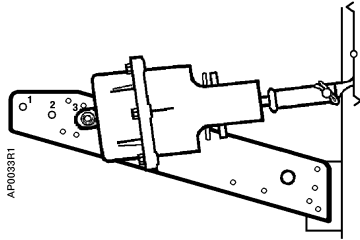
Actuator: 331-3012 (331-3013 or 331-3011)

1. Attach rocker to blade in proper position for normally open or normally closed damper (Figure 3).

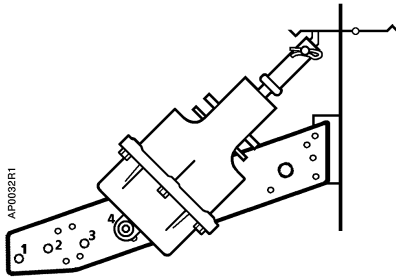


**Figure 3. Frame Mounting Dimensions. Dimensions in Inches (Millimeters).**

2. Attach mounting plate to mounting lug.
  - a. Normally closed damper: attach plate to lug (Figure 4). Place pivot post in Hole 3.
  - b. Normally open damper: attach plate to lug (Figure 5). Place pivot post in Hole 4.



**Figure 4. No. 6 Actuator Frame Mounting, Normally Closed Damper.**



**Figure 5. No. 6 Actuator Frame Mounting, Normally Open Damper.**

6. Fasten clevis to rocker. Discard crank and other unused parts.
7. The actuator mounting plate has a tendency to pivot at the point where the lug is welded to the damper frame when the actuator strokes. It is recommended that some means be devised in the field to prevent this from happening. A threaded rod attached to the mounting plate and duct wall will normally work.

The installation is now complete.

## Extended Shaft Remote Mounting (Figure 6)

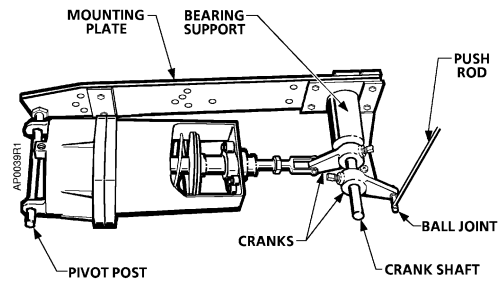
Actuator: 331-2857, 331-2858, or 331-2856

Remote Mounting Kit: 331-618

1. Attach the mounting plate assembly to the mounting surface.
2. Attach the pivot post to the mounting plate assembly.
3. Slide the crank shaft into the bearing support.

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4. Attach the two cranks to the crank shaft.
5. Position the actuator on the mounting plate and attach the clevis to one crank on the crank shaft.
6. To the other crank, attach a ball joint and a 3/8-inch (10-millimeter) diameter push rod (not provided) cut to the proper length.
7. Attach the remaining crank to the damper shaft and use the remaining ball joint to fasten it to the push rod.



**Figure 6. Extended Shaft Remote Mounting Assembly.**

The installation is now complete.

## References

AP 331-3, Powers™ Controls No. 6 Pneumatic Damper Actuator Technical Instructions, (155-029P25)

TB 181, Maximum Thrust Ratings of Pneumatic Damper Actuators Technical Bulletin, (155-219P25)