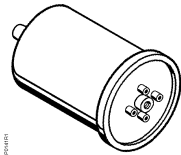


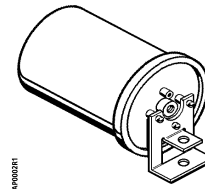
Powers™ Controls

OEM Literature

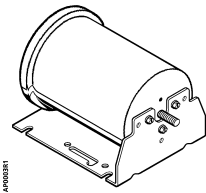
No. 3 Pneumatic Damper Actuator



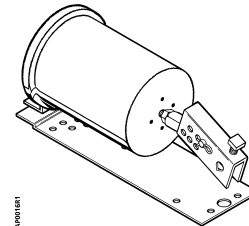
Basic Actuator



Basic Actuator with Pivot Mounting



Typical Actuator with Fixed Bracket Mounting



Typical Actuator with Extended Shaft Mounting

Description

The No. 3 Pneumatic Damper Actuator is a compact, modular, totally enclosed, rolling diaphragm-type actuator designed for modulating or two position actuation.

Features

- All metal body modular construction
- Fixed or pivot mounting models
- Positioning relay available as an option
- Variety of mounting/linkage kits to fit any application
- Threaded shaft for easy mounting of accessory items

Product Numbers

See Table 1

Application

Typical applications are for control of fire/smoke leakage rated (*) dampers or air valves. Other applications include unit ventilators, unit conditioners, air handlers, and other HVAC applications.

* Must be certified by recognized agency.



Certain actuators in Table 1 are UL Recognized Components under UL's Damper Actuator category (EMKU2). This category covers pneumatic damper actuators intended to be employed on fire dampers and fire/smoke leakage rated dampers.

Table 1. Product Numbers for No. 3 Pneumatic Damper Actuators.

Description	Mounting Style	Part Number		
		Nominal Spring Range		
		3-7 psi (21-48 kPa)	5-10 psi (35-69 kPa)	8-13 psi (55-90 kPa)
Basic Actuator only	—	331-4326* 331-4327*	331-4526* 331-4527*	331-4826* 331-4827*
Actuator with pivot bracket	Pivot	331-4322	331-4522	331-4822
Actuator with front mounted fixed bracket	Fixed bracket	331-4323	331-4523	331-4823
Actuator with clevis	Basic	331-4324*	331-4524*	331-4824*
Actuator with clevis and positioner relay	Basic	‡	‡	332-4824
Actuator with pivot bracket, pivot post, clevis, and miscellaneous hardware	Pivot	331-4351	331-4551*	331-4851* 331-4829* 331-4841*
Actuator with pivot bracket, pivot post, clevis, crank assembly, extended shaft mounting plate, damper drive blade, and mounting hardware	Extended shaft mounting	—	—	331-4821*

* UL Recognized Component.

‡ Available upon request.

Specifications	
Effective diaphragm area	8 inches ² (51.6 cm ²)
Stroke	2-3/4 inches (70 mm)
Housing (totally enclosed)	Aluminum
Stem	Plated steel
Diaphragm	Ozone resistant rubber
Spring	Steel
Cup	Zytel
Maximum air pressure	25 psig (172 kPa)
Nominal spring ranges	See Table 1
Operating temperature	-20 to 160°F (-29 to 71°C)
Air Connection	Straight barb fitting for 1/4 inch O.D. plastic tubing installed in 1/8 inch NPT opening
Type of Mounting	Fixed or pivot
Thrust and Torque Rating	See Table 2
Shipping Weight:	
Basic Actuator	1.3 lbs. (0.58 kg)
Actuator with Extended Shaft Mounting	3.1 lbs. (1.4 kg)
Actuator with Fixed Bracket	2.5 lbs. (1.1 kg)
Actuator with Fixed Bracket and Clevis	2.7 lbs. (1.2 kg)
Actuator with Extended Shaft Mounting and Positioning Relay	4.8 lbs. (2.2 kg)
Dimensions	See Figures 4 through 8
Agency Approvals	Complies with UL555 and UL555S

NOTE: The No. 3 Pneumatic Damper Actuator does not require any periodic cycling. However, it is strongly suggested that all systems are functionally checked periodically, and per local codes and ordinances.

Accessories	Linkage kit (4-inch link and crank)	331-958
	Linkage kit (4-inch rod, ball joint and crank)	331-947
	Damper shaft crank, selectable radius, 45°, 60°, and 90°, angular rotation for 3/8 to 1/2-inch (9.5 to 13 mm) diameter damper shafts	331-941
	Damper shaft crank adjustable radius 3/4 to 2-7/8-inch (19 to 73 mm) for 1/2 inch (13 mm) diameter damper shaft	331-795
	Damper shaft crank adjustable radius 3/4 to 4-5/8-inch (19 to 177 mm) for 3/8 inch (9 mm) diameter damper shaft	331-805
	Damper shaft extension 1/2 inch x 9 inch long	333-042
	Damper shaft extension 1/2 inch shaft	331-631
	Damper shaft extension Adapter for 3/8-inch shaft	331-632
	Pivot mounting bracket only	333-134
	Pivot mounting kit (bracket and three mounting screws)	333-148
	Pivot post	333-139
	Fixed mounting bracket	331-916
	Extended shaft mounting plate	331-033
	Clevis, steel	333-207
	Clevis pin	331-293
	Hitch pin	331-807
	Damper actuator push rods:	
	12 inch	338-041
	15 inch	338-042
	18 inch	338-043
	24 inch	338-044
	36 inch	338-045
48 inch	338-046	
Damper blade rocker arm	333-034	
Positioning relay	147-2000	
Relay mounting kit	147-104	

Table 2. Thrust Torque Ratings.

Nominal Spring Range	Maximum Thrust lbs. (N)				Torque Rating* lb/in (Nm)			
	Full Stroke Forward			Spring Return (No Stroke) 0 psig (0 kPa)	Gradual Operation	2-Position Operation		
	15 psi (103 kPa)	18 psi (124 kPa)	25 psi (172 kPa)			15 psi (103 kPa)	18 psi (124 kPa)	25 psi (172 kPa)
3 To 7 psi (21 to 48 kPa)	64 (285)	88 (391)	144 (641)	24 (107)	10 (1.1)	20.2 (2.3)	20.2 (2.3)	20.2 (2.3)
5 to 10 psi (35 to 69 kPa)	40 (178)	64 (285)	120 (534)	40 (178)	10 (1.1)	33.6 (3.8)	33.6 (3.8)	33.6 (3.8)
8-13 psi (55 to 90 kPa)	16 (71)	40 (178)	96 (427)	64 (285)	10 (1.1)	13.4 (1.5)	33.6 (3.8)	53.8 (6.1)

* With maximum hysteresis of 2.5 psi (17.2 kPa) @ 90° rotation.

Operation

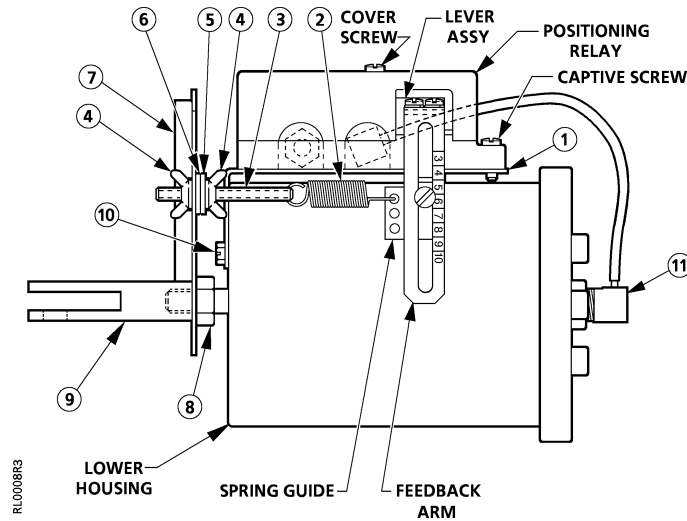


Figure 1.

Table 3. No. 3 Damper Actuator with Optional Positioner Relay 147-2000 and Relay Mounting Kit 147-104. (See Figure 1)

Item	Description	Item	Description
1	Positioning relay mounting bracket	7	Spring arm
2	Feedback spring-zinc plate or yellow chr.	8	3/8-24 hex nut
3	Adjusting screw 1-3/4 inch (44 mm) long	9	Clevis
4	Wing nut	10	No. 10 - 16, 1/2-inch (13-mm) slotted hex screw
5	Lock washer	11	90° Elbow connector
6	Flat washer		

**Operation,
 Continued**

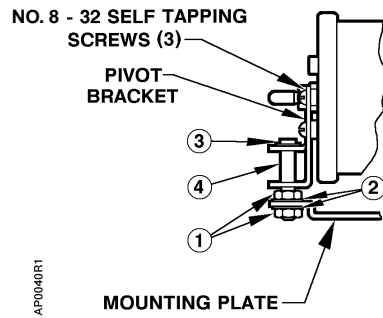


Figure 2.

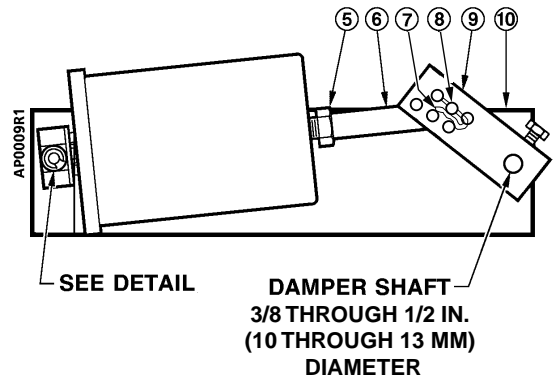


Figure 3.

Table 4. Extended Shaft Mounting with Pivot and Mounting Plate.

Item	Description	Part Numbers
1	Nuts (2)	041-133K
2	Lock washers (2)	046-017K
3	E-ring	047-051J
4	Pivot shaft (post)	333-139
5	Jamb nut	041-143K
6	Clevis	333-207
7	Hitch pin	331-807
8	Clevis pin	331-293
9	Crank assembly kit	331-941
10	Extended shaft No. 3 actuator mounting plate	331-033

NOTE: Kit number 331-101 including items 1, 2, 3, and 4, above, plus pivot bracket and self tapping screws, have a minimum order quantity of 50 pieces.

Dimensions

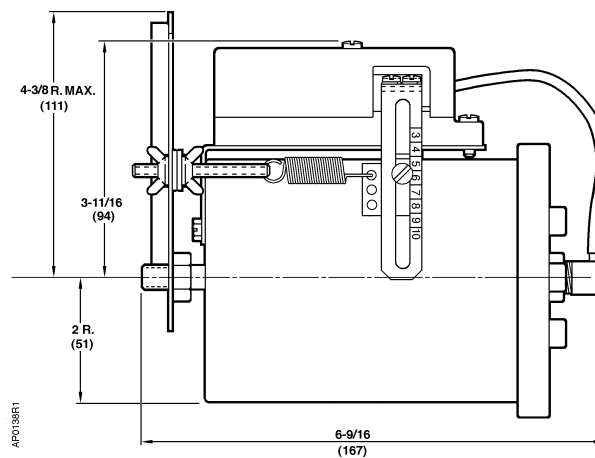


Figure 4. Dimensions Shown in Inches (mm).

Dimensions, Continued

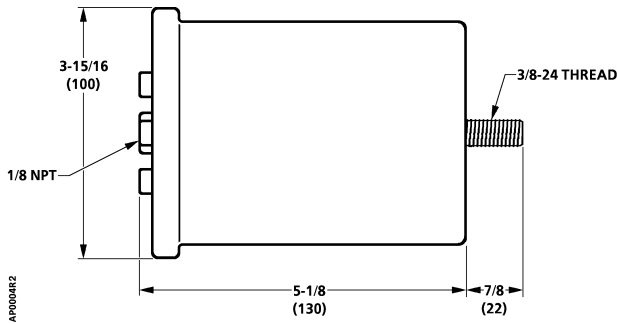


Figure 5. Basic Actuator

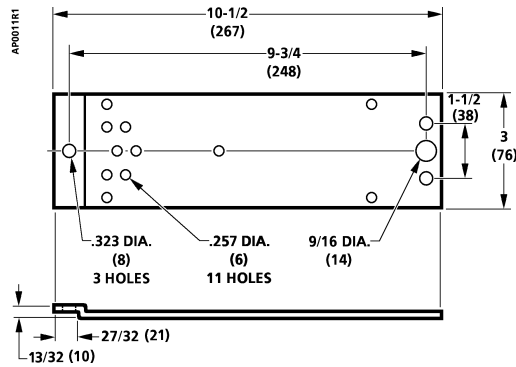


Figure 6. Mounting Plate.

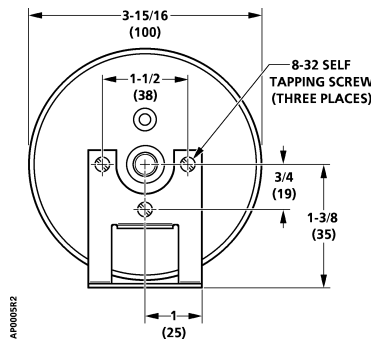


Figure 7. Pivot Mount.

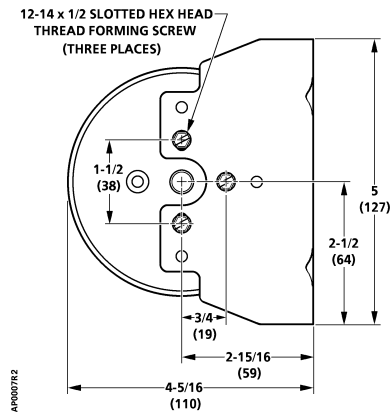
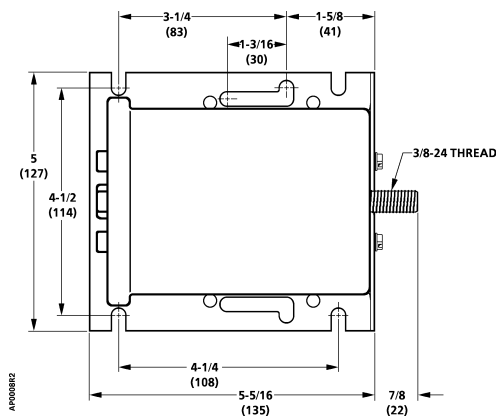
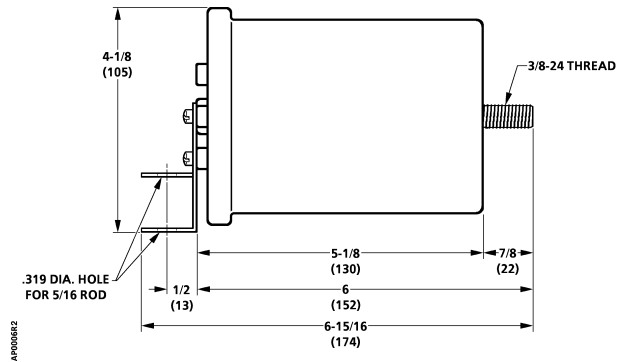


Figure 8. Fixed Bracket Mount.

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