



## M556, M573, M574 Series

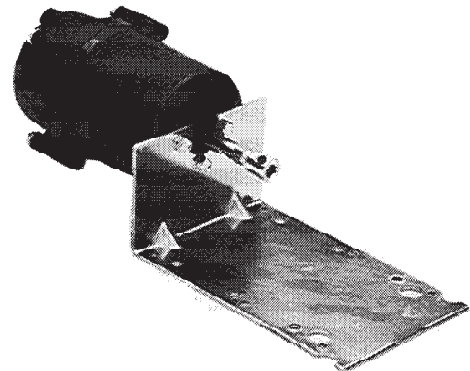
### Piston Damper Actuators General Instructions

#### APPLICATION

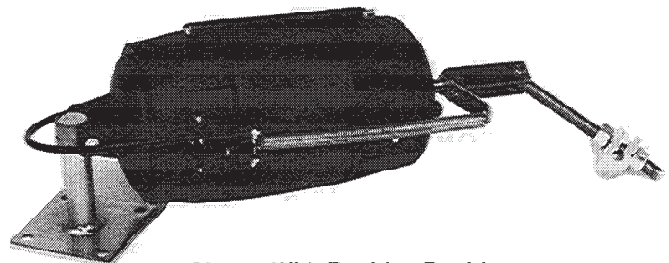
The M556 piston damper actuator, post mounted, is designed for use in a pneumatic control system to position an air control damper in response to a signal from a pneumatic controller. These actuators can be used for either proportional or two position applications. Other applications include the control of variable fan inlet vanes, centrifugal refrigeration compressor inlet vanes and butterfly valves.

The M573 & M574 Series Piston Damper Actuators are used in pneumatic control systems to position automatic air dampers upon receipt of an air pressure signal from a control device. These actuators can be used for either proportional or two position applications.

The M573 & M574 actuators are equipped with right angle brackets and are adaptable to air conditioning, multi-zone, heating, ventilating, fan coil units, unit ventilators and mixing boxes.



M573/M574 Right Angle Mounted  
Shown Without Positive Positioner



M556 Shown With Positive Positioner

#### SPECIFICATIONS

##### Construction:

Housing, Glass filled nylon  
Diaphragm, Neoprene, rolling type

Stroke: See Table 1

Spring: Retract actuator shaft on loss of air pressure

Maximum Damper Area: See Table 2

##### Environment:

Ambient Temperature Limits, -20 to 140°F (-29 to 60°C)

Supply Air Pressure: Clean, dry, oil free air required (ref. EN-123).

Nominal, 20 psig(138 kPa)

Maximum, 30 psig(207 kPa)

Air Consumption (Positioner Models): 0.017 scfm

Connections: Barbed fitting for 1/4" O.D. plastic tubing

Mounting: (See Mounting Instructions).

Dimensions: See Figures 2, 3 & 5

#### ACCESSORIES & REPLACEMENT PARTS

|             |  |
|-------------|--|
| AM-111      | Slotted crank arm for 5/16" shaft      |
| AM-112      | Slotted crank arm for 3/8" shaft       |
| AM-113      | Slotted crank arm for 1/2" shaft       |
| AM-115      | Slotted crank arm for 7/16" shaft      |
| AM-122      | Straight connector                     |
| AM-123      | Damper clip                            |
| AM-125      | 5/16" x 20" damper rod                 |
| AM-125-048  | 5/16" x 48" damper rod                 |
| AM-132      | Ball joint connector                   |
| N800-0555-P | Positioner kit with 5 & 10 psi springs |
| N800-1414   | 3-hole crank arm for 3/8" shaft        |
| N800-1415   | 3-hole crank arm for 1/2" shaft        |

Table 1. Specifications

| 3" Stroke<br>(7 sq.in.) | 4" Stroke<br>(11 sq.in.) | 6" Stroke<br>(24.8 sq.in.) | Spring Range<br>PSIG | Mounting    | Description   |
|-------------------------|--------------------------|----------------------------|----------------------|-------------|---|
| M573-3108               | M574-3208                | -                          | 5 - 10               | Right Angle | Includes Right Angle Mounting Bracket and Ball Joint  |
| M573-5108               | M574-5208                | -                          | 8 - 13               |             |   |
| M573-1108               | M574-1208                | -                          | 8 - 13               |             |   |
| M573-3111               | M574-3211                | -                          | 5 - 10               |             | Includes Right Angle Mounting Bracket, Ball Joint, Push Rod and Crank Arm for 1/2" Damper Shaft |
| M573-5111               | M574-5211                | -                          | 8 - 13               |             |   |
| M573-1111               | M574-1211                | -                          | 8 - 13               |             |   |
| -                       | -                        | M556-51                    | 8 - 13               | Post Mount  | Includes Mounting Plate and Post, Adjustable Damper Crank Arm and Clamp for 1/2" Damper Shaft   |
| -                       | -                        | M556-14*                   | 8 - 13               |             |   |
|                         |                          |                            | With Positioner      |             |   |

\* A 10 psi span positive positioner spring is also supplied with the actuator, attached to the feedback arm.

**Table 2. Maximum Damper Area (@ 1000 FPM)**

| Actuator                      | Control      | Sq. Ft. (Sq. M) |
|-------------------------------|--------------|-----------------|
| M556 Series<br>(28.4 sq. in.) | Proportional | 75 (7.0)        |
|                               | Two-Position | 90 (8.4)        |
| M573 Series<br>(7 sq. in.)    | Proportional | 12 (1.1)        |
|                               | Two Position | 15 (1.4)        |
| M574 Series<br>(11 sq. in.)   | Proportional | 25 (2.3)        |
|                               | Two-Position | 30 (2.8)        |

**PRE-INSTALLATION**

**Inspection**

Visually inspect the carton for damage. If damaged, notify the appropriate carrier immediately. Visually inspect the device for obvious damage due to shipping. Return damaged parts.

**Required Installation Items**

- Piping diagrams
- Tools (not provided)
  - Appropriate screwdriver(s) for mounting screws
  - Appropriate wrench(s) for mounting bolts and nuts.
- Mounting screws (not provided)
- Appropriate accessories

**INSTALLATION**

**CAUTION**

1. Installer must be a qualified, experienced technician.
2. Make all connections in accordance with the piping diagram.
3. Do not locate the device in areas subjected to excessive vibration or corrosive atmospheres.
4. Do not exceed ratings of the device.

**WARNING**

1. Improper installation could result in a hazardous condition
2. These actuators contain a powerful spring under compression. Because of this, they should be repaired, if necessary, only by a qualified controls expert.

**Clean, Dry Oil Free Air Supplies for Pneumatic Systems**

**CAUTION**

A refrigerated air dryer, particulate filter and a coalescing filter will provide clean, dry, oil free air required (reference EN-123).

Compressor oil must be non-paraffin mineral base or naphtha base. **Synthetic or paraffin base oils will destroy pneumatic controls and void the warranty.**

**POSITIVE POSITIONER PIPING**

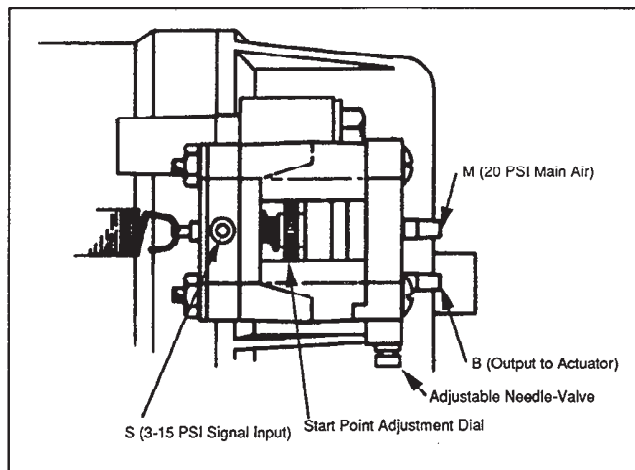


Figure 1. Positioner Adjustment and Port Connections

**POSITIVE POSITIONER ADJUSTMENT**

See Figure 1.

**Span**

The signal pressure change required to produce full actuator stroke is determined by the feedback spring. Cataloged models are supplied with factory installed 5 psi springs. M556-14 is also supplied with a 10 psi spring attached to the feedback arm.

**Start Point**

The signal pressure at which the actuator shaft begins to move is adjustable 3 to 12 psig by rotating the recessed brass knurled dial in the center of positioner.

The start point of the actuator may be adjusted by setting the signal pressure to the desired value and turning the recessed knurled wheel by hand until the actuator shaft begins to move. Turning the wheel outward (toward the spring) raises the start point.

The positioner requires a signal connection to "S" and a main air connection to "M". The positioner output, located above needle valve, is connected to the actuator signal port.

**Adjustable Needle-Valve**

Needle-valve allows the adjustment of the rate of actuator movement.

With this needle-valve, 3", 4" and 6" actuators may be adjusted with a small blade screw driver, if required, to:

**Give the actuators the same relative rate of movement.**

This makes it possible, for example, to have outside, return and relief damper on an air handling unit move "together", rather than at different rates. This is especially important -

- When large air handling units are started and stopped.
- When the dampers are switched from "summer" to "winter" operation (or vice versa).

Both of the above examples can cause large damper movements.