



## DuraDrive™ Non-Spring Return Electric Actuators

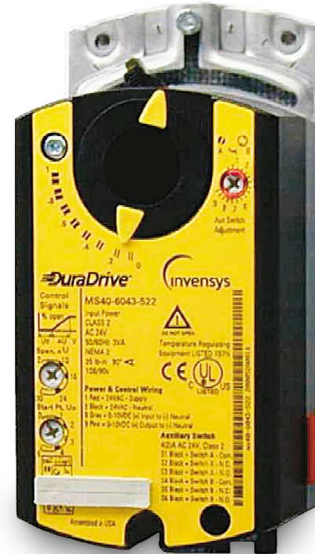
The MF40-6043 and MS40-6043 series are direct-coupled 24 Vac non-spring return electric actuators. The MF40-6043 series is designed for floating control of building HVAC dampers. The MS40-6043 series is designed to provide proportional control. Models are standard with a plenum-rated cable.

### Applications

The MF40-6043 and MS40-6043 series of damper actuators are used in constant or variable air volume installations for control of HVAC dampers requiring up to 35 lb.-in. (4 Nm) torque.

### Features

- Compact, lightweight design.
- Easy-to-see position indicator.
- Self-adapting capability for maximum flexibility in damper positioning.
- UL, CSA, CE compliance listed.
- Quiet, low-power operation.
- NEMA 2 rated enclosure.
- Manual Override.
- Plenum cable standard.
- Independently adjustable dual auxiliary switches option available (MX40-6043-5X2).
- Feedback potentiometer option available (MF40-6043-510).
- Feedback position output signal available (MS40-6043 Series).
- Adjustable start/span option available (MS40-6043-52X).



### Specifications

#### Inputs

**Operating Voltage:** 24 Vac +20%, -15%

**Frequency:** 50/60 Hz

**Power Consumption:** 2.3 VA (MF40-6043 Series)  
3.3 VA (MS40-6043 Series)

**Connections:** 3 ft. 18 AWG. Reference Model Chart.

#### Control Signal (MS40-6043 Series):

**Input Signal:** Voltage-input, 0 to 10 Vdc  
Input resistance, 100K Ohms

#### Feedback Signal: (MS40-6043 Series)

**Position output signal:** Voltage-output, 0 to 10 Vdc  
Maximum output current, DC 1 mA



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## Outputs

**Stroke:** Nominal angle of rotation, 90°

Maximum angular rotation, 95°

Field adjustable to limit travel on either end of stroke.

**Damper Shaft:** Accepts 3/8 to 5/8-inch (8 to 16 mm) diameters. Reference Figure-1.

Minimum shaft length, 3/4-inch (20 mm).

**Nominal Damper Area:** Actuator sizing should be done in accordance with damper manufacturer's specifications.

## Product Life:

100,000 full strokes.

## Function

**Torque:** rated 35 lb.-in. (4Nm)

**Timing:** 108 sec. at 50 HZ

90 sec. at 60 Hz

## Environment

### Ambient Temperature Limits:

Shipping and Storage, -22 to 140°F (-30 to 60°C)

Operation, -22 to 130°F (-30 to 55°C)

**Humidity:** 95% RH, non condensing

**Location:** NEMA Type 2, IP54 per EN60529

Housing material, durable plastic

Gear lubrication, Silicone free

**Equipment Rating:** Class 2 per UL, CSA, Class III per EN60730

## Agency Listings

UL listed to UL873

C-UL certified to Canadian Standard C22.2 No. 24-93

## CE conformity for plenum models

In accordance with European Union for Electromagnetic

Compatibility directive (EMC) 89/336/EEC

Emissions standards EN 50081-1

Immunity standards EN 50082-2

## Dimensions

5-7/16"H X 2-5/8"W X 2-3/8"D (137mm H X 68mm W X 60mm

D) Width does not including manual override slider

**Weight:** 1.06 lb. (0.48 kg)

## Auxiliary Features

Feedback potentiometer, 0 to 1000 W, <10 mA (MF40-6043)

**Control Signal Adjustment:** (MS40-6043)

Start Point, Between 0 to 5 Vdc

Span, Between 2 and 30 Vdc.

**Dual auxiliary switch (SPDT):**

Contact rating, 4A resistive, 2A inductive

Voltage, 24 Vac/24 Vdc

Switch range:

**Switch A,** 0 to 90° with 5° intervals

Recommended range usage, 0 to 45°

Factory setting, 5°

**Switch B,** 0 to 90° with 5° intervals

Recommended range usage, 45 to 90°

Factory setting, 85°

Switching Hysteresis, 2°

## Accessories




AM-728: Conduit adaptor providing a connection between the actuator and conduit.

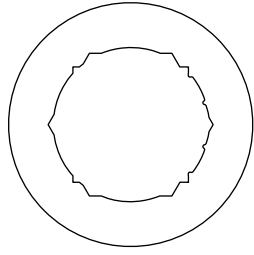
AM-727: Rotary to linear drive adaptor.

AM-726: Rotary to linear drive adaptor with mounting bracket.

**Table-1 Model Number Chart**

Model Number	Auxiliary Switches	Potentiometer	Start/Span
MF40-6043	No	No	No
MF40-6043-502	Yes	No	No
MF40-6043-510	No	1K	No
MS40-6043	No	No	No
MS40-6043-502	Yes	No	No
MS40-6043-520	No	No	Yes
MS40-6043-522	Yes	No	Yes

-  3/8 to 5/8 inch  
8 - 16 mm
-  1/4 to 1/2 inch  
6 - 12.7 mm
-  9/16 inch  
15 mm



Actuator Shaft Opening

Use the shaft insert supplied for any 3/8-inch (8 to 10 mm) diameter shaft

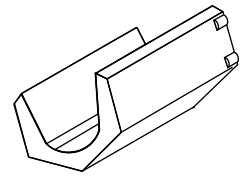
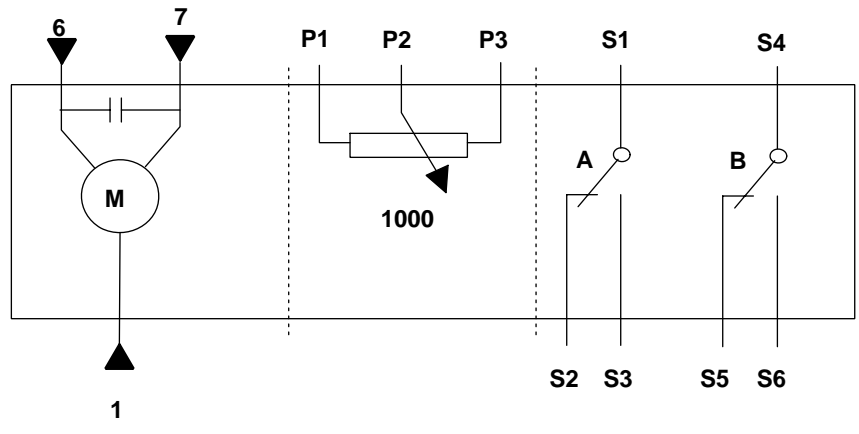
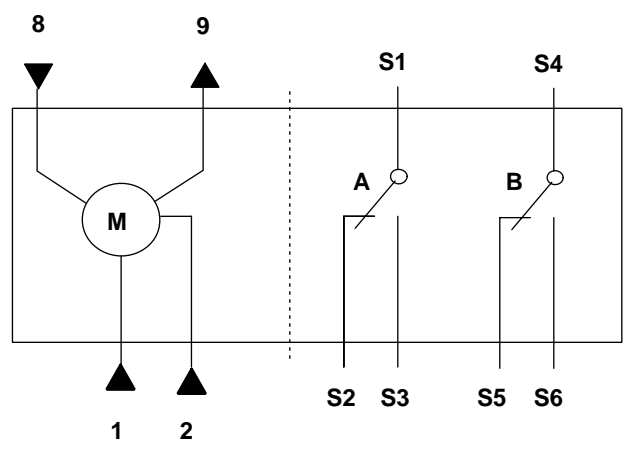


Figure-1 Damper Shaft Sizes.



Legend		
No.	Color	Function
1	Red	Supply
6	Violet	Control Signal-ClockWise
7	Orange	Control Signal-Counterclockwise
Auxillary Switches		
S1	Black	Switch A - Common
S2	Black	Switch A - N.C.
S3	Black	Switch A - N.O.
S4	Black	Switch B - Common
S5	Black	Switch B - N.C.
S6	Black	Switch B - N.O.
Feedback Potentiometer		
P1	Black	0 to 100% P1 - P2
P2	Black	Common
P3	Black	100 to 0% P3 - P2

Figure-2 MF40-6043-5XX Wiring Diagram.



Legend		
No.	Color	Function
1	Red	Supply
2	Black	Neutral
8	Gray	0 to 10 V input signal
9	Pink	Feedback output for 0 to 10 Vdc position Indication
Auxillary Switches		
S1	Black	Switch A - Common
S2	Black	Switch A - N.C.
S3	Black	Switch A - N.O.
S4	Black	Switch B - Common
S5	Black	Switch B - N.C.
S6	Black	Switch B - N.O.

Figure-3 MS40-6043-502 and MS40-6043-522 Wiring Diagram.

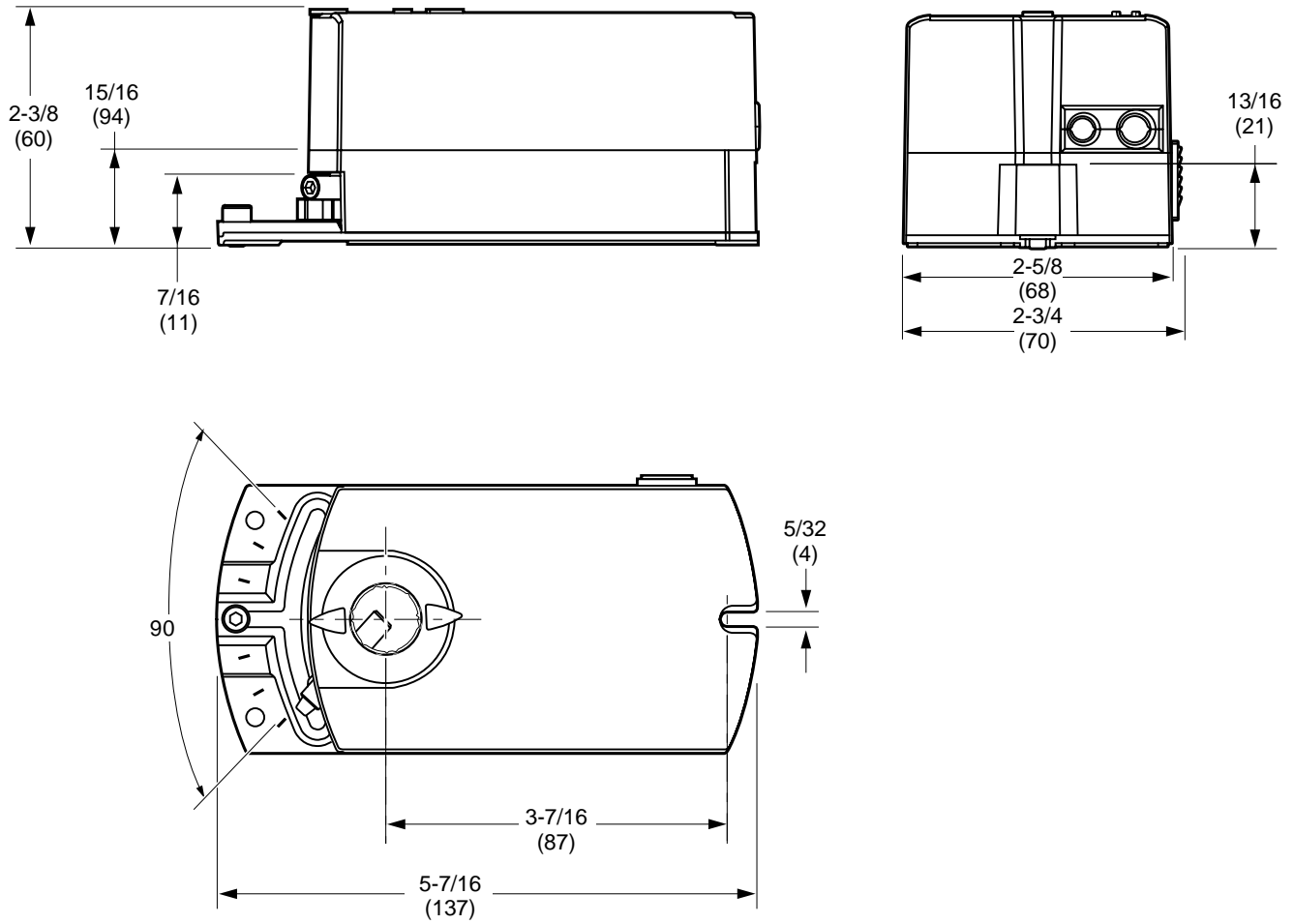


Figure-4 Actuator Dimensions Shown in Inches (mm).

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