

# ROTARY ACTUATOR

Model DM

- 160° rotary electric actuator (adjustable from 45° to 270°)
- 12.5 ft-lb. torque output
- Designed for modulation service
- All gears and roller bearings submerged in oil
- Self-locking drive system to hold in last position
- One auxiliary limit switch position output

## Description

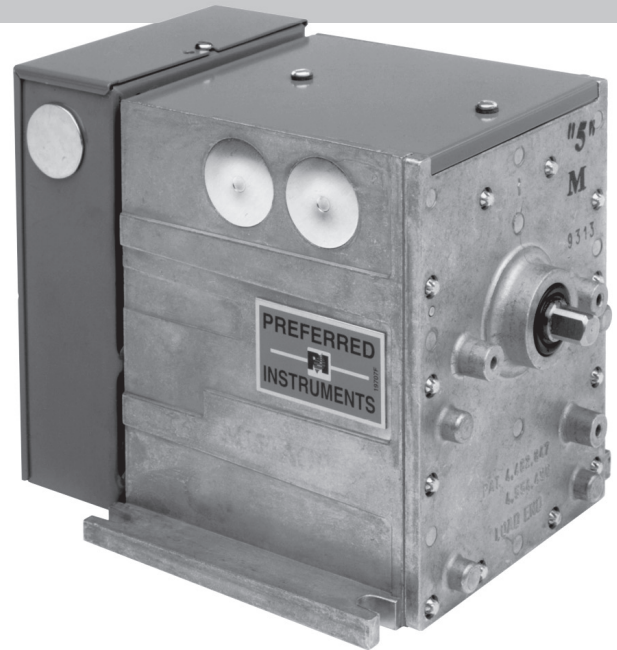
The **Model DM** Rotary Actuator is used in remotely controlled, manual or fully automatic combustion or process control systems. Responding to a SPDT snap-action or floating contact switch, the actuator may be started, stopped, or instantly reversed without overheating or loss of power.

## Typical Application

The **Model DM** Actuators provide positive and precise modulating control of boiler draft control dampers, combustion air louvers, or other final control elements. Thousands of **DM** Actuators are in use in Preferred Instruments boiler control systems. The actuator is used to position combustion air & fuel gas dampers and fuel control valves. An integral interlock switch proves an open damper position for purge proving or a low-fire position for fuel valves prior to light-off, thereby assuring a safe burner light-off. The **DM** Actuator is used on control dampers that have a maximum 6.5 sq. ft. area. For heavier-duty service, use the Preferred Instruments **PL-2** linear actuators.

## Operation

The **DM** Actuator utilizes an instantly reversible motor to rotate a hardened steel output shaft through a reduction of precision hobbled gears. The output shaft actuates four adjustable cam operated switches: two (2) travel limit switches to stop motor operation at pre-selected positions and auxiliary switch to provide damper position proving interlocks. The motor has an integral brake for positive positioning, and can be stopped, started, or instantly reversed at any time within its travel without overheating or loss of power. For maximum durability, the motor and gear train are sealed in an oil filled compartment.



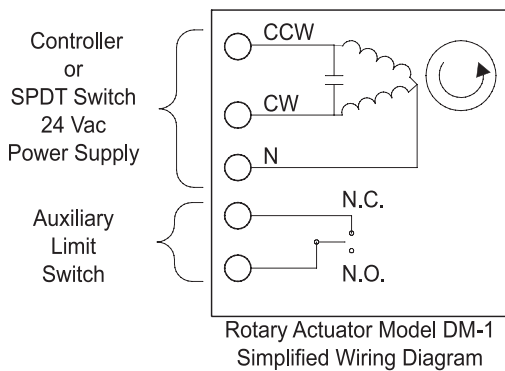
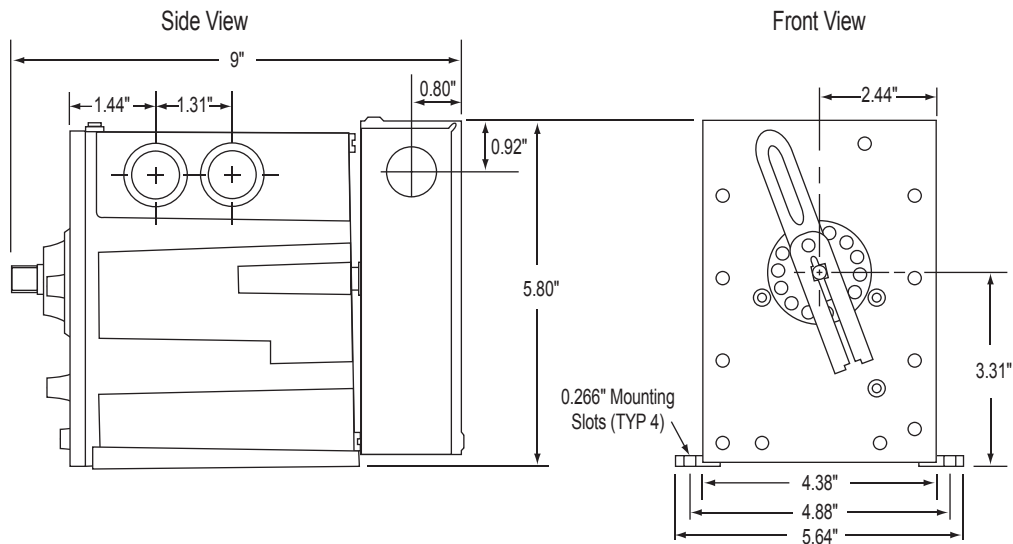
DM Rotary Actuator

## Suggested Specification

The control damper or fuel valve actuator shall be totally enclosed in a dust-tight, splash-proof housing; have integral, snap-action, travel limit and damper open proving switches; and maintenance-free oil immersed motor and gear train. A double ended output shaft shall have an integral brake for precise positioning without backlash, be field adjustable from 45°-270°, and rotate 160° in 60 seconds. The actuator shall be rated at 25 ft-lbs (300 in-lbs) breakaway, 12.5 ft-lbs (150 in-lbs) running torque and be capable of being stopped, started, or instantly reversed without loss of power or overloading. The actuator shall be suitable for application to combustion air and flue gas damper and fuel flow control valve positioning and be a Preferred Instruments, Danbury, CT, **Model DM**.

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## Specifications

<b>Power:</b>	24 Vac - 50 / 60 Hz, 20 VA
<b>Ambient Temp.:</b>	+10° to 125° F
<b>Input:</b>	Switching SPDT or floating contacts
<b>Torque:</b>	25 ft-lbs (300 in-lb) breakaway 12.5 ft-lb (150 in-lb) running
<b>Rotation:</b>	160° in 60 seconds Adjustable 45°-270°
<b>Auxiliary Switch:</b>	Integral SPDT, adjustable 10 amps. @ 120 Vac
<b>Integral Brake:</b>	Fail-safe, self locking
<b>Linkage:</b>	Actuator Lever Arm included; connecting linkage optional
<b>Output Shaft:</b>	Hardened steel
<b>Motor:</b>	Reversible, split phase, capacitor type, oil submerged
<b>Gear Train:</b>	Precision hobbed, hardened steel gears, oil submerged
<b>Application Example:</b>	Fuel control valves & balanced boiler outlet damper for up to 6.5 sq. ft. duct
<b>Dimensions:</b>	8 1/4" H x 5 27/32" L x 5 1/32" D
<b>Enclosure:</b>	Die cast aluminum, dust tight, splash proof

## Ordering Information

Specify actuator and linkage as required:

Actuator:

- DM-1** 24 Vac switching input actuator, auxiliary limit switch and MD3-600 lever arm
- DM-2** 24 Vac switching input actuator, auxiliary limit switch and MD3-600 lever arm, 120/24 Vac transformer included.

Linkage (See Page 210 for details):

- A-22** Linkage kit for mounting of actuator to top of duct or any flat surface, including:
  - (1) 48" push rod (catalog number D5-100)
  - (2) ball joint connectors (catalog number MD5-602)
  - (1) damper lever arm for 1/2" shaft, (catalog number MD3-601)
- A-22C** Linkage kit for mounting of actuator to side of duct or wall, includes linkage kit A-22 and right angle mounting bracket, (catalog number MD4-601)

Specifications subject to change without notice.