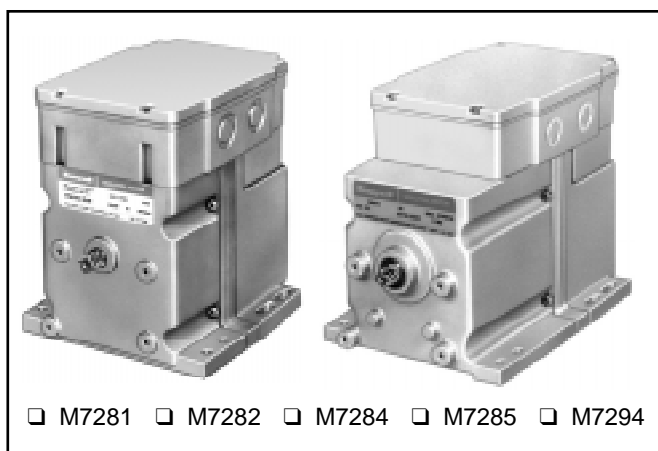


## M7281, M7282, M7284, M7285, M7294 Modutrol IV™ Motors

### SPECIFICATION DATA



### APPLICATION

The M7281, M7282, M7284, M7285 and M7294 are Electronic Modutrol® Motors used to control dampers and valves. These motors accept a current signal from an electronic controller to position a damper or valve at any position between open and closed.

### FEATURES

- Replace M744S,T,Y and M745S,T,Y Motors.
- M7284, M7281 are 150 lb.-in. non-spring return; M7294 is 300 lb.-in. non-spring return; M7285, M7282 are 60 lb.-in. spring return.
- Oil immersed motor and gear train for reliable performance and long life.
- Wiring box provides NEMA 3 weather protection.
- Quick-connect terminals standard—screw terminal adapter available.
- Adapter bracket for matching shaft height of older motors is standard with replacement motors.
- Die cast aluminum housing.
- Models available with integral auxiliary switches.
- Models available with adjustable zero and span.



## SPECIFICATIONS

<b>M7281A,C,Q</b> <b>M7282A</b> <b>M7284A,C,Q</b> <b>M7285A,C,Q</b> <b>M7294A,Q</b>	
<b>Control Type</b>	<b>Suffix Letter</b>
<b>72</b> is electronic with current input	<b>A:</b> Fixed stroke (90° or 160°), No auxiliary switches
<b>Power Designation</b>	<b>C:</b> Fixed stroke (90° or 160°), 2 auxiliary switches
<b>8</b> is high torque: 150 lb-in. for M7281, M7284; 60 lb-in. for M7282, M7285	<b>Q:</b> Fixed stroke (90° or 160°), 2 auxiliary switches, with adjustable zero and span
<b>9</b> is extra high torque: 300 lb-in. at 2 or 4 minute timing	
<b>Output Drive</b>	
<b>4</b> is dual-ended shaft, non-spring return.	
<b>1</b> is single-ended shaft, non-spring return.	
<b>5</b> is dual-ended shaft, spring return, mechanically normally closed.	
<b>2</b> is single-ended shaft, spring return, mechanically normally closed.	

### Electrical Ratings:

Voltage and Frequency: 120 Vac, 50/60 Hz.  
 Power: M7281, M7284, M7294: 23W, 0.24A. M7282, M7285: 28W, 0.28A.

### Controller:

These motors can be used with any electronic controller that provides a stable noise-free proportional current output; see Input Range.

### Input Range:

M7281A,C; M7282A,C; M7284A,C; M7285A,C; M7294A: 4-20 mA nominal, 25 mA maximum.  
 M7281Q, M7282Q, M7284Q, M7285Q, M7294Q: 4-20 mA adjustable, 50 mA maximum.  
 Zero/Null (Motor Closed): .08 to 18 mA.  
 Span: 1.8 to 18 mA.

### Input Impedance:

100 ohms.

### Motor Rotation:

Normally closed. The closed position is the limit of the counterclockwise rotation as viewed from the power end. All models rotate to the closed position on minimum input; M7282, M7285 spring return to the closed position on power interruption.

### Stroke:

Fixed 90° or 160° stroke models available.

### Timing:

Nominal 30 seconds for 90° stroke and 60 seconds for 160° stroke.

### Torque:

M7181, M7184 150 lb-in. (17 N•m).  
 M7182, M7185 60 lb-in. (6.8 N•m).  
 M7294 300 lb-in. (34 N•m).

### Maximum Damper Rating:

Motor Torque lb-in.	B dim	
	in.	mm
60	68	1727
150	202	5131
300	258	6553

### Dead Weight Load On Shaft:

Power or Auxiliary End: 200 lb (90.8 kg) maximum.  
 Maximum Combined Load: 300 lb (136 kg).

### Ambient Temperature Ratings:

Maximum: 150°F (66°C) at 25% duty cycle.  
 Minimum: -40°F (-40°C).

### Shaft: 3/8 in. (9.5 mm) Square.

M7284, M7285, M7294 have dual-ended shaft.  
 M7281, M7282 have single-ended shaft.

### Dimensions:

See Fig. 1.

### Auxiliary Switch Ratings (Amperes):

One Contact Rating <sup>a</sup> Amps	120V	240V
Full Load	7.2	3.6
Locked Rotor	43.2	21.6

<sup>a</sup>40 VA pilot duty, 120/240 Vac on opposite contact.

### Underwriters Laboratories Inc. Listed:

File No. E4436, Guide No. XAPX.

### Canadian Standards Association Certified:

General Listed File No. LR1620, Guide No. 400-E.

### Accessories:

ES650117 Explosion-proof Housing: Encloses motor for use in explosive atmospheres. Not for use with Q601, Q618, and Q455 Linkages. Order separately from Nelson Electric Co. Requires Honeywell 7616DM Coupling.

Q607 External Auxiliary Switch: Controls auxiliary equipment as a function of motor position.

Q605 Damper Linkage: Connects motor to damper. *Includes motor crank arm.*

Q618 Linkage: Connects Modutrol motor to water or steam valve.

Q601 Bracket and Linkage Assembly: Connects Modutrol motor to water or steam valve.

Q100A,B Linkage: Connects Modutrol motor to butterfly valve. Requires adapter bracket packed with motor.

221455A Infinitely Adjustable Crank Arm: Approximately 0.75 inch (19 mm) shorter than the 4074ELY Crank Arm. Can rotate through downward position and clear base of motor without requiring use of adapter bracket.

7617ADW Adjustable Crank Arm: Approximately 0.75 inch (19 mm) shorter than 7616BR Crank Arm.

220741A Screw Terminal Adapter: Converts the standard quick-connect terminals to screw terminals.  
Transformers: Mounted internally, provide 24 Vac power to motor.

198162JA—24 Vac; 50/60 Hz (for electrical isolation).  
198162EA—120 Vac; 50/60 Hz (included in motor).  
198162GA—220 Vac; 50/60 Hz.  
198162AA—120/208/240 Vac; 50/60 Hz.

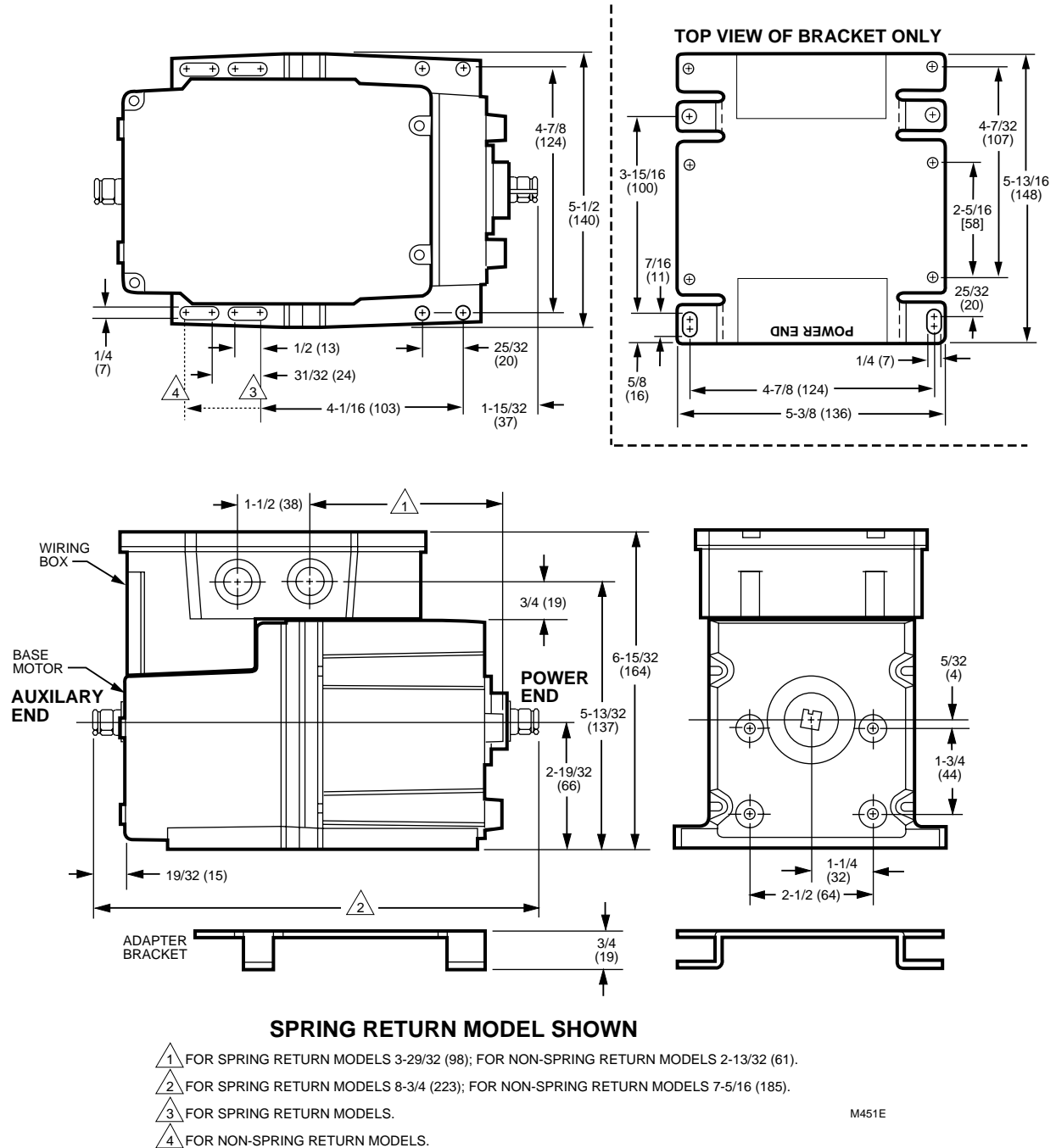


Fig. 1. M7284, M7285, M7294 dimensions in in. (mm). Note: M7281, M7282 models do not have auxiliary shaft. All other dimensions are the same.

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