



## S03, S05 Series Spring Return Direct Coupled Actuators

MS8103, MS4103, MS7503, MS7403, MS8105, MS4105, MS7505, MS7405

MS8103, MS4103, MS7503, MS7403, MS8105, MS4105, MS7505, MS7405 Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems. They can drive a variety of quarter-turn, final control elements requiring spring return fail-safe operation.

### SPECIFICATION DATA

### APPLICATIONS

- Volume control dampers, mounted directly to the drive shaft or remotely (with the use of accessory hardware).
- Quarter-turn rotary valves, such as ball or butterfly valves mounted directly to the drive shaft.
- Linear stroke globe or cage valves mounted with linkages to provide linear actuation.

### SPECIFICATIONS

**Models:**

- ☐ See Table 1.

**Device Weight:**

- ☐ 3.5 lbs (1.60 kg)

**Ambient Operating Temperature:**

- ☐ -40° to 150°F (-40° to 65°C)
- ☐ -22° to 150°F (-30° to 65°C) (Two position only)

**Shipping and Storage Temperature:**

- ☐ -40° to +150°F (-40° to +65°C) for 24 hours

Table 1. Models.

OS#	Torque	Control Signal	Power Supply and Frequency	Switch	Drive Timing	VA Driving	
MS8103A1030/U	27 lb-in (3 Nm)	Two Position SPST	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	45 sec	7 VA	
MS8103A1130/U			24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	1	45 sec	7 VA	
MS4103A1030/U			120/230 Vac @ 50/60 Hz, +/-10%	0	45 sec	10 VA	
MS4103A1130/U			120/230 Vac @ 50/60 Hz, +/-10%	1	45 sec	10 VA	
MS7503A2030/U		(0)2-10 Vdc, Floating	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	90 sec	7 VA	
MS7503A2130/U			24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	1	90 sec	7 VA	
MS7403A2030/U		44 lb-in (5 Nm)	2-10, Floating, Economizer (3 kOhm, 3-Position)	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	90 sec	7 VA
MS8105A1030/U			Two Position SPST	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	45 sec	8 VA
MS8105A1130/U	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%			1	45 sec	8 VA	
MS4105A1030/U	120/230 Vac @ 50/60 Hz, +/-10%			0	45 sec	11 VA	
MS4105A1130/U	120/230 Vac @ 50/60 Hz, +/-10%			1	45 sec	11 VA	
MS7505A2030/U	(0)2-10 Vdc, Floating		24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	90 sec	8 VA	
MS7505A2130/U			24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	1	90 sec	8 VA	
MS7405A2030/U	44 lb-in (5 Nm)		2-10, Floating, Economizer (3 kOhm, 3-Position)	24Vac @ 50/60 Hz, +/-20% 24Vdc +/-10%	0	90 sec	8 VA



## S03, S05 SERIES SPRING RETURN DIRECT COUPLED ACTUATORS

### Humidity Ratings:

- 5% to 95% R.H., Non-Condensing

### Electrical Connections:

- Field wiring 18 AWG (0.5 mm) to 14 AWG (1.5 mm) conductors (stranded or solid) and up to 2 - 14 AWG (1.5 mm) conductors (stranded) to screw terminals, located under the removable access cover.

### Auxiliary Switch (One SPDT):

- Switch adjustable from 0-95°
- 500 uA Resistive at 5 Vdc (minimum)
- 250 Vac, 8 A resistive, 3 A inductive

### Mounting: Self-centering shaft adapter (shaft coupling):

- Round damper shafts: 3/8 to 5/8 in. (9 to 16 mm)
- Square damper shafts: 1/4 to 1/2 in. (6 to 13 mm)

### Minimum Damper Shaft Length:

- 1 in. (25 mm); 3 in. (76 mm) recommended.

### Spring Return Timing (at rated load):

- < 25 seconds @ -4°F to 130°F (-20°C to 55°C)
- < 60 seconds @ -22°F (-30°C)

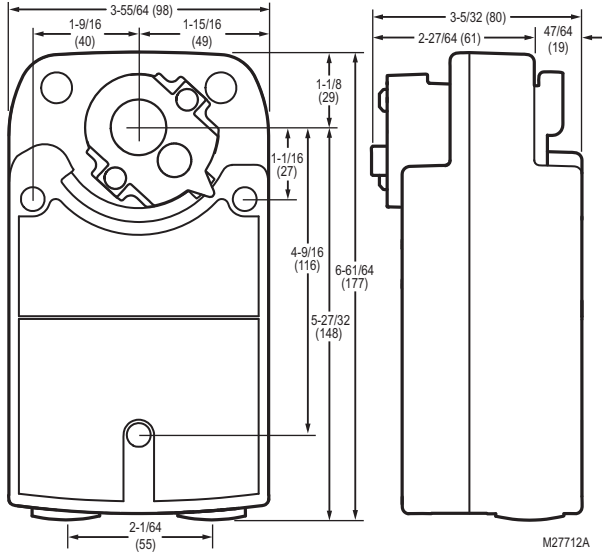


Fig. 1. Dimensional drawing of actuator in in. (mm).

**Stroke:** 95° ±3°, mechanically limited.

### Approvals:

- UL873
- IEC 60730-1 and Part 2-14
- UL1097 for Double Insulation
- CE Certification Low Voltage Directive 2006/95/EC
- CE EMC 2004/108/EC
- C-Tick N314

### Automation and Control Solutions

Honeywell International Inc.  
1985 Douglas Drive North  
Golden Valley, MN 55422  
customer.honeywell.com

Honeywell Limited-Honeywell Limitée  
35 Dynamic Drive  
Toronto, Ontario M1V 4Z9

### Enclosure Ratings:

- IP54
- NEMA 2
- Flame Resistance UL94-5VA

### Input Impedance:

- 95 kOhms minimum.

### Feedback Signal:

- 0(2)-10 Vdc, 3 mA minimum.

### Noise Rating at 1m (Maximum):

- Driving
  - Floating/Modulating/Econ: < 40 dB(A)
  - 2-Position: < 50 dB(A)
- Spring Return: < 60 dB(A)

### Accessories:

- 27518 Balljoint (5/16 in.)
- 103598 Balljoint (1/4 in.)
- 27520A-E,G,H-L,Q Pushrod (5/16 in. diameter)
- STRN-STRNRLF Water-tight Cable Gland/Strain-relief Fitting (10 pack)
- STRN-WMK-01 Wall Mount Kit
- STRN-ECONO-01 Economizer Retrofit Kit
- STRN-CRK-01 Crank Arm Kit
- STRN-SCSA Self Centering Shaft Adapter
- STRN-CA-01 Crank Arm (Non-Self-Centering)
- STRN-CA-02 Crank Arm (Self-Centering)
- STRN-BRKT Anti-Rotation Bracket

## TYPICAL SPECIFICATION

Spring return actuators shall be direct coupled type requiring neither crankarm nor linkage and be capable of direct mounting to a jackshaft of up to 5/8 in. diameter. The actuator shall connect to the shaft using a removable output hub with a self-centering shaft coupling. This coupling shall provide concentric mounting and include an integral adjustable range-stop mechanism.

The actuator shall provide two-position, floating, or proportional control. Proportional control refers to direct acceptance of 0-10 Vdc, 2-10 Vdc, or (with addition of a 500 ohm resistor) a 4-20 mA input signal. Proportional and floating control models shall provide a feedback signal. Actuators shall provide wiring terminals located within an integral access cover with conduit connections. Proportional and floating actuators shall have a rotation direction control switch accessible on the cover.

All spring return actuators must be designed for either clockwise or counterclockwise fail-safe operation with a continuously engaged mechanical spring. This spring must return the valve or actuator to a fail-safe position within 25 seconds of power loss.

All actuators shall be designed for a minimum of 60,000 fullstroke cycles at rated torque and temperature, 60,000 springreturn cycles and 1,500,000 repositions. Run time shall be constant and independent of: load, temperature, and supply voltage (within specifications). All actuators shall be UL60730 and cUL (CSA22.2) listed, have a five year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Honeywell.

