

# RLH-24-MOD Spring Return Direct Coupled Actuators



RLH-24-MOD Spring Return Direct Coupled Actuators (DCA) are used within heating, ventilating, and air-conditioning (HVAC) systems.

Applications include:

- Volume control dampers, mounted directly to the drive shaft or remotely (with the use of accessory hardware).

## SPECIFICATIONS

### Torque Ratings:

- Typical Holding, Driving, Spring Return: 175 lb-in. (20 N·m).
- Stall Maximum (fully open at 75°F): 350 lb-in. (39.6 N·m).

### Electrical Ratings:

- See Table 1.

### Electrical Connections:

- Field wiring 14 to 22 AWG (2.0 to 0.344 mm sq) to screw terminals, located under the removable access cover.

### Stroke:

- 95° ±3°, mechanically limited.

### Controller Type:

- Modulating (Series 70) or Floating (Series 60); controlled by selector switch.
- Input Impedance: 95K ohms minimum.
- Feedback Signal: 0 or 2-10 Vdc; Driving current is 3 mA minimum.

### Timing (At Rated Torque and Voltage):

- Drive Open (typical): 90 seconds.
- Spring Close: 20 seconds typical.

### Temperature Ratings:

- Ambient: -40°F to 140°F (-40°C to 60°C).
- Shipping and Storage: -40°F to 158°F (-40°C to 70°C).

### Humidity Ratings:

- 5% to 95% RH noncondensing.

### Design Life (at Rated Voltage):

- 60,000 full stroke cycles; 1,500,000 repositions; 60,000 full stroke spring returns.

### Dimensions:

- See Fig. 1.

### Device Weight:

- 7 lb (3.2 kg).

## SPECIFICATION DATA

## FEATURES

- Brushless DC submotor with electronic stall protection.
- Self-centering shaft adapter (shaft coupling) for wide range of shaft sizes.
- For use with floating or switched single-pole, double-throw (spdt) controls, or proportional current or voltage controls.
- Access cover to facilitate connectivity.
- Metal housing with built-in mechanical end limits.
- Spring return direction field-selectable.
- Shaft position indicator and scale.
- Manual winding capability with locking function.
- UL (cUL) listed and CE compliant.
- All Models are plenum-rated per UL873.

### Mounting:

- Self-centering shaft adapter (shaft coupling).
  - Round Damper Shafts: 0.375 to 1.06 in. (10 to 27 mm).
  - Square Damper Shafts: 1/2 to 3/4 in. (13 to 19 mm).
  - Actuator can be mounted with shaft in any position.

### Minimum Damper Shaft Length:

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

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

- Holding: 20 dBA (no audible noise).
- Driving: 40 dBA.
- Spring Return: 50 dBA.

### Environmental Protection Ratings:

- NEMA2 when mounted on horizontal shaft with access cover below the shaft.

### Approvals:

- UL/cUL.
- UL873 Plenum Rating, File No. E4436; Guide No. XAPX.
- CE.
- C-TICK.

### Accessories:

- 32000085-001 Water-tight Cable Gland/Strain-relief Fitting (10 pack).
- 32003036-001 Weather Enclosure.
- 50005859-001 NEMA 4/4X Enclosure.



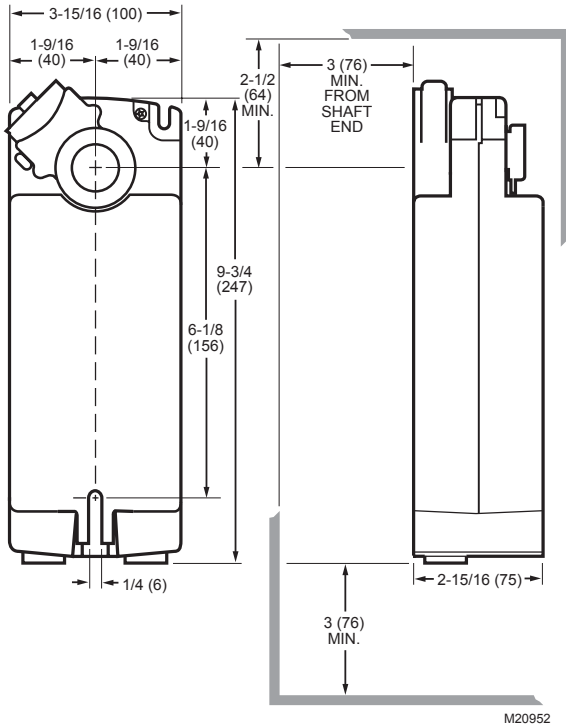


Fig. 1. Dimensional drawing of actuator in in. (mm).

Table 1. Electrical Ratings.

Model(s)	Power Input		Power Consumption (VA)	
	Voltage	Frequency	Driving	Holding
RLH-24-MOD	24 Vac ±20% (Class 2), 24 Vdc	50/60 Hz.	16	5

## 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 1.05 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 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 provide a 2-10 Vdc 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. Proportional and floating actuators shall use a brushless DC submotor with a microprocessor control protected from overload at all angles of rotation.

All spring return actuators must be designed for either clockwise or counterclockwise fail-safe operation with a continuously engaged mechanical return spring. This spring must return the actuator to a fail-safe position within 20 seconds of power loss. All actuators shall provide a means of manually positioning the output hub in the absence of power. All actuators shall be designed for a minimum of 60,000 full-stroke cycles at actuator rated torque and temperature, 60,000 spring-return cycles and 1,500,000 repositions as documented in the product literature. Run time shall be constant and independent of: load, temperature, and supply voltage (within specifications). All actuators shall be UL873 and cUL (CSA22.2) listed, have a five year warranty, and be manufactured under ISO 9001 International Quality Control Standards.

### Ruskin Company

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# Spring Return Direct Coupled Actuators

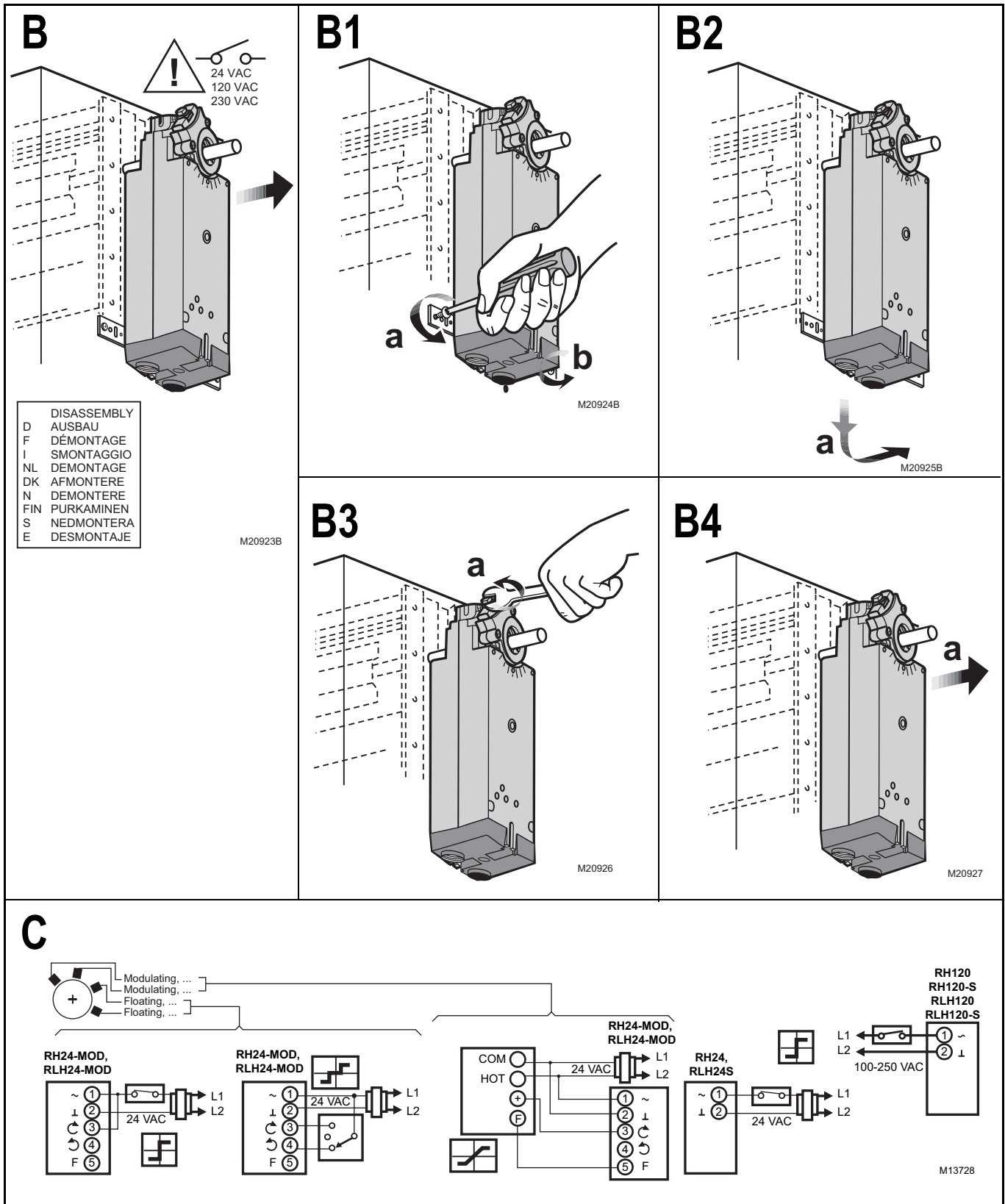
RH24, RH24-S, RH24-MOD, RH120, RH120-S, RLH24, RLH24-S, RLH24-MOD, RLH120, AND RLH120-S

**INSTALLATION INSTRUCTIONS**

<p><b>A</b></p> <p>         ! 24 VAC          120 VAC          230 VAC     </p> <p>         ASSEMBLY          D EINBAU          F MONTAGE          I MONTAGGIO          NL MONTAGE          DK MONTERE          N MONTERING          FIN ASENTAMINEN          S MONTERA          E MONTAJE     </p> <p>M20918B</p>	<p><b>A1, A4</b></p> <p>M20919B</p>	<p><b>A2</b></p> <p>M20920B</p>
<p><b>A3</b></p> <p>M12030</p>	<p><b>A5</b></p> <p>M20921B</p>	<p><b>A6</b></p> <p>M20922B</p>



SPRING RETURN DIRECT COUPLED ACTUATORS



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Printed in U.S.A. on recycled paper containing at least 10% post-consumer paper fibers.