

Linear Actuator

Model HC-09140

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Features and benefits:

- Compact, flexible design is suitable for combustion and process control applications.
- Stepping motor stops and starts instantaneously: eliminates coast and provides precision positioning.
- High starting torque overcomes static friction.
- Impedance-protected motor is not damaged if overload stalling occurs.
- Standard 6" range of travel.
- 30 and 60 second nominal stroke times.
- 75 and 150 lb. thrust ranges. Equivalent to 18.75 and 37.5 lbs.
- Operates on switched line voltage input.
- Optional handwheel.
- Optional feedback potentiometer for remote position indication.
- Optional adjustable "safe start" position switches.
- Includes integral adjustable start switches wired to interface with Hays Cleveland Series 7720 draft controllers.

Introduction

Hays Cleveland Series 9140 Linear Actuators offer long life, safety, reliable operation, and easy maintenance. These compact units are available with a full range of options for maximum flexibility in any combustion control or process control application.

Series **9140 Linear Actuators** accept electrical line voltage signals from a switched output controller to position a final control element, such as a damper, control valve, louver, stoker lever, variable speed transmission, or any similar device, over a six-inch range of travel.

Hays Cleveland Series HC-09140 Linear Actuators require no mechanical brake assembly. The inherent braking-action of the synchronous stepping motor prevents overtravel without the wear and stress associated with friction or "DC" braking. As shown in the **Specifications** section of this bulletin, two stroke times and thrust ranges are offered for all models.

General operations

The line voltage signals control the reversible motor in finite increments to drive an acme screw through a nonslip timing belt drive and pulley system. The screw drives through a travel nut-and-bearing arrangement to extend or retract the drive tube. The nut and screw assembly self-locks in the case of power failure, in order to maintain final drive tube position.

End switches shut off power to the motor when the unit reaches either the inward or the outward travel extreme.

All applications use the full six-inch travel of the drive arm. Linear or nonlinear movement of the final control element, as well as its



total range of travel, is controlled by adjustment of the linkage connecting the actuator's drive arm to the operating lever of the final control element. Overload stalling will not damage the motor.

Hays Cleveland Series 9140 Linear Actuators can be mounted in any position on any flat, rigid surface free from excessive vibration. All wiring connections are easily accessible for maintenance. The ambient temperature limit is 140F (60C).

Physical

Power Requirements: 120 VAC or 240 VAC, 50/60 Hz.

Motor: Commercially available 72 RPM stepping motor operated in synchronous mode.

Input Signal: Switched line voltage input.

Wiring Connections: Screw-type terminals for power to motor and for all control connections.

Ambient Temperature: 0 to 140F (-19 to 60C).

Mounting: Any position.

Case Dimensions: 15.75" long x 7.5" wide x 5.75" high.



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HOW TO ORDER

The basic catalog number for the HC-09130 Linear Actuator is shown below. Replace suffixes A through F with the desired selections from the table below.

HC - 0914A - B - C - D - E

A. Nominal Stroke Time / Thrust Range:

- A=1 30 seconds/75 lbs. thrust (18.75 ft. lbs.)
- A=2 60 seconds/150 lbs. thrust (37.5 ft. lbs.)
- A=3 120 seconds/300 lbs. thrust (75 ft. lbs.)

No Longer Available

B. Position Feedback Potentiometer

- B=0 None
- B=1 1000Ω
- B=2 4000Ω **No Longer Available**
- B=3 135Ω

C. Custom Positioning Options

- C=0 None
- C=1 Adjustable Start Position Switch
- C=2 Isolated Auxiliary End of Travel Switch
- C=x Covers all options above **Only Available Option**

D. Custom Housing Options

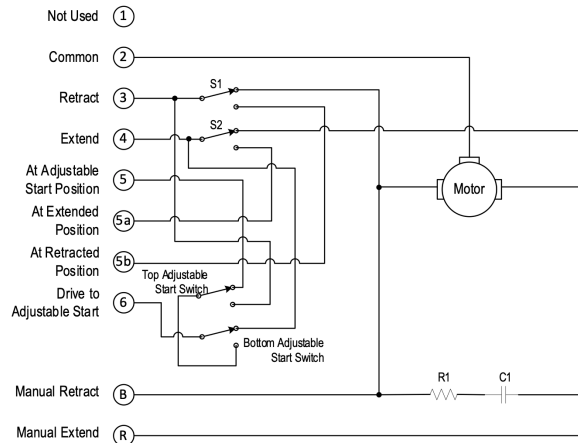
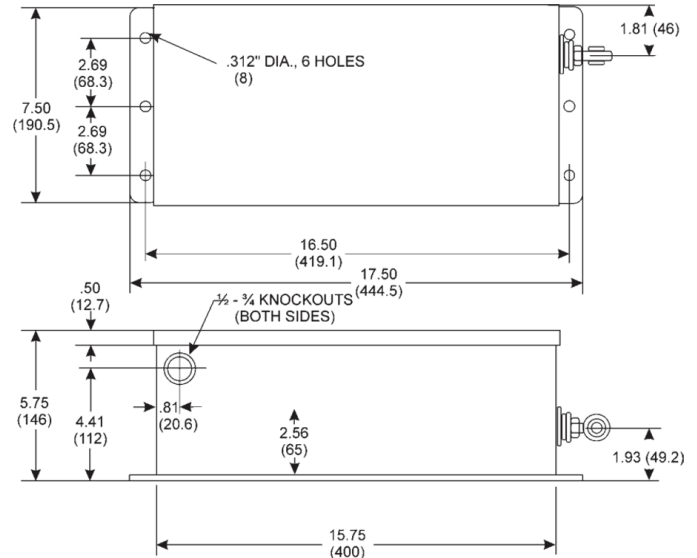
- D=0 None
- D=1 Handwheel
- D=3 NEMA 3 Rated **No Longer Available**

E. Power Requirements

- E=1 120Vac 50/60 Hz

Linkage Accessories:

- HC-11372 Damper Lever Arm
- HC-26908 Extension Drive Rod & Clevis Assembly
- HC-32032 Linkage Kit



Notes:

1. When outward stroke opens the damper, jump terminals 5 and 5a
2. When inward stroke opens the damper, jump terminals 5 and 5b
3. To reverse operation, interchange external wires to terminals 3 & 4, and (if used) X1 & Z1

