

Model F-09130-CO

LINEAR ACTUATOR

THE HAYS CLEVELAND SERIES 9130 IS A COMPACT, VERSATILE LINEAR ACTUATOR WITH OPTIONS SUITABLE FOR ANY CLOSED OR OPEN LOOP APPLICATION.

FEATURES

- **Compact, Flexible Design Suitable for Any Combustion or Process Control Application**
- **Stepping Motor Stops and Starts Instantaneously to Eliminate Coast and Provide Precision Positioning**
- **High-Starting Torque Overcomes Static Friction**
- **Impedance-Protected Motor is Not Damaged if Overload Stalling Occurs**
- **Standard 6" Range of Travel**
- **30, 60, and 120- Second Nominal Stroke Times**
- **75, 150, and 300 lb. Thrust Ranges (Equivalent to 18.75, 37.5, and 75.0 ft. lbs.)**
- **Operates on Switched Line Voltage Input**
- **Optional Handwheel**
- **Optional Feedback Potentiometer for Closed-Loop Control Applications and Remote Position Indication**
- **Optional Isolated Auxiliary End Switch**



APPLICATION

The Hays Cleveland Series 9130 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 9130 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.

The Hays Cleveland Series 9130 LINEAR ACTUATOR requires 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, three stroke times and thrust ranges are offered for all models. For special stroke time/thrust requirements, please consult your local Hays Cleveland technical representative. For convenient comparison with competing rotary actuators, this bulletin provides equivalent torque ratings (in foot-pounds) for the thrust

ratings of these linear motion actuators. The torque ratings are valid for a 3" lever traveling through a 90° arc.

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.

The Hays Cleveland Series 9130 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 140 degrees Fahrenheit (60 degrees Celsius).

An optional electrically-isolated auxiliary end switch can be provided to operate lights or other ancillary equipment.

HOW TO ORDER

The basic catalog number for the **Hays Cleveland Series 9130 LINEAR ACTUATOR** is shown below. Replace suffixes A through F with the desired selections from the table below.

913A-B-C-D-E-F

A. Nominal Stroke Time/ Thrust Range:

1. 30 seconds/75 lbs. thrust [18.75 ft. lbs.] (-A01)
2. 60 seconds/150 lbs. thrust [37.5 ft. lbs.] (-A02)
3. 120 seconds/300 lbs. thrust [75.0 ft. lbs.] (-A03)

B. Potentiometer:

1. 1000 ohm (-B01)
2. 135 ohm (-B02)
3. 4000 ohm (-B03)

C. Accessories:

1. None (-C00)
2. Isolated Auxiliary End Switch (-C01)
3. Adjustable Start Switches (-C02)

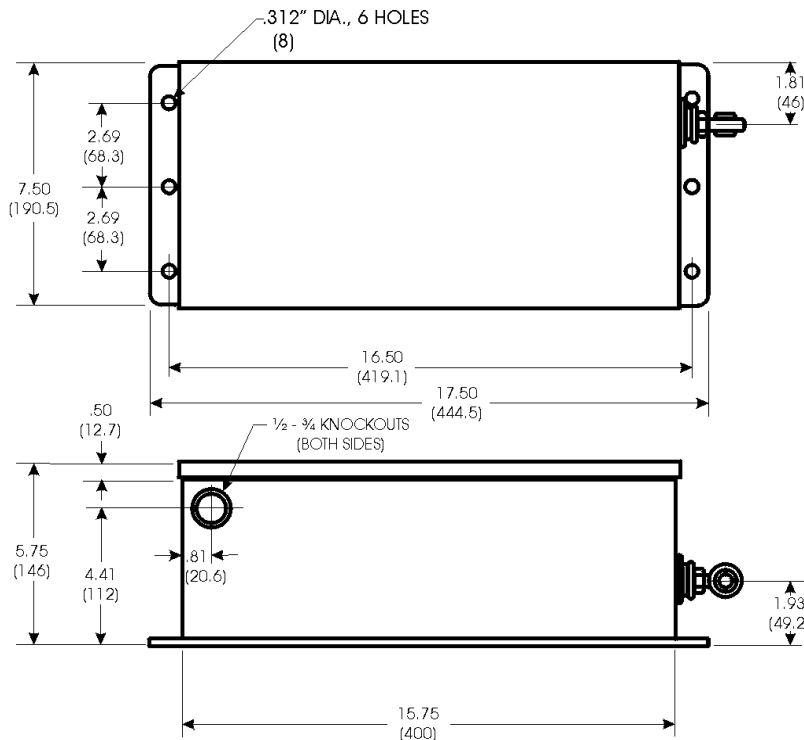
D. Manual Operator:

0. None (-D00)
1. Handwheel (-D01)
2. NEMA 3 Housing Rating

E. Power Requirements:

1. 120 v AC 50/60 Hz. (-E01)
2. 240 v AC 50/60 Hz. (-E02)

F. Current Model Designation: C



SPECIFICATIONS

PHYSICAL

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

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

Mounting: Any position.

Motor: Commercially available stepping motor operated in synchronous mode.

Input Signal: Switched line voltage input.

Wiring Connections: Numbered terminals for power to motor and motor brake, and for alarm and control connections.

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

Finish: Wear-resistant sealed black polyurethane enamel.

Shipping Weight: 35 lbs.

APPLICATION

Travel: Six-inch linear travel.

Stroke Time: 30, 60, or 120 seconds.

Thrust: 75, 150, or 300 lbs. (Equivalent to 18.75, 37.5, and 75 foot-pounds with a 3" lever arm.)

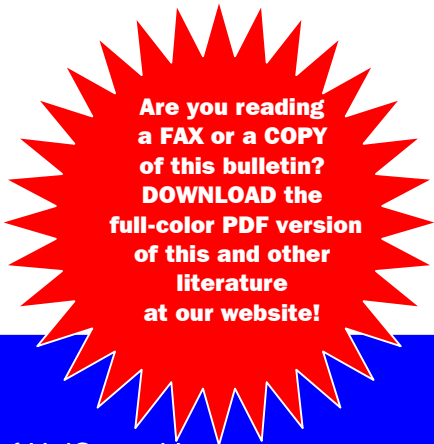
Positioning Accuracy: ± 0.25%.

End Switches: High and low end switches standard.

Potentiometer: Standard 1000 ohms. Also available: 400 ohm, 135 ohm.

Handwheel: Continuous rotation type (optional).

Specifications Subject to Change



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