



## Description

Fives North American model 1615 reversing actuators/control motors are used for the positioning of flow control valves, butterfly valves, dampers, or any application requiring rotary motion. The 1615 actuators accommodate control input signals of 4-20 mA, 0-135  $\Omega$ , 0-10 V dc, 0-20 mA, position proportional and floating control. The available output signals include 4-20 mA, 0-135  $\Omega$ , 0-10 V dc, 0-20 mA, and 0-1000  $\Omega$ . 1615 actuators have easily accessible and adjustable auxiliary switches.

1615 Actuators provide a variety of functions including auto/manual selector switch, manual forward/reverse toggle switch, zero and span adjustment, parallel or master/slave operation, split range control, input signal override, and selectable electronic linearization.

The 1615 is engineered for precision. It is particularly well suited to applications requiring a high degree of modulating accuracy and repeatability. Drive shaft play is limited to 0.3°, with a modulating accuracy of 250 repositions through 90° of travel.

The 1615 actuator may be mounted in any position. Two types of optional mounting brackets provide installation flexibility and allow for the simple replacement of Honeywell and Barber Coleman actuators.

## Features

- Modulating accuracy of 250 repositions through 90°
- Two limit switches, one auxiliary "closed position" switch and three additional auxiliary switches
- Drive shaft and cam drum disengagement clutches
- Auto/manual switch, manual control forward/reverse toggle switch
- UL, CSA, CE approved 24 and 100 V ac versions, CE approved 220 V ac versions
- Field reversible clockwise (CW) or counterclockwise (CCW) operation, factory set CW
- Various torque ratings and running times available
- Mounting brackets to replace competitive actuators
- Low hysteresis actuator and potentiometer gearing
- Externally visible position indication
- Selection of input and output signals
- Zero and span adjustment
- Field replaceable circuit boards
- Electronic damper linearization function
- Split range and selectable parallel or master/slave operation
- Adjustable input signal override function
- NEMA 1, 2, 3, 3R, 3S, 4, 5, 12, 13

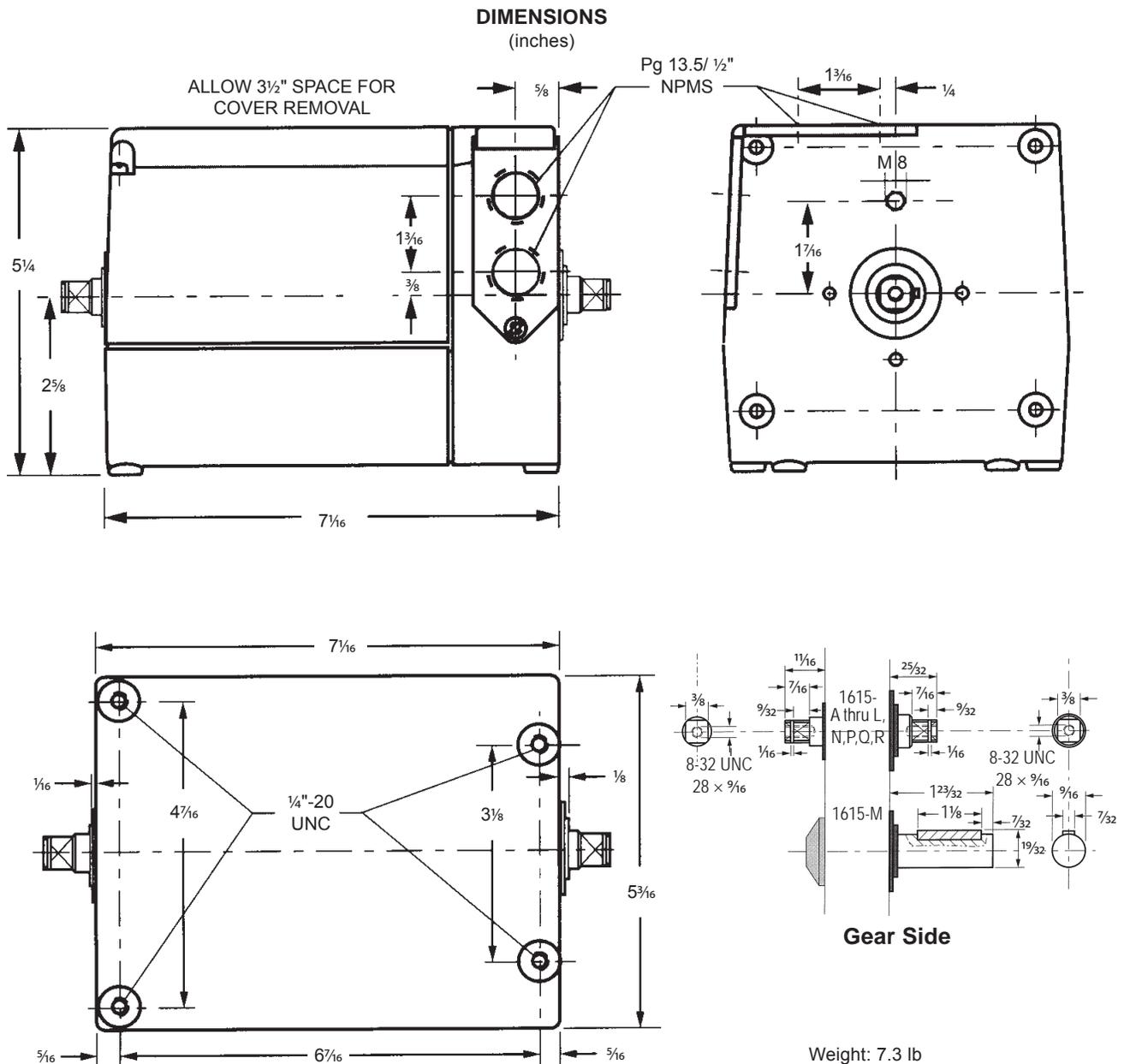
# Application

1615 actuators are uniquely suited for both industrial and commercial applications. The high level of accuracy permits precise modulating control of industrial process and process heating applications, often significantly enhancing performance and product quality.

In commercial and industrial burner applications requiring high turndown and reliable ignition, the auxiliary switches can be applied to create separate positions for burner light-off and low fire. In dual fuel applications, additional switches can be used to create separate high fire, low fire and light-off positions for each fuel. The "closed position" switch is used to drive the actuator to the full closed position when the burner is off.

In all applications, commissioning is simplified. Shaft and switch cam drum disengagement clutches allow for the quick manual alignment of the actuator shaft and switch cams. The forward/reverse toggle switch in combination with the auto/manual selector switch provides direct manual control.

# Dimensions

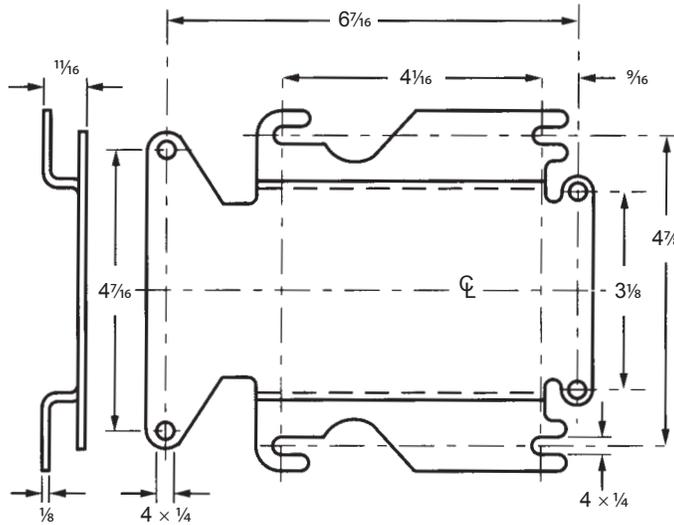


# Mounting Brackets

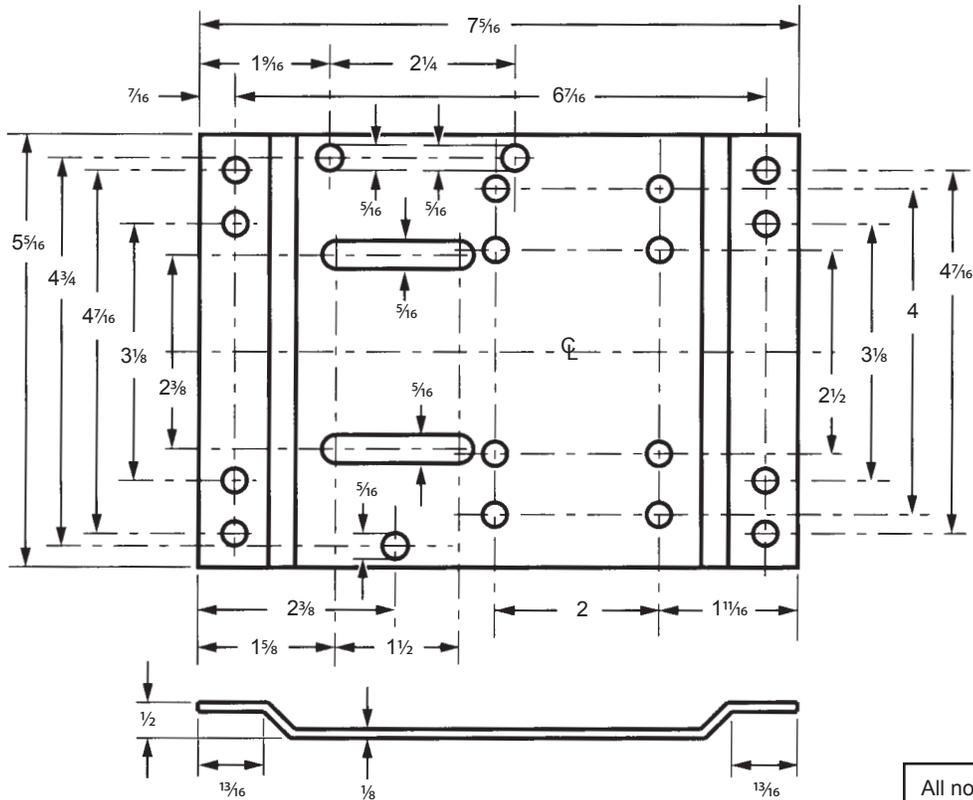
R410-7900 bracket for replacement of Honeywell MOD III, IV actuators

R410-7950 bracket for replacement of Honeywell M640/740/940 and Barber Colman EA20/40/50/60 actuators

**NOTE: A mounting bracket must be ordered separately when field retro-fitting a Honeywell or Barber Coleman actuator with 1615 series actuator. All other existing bracket and linkage will adapt.**



**R410-7900 Mounting Bracket**



**R410-7950 Mounting Bracket**

All non-sized holes  
 $\varnothing$  5/16

## Selection

The following table provides a listing of those Series 1615 actuators currently available, along with an indication of the primary features offered by each.

| Part Number | Torque (lb-in) | Running Time <sup>(1)</sup> 90° at 60 Hz (sec.) | Input Voltage (V ac) | Input Control | Feedback Signal | Degrees of Travel | Zero & Span Adjustment |
|-------------|----------------|---|----------------------|---------------|-----------------|-------------------|------------------------|
| 1615-A      | 140            | 12  | 110-120              | 4-20 mA       | None            | 135°              | Yes                    |
| 1615-B      | 140            | 25  | 110-120              | 4-20 mA       | None            | 90°               | Yes                    |
| 1615-C      | 140            | 25  | 24                   | (2)           | 135Ω            | 135°              | No                     |
| 1615-D      | 200            | 25  | 110-120              | 4-20 mA       | None            | 90°               | Yes                    |
| 1615-E      | 200            | 25  | 110-120              | 4-20 mA       | 1000Ω           | 90°               | Yes                    |
| 1615-F      | 310            | 37  | 110-120              | 4-20 mA       | None            | 135°              | Yes                    |
| 1615-G      | 310            | 37  | 110-120              | (2)           | 135Ω            | 135°              | No                     |
| 1615-H      | 310            | 37  | 110-120              | (3)           | (4)             | 135°              | Yes                    |
| 1615-I      | 310            | 37  | 110-120              | Floating      | None            | 160°              | No                     |
| 1615-J      | 310            | 37  | 220-240              | 4-20 mA       | None            | 135°              | Yes                    |
| 1615-K      | 400            | 50  | 220-240              | (3)           | (4)             | 90°               | Yes                    |
| 1615-L      | 400            | 50  | 110-120              | 4-20 mA       | None            | 135°              | Yes                    |
| 1615-M      | 400            | 50  | 110-120              | (3)           | (4)             | 135°              | Yes                    |
| 1615-N      | 140            | 25  | 220-240              | 4-20 mA       | None            | 90°               | Yes                    |
| 1615-P      | 200            | 25  | 110-120              | (3)           | (4)             | 90°               | Yes                    |
| 1615-Q      | 200            | 25  | 110-120              | 4-20 mA       | None            | 135°              | Yes                    |
| 1615-R      | 200            | 25  | 110-120              | 4-20 mA       | 1000Ω           | 135°              | Yes                    |
| 1615-S      | 140            | 25  | 110/120              | 3             | 4               | 90°               | Yes                    |
| 1615-T      | 140            | 12  | 220/240              | 3             | 4               | 90°               | Yes                    |
| 1615-V      | 200            | 25  | 220/240              | 3             | 4               | 90°               | Yes                    |
| 1615-W      | 310            | 37  | 110/120              | 3             | 4               | 90°               | Yes                    |
| 1615-X      | 310            | 37  | 220/240              | 3             | 4               | 90°               | Yes                    |
| 1615-Y      | 400            | 50  | 110/120              | 3             | 4               | 90°               | Yes                    |
| 1615-Z      | 400            | 50  | 110/120              | 3             | 4               | 90°               | Yes                    |

### NOTES:

- (1) Multiply running time by 1.5 for 135° travel, and by 1.2 for 50 Hz.
- (2) Position proportional control (i.e. AC voltage control)
- (3) All inputs/outputs, linearization, split ranging, and pre-set positioning
- (4) Actuators with the multi-functional circuit board have the following output signals: 4-20 mA, 0-10 V dc, and 0-20 mA
- (5) Actuator shafts are 3/8" square for 1615-A - L and 1615-N - R; 0.55" circular for a1615-M.
- (6) All actuators will contain 2 limit switches and 4 auxiliary SPDT switches
- (7) All actuators will use the red scale indication with the double switch cam indicators.

## Ordering Instructions

*Examples:* 1615-A Control Motor Actuators  
R410-7900 Bracket for retro-fitting to Honeywell MOD IV motor assembly

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM FIVES NORTH AMERICAN COBMUSTION, INC. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

**WARNING:** Situations dangerous to personnel and property may exist with the operation and maintenance of any combustion equipment. The presence of fuels, oxidants, hot and cold combustion products, hot surfaces, electrical power in control and ignition circuits, etc., are inherent with any combustion application. Parts of this product may exceed 160F in operation and present a contact hazard. Fives North American Combustion, Inc. urges compliance with National Safety Standards and Insurance Underwriters recommendations, and care in operation.