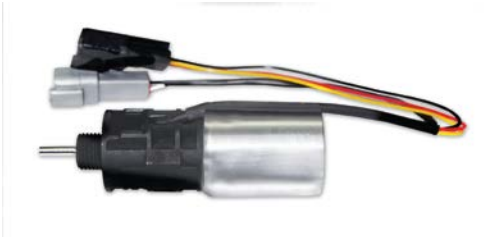
APECS® 0175

Linear Actuator Integral to Fuel Pump

- Purpose built for specific engines
- Position sensor feedback models
- Precise stroke positioning helps meet emissions control standards
- Internal spring return to minimum fuel position
- Corrosion-resistant components
- Reliable engine speed control when used with APECS electronic controllers

Applications

The APECS® 0175 linear actuator provides proportional fuel control for construction, industrial, power generation, and agricultural equipment. As the newest plank in Woodward's platform of solutions for on-engine actuation, it can be customized to OEM requirements for diesel engines using mechanical fuel pumps.



0175 LAPS actuator designed for Daedong C-Series engines driving a PFR pump

Description

Woodward's 0175 linear actuators deliver precise positioning and form the foundation of a full electronic governing system.

The actuator design employs the principle of variable reluctance for consistent force over the entire stroke. This simple design of a proportional electric linear actuator utilizes a linear armature whose magnetic force is proportional to the input current to the coil.

The 0175 is available in two configurations—standard or LAPS (linear actuator with position sensor). Both actuators, along with an electronic control unit, change engine speed by applying current to move the plunger in or out. With the standard actuator, the shaft position is defined as a point between the energized and de-energized positions. With the LAPS actuator, the position sensor allows feedback to the ECU to indicate shaft position. This is particularly advantageous when position feedback is required for emissions control.

Purpose-built for specific engines driving mechanical fuel pumps, the 0175 is integrated into the fuel pump so no mounting apparatus or linkage is necessary.

APECS 0175 actuators are suitable for installation on diesel engines. Spring force can be tailored for specific fuel system force requirements.

LAPS actuators should be used with an APECS 4801 controller for position feedback operation.

Woodward also manufactures the 0175 series of actuators with external linkage. For details on these external actuators, visit www.woodward.com to access Product Specification 03399.

Specifications

The charts below provide specifications for the Daedong standard or LAPS actuator and for the position sensor. Contact your Woodward account manager to discuss your customization requirements.

Daedong Standard or LAPS Actuator	
Ambient Temperature Range	-30 °C to +70 °C (-22 °F to +158 °F)
Rated Voltage	9-16 Vdc
Rated Current (nominal)	4.3 A
Stroke	0.64” ± 0.04 (16mm ± 1.0)
Duty Cycle	Continuous
Return Spring (preload)	1.3 lbf (5.8 N) de-energized position 4.9 lbf (21.8 N) energized position
Vibration Test Level	15 Gs (50-500 Hz sinusoidal, 3 planes)

POSTION SENSOR SPECIFICATIONS	
Sensor Supply Voltage	5 Vdc ± 10%
Analog Sensor Output Voltage	0.25-4.75 VD
Position Accuracy over Temp Range of -30 °C to +105 °C:	
Inside Control Range of 0.11 to 0.35” (3 to 9mm)	± 2.5% full scale *
Outside Control Range of 0.02 to 0.11”and 0.35 to 0.48” (0.5 to 3mm and 9 to 12.3mm)	± 4% full scale *

(*) Full scale = 0.48” (12.2mm) min. stroke

WOODWARD
PO Box 1519, Fort Collins CO, USA 80522-1519
1000 East Drake Road, Fort Collins CO 80525
Tel.: +1 (970) 482-5811 ◆ Fax: +1 (970) 498-3058
www.woodward.com

Distributors & Service
Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

For more information contact: