APECS™ 0175 Linear Actuator with External Linkage

Description
APECS™ 0175 linear actuators deliver precise positioning and form the foundation of a full electronic governing system. Many of the moving parts normally associated with electric actuators are eliminated, prolonging the MTBF (mean time between failure).

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.

These actuators are easy to install by mounting near the fuel system with a direct connection to the fuel control rod or level. In most installations, the normal rotary-to-rotary connection is eliminated, resulting in a more trouble-free and accurate control system.

APECS 0175 actuators are suitable for installation on diesel, gasoline, or natural gas engines with fuel system force requirements of less than 4.0 pounds (17.8 N) of force.

Woodward also manufactures 0175 actuators integral to the engine block or fuel pump. For details on these purpose-built actuators visit www.woodward.com to access Product Specification 37744.

Applications
Provides proportional fuel control for construction, industrial, and agricultural equipment. 1.75-inch (44.4 mm) diameter spring-return actuator, pull or push models, three spring types available.

Electrical Specifications
- Stroke: 0.75 inch (19 mm) minimum
- Force: 3.5 lb (15.6 N) @ 23 °C (with SI spring, normal current)
- Work Rating: 0.3 lb-ft (0.4 N-m)
- Nominal Rated Current: 4.3 A (12 V [dc]); 2.3 A (24 V [dc])
- Response Time: 30 ms for 10 % to 90 % of stroke
- Resistance (nominal): 2.80 Ohms (12 V); 10.63 Ohms (24 V)

Mechanical Specifications
- Operating Temperature: −40 °F to +185 °F (−40 °C to +85 °C)
- Vibration: 15 G's (3 planes, 1 h/plane 50 Hz to 1000 Hz sweep; 3 planes, 1 h/plane at first resonant frequency)
- Shock: Designed for US MIL-STD-810F, Method 516.5, Section 4.5.2: Procedure 1: 40 G peak
**Order Information**—Complete the following model descriptions to build your order number:

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Voltage</th>
<th>Mounting Style</th>
<th>Plunger Type</th>
<th>Termination Type</th>
<th>Return Spring*</th>
</tr>
</thead>
<tbody>
<tr>
<td>0175</td>
<td>-12</td>
<td>A</td>
<td>2</td>
<td>L</td>
<td>S1</td>
</tr>
<tr>
<td>0175P</td>
<td>-24</td>
<td>E</td>
<td>3</td>
<td>C</td>
<td>S2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>S3</td>
<td></td>
</tr>
</tbody>
</table>

**Spring Chart** (at ambient temperature)

<table>
<thead>
<tr>
<th>Spring Type</th>
<th>PART NO.</th>
<th>De-energized Spring Force</th>
<th>Energized Spring Force</th>
<th>Spring Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>SA-4703</td>
<td>0.50 lbs (2.2 N)</td>
<td>5.25 lbs (23.4 N)</td>
<td>5.94 lbs/in (0.16 kg/mm)</td>
</tr>
<tr>
<td>S2</td>
<td>SA-4704</td>
<td>0.25 lbs (1.1 N)</td>
<td>6.00 lbs (26.7 N)</td>
<td>7.20 lbs/in (0.13 kg/mm)</td>
</tr>
<tr>
<td>S3</td>
<td>SA-4472</td>
<td>0.40 lbs (1.8 N)</td>
<td>1.60 lbs (7.1 N)</td>
<td>1.53 lbs/in (0.03 kg/mm)</td>
</tr>
</tbody>
</table>

For more information contact:

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