PG Dial and Lever Governors

Applications

Woodward PG Dial and Lever governors control the speed of diesel, gas, and dual-fuel engines in a variety of fields. Their applications include engines driving pumps, compressors, alternators, variable speed dc generators, marine propulsion units, and paper machines.

Besides controlling speed, PG governors can also limit load and shut down the engine when the lubricating oil pressure fails.

Woodward customizes each PG governor to meet the needs of the engine and the application.

Description

Each PG governor contains the following elements:

- An oil pump, storage area for pressurized oil, and a relief valve to limit maximum oil pressure.
- A centrifugal flyweight head/pilot valve assembly to control oil flow to and from the governor power cylinder assembly.
- A power cylinder assembly (servomotor) to reposition the engine fuel rack. This can be either a spring-loaded or differential assembly.
- A compensating system to stabilize the governing system.
- Speed-setting adjustments.

Standard Features

- Lever or dial speed adjustment.
- Spring-driven, oil-damped ballhead to filter low frequency torsional vibrations at the governor drive.

Optional Features

- Speed adjusting motor.
- Electric, oil, water, or pneumatic shutdown.
- Speed droop (as load increases, speed decreases).
- Wide speed range.
- Governor oil cooler (for external mounting).
- Preloaded buffer springs for smoother control of two-cycle spark-ignition engines.
- Remotely mounted servomotor to simplify connection to fuel control.
- Servomotors with 16, 23, 33, 39, and 79 N·m (12, 17, 24, 29, and 58 lb-ft) (2/3 usable) are available in linear and rotary outputs.
- Overspeed test device to override governor speed setting. This permits testing of the engine overspeed trip by allowing the engine to run above rated speed.
Specifications

Construction

<table>
<thead>
<tr>
<th>Weight</th>
<th>Approximately 36 kg (80 lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case and Pump Housing</td>
<td>Cast iron</td>
</tr>
<tr>
<td>Internal Parts</td>
<td>Aluminum, mild or case-hardened steel, and stainless steel</td>
</tr>
<tr>
<td>Dial Speed Setting Cover</td>
<td>Cast aluminum</td>
</tr>
<tr>
<td>Lever Speed Setting Cover</td>
<td>Sand cast aluminum</td>
</tr>
</tbody>
</table>

Mounting

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Vertical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>The round base and serrated shaft shown in dimension drawings are standard. Other bases, such as ones having UG-8 or UG-40 mounting dimensions and drive shaft, are available.</td>
</tr>
<tr>
<td>Drive Shaft</td>
<td>Either serrated or with keyway and key to carry a gear</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>Drive power for different types of PG governors will vary depending upon speed, internal pump pressure, pump volumetric displacement, pump efficiency, and oil viscosity. Contact Woodard if further information is required.</td>
</tr>
</tbody>
</table>

Output

| Fuel Control | Piston type with a 25 mm (1-inch) travel is standard. Two-thirds of the travel should be used between no load and full load with some overtravel at each end of the stroke; linkage should permit complete shutdown. |

Control Characteristics

| Speed Range | The common speed range is 150–1000 rpm with 800–1000 rpm being the recommended range for constant speed service. A wide speed range of 200–1600 rpm is available. |
| Operating Temperature | Continuous operating temperature is 60 to 93 °C (140 to 200 °F). [Contact Woodward Industrial Controls when working beyond these limits; the hydraulic fluid pour point must be below the lowest expected starting temperature.] |
| Work Capacity | 16 N·m (12 lb-ft) is standard. A maximum of 11 N·m (8 lb-ft) may be used to move the fuel control linkage over the full range of governor travel. |

Hydraulic System

| Oil | SAE 10–50 oil depending on governor operating temperature |
| Self-contained Sump | Approximately 1.4 L (1.5 qt) |
| Viscosity | Should be 100–200 SUS under normal operating conditions |

IMPORTANT

Speeds in excess of 1000 rpm are available but require single-direction rotation. Oil coolers may also be required. Please consult Woodward Industrial Controls.

Regulatory Compliance

European Compliance for CE Marking:
These listings are limited only to those units bearing the CE Marking.

ATEX – Potentially Explosive Atmospheres Directive:
Declared to 94/9/EEC COUNCIL DIRECTIVE of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres. Zone 1, Category 2, Group II G, c II T3

Other European and International Compliance:
Compliance with the following European Directives or standards does not qualify this product for application of the CE Marking:

Machinery Directive:

Pressure Equipment Directive:
Compliant as “SEP” per Article 3.3 to Pressure Equipment Directive 97/23/EC of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment.
Outline Drawings

(Do not use for construction)