GBA Rotary Actuator for Fuel Control

"Golf Ball Actuator"

- Highly affordable rotary actuator due to low-cost design
- Adaptable to many OEM applications
- Mounts to engine with bracket or directly to engine with adapter plate
- Electrically driven in one direction and spring returned in opposite direction
- Output lever can be custom-designed for specific requirements
- CCW rotation; CW rotation models can be custom-designed for specific requirements
- Controls fuel system position
- Position sensing models can be custom-designed for specific needs

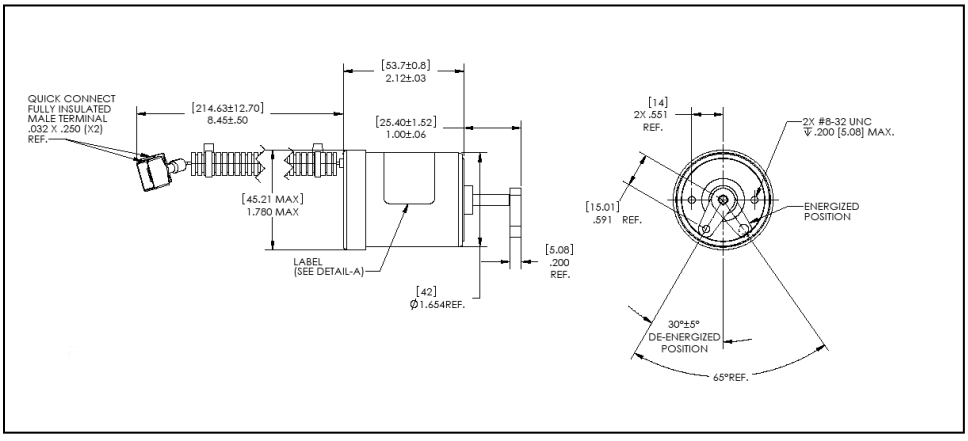
Description

Woodward's GBA is a laminated rotary actuator that accurately controls fuel flow in diesel, gasoline, propane, and natural gas engines. When paired with Woodward's APECS and DPG electronic controllers, desired engine speed is precisely maintained. The "Golf Ball Actuator," so named because of its small size (roughly the diameter of a golf ball), is suitable for power generation (stationary and mobile gensets) and industrial equipment applications.

FUEL CONTROL

Amperage to the actuator is adjusted by the controller, enabling the GBA to either increase or reduce fuel flow to the engine. The actuator may be attached to a fuel shutdown lever, a mechanical governor lever, a throttle butterfly, or directly to the injector pump rack. The actuator can also return the fuel system to minimum fuel position, shutting off the fuel flow to the engine.

Dimensions



NOTICE

High loads or impact to the actuator and/or output shaft (such as dropping on a hard surface) can cause product damage, resulting in reduced life or substandard performance.

Specifications

Electrical

Operating Voltage	12 Vdc ± 20%
Maximum Current Draw	5.1 A @ 12 Vdc at 68°F (20°C)
Coil Resistance	2.64 Ohms ± 10%

Performance

Torque Range	See graph below
Rotation	CCW 65°± 3°
Output to Actuator	Pulse-width-modulated driven
Response Time	<75ms for 0-5A step
Operating Life	5000 hours
Duty Cycle @ 105 °C (221 °F)	Intermittent @ > 2.20 A

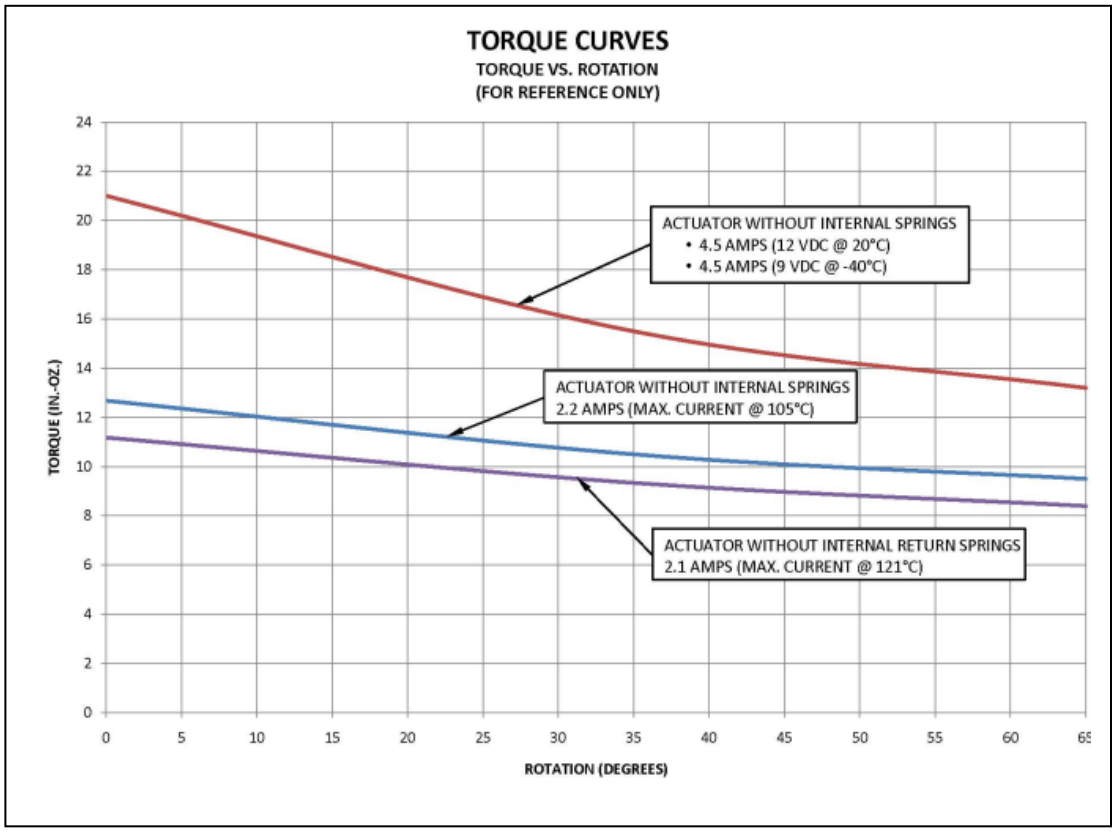
Environmental

Operating Temperature	-40°F to 250°F [-40°C to 121°C]
Vibration	35-1000 Hz @ 15 G sinusoidal
Enclosure	Corrosion resistant housing
Mounting	On engine
Weight	Approx. 1 lb (0.45 kg)

NOTICE **The mounting face of actuator is sealed to IP40. The user should mount the actuator so that it is protected from direct placement in an outside environment.**

NOTICE **An improved seal protection can be made by sealing face of actuator to (for example) a diesel pump using a gasket. Ideal mounting position is shaft pointed down.**

Torque Curves



⚠WARNING

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.

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