

WOODWARD, the world leader in industrial engine control, is a NASDAQ listed American company with 3300 employees. It offers a complete range of products which control and regulate diesel, gas, petrol, and dual-fuel engines. Solutions can be all hydraulic, hydro-mechanical, hydroelectric, all electric and are suited to engines from 10hp to 25MW.

DSF Technologies, Woodward's French distributor, provides products, after sales service, 24 hour delivery, and on-site technical support throughout France.



## Speed control

### HYDROMECHANICALS & HYDRAULICS REGULATORS



PSG

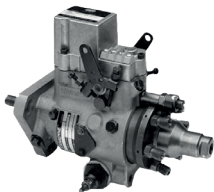
**EGCB-1P et EGCB-2P:** these governors have a redundancy system which combines a proportional electro-hydraulic governor and a hydro-mechanical governor which takes over in case of first stage failure. The size and fixing points of the EGB-1P (2.6 joule work capacity) and 2P (6.2 joule work capacity) are exactly the same. The actuators come with either clockwise or counter-clockwise rotation.

**PSG:** this hydraulic regulator controls small gas, petrol, or diesel engines and small steam or gas turbines in isochronous or droop operation. Lever, electric motor, or pneumatic speed control.

**UG-5.7 / -8 / -10 / -40:** these hydro-mechanical governors control medium and high power engines and turbines. They are equipped with an internal oil pump which transmits torque to the output shaftservice in most engine and governor shops.

## Actuators

### ACTUATORS FOR STANADYNE «D» PUMPS



DYNC-70025

- Isochronous ( $\pm 0.25\%$ ) regulator for «D» series injection pumps;
- Replaces the pump's cover without needing any extra mounting points;
- «Return to minimum» fuel safety if power supply or pickup signal is lost;
- 12 or 24<sub>DC</sub> voltage control boxes;
- Available with inbuilt over-speed threshold; Specific digital control box.

### LINEAR ACTUATORS

Economical linear actuators; 3 to 6 kg of thrust; particularly suited to engines with up to 6 cylinders.



DYNA 2000 et 2500

- The best value for money of the market;
- Analogue or digital control boxes with or without inbuilt over-speed protection.

### ROTARY ACTUATORS

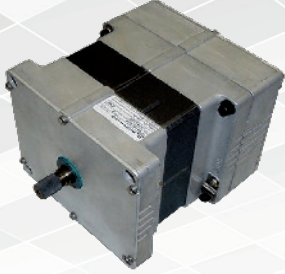
The best value for money for 6 to 16 cylinder diesel or gas engines;



DYNA 8000 / 8200 / 8400

- Control boxes with positioning via measure of the actuator current;
- Explosion-proof versions available;
- Digital control boxes.

## ELECTRIC ACTUATORS



### L series integrated system

This system designed for small engines includes a two-directional actuator and a microprocessor equipped regulator. 60° rotation, 10 to 32 V<sub>DC</sub> power supply, -40 to +105°C operating temperature, PC configurable. Available for Stanadyne pumps, Delphi pumps, for carburetors, for mixers...

### ProAct Analog & Digital Plus

ProAct actuators exist as 4 different models from 2 to 16 joules. They all contain an amplifier and can be controlled by PWM signals, 4-20mA, 0-200mA and 0-5V. They are all to be used in association with control units such as the 2301A, 2301D, 723...The analogue version is configured using jumper switches and potentiometers. The more advanced Digital Plus version is configured using a PC.

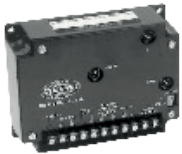
### ProAct integrated Speed Control

The ProAct™ Integrated Speed Control (ISC) is an electric actuator with an integrated electronic driver capable of diesel or gaseous engine speed. The ProAct ISC can be mounted on-engine to control a diesel fuel rack or gaseous throttle via linkage or integrated throttle body. control or positioning tasks.

## Control boxes

### Analogue regulators

To control diesel or gas engines. Control box which works with the Barber Colman DYNA 2000, 2500, 7000, 70025, 8000 to 8400, and gas valve ranges.



- 9 to 30 volt power supply with polarity inversion protection
- Frequency range from 1 to 11 kHz
- Minimum frequency signal voltage upon start up: 2.5 volts
- Precise to within 0.25%,
- Operating temperature: -40 to +85°C.

### Digital régulateurs (Control boxes without external setpoint and advanced control boxes)



**2200 Range:** genset applications.

**2300 Range:** special vehicle applications (public works, handling, agriculture...)

External speed regulation via analogue voltage or faster/slower contacts.

### Digital control



### 2301A/D

This is the digital version of the 2301A. It is configured using a PC. It has both digital and analogue configurable inputs/outputs. It includes Modbus RTU communication capabilities.

### 723

- 2 magnetic pickups for speed measurements (redundancy)
- 8 discrete inputs, 3 discrete outputs
- 4 analog inputs, 2 analog outputs
- 2 outputs to control the actuator (tandem application or dual-fuel)
- 4 communication ports

