

Pulser Driver System

Pulser Driver Motor

The answer to power-hungry pulser solenoids

“Newsco developed and refined a highly-efficient, robust, and intelligent MWD driver system that is superior to conventional solenoid-type drivers.

This customized DC drive motor is the heart of the system.”

Our Challenge

The pulser driver unit must function reliably in harsh conditions to dependably transmit down-hole information to the surface via the mud stream. This has typically been done with conventional solenoid pulsers, but they have several weaknesses: They are inefficient, generate excessive heat, have a weak push-pull force, are prone to failure, and are time consuming and costly to service.

Our Solution

We realized that the driver unit needed a complete redesign, so we developed an innovative motor drive system. This revolutionary system resolves the problems associated with conventional solenoid pulsers, and

provides repeatable and reliable MWD operation. Our goals were fivefold: Energy efficiency, dependability, ease of serviceability, modularity, and compatibility with existing equipment.

The Heart of the System

This precision DC motor has the highest power density in the industry and is exceptionally well suited to rigorous down-hole applications. Its high efficiency increases battery life by more than 500% over conventional solenoids, which is a significant cost saving. High efficiency means less heat generation, improving its ability to operate in higher ambient temperatures.



Newsco Motor vs Solenoid

	Newsco	Solenoid
Battery life @1.5 DR	≈ 700 hrs (+500%)	≈ 125 hrs
Average power	1.04 watts	5.82 watts
Push-pull force	≈ 150 lbs	≈ 15 lbs
Longevity	≈ 3000 hrs	≈ 1000 hrs
Holding force	Very high	Weak
EM Interference	Low	High
Service time	2 hrs	6 hrs
Operating temperature	220 °C maximum	175 °C maximum

The high-torque capability of the motor generates a tenfold improvement in poppet seating force over solenoid springs. The motor also provides feedback that helps the controller detect and clear obstructions during the poppet travel. A magnetic shield surrounds the powerful rare-earth magnets that produce the motor's high torque. This virtually eliminates electromagnetic interference that could affect sensitive azimuth-monitoring equipment.

A major goal in designing this system was to reduce the servicing time and increase dependability. The motor has only two moving parts, which are easily replaceable roller bearings. The entire motor is designed to operate in hydraulic lubricant, which extends the bearing life and conducts heat from the motor. The system is modular, so individual components can be easily replaced, further reducing servicing time and parts costs.

Re-engineered Components

Newsco never rests in its drive for improved performance and dependability, so we can continue to exceed our customers' expectations. Our proactive approach means that we take each failure seriously, carefully analyze the cause, and re-engineer parts to higher tolerances to increase strength and reliability. Our latest improvements to the original motor have greatly increased its serviceable life.

Other System Components

Pick up a brochure on the complete Pulser Driver Assembly, DCM and Linear Drive Assembly, or call us for additional information.

NEWSCO

The Leader in Innovative Drilling Solutions

7000 Railway Street SE
Calgary, AB
Canada T2H 3A8

Office: 403.243.2331

Fax: 403.243.2563

E-mail: sales@newsco.ca

www.newsco.ca

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