

# Pulser Driver System

## Linear Drive Assembly

*Our solution to weak and troublesome pulser-solenoid drivers*

*“Newsco is an innovative designer and manufacturer of highly-efficient, dependable and intelligent MWD driver systems that are superior to conventional solenoid-type drivers.*

*This long-life linear drive assembly with a customized ball screw is capable of millions of cycles.”*

### *Our Challenge*

It became clear to us that solenoid-type drivers could no longer be improved beyond a certain performance level. They were inefficient, weak, prone to failure, and costly to maintain. To improve the mud-pulser system, we radically redesigned and simplified pulser operation, reduced parts count, and lowered setup and maintenance costs.

### *Our Solution*

We struck upon the idea that an efficient motor drive system would resolve the problems that were associated with conventional solenoid mud pulsers. Our goals were fivefold: Energy efficiency, dependability, ease of serviceability, modularity, and compatibility with existing equipment. While a high-efficiency DC drive motor

is the heart of the system (see our Pulser Driver Motor brochure), this linear drive assembly further increases efficiency and reliability.

### *The Customized Ball Screw*

The high mechanical efficiency of the ball screw, combined with the low-power requirements of the DC motor, gives the linear drive assembly high overall efficiency. To convert the rotational energy of the motor to a linear driving force, we customized a powerful, zero-backlash ball screw assembly with high mechanical advantage. The hardened carbon-steel shaft is carburized, ground



### Customized Ball Screw Specifications

Longevity	≈ 1500 hours @ 1.5 second DR
Number of cycles	> 1 million
Mechanical efficiency	90-95%
Push-pull force	150 lbs
Load rating	55 kg dynamic, 95 kg static
Materials	Stainless and hardened carbon steels
Operating temperature	220 °C maximum

and polished, which gives it strength and a low coefficient of friction. This lightweight mechanism is extremely robust, can operate in high temperatures, and develops a poppet seating force of up to 150 pounds—10 times greater than a conventional solenoid. The ball screw is a replaceable component of the linear drive assembly, which is constructed of stainless steel for strength, with a hardened and polished carbon-steel poppet shaft for reduced wear in abrasive mud. To meet our goal of reducing the servicing time and increasing dependability, we use only two moving parts, the ball screw itself and a support roller bearing. The entire linear drive assembly operates in hydraulic fluid which continuously lubricates the moving parts. The assembly is modular, so individual components can be easily replaced. The Driver Control Module also auto calibrates the Linear Drive Assembly to accommodate for component wear, further reducing servicing time and parts costs.

#### *Re-engineered Components*

Newsco research and development is ongoing, continuously improving the performance and dependability of our systems, and striving to produce the best field-proven products for our customers in the field. While our latest improvements to the original ball screw doubled its longevity, we continue to make modifications. We expect that our next revision, available in the first quarter of 2009, will greatly increase its life expectancy.

#### *Other System Components*

Pick up a brochure on the complete Pulser Driver Assembly, DCM and Pulser Driver Motor, 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](mailto:sales@newsco.ca)  
[www.newsco.ca](http://www.newsco.ca)

Pulser Drivers | DCM | DC Motors | Ball Screw Assemblies | Linear Driver Assemblies | Complete MWD Kits

MWD Systems | MWD Services and Support | Surface Display Systems | Test Equipment | Automated Purge Systems