

SLICK-HD

SLICK-HD is the second generation of our patented* servo pulsar module that is fully compatible with the QDT-Tensor MWD system. It incorporates cutting-edge technologies to achieve significant improvements in performance.

SLICK-HD features a rotary shear valve that provides exceptional performance in high solids and high LCM environments. It minimizes the pressure loss through the servo module, thus allowing greater forces to be imparted to the main valve assembly thereby creating more reliable, sharper and stronger pulses. The wiping and cutting action of the rotary shear valve clears away any compacted debris and ensures unobstructed flow through the system in the most challenging and contaminated environments.

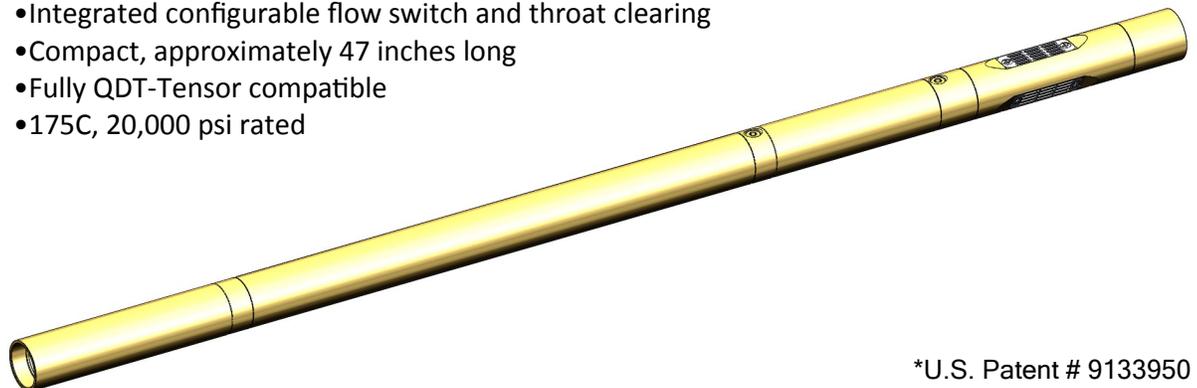
SLICK-HD decouples the hydro-statically compensated section of the servo pulsar from the pulsar driver module with a high torque magnetic coupling assembly. This eliminates failures of the driver module caused by corrosion, fluid or gas invasion while simultaneously reducing frictional losses and increases system robustness. The pulsar driver module is compact, modular, rugged and features built-in performance and maintenance tracking capabilities.

SLICK-HD provides numerous design enhancements over the original SLICK servo pulsar module including piston compensation, improvements to wear life, a heavy duty 225C, 1000g shock and 25grms vibration rated motor, improved electronics packaging and superior shock and vibration isolation. It also incorporates a large number of minor improvements specifically targeting operating life and maintenance costs.

The combination of the rotary shear valve, magnetic coupling drive mechanism and robust control electronics enables SLICK-HD to have exceptional performance in deep, hot and hostile environments.

FEATURES AND BENEFITS

- Second generation high wear rotary shear servo valve
- Piston compensation with magnetically coupled drive
- Exceptional performance in LCM and high solids
- 225C, 1000g shock and 25grms vibration rated motor
- Energy efficient, ~3.5 Joules per pulse (~125mA*sec per pulse)
- Integrated configurable flow switch and throat clearing
- Compact, approximately 47 inches long
- Fully QDT-Tensor compatible
- 175C, 20,000 psi rated



*U.S. Patent # 9133950

Specifications	
Nominal Length	46.9in (1173.5mm)
Housing O.D.	1.88in (47.6mm)
Power Supply	15-40VDC
Power Consumption	~3mA Standby, ~125mAmp*sec/Pulse@28V
Shock Limit	1000g, 0.5msec, ½ sine all axes
Vibration Limit	5-30Hz@1in double amplitude, 30-500Hz 20g all axes
Operating Temperature	32° to 347°F (0° to 175°C)
Hydrostatic Pressure (max)	20,000psi (137,895kPa)
Operating Pulse Width	0.600-2.00sec
Flow Switch	Three axis, solid state, and highly configurable

Data Stored in Memory	
Serial Number and Manufacturing Variables	Job Powered On Time
Lifetime Power On Time	Job Circulating Time
Lifetime Circulating Time	Job Energy Consumption
Lifetime Energy Consumed	Job Number of Pulses
Lifetime Number of Pulses	Flow Switch Configuration Variables
Part Level Maintenance Interval Tracking	Throat Clearing Configuration Variables

Additional Details	
The three axis flow switch is configurable for number of axes used (either x, y, z, xy, xz, yz or xyz), triggering thresholds, triggering delays and state machine hysteresis controls.	Throat clearing is a feature where the SLICK Servo Pulsar can be made to pulse independently of the controlling electronics module on PUMPS ON to allow for actuation of the main valve prior to SYNC.

