

DrillDOC® Drilling Downhole Optimization Collar

REAL-TIME DOWNHOLE DRILLING DYNAMICS FOR COMPLEX WELL TRAJECTORIES

OVERVIEW

The DrillDOC® drilling downhole optimization collar from Halliburton Sperry Drilling provides real-time measurements of weight, torque, and bending moment, providing full drillstring dynamics to help improve drilling efficiency. The efficient transfer of energy from surface-to-the-bit drilling parameters is a key component in improving drilling efficiency. These measurements help optimize drilling parameters to maximize performance and minimize wasted energy transfer and vibration.



The DrillDOC collar runs with the Sperry Drilling pressure-while-drilling (PWD) tool. Measurements from the PWD tool compensate for pressure and temperature changes downhole, and help ensure the accuracy of the DrillDOC collar's measurements through the full range of temperatures and pressures in all well conditions.

REDUCE WELL TIME BY ACCURATELY MEASURING THE FORCES BEING APPLIED TO THE CUTTING STRUCTURE

The DrillDOC collar contains multiple sensors to provide measurements for weight, torque, bending moment, and bending moment direction at the tool, thus maximizing asset value and increasing well production. In addition, the tool incorporates a vibration sensor that delivers a full suite of vibration measurements. This integration ensures that the full movement of the bottomhole assembly (BHA) is measured through all aspects of the drilling process. The DrillDOC collar's multiple-sensor arrangement provides measurement redundancy. In the unlikely case of a sensor failure, the tool will continue to provide values for the weight on bit, torque, and bending. DrillDOC collar measurements are synchronized with the vibration sensors. This synchronization facilitates analysis of the data, and allows a better understanding of the movement and forces on the BHA during vibration events.

The DrillDOC collar is a key instrument in the directional-drilling and drilling-optimization. In horizontal or extended-reach applications, modeling of weight-on-bit (WOB) or drillstring torque can predict directional or vibration tendencies. However, models cannot fully predict the complex interaction of geological or BHA changes that occur during drilling, such as hole enlargement or BHA components that become

under gauge. Placing the sensors as close to the bit as possible helps to ensure that the correct WOB and torque are applied to the cutting structure.

A key benefit of the DrillDOC collar design is to allow multiple tools to be installed in the BHA. Thus, DrillDOC tools can be run below and above reamers or hole openers. Measuring weight and torque on the bit and reamer directly enables engineers to optimize performance, ensuring concentric hole opening, maximizing rate of penetration, and reducing the NPT and invisible lost time often associated with hole opening.

BENEFITS

Reduce Well Time

- » Reduce NPT by measuring actual drilling dynamic conditions close to the bit and reamer
- » Measure actual WOB to refine drilling parameters and maximize ROP
- » Optimize performance by ensuring concentric hole opening, minimizing time spent on remedial action

Enhance Reservoir Understanding

- » Evaluate the interaction between the geology and the BHA to improve well planning and drillstring design

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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