DrilPRO Technology Limited

Measure • Communicate • Act™

Vibration Prediction, Measurement & Control

Drilling & Optimization

Active Vibration Damper Sub

DrilPro's Active Vibration Damper (AVD™)* is a standalone downhole tool that autonomously adapts to changing downhole BHA motion in real time to minimize axial and torsional drill string vibration. The AVD has demonstrated 50% improvements in rate of penetration (ROP) and doubling of bit life in the field due to reduced vibration. Other downhole drill string components, like MWD / LWD tools, also benefit from lower vibration.

Structurally, the AVD is similar to a shock-sub, with the addition of a damper section that has programmable stiffness. The damper chamber is filled with a magneto-rheological fluid that has electronically controlled viscosity. An integrated motion sensor measures displacement several times per second and changes the damping factor over a 7-to-1 range based on observed drilling conditions. By keeping tool string damping in the right range for current drilling conditions, the AVD significantly reduces vibration, maintaining the bit in better contact with the formation and increasing ROP.

The AVD may be run as a self-contained drilling tool with no calibration or other rig maintenance required. In this mode the AVD records vibration data for later download.

Control Electronics Hatches

Data Download Interface

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Product Specifications

Mechanical		
Tool Size	6.906 in. (176 mm) O.D. 1.89 in. (48 mm) I.D.	
API Connection	NC-50	
Length	32 ft (9.75 m) shoulder-to-shoulder	
Weight (approx.)	3,100 lb (1,406 kg)	
Environmental		
Pressure	20 kpsi (137.9 MPa)	
Operating Temperature	68˚ to 302˚F (20˚ to 150˚C)	
Max. Overpull to Re-run	340,000 lb	
Overpull to Failure	745,000 lb	
Max. Operating Torque	26,500 ft-lb	
Yield Torque	35,500 ft-lb (48,131 N-m)	
Dogleg Severity	Sliding: 13˚/100 ft Rotating: 11˚/100 ft	
Performance		
Power	Built-in turbine/alternator	
Spring Rate	15,000 lb/in. (2,680 kg/cm)	35,000 lb/in. (6,250 kg/cm)
Maximum Static WOB	45,000 lb (20,400 kg)	90,000 lb (40,800 kg)
Maximum Instantaneous WOB	120,000 lb (54,400 kg)	120,000 lb (54,400 kg)
Maximum Shock Sensed	Lateral: 120 *g* Axial: 60 *g*	
Shock Resolution	0.6 *g*	
Damping	1,000 - 6,000 lb-sec/in.	
Dynamic Stiffness	15,000 - 150,000 lb/in.	

Specifications subject to change without notice.

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