Revolution® V Rotary-Steerable System

Maintains vertical stability in conventional and unconventional wells

Applications

- Maintaining a vertical wellbore
- Performing pad drilling

Features and Benefits

- The rotary-steerable system (RSS) enables real-time corrections that maintain a vertical wellbore, which eliminates the need for additional runs.
- The point-the bit design improves hole quality, which increases cuttings removal speed and enables smooth casing and liner running.
- On-the-fly downlinking reduces nonproductive time and enables precise steering control.
- On-board sensors measure vibrations, whirl, and stick-slip, which enables real-time mitigation strategies.
- The pivot stabilizer is optimized for vertical-hole dynamics.
- A motorized option is available to further improve rate of penetration.
- The RSS is compatible with all Weatherford LWD systems.
- Sensors monitor near-bit inclination in real time.

Tool Description

The Revolution V RSS enables cost-effective vertical rotary drilling by continuously and automatically adjusting inclination to maintain a vertical wellbore. The tool improves hole quality and cuttings removal while increasing drilling rates.

The tool has a short, compact design that reduces the complexity of rotary-steerable drilling technology and places critical logging-while-drilling (LWD) measurements close to the bit. Available for use on nearly any rotary rig, the Revolution V RSS actively measures and corrects any deviation to maintain a vertical wellbore. Weatherford wellsite directional drillers monitor wellbore survey information, but direct input is not required for automatic corrections.

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The Revolution Heat RSS is available in multiple sizes ranging from 5-3/4 to 18-1/4 in. The 4 3/4-, 6 3/4-, and 8 1/4-in. models are available with either standard stroke or reduced stroke (RS).

The Revolution V RSS includes a near-bit pivot stabilizer, nonrotating housing, and near-bit inclination and gamma ray sensors.

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Specifications

RSS size	4-3/4 in. RS	4-3/4 in.	6-3/4 in. RS	6-3/4 in.	8-1/4 in. RS	8-1/4 in.	9-1/2 in.
Hole size	5-3/4 to 5-7/8 in.	5-7/8 to 6-3/4 in.	7-7/8 in.	8-3/8 to 10-5/8 in.	10-5/8 in.	12-1/4 to 18-1/4 in.	12 to 18-1/4 in.
Assembly length	12.90 ft (3.90 m)		14.80 ft (4.53 m)		17.80 ft (5.40 m)		24.89 ft (7.6 m)
Top connection	3-1/2 in. API IF box		4-1/2 in. API IF box		5-1/2 in. API IF box		7-5/8 in. API Reg box
Bottom connection	3-1/2 in. API Reg box		4-1/2 in. API Reg box		6-5/8 in. API Reg box or 7-5/8 in. API Reg box		
Makeup torque	9,900 to 10,900 ft-lb (13,423 to 14,778 N•m)		24,000 to 25,200 ft-lb (32,539 to 34,166 N•m)		40,000 to 70,000 ft/lb (54,233 to 94,920 N•m)		53,000 to 70,000 ft-lb (71,858 to 94,920 N•m)
Maximum torque	10,000 ft-lb (13,558 N•m)		20,000 ft-lb (27,116 N•m)		40,000 ft-lb (54,233 N•m)		53,000 ft-lb (71,858 N•m)
Maximum reusable tension	105,000 lb (47,627 kg)		125,000 lb (56,700 kg)		205,000 lb (92,986 kg)		325,000 lb (147,417 kg)
Maximum survivable tension	250,000 lb (113,398 kg)		350,000 lb (158,757 kg)		495,000 lb (224,528 kg)		760,000 lb (344,730 kg)
Maximum weight on bit	25,000 lb (11,340 kg)		50,000 lb (22,680 kg)		90,000 lb (40,823 kg)		
Maximum dogleg severity per 100 ft (30 m)	6°	10°	6°	10°	5°	7.5°	6°
Minimum kickoff angle	None; can kick off from vertical						
Maximum temperature	300°F (149°C)						
Maximum pressure	25,000 psi (172 MPa)						
Maximum flow rate	350 gal/min (1,325 L/min)		750 gal/min (2,839 L/min)		1,500 gal/min (5,678 L/min)		1,800 gal/min (6,814 L/min)
Maximum sand content	2%						
Distance from bit, near-bit inclination	9 ft (2.7 m)		11.2 ft (3.4 m)		14 ft (4.3 m)		19.5 ft (6 m)
Distance from bit, near-bit gamma	11 ft (3.4 m)		13 ft (3.9 m)		16.6 ft (5 m)		21.5 ft (6.5 m)

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