DATA SHEET

Logging while drilling

HALLIBURTON

ISTAR™ PLATFORM | COMPENSATED RESISTIVITY MEASUREMENTS

ResiStar® shallow compensated resistivity measurements service

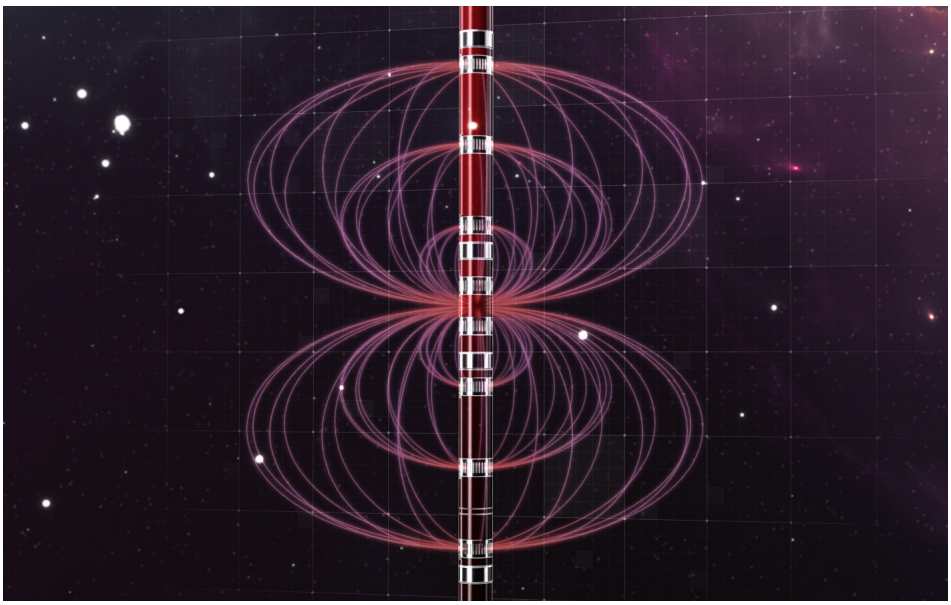
Accurate resistivity from multi-frequency compensated measurements

FEATURES

- Receive accurate resistivity measurements across a wide range of R_t and R_m
- Improve understanding of reservoir fluids
- Obtain multiple depths of investigation, minimizing borehole effects in large boreholes
- Acquire robust measurements in any downhole environment

BENEFITS

- Phase and attenuation resistivities from three spacings and two frequencies
- Low-noise electronics
- Ruggedized antenna design
- Comprehensive environmental corrections
- Downhole mud resistivity measurement



Overview

Placing your wells in the most productive zone requires understanding the fluids in your reservoir. The ResiStar® service from Hallibrurton provides multi-frequency, compensated measurements with downhole environmental corrections for accurate resistivity in all drilling environments.

Hallibrurton provides industry-leading resistivity measurements, building on the latest generation of downhole electronics and novel antenna designs used across our comprehensive range of resistivity services such as the EarthStar® ultra-deep resistivity service.

The ResiStar® service naturally complements this service, delivering highly accurate conventional resistivity measurements enabling precise reserves evaluation and improved formation delineation and reservoir understanding.

Accurate resistivity in all drilling environments

The ResiStar® service measures resistivity using two frequencies (2 MHz, 500 kHz) and three geometrically distributed spacings. Multiple operating frequencies along with physically compensated antennas reduce borehole rugosity effects on the measurement quality. Digitization of the signal at the receiver along with advanced electronics isolation significantly reduce noise to further improve both precision and accuracy. Downhole measurement of mud resistivity, combined with borehole size information from the BaseStar® service, allows for complete environmental corrections. These features combine to deliver accurate measurements in all operating environments to cover the widest possible range of formations and provide input to advanced petrophysical analyses.

Technical specifications

MECHANICAL SPECIFICATIONS	4.75 IN.	6.75 IN.	8.00 IN.	9.50 IN.
Nominal Tool OD	4.75 in. (121 mm)	6.75 in. (171 mm)	8.00 in. (203 mm)	9.50 in. (241 mm)
Maximum Body OD	5.38 in. (133 mm)	6.93 in. (176 mm)	8.150 in. (206.4 mm)	9.625 in. (244 mm)
Hole Size Range	5.875 in. to 6.75 in. (149 mm to 171 mm)	7.875 in. to 9.875 in. (200 mm to 251 mm)	10.50 to 14.75 in. (266.7 to 374.7 mm)	12.25 in. to 26.00 in. (311 mm to 660 mm)
Collar ID	1.25 in. (31.8 mm)	2.00 in. (50.8 mm)	2.36 in. (60 mm)	2.625 in. (66.7 mm)
Length	18.38 ft (5.60 m)	17.64 ft (5.38 m)	17.95 ft (5.47 m)	17.879 ft (5.45 m)
Weight	1147 lbm (520 kg)	1888 lbm (856 kg)	2555 lbm (1159 kg)	1,335 lbf (606 kg)
Connections	HAL40 (box up x pin down)	HAL50 (box up x pin down)	HAL56 (box up x pin down)	HAL70 (box up x pin down)
Make-Up Torque	14,000 lbf·ft (1900 daN·m)	35,000 lbf·ft (4750 daN·m)	50,000 lbf·ft (6780 daN·m)	85,000 lbf·ft (11 520 daN·m)
Maximum Dog Leg Severity - Rotating	14°/100 ft (14°/30 m)	10°/100 ft (10°/30 m)	8°/100 ft (8°/30 m)	5.5°/100 ft (5.5°/30 m)
Maximum Dog Leg Severity - Sliding	30°/100 ft (30°/30 m)	21°/100 ft (21°/30 m)	14°/100 ft (14°/30 m)	14°/100 ft (14°/30 m)
Maximum Drilling or Operating Rotary Torque	12,000 lbf·ft (1630 daN.m)	35,000 lbf·ft (4750 daN.m)	50,000 lbf·ft (6780 daN·m)	85,000 lbf·ft (11 520 daN.m)

OPERATING LIMITS				
Temperature Range	32 to 320˚F (0 to 160˚C)			
Maximum Pressure	30,000 psi (207 MPa)			25,000 psi (172 MPa)
Maximum Mass Flow Rate	5,000 lbm/min (2270 kg/min)	10,000 lbm/min (4540 kg/min)	20,000 lbm/min (9070 kg/min)	20,000 lbs/min (9080 kg/min)
Maximum Sand Content	2%			
Maximum Rotary Speed	400 RPM			
Maximum WOB	25,000 lbf (11 000 daN)	65,000 lbf (29 000 daN)	85,000 lbf (38 000 daN)	100,000 lbf (44 500 daN)
Vibration	Refer to Sperry Drilling Downhole Tools Technical Specifications. (Available on request.)			

Technical specifications

MECHANICAL SPECIFICATIONS	4.75 IN.	6.75 IN.	8.00 IN.	9.50 IN.
RESISTIVITY				
Measurement Type		Electromagnetic Wave Propagation		
Measurement Range		Phase-Shift Resistivity: 0.05 to 2000 Ω·m Attenuation Resistivity: 0.1 to 100 Ω·m		0.05 to 5,000 Ω·m
Measurement Accuracy (2 MHz, 48 in. spacing)		1 Ω·m ± 0.12% 10 Ω·m ± 0.3% 100 Ω·m ± 1.5% 1000 Ω·m ± 8%		1 Ω·m ± 0.2% 10 Ω·m ± 0.6% 100 Ω·m ± 2% 1000 Ω·m ± 10%
Measure Point from Bottom of Collar	7.48 ft (2.28 m)	7.36 ft (2.24 m)	7.56 ft (2.30 m)	7.63 ft (2.32 m)
MUD RESISTIVITY				
Mud Resistivity Operating Range		0.01 to 10 Ω·m 0.1 to 100 S/m		

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