

Quanta Geo photorealistic reservoir geology service

High-definition imaging in oil-based mud



Coverage:

8-in borehole: 98%
5½-in borehole: 92%



Vertical Resolution:
0.24 in

Applications

- Structural analysis and modeling
- Sedimentology and sequence stratigraphy
- Naturally fractured reservoirs
- Secondary porosity evaluation in carbonate and igneous reservoirs
- Petrophysics
- Geomechanics stress analysis: borehole breakouts and drilling-induced fractures
- Coring and formation testing complement

How it improves wells

- Provides high-resolution, core-like images and accurate dip measurements where clear imaging was not previously possible: in oil-based mud (OBM) for all depositional environments
- Images more of the borehole wall instead of approximating to bridge data gaps
- Seamlessly performs across alternating high- and low-resistivity formations in a single trip without recalibration

How it works

Dual articulated arms independently apply eight imaging pads with a total of 192 microelectrode “buttons,” which makes it possible to efficiently log both up and down passes to deliver core-like microresistivity images and accurate dip and rock texture measurements. The innovative tool design also minimizes inconsistent pad application in inclined wells and boreholes with wall irregularities.

New slim version

The slim version of Quanta Geo* photorealistic reservoir geology service uses the same 4.5-in sonde, with the analog application-specific integrated circuit (ASIC) miniaturized and the pads, arms, and bow springs reengineered to keep the tool's OD to 5 in, enabling it to operate in hole sizes as small as 5½ in.

Powered by the Techlog platform to be reservoir model ready

Visualization and interpretation of Quanta Geo service's photorealistic images are performed using the full suite of applications in the Techlog* wellbore software platform, producing comprehensive geological answer products that are ready for direct use in the Petrel* E&P software platform.

Specifications

Measurement	7-in Quanta Geo Service	5-in Quanta Geo Service
Output	Formation images and dip	Formation images and dip
Logging speed, ft/h [m/h]	0.2-in sampling: 3,600 [1,097] 0.1-in sampling: 1,800 [549]	0.2-in sampling: 3,600 [1,097] 0.1-in sampling: 1,800 [549]
Range of measurement, in [cm]	Sampling rate: 0.1 [0.25] Borehole coverage: 98% in 8 [20.32] borehole Formation resistivity: 0.2–20,000 ohm.m	Sampling rate: 0.1 [0.25] Borehole coverage: 92% in 5.875 [14.92] borehole 83% in 6.5 [16.51] borehole Formation resistivity: 1–2,000 ohm.m
Resolution, in [mm]	Vertical resolution: 0.24 [6] Horizontal resolution: 0.13 [3]	Vertical resolution: 0.24 [6] Horizontal resolution: 0.13 [3]
Accuracy, in [cm]	Caliper: ±0.1 [±0.26] Deviation: ±0.2° Azimuth: ±2°	Caliper: ±0.1 [±0.26] Deviation: ±0.2° Azimuth: ±2°
Depth of investigation, in [mm]	0.2 [5]	0.2 [5]
Mud type or weight limitations	Nonconductive mud systems such as oil-based mud	Nonconductive mud systems such as oil-based mud
Combinability	Fully combinable, top and bottom	Fully combinable, top and bottom
Special applications	Downlogging and uplogging Horizontal wells	Downlogging and uplogging Horizontal wells
Mechanical		
Temperature rating, degF [degC]	347 [175]	347 [175]
Pressure rating, psi [MPa]	Standard: 25,000 [173] High-pressure: 30,000 [207]	Standard: 25,000 [173] High-pressure: 30,000 [207]
Borehole size—minimum, in [cm]	7.5 [19.05]	5.875 [14.92]
Borehole size—maximum, in [cm]	17 [43.18]	8.5 [21.59]
Outside diameter, in [cm]	Tool: 4.5 [11.43] Arms section: 6.5 [16.51]	Tool: 4.5 [11.43] Arms section: 5 [12.7]
Length, ft [m]	31.2 [9.5]	31.2 [9.5]
Weight, lbm [kg]	696 [316]	679 [308]
Tension, lbf [N]	27,000 [122,300]	27,000 [122,300]
Compression, lbf [N]	11,000 [48,900]	11,000 [48,900]