

Capacitance Array Tool (CAT)



Oil, gas, and water have different dielectric constants. The CAT uses this property to identify fluid phases in high deviation and horizontal wells. Run centralised in the wellbore, the CAT is fully combinable with other Ultrawire* production logging tools.

Description

An array of 12 miniature sensors are mounted on the inside of a set of collapsible bowsprings and measure the capacitance of the surrounding fluid close to the well casing. All 12 values are simultaneously transmitted to the surface or into a memory section. Taking measurements in a single plane across the diameter of the wellbore—rather than along it—results in an accurate cross-sectional plot of fluid phases. Combined with data from the Spinner Array Tool (SAT) and the Resistance Array Tool (RAT), the tool allows quantitative estimates of the volumetric flow rate for each phase.

Features

- Array of 12 radial capacitance sensors
- Tool orientation determined by internal relative bearing sensor
- Through tubing phase identification
- Simultaneous operation with Ultrawire* tools
- Radial fluid phase measurement
- Collapsible bow-spring arms
- Combinable with other tools of the Multiple Array Product Suite via Rotational Alignment Subs (RAS)
- Production Inclinator Accelerometer (PIA) recommended



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Specifications	
Temperature rating	350°F (177°C)
Pressure rating	15,000 psi (103.4 MPa)
Tool diameter	1-11/16 in. (43 mm)
Tool length	23.25 in. (590.55 mm)
Tool weight	17.3 lb. (8.1 kg)
Toolbus	Ultrawire*
Current consumption	28 mA
Maximum opening	7-inch casing
Number of sensors	12
Sensor measure point	18.2 in (462 mm)
Relative bearing accuracy	5°
Relative bearing dev range	5° to 175°
Materials	Corrosion resistant throughout

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