READ CASED HOLE

Version 1

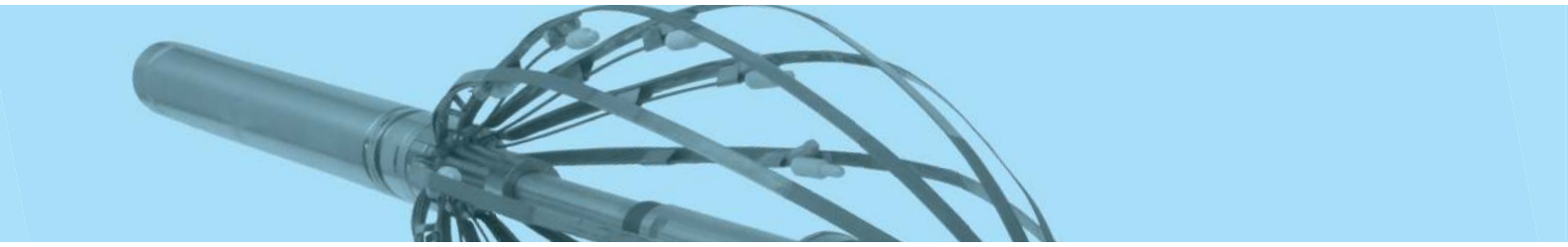

Image courtesy of GE oil & gas

TECHNICAL DATA SHEET

CAT

Capacitance Array Tool

The Capacitance Array Tool (CAT) identifies fluid phases in highly deviated and horizontal wells. The 12 miniature capacitance sensors are deployed on flexible bowsprings ensuring contact with the fluids close to the well casing. When combined with other standard and array tools a powerful 3D image of the multiphase flow profile across the wellbore is generated.

The 12 capacitance sensors determine the hold-up across the wellbore by directly measuring the permittivity of the fluid around the probes. Oil, gas and water have different dielectric constants and each sensor uses this property to identify fluid phase surrounding it.

Taking measurements in a single plane across the diameter of the well-bore, combined with the inbuilt orientation sensor, results in an accurate cross-sectional plot of fluid phases. The capacitance measurements are transformed directly into a local hold up, which when combined with fluid velocity, allows determination of individual phase flowrates.

APPLICATIONS:

- Cross sectional profiling of hold up
- Measurement of mix and segregated flow regime
- Assessment of productivity of given zones in a reservoir
- In-depth fluid phase analysis
- Determination of gas, oil and water holdups
- Determination of holdups in both casing and tubing
- Identifies zones of water production

BENEFITS

— Resolve true three-phase hold-up fractions in segregated flow conditions

— Improved accuracy of production evaluation for highly deviated wells

— Identify and locate sinks and traps to reveal hidden hydrocarbons

— Slim tool body with bowspring deployed sensors for thru-tubing data acquisition

— Deployable on Slickline, Electric line, Coil Tubing or Tractor

Image courtesy of GE oil & gas

Specifications

Temperature rating	350°F (177°C)
Pressure rating	15,000 psi (103.4 MPa)
Shroud diameter	1 $^{11}/_{16}$ in (43 mm)
Tool length	51.43 in (1,306 mm)
Tool weight	17.3 lb (8.1 kg)
Range of operation	3 - 7 in (76.2 - 177.8mm)
Number of sensors	12
Water Hold-up accuracy	5% water volume: ±3% 50% water volume: ±5%
Relative Bearing accuracy	±5°
Relative Bearing deviation range	5° to 175°
Materials	Corrosion resistant throughout