

Capacitance Array Tool

CAT

Description

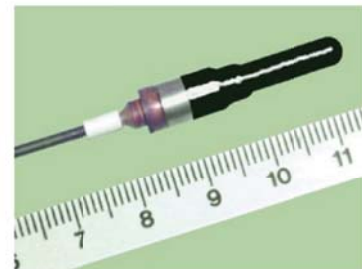
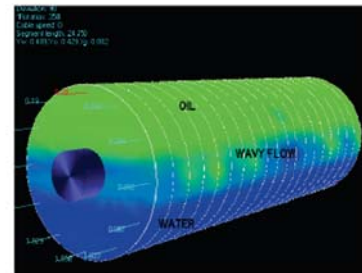
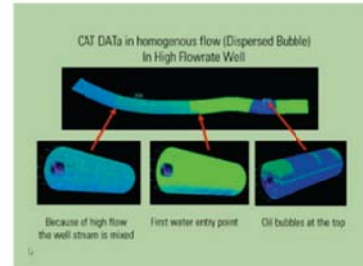
This tool is designed to solve the problem of accurate fluid phase identification in horizontal or highly deviated wells. The tool has an array of 12 specially developed miniature capacitance sensors mounted on the inside of a set of bowsprings. Each sensor of the array measures the capacitance of the surrounding fluid close to the well casing. Optional CATview software can be used to provide a 3D image of the phases along the well.

Operating Principle

Oil, gas & water have different dielectric constants. The output frequency of a sensor changes with the dielectric constant of the fluid surrounding it. A simple calibration of the sensors enables the identification of the fluid surrounding each sensor.

Applications

- Phase identification in horizontal wells.
- Calculation of % of each phase present.
- Plotting of phase composition.
- Identification of water entry areas and changes of wellbore fluids with time.
- Combines with PIA to give well inclination.



Specification

Temperature Rating	177 °C
Pressure Rating	15,000 psi
Diameter	1-11/16" (43 mm)
Make-up length	51.43" (1306 mm)
Weight	17.3 lbs (8.1 kg)
Number of fluid sensors	12
Orientation sensor	Indicates which sensor is "up"
Maximum pipe size	9-5/8" casing
Toolbus standard	Ultrawire
Materials	Corrosion Resistant Throughout

