Resistance Array Tool (RAT)

Measures water holdup around the wellbore in highly deviated and horizontal wells

The Halliburton Resistance Array Tool (RAT) enables an operator to determine the water holdup profile across a wellbore by measuring discrete points around the wellbore. With an array of 12 microsensors, the RAT has the ability to provide vital information to a high degree of accuracy. When combined with other Halliburton tools and analysis programs, it can provide data that enables 3D imaging of the water holdup profile in the wellbore.

Phase segregation occurs in many wells, most prominently in highly deviated and horizontal wellbores; the lighter phases migrate to the high side of the well, the heavier phases to the low side.

The Resistance Array Tool differentiates between conductive water and nonconductive hydrocarbons. The sensors have the ability to detect very small, fast-moving bubbles. This enables determination of the water holdup cross-sectional profile in wellbores of any deviation, from vertical to horizontal, and in any flow regime. Combined with data from the Spinner Array Tool (SAT) and Capacitance Array Tool (CAT™) technologies, the combination of measurements enables quantitative estimations of volumetric flow rate for each phase. This provides information on the reservoir and completion by characterizing production from the contributing individual entry points. This gives the engineer insight into the reservoir and how to possibly improve production.

Benefits

- Provides accurate cross-sectional water holdup profiling
- Water holdup in any fluid regime in highly deviated and horizontal wells
- Provides data that enables 3D profiles for easy comprehension when combined with analysis programs

Features

- Surface readout or memory logging operations
- Simultaneous operation with other Halliburton tools
- Optional rotational alignment sub (RAS) to align reference sensor with other multiple-array tools

Resistance Array Tool (RAT) Technical 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	51.4 in. (1.306 m)
Tool Weight	16.2 lb (7.35 kg)
Pipe Range	3.5-in. to 7-in. casing
Number of Sensors	12
Sensor Measure Point	15.4 in. (391 mm)
Relative Bearing Accuracy	5°
Relative Bearing Dev Range	5° to 175°
Materials	Corrosion resistant throughout

Developed in part through cooperation with Sondex.

For more information, contact your local Halliburton representative.

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