Combined Capacitance Flow and Temperature Tool

Combines fluid velocity and fluid identification into a compact tool

Applications

- Fluid velocity measurement
- Fluid type identification

Features and Benefits

- Fully high-speed digital (HD) platform compatible with fast telemetry
- Combinable with ArrayPro for enhanced evaluation
- Available in SRO and memory
- Compatible with all fixed-cage spinners and full-bore spinners

Tool Description

The Weatherford combined capacitance flow electronics and temperature (CFT) tool offers a reduced-length, multiple-sensor solution for production profiling. All standard fixed-cage spinners and full-bore spinners are compatible with the CFT tool.

The capacitance sensor provides an indication of the fluid type surrounding the sensor by measuring the dielectric constant of the fluid between the sensor and tool body. Used in combination with other sensors, the tool provides qualitative fluid identification data.

A dedicated hall-effect array provides 10 pulses per revolution flowmeter output and a fast-response PRT measures wellbore temperature.

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Specifications

Ratings and Dimensions

Maximum temperature	350°F (177°C)
Maximum pressure	15,000 psi (103.4 MPa)
Outside diameter	1.69 in. (43.3 mm)
Length	29.3 in. (744 mm)
Weight	12.3 lb (5.6 kg)
Materials	Corrosion-resistant materials used throughout

Capacitance Sensor

Range	0 to 45% holdup (water)
Resolution	1%
Measure points	10.8 in. (274 mm)

Temperature Sensor

Range	–40 to 350°F (–40 to 177°C)
Accuracy	± 0.9°F (± 0.5°C)
Resolution	± 0.006°F (± 0.003°C)
Linearity	0.5°F (0.15°C)
Response time	~ 0.5 seconds
Measure points	0.7 in. (17 mm)

Hardware Characteristics

Combinability	All HD tools (RADii™, iQ™, PL, RAS®)
Acquisition mode	Real time (with TCU) Memory (with MLT)

Electrical

Current	7 mA at 50 V 17 mA at 19 V