UltraView® Tool

Provides high-resolution ultrasonic measurements for accurate evaluation of casing and cement integrity

Applications

- Casing inspection
  - Monitoring internal wear and corrosion
  - Locating internal and external defects
  - Measuring thickness
- Cement evaluation
  - Measuring acoustic impedance
  - Evaluating circumferential distribution
  - Identifying location and orientation of channels and voids

Features and Benefits

- The UltraView tool can be run on either single- or seven-conductor wireline cables to maximize operational versatility.
- The patented mud chamber allows for real-time analysis of borehole fluid velocity, impedance, and density. Its design eliminates uncertainty in fluid properties measured during the down pass, which may not represent conditions while logging up.
- Variable head speed optimizes performance in heavy, viscous borehole fluids.
- High-resolution wellbore imaging provides detailed images of internal casing corrosion, defects, and perforation patterns.
- Consistent transducer firing minimizes the chances of overlooking important features. The result is a more accurate depiction of cement distribution around the casing.
- Multiple transducer frequencies expand casing-thickness measurement capabilities.
- Multiple centralization options address a wide range of casing sizes and various borehole geometries.
- Combinability with the Weatherford SecureView® suite, including CalView®, FluxView® and BondView® tools, enables diagnosis of multiple downhole threats in a single logging pass.

Tool Description

The Weatherford UltraView tool provides high-resolution data for accurate evaluation of cement, casing wear, casing thickness, corrosion imaging, and fluid properties. The tool uses two ultrasonic transducers. The primary transducer is dedicated to casing and cement inspection and is located in the rotating scanning head. This feature provides 360° circumferential coverage by capturing 72 samples per revolution.

The UltraView tool simultaneously delivers data for internal and external casing inspection, cement inspection, and fluid properties analysis.

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Tool Description (continued)

The second transducer continuously measures borehole fluid properties and is located in the tool body. The fluid property measurements include real-time acoustic velocity, impedance, and density of the wellbore fluid.

The tool incorporates an advanced, high-speed, measure-on-position DC motor that rotates the primary measurement transducer. This transducer fires upon arriving at a precise point in its rotation, which ensures accurate circumferential depiction of casing defects and cement distribution.

Specifications

Measurement

Data	Acoustic impedance, fluid impedance, travel time, amplitude, casing ID, casing thickness
Logging speed	1,800 ft/hr (540 m/hr)
Measurement range	Casing thickness: 0.200 to 0.800 in. (5 to 21 mm)*
	Acoustic impedance: 0 to 10 Mrayl
Vertical resolution	Cement evaluation mode: 1.0 in. at 1,800 ft/hr (540 m/hr)
	Image mode: 0.5 in. at 1,800 ft/hr (540 m/hr)
Thickness resolution	±0.002 in. (0.051 mm)
Acoustic impedance resolution	0.2 Mrayl
Accuracy	Internal radius: ±1% (FS)
	Acoustic impedance: ± 0.5 Mrayl
	Thickness: ±5% (FS)
Depth of investigation	Thickness of casing; casing-to-cement interface
Borehole fluids	Water-based fluids up to 15 lb/gal maximum mud weight**
	Oil-based fluids up to 13.5 lb/gal maximum mud weight**

* The second harmonic is used for thicknesses greater than 0.69 in. (18 mm).
** Maximum mud weights are for combined casing and cement evaluation and will be dependent upon casing and transducer characteristics. Some applications may be possible at higher mud weights under certain wellbore conditions.

Mechanical

Outer diameter*	3.38 in. (86.0 mm)
Length	18.66 ft (5.69 m)
Weight	315.00 lb (142.90 kg)
Maximum temperature	350°F (177°C)**
Maximum pressure	20,000 psi (138 MPa)**
Minimum casing size	4.5 in. (11.43 cm)
Maximum casing size	20.0 in. (50.8 cm)

* Outer diameter depends on the scanning head used.
** Temperature and pressure ratings are 175°F (80°C) and 5,000 psi (35 MPa) when logging casing with an OD greater than 14 in.

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Specifications (continued)

Scanning Head*

Type	Diameter	Effective Radius
A	3.38 in. (8.59 cm)	0.72 in. (1.83 cm)
B	3.13 in. (7.95 cm)	1.28 in. (3.25 cm)
C	4.34 in. (11.02 cm)	1.97 in. (5.00 cm)
D	5.44 in. (13.82 cm)	2.56 in. (6.50 cm)
E	7.00 in. (17.78 cm)	3.41 in. (8.66 cm)
F	8.71 in. (22.12 cm)	4.25 in. (10.80 cm)
G	10.50 in. (26.67 cm)	4.89 in. (12.40 cm)

* Scanning heads are selected based on casing size and weight, transducer frequency, and the desired standoff distance between the transducer and inner casing wall.

Fluid

Transducer Frequency	Maximum Fluid Density	
	Water-Based Fluids**	Oil-Based Fluids**
250 kHz	15.0 lb/gal (1,797 kg/m^3)	13.5 lb/gal (1,618 kg/m^3)
400 kHz	13.8 lb/gal (1,654 kg/m^3)	11.5 lb/gal (1,378 kg/m^3)
600 kHz	13.0 lb/gal (1,558 kg/m^3)	10.8 lb/gal (1,294 kg/m^3)

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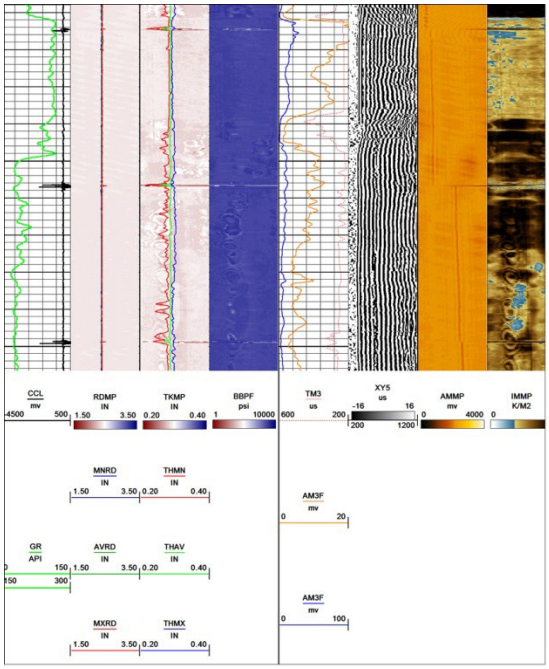
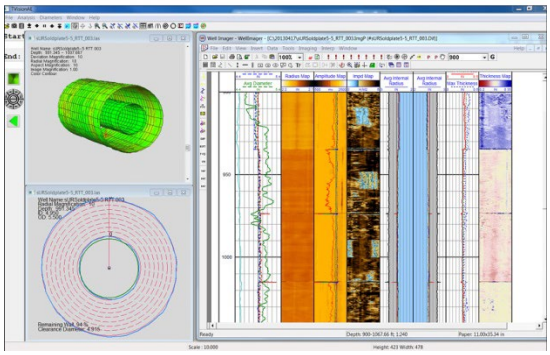
** Some applications may be possible at higher mud weights under certain wellbore conditions.

Log Presentation





The UltraView tool delivers a comprehensive evaluation of casing, cement, and borehole fluid measurements. On the left is a log presentation from UltraView measurements. On the right, the same measurements from UltraView are used to generate interactive 2D and 3D images.