CAST-XRT™ Cement Evaluation Tool

ULTRASONIC TECHNOLOGY FOR CEMENT AND CASING ANALYSIS

OVERVIEW

The Circumferential Acoustic Scanning Tool–Extended-Range Total (CAST-XRT™) cement evaluation tool represents the latest development in well integrity diagnostics in harsh well environments. This technology is designed to evaluate cement and pipe integrity in challenging environments, with the capability to evaluate a range of casing thicknesses in light to very heavy muds.

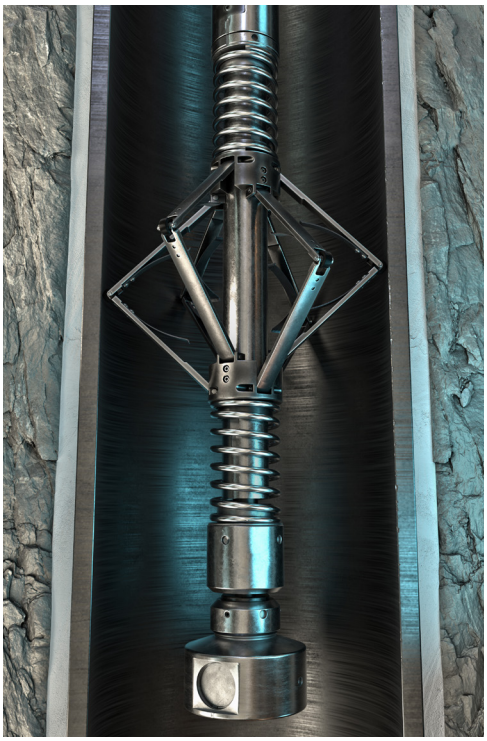
The CAST-XRT tool is designed to operate in most drilling fluid systems – such as in brine, water-based mud (WBM), oil-based mud (OBM), and synthetic-based mud (SBM) – with densities up to 18 lb/gal. The tool's total range of operation includes the ability to evaluate cement and pipe integrity in casings with wall thicknesses from .35 inches up to 1.2 inches in extreme drilling fluid conditions.

Several acoustic-related innovations have been incorporated into the new CAST-XRT tool, including a high-sensitivity/low-noise next-generation acoustic transducer, programmable tuned pulses, and high-powered ultrasonic pulses at various pipe resonant frequencies. The new transducer design helps to ensure a substantial reduction in mud and casing-related wave attenuation effects.

To increase operational efficiency, the CAST-XRT tool can simultaneously evaluate cement and casing conditions with fully programmable data acquisition, thus optimizing logging speeds for maximum coverage.

BENEFITS

- Identifies top-of-cement and mud-induced channels behind casing with 360° high-resolution imaging
- Simultaneously determines drilling-related casing wear and cement bonds in a single pass without any changes in wellbore fluid
- Eliminates log uncertainty and rig standby costs, with a logging solution that is less sensitive to mud- or casing-related influences
- Combines with Pad Bond Tool (PBT) and Borehole Sonic Array Tool (BSAT™) services for single-pass and multiple-measurement cement evaluations
- Accurately evaluates foam, lightweight cement, and other complex cement slurries, using the Halliburton Advanced Cement Evaluation (ACE™) processing service



FEATURES

- Multiple scanner-head sizes enable operation from a 4⅝-inch to 20-inch internal diameter (ID), allowing for well integrity diagnostics in multiple casing sizes, including drilling risers
- Mud-cell chamber acquires real-time continuous traveltime (FTT) data, thus ensuring measurement accuracy, even in high-density OBMs/SBMs
- LOGIQ® telemetry enables multiple openhole logging tool combinability options to customize logging operations and help increase logging efficiency
- Fully programmable azimuthal and vertical data acquisition rates ensure that every logging operation is customized to the well conditions, thus optimizing logging speed and maximizing casing well coverage

CAST-XRT™ Dimensions and Environmental Specifications

Pressure Rating†	20,000 psi	137,900 kPa
Temperature Rating	350 °F	176 °C
Outside Diameter (OD)	3.625 in.	92.1 mm
Tool Length	17.9 ft	5.46 m
Tool Weight	316 lb	143.3 kg
Minimum Casing Internal Diameter	4.625 in.	117 mm
Maximum Casing Internal Diameter	20 in.	508 mm
Casing Thickness	Up to 1.2 in.	Up to 30.5 mm
Borehole Fluid Density*	Up to 18 ppg	Up to 2.16 sg
Borehole Fluid Type	Brine / WBM / OBM / SBM	

† High-pressure CAST-XRT UHP version is available rated to 35,000 psi (241,300 kPa).
* Contact Halliburton representative to model your logging job.

CAST-XRT™ Operational Specifications

Data Acquisition Modes ‡, *	Cement Inspection | Pipe Inspection | Imaging	
Horizontal Sampling Rate*	45 – 1080 shots / scan	
Vertical Sampling Rate*	4-72 scans/ft	13-236 scans/m
Horizontal and Vertical Resolution	~ 0.3 in.	~7.6 mm
Acoustic Impedance Measurement Range	0 – 10 Mrayls	
Acoustic Impedance Measurement Accuracy	<3.3 Mrayl: ± 0.5 Mrayl, >3.3 Mrayl: ± 15%	
Pipe Thickness Measurement Range	0.35 - 1.2 in	8.9 - 30.5 mm
Pipe Thickness Measurement Accuracy	± 2%	
Max Logging Speed*	100 ft/min	30.5 m/min

‡ Cement Inspection and Pipe Inspection modes can be acquired simultaneously.
* Contact Halliburton representative to model your logging job.

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

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