

Circumferential Acoustic Scanning Tool-InSite® (CAST-I™) Service

PROVIDES DETAILED INFORMATION OF THE CONDITION OF CEMENT AND PIPE

OVERVIEW

The Halliburton Circumferential Acoustic Scanning Tool-InSite® (CAST-I™) tool is an ultrasonic tool that provides high-resolution images in cased holes. The tool's interchangeable head rotates a full 360° and contains a high-frequency acoustic transducer to provide a full 360° profile of the pipe or cement. A second acoustic transducer is mounted in the tool housing and is used to measure characteristics of the borehole fluid to help provide accurate measurements. A directional sub is provided to collect data to the high side of the hole. The CAST-I tool is designed to operate in conjunction with other LOGIQ® tools.

The CAST-I tool determines the casing thickness for pipe inspection. Simultaneously, the CAST-I tool determines the type of material in the annular space between the casing and borehole wall.

The CAST-I tool must be run centralized in fluid-filled boreholes. It must be the bottom tool in any combination. Its operation is limited by factors such as high-mud density and dissolved gases that increase the attenuation of the tool's acoustic pulses as they travel through the borehole fluid.

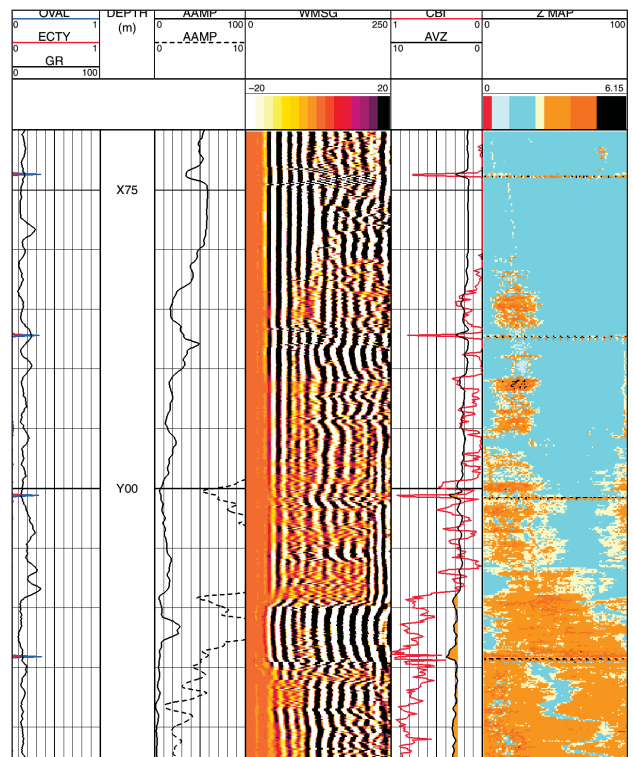
The CAST-I tool differs from other ultrasonic type tools in the cased-hole mode in several different ways. It includes a real-time fluid traveltime (FTT) measurement. It is fully combinable with all LOGIQ tools. The complete navigation package is standard with service.

APPLICATIONS

- » Simultaneous ultrasonic pipe inspection and cement evaluation
- » 2D and 3D borehole imaging

FEATURES

- » Provides complete circumferential coverage in cased-hole cement evaluation and pipe inspection
- » Near real-time evaluation of complex and lightweight cements is accomplished through Advanced Cement Evaluation (ACE™) processing
- » Combinable with all LOGIQ® tools. This can reduce rig time when run with the Borehole Sonic Array Tool (BSAT™) service for the Cement Bond Log (CBL)
- » Simultaneous cement evaluation and casing inspection capability
- » Real-time fluid cell measures both borehole-fluid transit time and fluid impedance for measured data correction
- » Real-time casing thickness, casing OD, and ID



The cement-evaluation presentation includes casing ovality and tool eccentricity in Track 1 along with the gamma ray. Conventional CBL amplitude and amplified amplitude data is presented in Track 2. Track 3 provides the typical CBL waveform showing both pipe-to-cement bond along with cement-to-formation bond. Data from the CAST-I™ scanner is displayed in Tracks 4 and 5. Track 4 provides information regarding the average impedance of the ZP image in Track 5. Likewise, a CBI is a bond index from the same image and provides a quick indication of the percent of bond. The image in Track 5 is the Z map from 0 to 360° (left to right) with 0° representing the high side of the hole. The center of the track is scaled at 180°, which represents the low side of the hole.

HAL9230

CAST-I™ 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	4.25 in.	108 mm
Maximum Casing Internal Diameter	22 in.	559 mm
Casing Thickness	Up to 0.75 in.	Up to 19 mm
Borehole Fluid Density*	Up to 16 ppg	Up to 2.16 sg
Borehole Fluid Type	Brine / WBM / OBM / SBM	

* Contact Halliburton representative to model your logging job.

CAST-I™ Operational Specifications

Data Acquisition Modes*, ‡	Cement Inspection Pipe Inspection Imaging	
Horizontal Sampling Rate*	45 – 360 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 – 0.75 in	8.9 - 19 mm
Pipe Thickness Measurement Accuracy	± 2%	
Max Logging Speed*	150 ft/min	45.7 m/min

‡ Cement Inspection and Pipe Inspection modes can be acquired simultaneously.

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

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