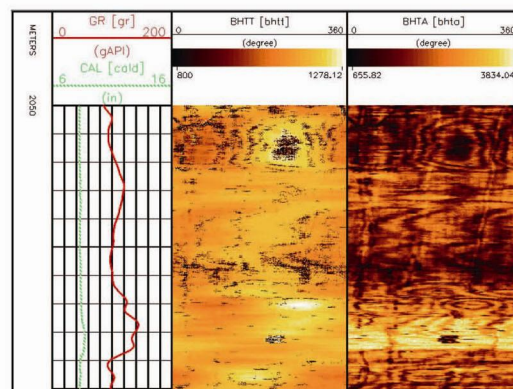


Ultrasonic Scan Imaging Tool (USI)

This tool is an acoustic device designed to produce detailed images of the wellbore wall (or casing). The USI pulse-echo transducer emits a high frequency acoustic pulse and measures the amplitude and the time of flight of the reflected wave. The amplitude of the reflected wave is affected by variations in the borehole surface. The travel time is indicative of the distance from the transducer to the wellbore wall. The acoustic transducer is mounted on a rotating section, allowing the USI to scan the full 360 degrees of the wellbore producing two images or maps.



Specifications

Maximum Temperature	6 hours at 400°F (200°C)
Maximum Pressure	20 Kpsi (137.88 MPa) (1406.0 kg/cm ²)
Tool Diameter	
Electronics	3.375 in. (8.57 cm)
Mandrel	3.625 in. (9.21 cm)
Make-up Length	
Electronics	7 ft-5.8 in. (2.26 m)
Mandrel	8 ft-0.6 in. (2.45 m)
Shipping Length	
Electronics	8 ft-11.8 in. (2.74 m)
Mandrel	9 ft-1.3 in. (2.78 m)
Tool Weight	
Electronics	120 lb (54.4 kg)
Mandrel	150 lb (68.0 kg)
Shipping Weight	
Electronics	140 lb (63.5 kg)
Mandrel	170 lb (77.1 kg)
Maximum Tensile Force	
Electronics	40,000lbf
Mandrel	17,500lbf
Maximum Compressive Force	
Electronics	4,000 lbf
Mandrel	4,000 lbf
Power Requirement	180 Vac, 60 Hz, 0.6 Ampere, nominal
Data Transmission	Digital
Wireline Requirements	7 conductor
Samples per Scan	250/125
Scan Speed	11 scans per second, nominal
Imaging Transducers	
Quantity	2
Size/type	1.5 in. (38.1 mm), and 2.0 in. (50.8 mm) focused, ceramic
Frequency of Operation	250 kHz
Orientation Facility	Internal Magnetometer, or reference to ORT Orientation
Fluid Velocity Reference	Internal self-contained 250 kHz ceramic transducer
Logging Speed, Vertical Resolution	10 ft/min.(3.05 m/min), 60 scans per foot (s.p.f.) 20 ft/min. (6.10 m/min) @ 30 s.p.f.
Radial Resolution	Typically 10 samples per inch in an 8 inch borehole
Borehole Diameter Range	5.5 in. (139.7 mm) through 16 in. (304.8 mm)
Maximum Borehole Deviation	90°

