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16 Sector (HD-RIB)

# HD Radial Incremented Bond

The unique challenges of cement evaluation in large wellbores have been addressed by Titan's 16-Sector Radial Incremented Bond Tool. The 22.5° azimuthal sector resolution provides details necessary for identification of channelling, voids and other bonding irregularities in casing sizes of 8-7/8" (225 mm) or larger. A sonic receiver spaced at 3ft from the transmitter provides quality information on casing to cement bonding. Amplitude display of the 16 highly directional receivers forms a detailed 360° cement map of the wellbore. A deeper investigating 6ft receiver confirms the data received from 3ft receiver and shows formation bonding by a full Variable Density Log (VDL) wave display.

## APPLICATIONS

- Assessment of cement bond quality and hydraulic isolation
- Identification of micro annulus and channelling
- Locating top of cement (TOC)

## SPECIFICATIONS

Part Number Series	
Standard	8012-4507HPE400-03-00
High Temperature	8012-4509HPE400-03-00
<b>MEASUREMENTS</b>	
Vertical Resolution	3 ft CBL and 6 ft VDL
Azimuthal Resolution	22.5° Cement map
Logging Speed	60 ft/min (18.3 m/min)
Mud Type - Weight	Must be liquid – No limitations
Offset Bottom Shoulder	
Temperature - Transmitter	88.6 in (225.0 cm) – 81.2 in (206.2 cm)
RIB	63.2 in (160.5 cm)
3 ft Crystal – 6 ft Crystal	63.2 in (160.5 cm) – 45.2 in (114.8 cm)
<b>ENVIRONMENTAL</b>	
Temperature Rating	
Standard	-25 to 400 F (-32 to 204 °C)
High Temperature	-25 to 450 F (-32 to 232 °C)
Pressure Rating	20,000 psi (138 MPa)
Material	H <sub>2</sub> S Resistant
<b>MECHANICAL</b>	
Outside Diameter	4.50 in (114.3 mm)
Length	11.86 ft (3.61 m)
Weight	234 lb (106 kg)
Max. Tension	60,000 lbf (267 KN)
Min.-Max. Casing Size	8.87 in (225mm) – 16.00 in (406 mm)
Top – Bottom Connection	1-3/16" GO Box – 1-3/16" GO Pin
<b>ELECTRICAL</b>	
Operating Voltage & Current	120 VDC @ 30 mA (at tool head)
Auxiliary Tool Input	Single or bi-level pulse
Input Pulse Height - Width	+/- 12V max - 1µs min, 30 µs max
Transmitter Frequency	14 kHz
Cable Type	
Conductor	Single or multi conductor
High capacitance lines	7/32 in 500 °F (260 °C)
Crystal Type	Piezoelectric
Temperature Sensor	Platinum RTD 50 - 450 °F (10-232 °C)
Pressure Compensation	Sliding cans

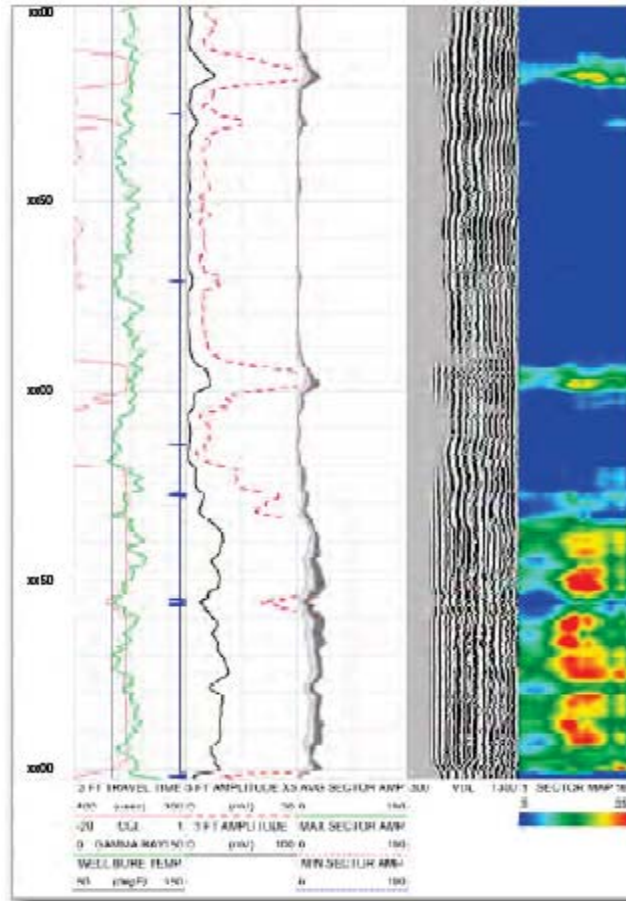
\*US Patent Number 6588267

## FEATURES

- Industry leader in high definition cement mapping
- Wellbore and internal temperature sensors
- Rigid V-Slot Isolator Bars\* incorporated into tool body
- 450 °F (204 °C) flaked version available
- VDL crystal at 6 ft for increased depth of investigation

## BENEFITS

- 22.5° azimuthal resolution on cement maps
- Minimal flexing of tool body ensures optimum centralization in deviated wells
- Temperature sensors allow real-time tool quality control
- VDL spacing ideal for large boreholes



Cement map image showing channelling (red) confirmed by poor VDL signals and high CBL. Good cement bond shown in blue corresponds to good CBL (low amplitude) and strong formation returns on VDL.



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