

12-16 Sectors High Definition Radial Incremental Bond Tool (HD-RIB)

Titan Division | Instruments

Features

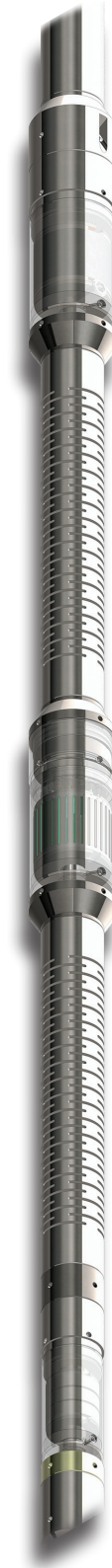
- Hunting's hybrid telemetry
- Wellbore and internal temperature sensor
- 450°F (204°C) flaked versions available
- Compatible with Hunting's Compensated Neutron, GR-Neutron and CCL
- Gravity high side azimuthal option available
- 14- to 20-kHz sonic signal
- Canister architecture
- Can accommodate casing sizes ranging from 7 in. (178 mm) to 18 in. (457 mm)

Benefits

- Optimal casing signal and data transmission
- Efficiently and easily maintained
- Real-time tool quality control
- Accurately assesses cement bond quality and hydraulic isolation in larger diameter holes
- Locates top of cement

Hunting's High Definition Radial Incremented Bond (RIB) tools are built using higher resolution segmented receivers to more accurately measure circumferential data necessary to determine if there is channeling in the cement, or to indicate low compressive strength in larger diameter cased holes.

Casing to cement bonding can be accurately determined by measuring the amplitude of the first arrival at the 3-ft receiver. A deeper investigating VDL receiver confirms the interpretation and also shows formation bond by a full Variable Density Log (VDL) wave display. VDL to transmitter spacing has been optimized for hole diameter.



Specifications

Part Number	3-1/4 in. [83 mm] 12 Sector	4-1/2 in. [114 mm] 16 Sector
Standard	8112-3256NPE300-03-00 8112-3256LPE300-03-00 (High-side)	8112-4506NPE400-03-00 8112-4506LPE400-03-00 (High-side)
High Temperature	8112-3259NPE300-03-00 8112-3259LPE300-03-00 (High-side)	8112-4509NPE400-03-00 8112-4509LPE400-03-00 (High-side)
Measurements		
Vertical Resolution	1.5 ft RIB	3 ft RIB
	3 ft CBL and 5 ft VDL	3 ft CBL and 6 ft VDL
Sector Azimuthal Resolution	30° Cement map	22.5° Cement map
GTF Synchronized with Sector #1 - All Tools	*Available Option	
Borehole Temperature Accuracy** (°F)[°C]	+/-1% from 75 - 400 [24 - 204]	
Internal Tool Temperature Accuracy** (°F)[°C]		
Cable Head Voltage, VDC	As Measured at Cable Head	
Rec Logging Speed (ft/min)[m/min]	60 [18.3]	
Mud Type • Weight - All Tools	Must be liquid • No limitations	
Offset From Bottom Shoulder (in.)[cm]		
Temperature • Transmitter	76.5 [194.3] • 70.0 [177.8]	88.6 [225.0] • 81.2 [206.2]
RIB	61.0 [154.9]	63.2 [160.5]
3-ft Crystal • 5-ft or 6-ft Crystal	52.0 [132.1] • 40.0 [101.6]	63.2 [160.5] • 45.2 [114.8]
Environmental		
Temperature rating		
Standard (°F)[°C]	-25 to 375 [-32 to 190.6]	
High Temperature (°F)[°C]	-25 to 450 [-32 to 232]	
Pressure Rating (psi)[MPa]	20,000 [138]	
Material - All Tools	H ₂ S-Resistant Construction	
Mechanical		
Outside Diameter (in.)[mm]	3.25 [82.6]	4.50 [114.3]
Length (ft)[m] {Hi Temp}	9.13 [2.78] {10.75 [3.28]}	10.29 [3.14] {11.86 [3.61]}
Weight (lbs.)[kg] {Hi Temp}	135 [61] {160 [73]}	202 [92] {234 [106]}
Min. Casing Size (in.)[mm] RIB	7 [177.8]	8.63 [219]
Max. Casing Size (in.)[mm] CBL/VDL	12.75 [324]	18 [457]
Top • Bottom Connection	1-3/16 in. GO Box • 1-3/16 in. GO Pin	
Max. Tension (lbf)[kN]	60,000 [267]	
Electrical		
Operating Voltage & Current (At Cable Head)	120 +/-15 VDC @ 55±5 mA	
Auxiliary Tool Input	Single or Bi-Level Pulse	
HT Telemetry -All Tools	HT Telemetry	
Analog Bi-Level Pulse (pulse height & width)	±12V max • 1µs min, 30 µs max	
Sonic Transmitter Frequency (RIB/VDL) KHz	20/18	14/14
Cable Type - All Tools	Single or Multi-Conductor	
High Capacitance Lines - All Tools	7/32 in. 500°F (260°C)	
Crystal Type - All Tools	Piezoelectric	
Pressure Compensation - All Tools	Sliding Cans	

*Available Option Gravity Highside Reference to Radial Sector #1 [+/-2° [5° to 90° Borehole Inclination]

**Temperature Reading is Less Accurate Below 75°F [24°C] and Above 400°F [204°C]

About Hunting's Titan Division

For successful cased hole logging and perforating services, tool reliability, availability, and time line of delivery are essential. Hunting supplies customers worldwide with the right tools to get the job done. Our product lines include state of the art, high quality wireline and tubing conveyed perforating (TCP) gun systems, hardware and accessories, shaped charges, and electronic logging tools.

SET UP CHART



HUNTING Hunting Titan

BOND TOOL SETUP CHART

4 1/2" OD Tools

These values are provided as a guide line to help find first arrivals, and determine bonding levels. They are calculated using travel time for fresh water in the well bore and must be changed for oil or mud. Sync gain adjustment changes arrival times, and any air or gas in the fluid changes everything.

6/12/2012

CASING DATA				TRANSIT TIME IN M SEC			EXPECTED	CLASS A	3000 PSI	Cement		POZ MIX	1500 PSI	Cement		
SIZE	WEIGHT	I.D.	WALL THICKNESS	Radials	3'	6'	FREE PIPE AMP (MV)	100% CEMENT (MV)	100% (DB/FT) ATTENUATION	60% CUT MV	Bond OFF DB	100% Cement (MV)	100% (DB/FT) ATTENUATION	60% CUT MV	Bond OFF DB	
7	23	6.366	0.317	228.6	228.6	392.7	62.2	1	12.4	5.5	7.5	1.9	10.7	9.3	6	
	26	6.276	0.362	227.1	227.0	391.1		1.8	11	7.5	6.6	3.2	9	12.1	5.7	
	29	6.184	0.408	225.5	225.4	389.5		2.5	9.5	9.3	5.9	4.5	8.2	14.6	4.9	
	32	6.094	0.453	223.9	223.8	387.9		3.3	9.1	13	5.1	5.6	7.5	17.1	4.4	
	35	6.004	0.498	222.3	222.3	386.4		3.9	8.7	14	4.9	6.9	7	18.1	4	
	38	5.92	0.54	220.8	220.8	384.9		4.9	7.9	15	4.7	8.3	6.3	20.7	3.7	
7 5/8	26.4	6.969	0.328	239.2	239.1	403.2	59	1	12.1	5.5	7.1	2	10.2	9.2	5.7	
	29.7	6.875	0.375	237.6	237.5	401.6		1.8	10.5	7.5	6.2	3.1	8.9	11.2	5.4	
	33.7	6.765	0.43	235.6	235.6	399.7		2.9	9.1	10	5.6	4.5	7.7	14.6	4.6	
	39	6.625	0.5	233.2	233.1	397.2		3.5	8.6	13	5	6	6.9	16.4	4.1	
9 5/8	40	8.835	0.395	271.9	271.8	435.9	51.3	1.7	10.5	6.8	6.7	3	8.4	10.6	5	
	43.5	8.755	0.435	270.5	270.4	434.5		2.5	9.3	8.5	5.8	4	7.7	12.6	4.5	
	47	8.681	0.472	269.2	269.1	433.2		2.7	8.8	9	5.3	4.8	7.2	13.7	4.3	
	53.5	8.535	0.595	266.6	266.6	430.6		3.7	8	12	4.8	7	6.2	16.4	3.9	
10 3/4	40.5	10.05	0.35	293.1	293.1	457.2	48	1.1	11.5	5.1	7	2.1	9.3	8.4	5.2	
	45.5	9.95	0.4	291.4	291.3	455.4		1.7	10.4	6.5	6	3	8.4	9.7	4.9	
	40	9.902	0.424	289.6	289.6	453.7		2.3	9.5	7.8	5.9	3.7	7.8	11.2	4.5	
	54	9.784	0.483	288.0	288.0	452.1		2.6	9.1	8.4	5.2	4.3	7.2	12.8	4.2	
12	40	11.384	0.300	316.5	316.4	480.5	44	0.6	12.8			1.3	10.8			
13 3/8	54.5	13.947	0.380	361.3	361.3	525.4	41.3									
	61.0	12.515	0.430	336.3	336.2	500.3										
	68.0	12.415	0.480	334.5	334.5	498.5		2.5	8.8			4.5	7.2			
14	99.4	12.600	0.700	337.7	337.7	501.8	40.8									
	106.1	12.500	0.750	336.0	335.9	500.0										
16	75	15.124	0.438	364.0	364.0	546.0	37.7									
	84	15.01	0.495	362.0	362.0	544.0										
	109	14.688	0.656	356.4	356.4	538.3										
20	90	19.19	0.48	453.1	453.0	617.1	24	1.5	9.8			2.5	8.2			
	131.0	18.750	0.625	445.4	445.3	609.4										
24 1/2	100.5	23.75	0.375	532.9	532.8	696.9	15	1	10.7			1.8	8.8			

6-8 Sectors Radial Incremental Bond Tool (RIB)

Titan Division | Instruments

Features

- Hunting's hybrid telemetry
- Easily serviced slip joint isolator bar construction
- Unique 1.5-ft transmitter to radial receiver spacing
- Identifies micro annulus and channeling
- Locates top of cement

Benefits

- Less fast formation interference in segmented cement mapping
- Accurate 3-ft spacing
- Accurately assesses cement bond quality and hydraulic isolation

The accurate evaluation of the cement bonding to a well's casing and to the formation is necessary to confirm the integrity of isolation between zones and avoid production problems. The standard single transmitter Cement Bond Log (CBL) tool accurately determines casing bond by measuring the amplitude of the first arrival at the 3-ft receiver. A deeper investigating 5-ft receiver confirms the interpretation and also shows formation bond by a full Variable Density Log (VDL) wave display.

Hunting's family of CBL tools come in a range of sizes to accommodate casing sizes ranging from 2-3/8 in. (60 mm) to 9-5/8 in. (244.48 mm). The tools can be configured to several timing schemes for different logging systems.



Specifications

Part Number	1-11/16 in. (43 mm) 6 Sector	2-3/4 in. (70 mm) 8 Sector
Standard	8112-1686NPE150-015-00 High-side Not Available	8112-2756NPE237-022-00 8112-2756LPE237-022-00 (High-side)
High Temperature	8112-1689NPE150-015-00 High-side Not Available	8112-2759NPE237-022-00 8112-2759LPE237-022-00 (High-side)
Measurements		
Vertical Resolution	1.5 ft RIB	
	3 ft CBL and 5 ft VDL	
Sector Azimuthal Resolution	60° Cement map	45° Cement map
GTF Synchronized with Sector #1	*Available Option	*Available Option
Borehole Temperature Accuracy** (°F)[°C]	+/-1% from 75 - 400 [24 - 204]	
Internal Tool Temperature Accuracy** (°F)[°C]		
Cable Head Voltage, VDC	As Measured at Cable Head	
Logging Speed (ft/min)[m/min]	60 [18.3]	
Mud Type • Weight - All Tools	Must be Liquid • No Limitations	
Offset from Bottom Shoulder (in.)[cm]		
Temperature • Transmitter	78.0 [198.2] • 70.0 [177.8]	76.5 [194.3] • 70.0 [177.8]
RIB	61 [154.9]	
3ft Crystal • 5ft Crystal	52.0 [132.1] • 40.0 [101.6]	
Environmental		
Temperature Rating		
Standard (°F)[°C]	-25 to 375 [-32 to 190.6]	
High Temperature (°F)[°C]	-25 to 450 [-32 to 232]	
Pressure Rating (psi)[MPa]	20,000 [138]	
Material - All Tools	H ₂ S-Resistant Construction	
Mechanical		
Outside Diameter (in.)[mm]	1.69 [42.9]	2.75 [69.9]
Length (ft)[m] {Hi Temp}	9.13 [2.78] {10.34 [3.15]}	9.13 [2.78] {10.47 [3.19]}
Weight (lbs.)[kg] {Hi Temp}	63 [29] {73 [33]}	120 [54] {148 [67]}
Min. Casing Size (in.)[mm] RIB	2.38 [60]	4.50 [114]
Max. Casing Size (in.)[mm] CBL/VDL	6.13 [156] (RIB)/7.00 [178]	8.63 [219] (RIB)/9.63 [244]
Top/Bottom Connection	1-3/16 in. GO Box/Pin	
Max. Tension (lbf)[kN]	40,000 [178]	60,000 [267]
Electrical		
Operating Voltage & Current	120 VDC @ 40±5 mA	120 VDC @ 55±5 mA
Auxiliary Tool Input	Single or Bi-Level Pulse	
HT Telemetry -All Tools	HT Telemetry	
Analog Bi-Level Pulse (pulse height & width)	±12V max • 1µs min, 30 µs max	
Sonic Transmitter Frequency (RIB/VDL) KHz	20/20	20/18
Cable Type - All Tools	Single or Multi-Conductor	
High Capacitance Lines - All Tools	7/32 in. 500°F (260°C)	
Crystal Type - All Tools	Piezoelectric	
Pressure Compensation - All Tools	Sliding Cans	

*Available Option Gravity Highside Reference to Radial Sector #1 [+/-2° (5° to 90°) Borehole Inclination]
 **Temperature Reading is Less Accurate Below 75°F [24°C] and Above 400°F [204°C]

About Hunting's Titan Division

For successful cased hole logging and perforating services, tool reliability, availability, and time line of delivery are essential. Hunting supplies customers worldwide with the right tools to get the job done. Our product lines include state of the art, high quality wireline and tubing conveyed perforating (TCP) gun systems, hardware and accessories, shaped charges, and electronic logging tools.