



Geo-Vista

Common Coiled Tubing Drilling System (ComCTD)

3-3/8 in. Common Coiled Tubing Drilling System-Wireline (ComCTD-3WRSS)

3-3/8 in. Common Coiled Tubing Drilling System (ComCTD-3RSS) (Mud Pulse)

3-1/8 in. Common Coiled Tubing Drilling System-Wireline (ComCTD-3W)

2-1/4 in. Common Coiled Tubing Drilling System-Wireline (ComCTD-2W)



www.RenheSun.com

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Features

- Flexible setup the integrated CTD system
- Data transmission & communication via wire line
- Selectable directional system with reliable and automated closed-loop steering control
- Azimuth GR service
- Depth control and circulation capability by specific BHA services

Benefits

- On-location BHA adjustments based on customer requirements
- Precise directional control for maximized reservoir contact, optimized wellbore placement and reduced drilling time
- Increased section length in horizontal reservoir section by adjustable steering control and flexibility for high dogleg requirements in build sections
- Optimized formation evaluation and geosteering capability for increased production and improved well placement
- Drilling parameter optimization for improved ROP and drilling efficiency

Introduction

The 3.375 in. tool use coiled tubing and rotary steering unit to drill 4.5 -5.5 in. borehole. It has downlink function for steering unit.

Components

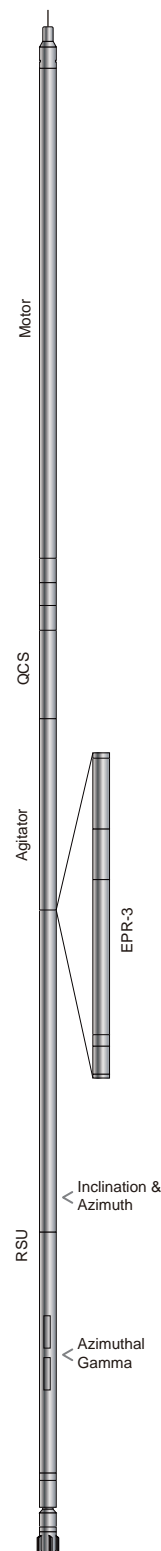
- Motor
- Quick Connector Sub (QCS)
- Agitator (Optional)
- Electromagnetic Propagation Resistivity Tool (EPR-3) (Optional)
- Rotary Steering Unit (RSU-3)
- Bit

Specifications

Tool Size OD	3.375 in. (86 mm)
Borehole Size	4-1/2 in. to 5-1/2 in. (114 to 140 mm)
System length	688.98 ft. (17.5 m)
Power Source	Wireline
Communication & telemetry	Wireline
Maximum Flow Rate	130 gpm (490 lpm)
Maximum Build Up Rate	13°/100 ft. (13°/30 m)

Tool Specifications

Tool Name	Length	Weight
QCS	18.23 ft. (5.6 m)	331 lbs. (150 kg)
Motor	4.72 ft. (1.45 m)	88 lbs. (40 kg)
Agitator	6.84 ft. (2.10 m)	128 lbs. (58 kg)
EPR-3	11.38 ft. (3.47 m)	269 lbs. (122 kg)
RSU-3	25.15 ft. (7.66 m)	452 lbs. (205 kg)



Features

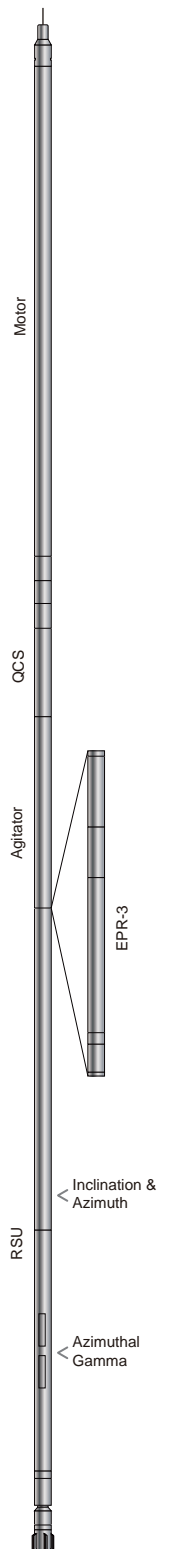
- Flexible setup the integrated CTD system
- Data transmission & communication via Wireline
- Selectable directional system with reliable and automated closed-loop steering control
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Benefits

- On-location BHA adjustments based on customer requirements
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Specifications

Measurement	Range	Resolution	Accuracy
Inclination	0°-180°	0.1	± 0.15°
Azimuth	0°-360°	0.35	±1.0 @ INC>10°
Toolface	Magnetic	0°-360°	± 1.5°
	Gravty	0°-360°	± 1.5°
Temperature	50°F-300°F, 350°F optional	1.1	± 3.0°C
Total Magnetic Field	30,000-66,000 gamma	100	± 200
Transmission Rates	20.8 kbits		
Directional Probe OD	1.75 in.		
Max. Temperature	350°F (175°C)		
Max. Pressure	20000 psi (137.9 MPa)		
MTF/GTF Switching, Inclination Degrees: MTF/GTF Switching, Operator Selectable (default set at 3°) Inclination Degrees			
Vibration Measurement			
Sensor Type	Axial Vibration	One Accelerometer, Z direction	
	Lateral Vibration	Two Accelerometers, X-Y direction	
Acceleration Range	0-15 g		
Frequency Range	0-82 Hz		
Realtime Log Options	Lateral and Axial vibration; Transmitted as severity level (scaled to g-RMS)		
Post Run/Memory Log Options	Average & Max. lateral and axial vibration in g-RMS and as severity level		
Rotation & Stick-Slip Measurement			
Sensor Type	Two Axis Magnetometer		
Rotation Speed	0-±1000 RPM		
Accuracy	±1%		
Realtime Log Options	Downhole RPM, Stick-Slip transmitted as severity level		
Post Run/Memory Log Options	Min., Max., & Average RPM, Stick-Slip & Backward Rotation severity		
Azimuthal Gamma Ray Specifications			
Sensor Type	Scintillation		
Measurement	API GR		
Real Time	Yes		
Recorded	Yes		
Range	0-500 API		
Section Quantity	8		
Accuracy	±3% of full scale		
Statistical Repeatability	±3 API @ 100 API and ROP=60 ft/hr		
Vertical Resolution	6 in.		





Applications

- Provides formation resistivities
- Provide realtime formation evaluation services.
- Provide wellbore placement
- Improve geosteering capabilities
- Operates at frequency of 2 MHz and 400 kHz Compensated antenna design with dual spacing transmitter pairs.

Features

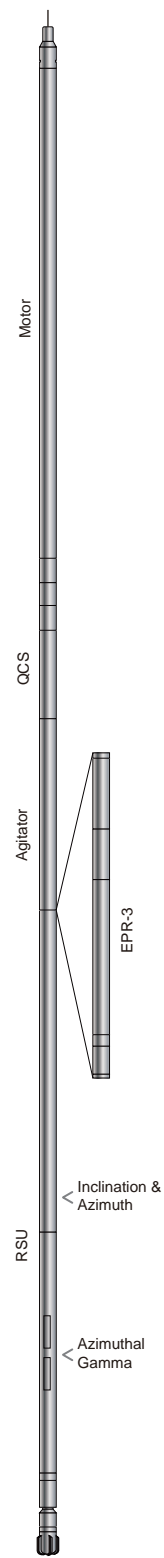
- 4 quantitative resistivities with separate depths of investigation works in all mud types.

EPR-3 Introduction

EPR-3 transmits electromagnetic waves into the formation and measures the changes in the physical characteristics of the returned electromagnetic waves. The changes in the physical characteristics of the electromagnetic waves indicate the formation resistivity.

Specifications

Tool O.D.		3.375 in.	
Max Operating Temp		350°F (175°C)	
Max Working Pressure		20000 psi (137.9 MPa)	
2 MHz	Phase Difference	Range	0.1-3000 ohm-m
		Accuracy	± 1% (0.1-50 ohm-m); ±0.5 mmho/m (> 50 ohm-m)
	Attenuation	Range	0.1-500 ohm-m
		Accuracy	± 2% (0.1-25 ohm-m); ±1.0 mmho/m (> 25 ohm-m)
Vertical Resolution		8 in. (203 mm)	
400 kHz	Phase Difference	Range	0.1-1000 ohm-m
		Accuracy	± 1.0% (0.1-25 ohm-m); ±1.0mmho/m (>25 ohm-m)
	Attenuation	Range	0.1-200 ohm-m
		Accuracy	± 5.0% (0.1-10 ohm-m); ±5.0mmho/m (>10 ohm-m)
		Vertical Resolution	12 in. (304 mm)





3-3/8 in. Common Coiled Tubing Drilling System (ComCTD-3RSS) (Mud Pulse)

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Features

- Flexible setup the integrated CTD system
- Data transmission & communication via mud pulse
- Selectable directional system with reliable and automated closed-loop steering control
- Azimuth GR service
- Depth control and circulation capability by specific BHA services

Benefits

- On-location BHA adjustments based on customer requirements
- Precise directional control for maximized reservoir contact, optimized wellbore placement and reduced drilling time
- Increased section length in horizontal reservoir section by adjustable steering control and flexibility for high dogleg requirements in build sections
- Optimized formation evaluation and geosteering capability for increased production and improved well placement
- Drilling parameter optimization for improved ROP and drilling efficiency

Introduction

The 3.375 in. tool use coiled tubing and rotary steering unit to drill 4.5 -5.5 in. borehole. It has downlink function for steering unit.

Components

- Quick Connector Sub (QCS)
- Motor
- Bi-directional Communication & Power system While Drilling (BCP-3)
- Electromagnetic Propagation Resistivity (EPR-3)
- Battery Management Unit (BAT)
- Measurement While Drilling (MWD-B-3)
- Rotary Steering Unit (RSU-3)
- Bit

Specifications

Tool Size OD	3.375 in. (86 mm)
Borehole Size	4-1/2 in. to 5-1/2 in. (114 to 140 mm)
System length	897.64 ft. (22.8 m)
Power Source	Alternator
Communication & telemetry	Mud pulse
Maximum Flow Rate	130 gpm (490 lpm)
Maximum Build Up Rate	13°/100 ft. (13°/30 m)

Tool Specifications

Tool Name	Length	Weight
QCS	1.64 ft. (0.5 m)	66 lbs. (30 kg)
Motor	18.23 ft. (5.6 m)	331 lbs. (150 kg)
BCP-3	18.04 ft. (5.5 m)	331 lbs. (150 kg)
EPR-3	11.38 ft. (3.47 m)	269 lbs. (122 kg)
BAT	13.50 ft. (4.11 m)	221 lbs. (100 kg)
MWD-B-3	15.75 ft. (4.8 m)	265 lbs. (120 kg)
RSU-3	28.43 ft. (5.66 m)	416 lbs. (232 kg)





3-1/8 in. Common Coiled Tubing Drilling System-Wireline (ComCTD-3W)

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Features

- Flexible setup the integrated CTD system
- Data transmission & communication via mono conductor CT e-line
- Selectable directional system with reliable and automated closed-loop steering control
- Resistivity & GR LWD service
- Real-time WOB, bore & annular pressure, and vibration data
- Depth control and circulation capability by specific BHA services

Introduction

The 3.125 in. tool size has been designed to cover hole sizes from 3.5 inches up to 4.75 inches. This system provides flexibility in configuration to allow tailoring the level of service at the rigsite for Coiled Tubing Drilling (CTD) operations in standard and thru-tubing re-entry slimhole applications to meet customer service needs.

Components

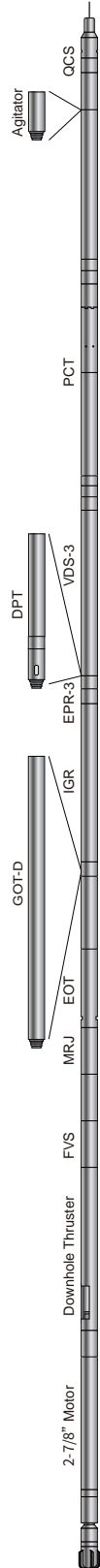
- Quick Connect Sub (QCS)
- Agitator (Optional)
- Power and Communication Tool (PCT)
- Vibration & Shock Digital Attitude Sensor (VDS-3)
- Drilling Performance Tool (DPT) (Optional)
- Electromagnetic Propagation Resistivity Tool (EPR-3) (Optional)
- Inclination and Gamma Ray (IGR)
- Gyroscope Orientation Tool-Drilling (GOT-D) (Optional)
- Electrical Orienting Tool (EOT)
- Mechanical Release Joint (MRJ)
- Float Value Sub (FVS)
- Downhole Thruster (Optional)
- 2-7/8 in. / 3-1/8 in. Motor

Wireline

Wireline	Wires	OD [in.]	Specified Length
Camesa 1N 32 PTZ	Mono	5/16	23,000 ft. (7,000 m)
Camesa 1N 22 PTZ (ETFE)	Mono	7/32	18,000 ft. (5,500 m)
Camesa 1K 22 PTZ (ETFE)	Mono	7/32	18,000 ft. (5,500 m)
Camesa 7H 42RP (Optional)	Seven	7/16	23,000 ft. (7,000 m)

Specifications

Tool Size OD	3.125 in. (80 mm)
Borehole Size	3.5 in. to 4.75 in. (89 mm to 121 mm)
System Length	78.24 ft. (23.85 m)
System Weight	1470 lbs. (667 kg)
System Connection top / bottom	2.375 in. PAC box / pin
Power Source	Via CT e-line
Communication & Telemetry	Via CT e-line





Benefits

- On-location BHA adjustments based on customer requirements
- High real-time data density for operating safety & efficiency improvements
- Precise directional control for maximized reservoir contact, optimized wellbore placement and reduced drilling time
- Increased section length in horizontal reservoir section by adjustable steering control and flexibility for high dogleg requirements in build sections
- Optimized formation evaluation and geosteering capability for increased production and improved well placement
- Drilling parameter optimization for improved ROP and drilling efficiency
- Precise and reliable ECD control and management for risk reduction
- Hole cleaning and precise depth correlation improvements while tripping

Operating Specifications & Limits (Sliding operation only)

Max. Flow Rate	130 gpm (490 lpm)
Max. Build Up Rate	45°/100 ft. (45°/30 m)
Pressure Drop with Water (w/o PDM)	350 psi at 132 gpm (2.4 MPa at 500 lpm)
Max. Operating WOB	25 klb (111 kN)
Max. WOB to Failure	35 klb (155 kN)
Max. Operating Overpull	25 klb (111 kN)
Max. overpull to Failure	35 klb (155 kN)
Max. Hydrostatic Pressure	15,000 psi (103 MPa)
Max. Differential Pressure	
With Circulation Ports (EDC)	1,500 psi (10.3 MPa)
Without Circulation Ports (ED)	4,500 psi (31 MPa)
Operating temperature limits	
Max.	300°F (150°C)
Min.	40°F (4°C)
Sand Content	<1%
Solid Content (Max)	7%
LCM	10 ppb = 28 kg/m ³ , fine nutplug

Tool Specifications

Tool Name	Length	Weight
QCS	1.64 ft. (0.5m)	33 lbs. (30 kg)
Agitator	6.89 ft. (2.10 m)	132 lbs. (60 kg)
PCT	7.94 ft. (2.42 m)	132 lbs. (60 kg)
DPT	3.64 ft. (1.11 m)	119 lbs. (54 kg)
VDS-3	5.91 ft. (1.80 m)	117 lbs. (53 kg)
EPR-3 (Optional)	11.38 ft. (3.47 m)	269 lbs. (122 kg)
IGR	5.58 ft. (1.70 m)	113 lbs. (51 kg)
GOT-D (Optional)	12.63 ft. (3.85 m)	196 lbs. (89 kg)
EOT	5.35 ft. (1.63 m)	90 lbs. (41 kg)
MRJ	1.64 ft. (0.5 m)	88 lbs. (40 kg)
FVS	1.67 ft. (0.51 m)	44 lbs. (20 kg)
Thruster	16.50 ft. (4.94 m)	308 lbs. (140 kg)
2-7/8 in. / 3-1/8 in. Motor	9.84 ft. (3.00 m)	220 lbs. (100 kg)



2-1/4 in. Common Coiled Tubing Drilling System-Wireline (ComCTD-2W)

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Features

- Flexible setup the integrated CTD system
- Data transmission & communication via mono conductor CT e-line
- Selectable directional system with reliable and automated closed-loop steering control
- Resistivity & GR LWD service
- Real-time WOB, bore & annular pressure, and vibration data
- Depth control and circulation capability by specific BHA services

Introduction

The 2-1/4 in. tool size has been designed to cover hole sizes from 2.75 inches up to 3.5 inches. This system provides flexibility in configuration to allow tailoring the level of service at the rigsite for Coiled Tubing Drilling (CTD) operations in standard and thru-tubing re-entry slimhole applications to meet customer service needs.

Components

- Quick Connect Sub (QCS)
- Agitator (Optional)
- Power and Communication Tool (PCT)
- Vibration & Shock Digital Attitude Sensor (VDS-2)
- Drilling Performance Tool (DPT) (Optional)
- Inclination and Gamma Ray (IGR)
- Electrical Orienting Tool (EOT)
- Mechanical Release Joint (MRJ)
- Float Value Sub (FVS)
- Downhole Thruster
- 2-1/8 in. Motor

Wireline

Wireline	Wires	OD [in.]	Specified Length
Camesa 1N 32 PTZ	Mono	5/16	23,000 ft. (7,000 m)
Camesa 1N 22 PTZ (ETFE)	Mono	7/32	18,000 ft. (5,500 m)
Camesa 1K 22 PTZ (ETFE)	Mono	7/32	18,000 ft. (5,500 m)
Camesa 7H 42RP (Optional)	Seven	7/16	23,000 ft. (7,000 m)

Tool Specifications

Tool Size OD	2.25 in. (57.2 mm)
Borehole Size	2.75 in. to 3.5 in. (69.85 mm to 89 mm)
System Length	83.52 ft. (25.46 m)
System Weight	924 lbs. (420 kg)
System Connection top / bottom	1.5 in. AMMT box / pin
Power Source	Via CT e-line
Communication & Telemetry	Via CT e-line





Benefits

- On-location BHA adjustments based on operational needs
- High real-time data density for operating efficiency improvements
- Precise directional control for additional reservoir access, optimized wellbore placement and reduced drilling time
- Increased section length in horizontal reservoir section by adjustable steering control and coverage of high dogleg requirements in build sections
- Geo-steering capability for increased production and improved reservoir contact
- Drilling parameter optimization for improved ROP and drilling efficiency
- Precise and reliable ECD control and management for risk reduction
- Hole cleaning and precise depth correlation improvements while tripping

Operating Specifications & Limits (Sliding operation only)

Max. Flow Rate	80 gpm (300 lpm)
Max. Build Up Rate	50°/100 ft. (50°/30 m)
Pressure Drop with Water (w/o PDM)	650 psi at 80 gpm (4.5 MPa at 300 lpm)
Max. Operating WOB	15 klb (67 kN)
Max. WOB to Failure	20 klb (88 kN)
Max. Operating Overpull	15 klb (67 kN)
Max. Overpull to Failure	20 klb (88 kN)
Max. Hydrostatic Pressure	15,000 psi (103 MPa)
Max. Differential Pressure	
With Circulation Ports (EDC)	1,500 psi (10.3 MPa)
Without Circulation Ports (ED)	4,500 psi (31 MPa)
Operating temperature limits	
Max.	300°F (150°C)
Min.	40°F (4°C)
Sand Content	<1%
Solid Content (Max.)	7%
LCM	10 ppb = 28 kg/m ³ , fine nutplug

Specifications

Tool Name	Length	Weight
QCS	1.64 ft. (0.5 m)	22 lbs. (10 kg)
Agitator	6.89 ft. (2.10 m)	64 lbs. (29 kg)
PCT	7.94 ft. (2.42 m)	55 lbs. (25 kg)
DPT	3.64 ft. (1.11 m)	22 lbs. (10 kg)
VDS-2	5.91 ft. (1.80 m)	88 lbs. (40 kg)
IGR	5.58 ft. (1.70 m)	66 lbs. (30 kg)
EOT	5.35 ft. (1.63 m)	64 lbs. (29 kg)
MRJ	1.64 ft. (0.5 m)	33 lbs. (15 kg)
FVS	1.67 ft. (0.5 m)	22 lbs. (10 kg)
Thruster	15.50 ft. (4.94 m)	242 lbs. (110 kg)
2-1/8 in. Motor	9.84 ft. (3.00 m)	140 lbs. (56 kg)



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