



Geo-Vista

Wireline Engineering System

Downhole Hydraulic Tractor (DHT/DHT-S)

Downhole Casing & Tubing Tractor (CTT)

Gyroscope Orientation Tool-Continuous (GOT-C)

Free Point Indicator (FPI/FPI-D)

String Shot Back-off Tool

Plug-Bridge Setting Tool (PST)

Through Tubing Retrievable Plug Setting

Through Tubing Permanent Bridge Plug (TBP)

Down Hole Camera (DHC)

Milling Downhole Cutter-W (MDC-W)

Mechanical Downhole Cutter (MDC)

Ultrasonic Sand Detection Tool (USD)

Shock Gamma Ray Tool-1 (SGR-1)

Pipe Conveyed Logging Tool (PCL-H/PCL-B)

Cablehead Releasable (CHR)

Multi-Conductor Extreme Jar (MCE)

Hole Finder Sub (HFS)

Flywheels Centralizer Sub (FWC)



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Applications

- Convey downhole tools along horizontal or highly deviated wells

Benefits

- Conveys tools in complex wellbores less expensively than coiled tubing or drillpipe
- Reduces personnel and equipment costs
- Enables fast rig-up, operation, rig-down

Features

- 12.0 feet length in the basic configuration.
- Conform to diameter changes from 3.75 to 15.0 inches depending on drive wheel used.
- Traction control allowing dynamic adjustment of the arm radial force which reduces the amount of slippage and unnecessary wear.
- The DHT release is compatible with any tool in the tool string, including addressable switches for guns.

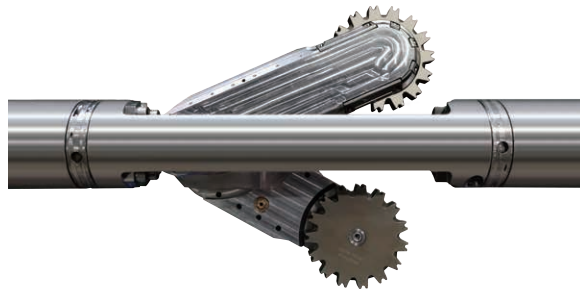


Introduction

The Downhole Hydraulic Tractor (DHT) is designed to transport logging tools and perforating gun in horizontal or highly deviated wells. It is suitable for open hole and cased hole.

Specifications

| | |
|-----------------------------|---|
| Maximum Temperature | 350°F(175°C) |
| Maximum Pressure | 20,000 psi (137.9 MPa) |
| Make-up Length | 19 ft.-11.4 in. (6.08 m) |
| Weight | 541 lbs. (245.4 kg) |
| Tool Diameter | 3.375 in. (85.7 mm) |
| Minimum Hole Diameter | 3.75 in. (95 mm) |
| Maximum Hole Diameter | 15 in. (381 mm) |
| Hole Type | Cased hole or Open hole |
| Maximum Continues Load | 2800 lbs. (1246 kg) (8 pairs - 16 wheels) |
| Nominal Creeping Speed | 30 ft./min (9 m/min) |
| Maximum Creeping Speed | 53.3 ft./min (16 m/min) |
| Surface Panels Power Supply | 220 Vac/50-60 Hz |
| | 380 Vac/50-60 Hz, 3-phase |
| Electronics Power Supply | 120 Vdc |
| Motor Power Supply | 3-phase, 500 Vac |



Open Hole

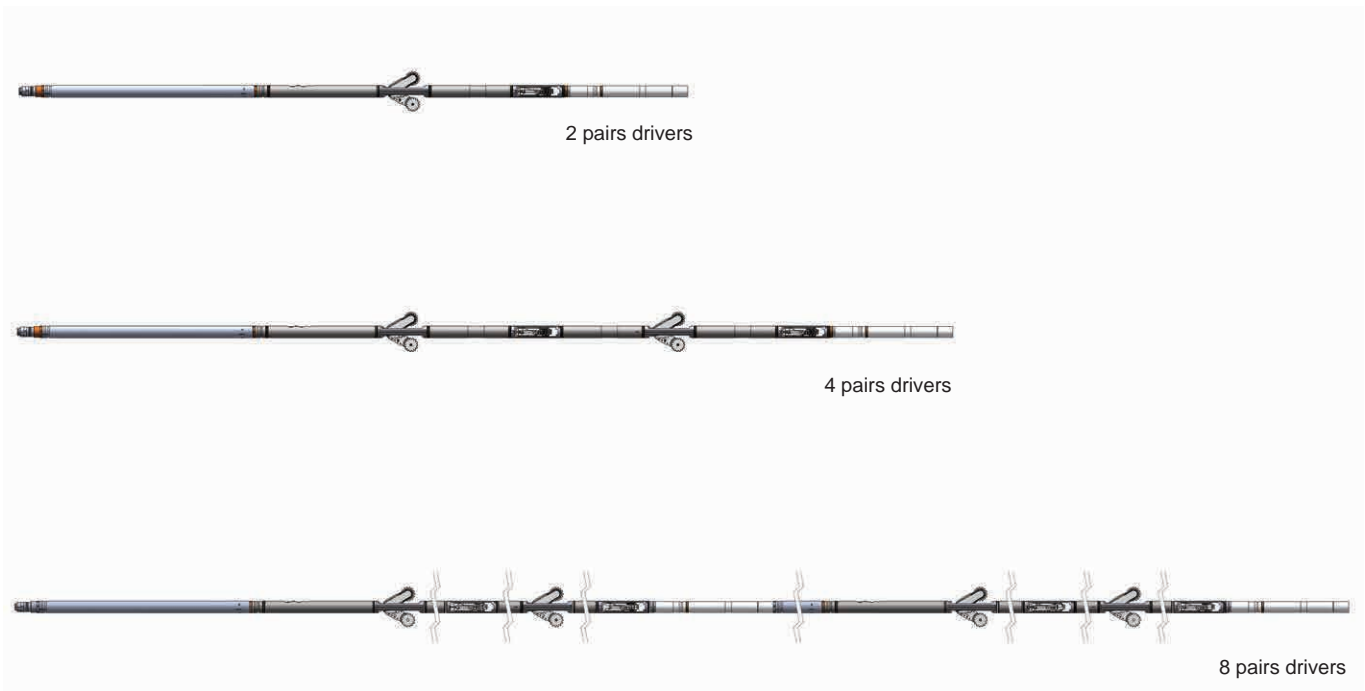


Cased Hole



Introduction

The DHT tractors allows for the addition of a second tractor in the tool string. Depending on the job at hand, the number of drive sondes can be increased to a maximum of eight. Various adapters and subs are also available to combine the tractor with a variety of logging tools or perforating guns.





Applications

- Highly deviated wells
- H₂S and CO₂ resistance conditions
- Wireline powered interventions
- Perforating operations
- Production logging, analysis behind casing, and cement and corrosion evaluation
- High-temperature wells

Benefits

- Efficiency gains from high-speed, maneuverable, bidirectional, intelligently controlled tractoring
- Reduced risk for tubing reentry and sticking with enhanced navigation of independently controlled drive sections and reverse tractoring capability in complex completion profiles
- Real-time informed decision making enabled by logging while tractoring
- Operational time saving via modular configurability to address well and surface complexities
- Access to hostile condition wells

Features

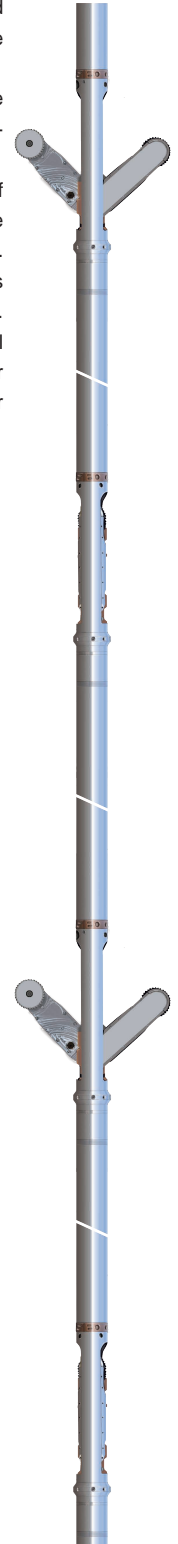
- Twice as fast as comparable conventional tractors
- H₂S and CO₂ resistance service qualified
- High Pressure and High Temperature rated
- Bi-directional logging while tractoring
- Versatile individual drive opening and closing operations
- Debris tolerant
- Explosive services shock resistant
 - Fully combinable with
 - Production logging tools
 - Perforating gun systems
 - Powered intervention services
- Gamma ray and optional active CCL while tractoring for any application

Introduction

Slimhole Downhole Hydraulic Tractor (DHT-S) is a 2-1/8 in. diameter and bi-directional high speed tractor provides large pull and push forces that are precisely controlled and monitored.

Navigation is guided by data reported in real-time from downhole sensors. The engineer operates each drive section-comprising a set of two wheels-independently in both directions.

Active traction control is built inside the DHT-S, providing continuous control of the radial force applied by the tractor arms. When slippage is detected by the downhole sensors, the radial force can be increased to increase the traction. Once the difficult section of the well is successfully traversed, the radial force is decreased to extend the lifetime of the wheels and other drive components. Because the tractor incorporates an opening cam system design, the radial force that the arms apply is independent of the wellbore size. This means that for their slim diameter, DHT-S can achieve the same tractoring force in well inner diameters up to 9.5 in. to support a large range operating of hole size.



Specifications

| | |
|------------------------------|--|
| Maximum Temperature | 350°F (175°C) |
| Maximum Pressure | 20,000 psi (138 MPa) |
| Outside diameter* | 2-1/8 in. (54 mm) |
| Hole Size | 2.2 in. (55.9 mm) to 9.5 in. (241.3 mm) |
| Minimum Length* | |
| (two drive sections) | 22.31 ft. (6.8 m) |
| Weight* (two drive sections) | 176.37 lbs. (80 kg) |
| Output | Optional Gamma Ray and CCL Logging while tractoring |
| Drive Section Operation | Up and down directions Independent opening and closing |
| Wireline Requirements | Mono-conductor 7-conductor |
| Maximum Continuous Load | Each drive section: 264.6 lbs. (120 kg) Up to 8 drive sections |
| Creeping Speed | 60 ft./min (18 m/min) |
| Operating Voltage | 600 Vdc |
| Operating Current | 0.7 A (Each drive section) |
| Maximum Tension Force | 25,000 lbf. (111,000 N) |
| Maximum Compression Force | 20,000 lbf. (89,000 N) |
| Special Applications | NACE MR0175 compliant for H ₂ S and CO ₂ resistance API RP-67 compliant for explosives operations Cased hole completions |

* Configuration dependent



Applications

- Power supply & control downhole tools:
 - Downhole Casing & Tubing Tractor (CTT)
 - Milling Downhole Cutter-W (MDC-W)
 - Mechanical Downhole Cutter (MDC)
 - Wireline Hydraulic Plug-Bridge Setting Tool (PST-20)
 - Plug-Bridge Setting Tool (PST)

Features

- Simple to use
- Various safety features

Introduction

Downhole Casing & Tubing Tractor-Surface Panel (CTT-SP) is the surface system required to power and control the downhole tools. It contains a modem to communicate with downhole tools and power supply required. The CTT-SP contains a modem for communication with the downhole tools. A data logging PC communicates with the downhole tools via the CTT-SP modem. The CTT-SP system can be used for the CTT, MDC and PST.

Specifications

| | |
|-------------------------|--|
| Size (in flight case) | 22 in. x 9.5 in. x 24.5 in. (558.8 mm x 241.3 mm x 622.3 in.) |
| Weight (in flight case) | 66 lbs. (30 kg) |
| Description | 19 in. Rack mount unit, 3U high supplied with ruggedised flight case |
| Power requirements | 110 Vac, 18 A or 220 Vac, 9 A |
| Output Capability | 0-1000 Vdc, 0-2 A |
| Modem frequency | 4 to 5 kHz |



Applications

- Convey downhole tools along horizontal or highly deviated wells
- Available for perforation toolstring

Introduction

CTT is used in horizontal well or high-inclination well to send toolstring. Toolstring includes Production Logging Tools (PLT), casing check tool, CBL Tools, etc. The CTT uses a single-conductor wireline to supply power and transmits signals. With the surface control panel and software, operator could know about speed, conditions, etc. An Electric Centralizer is used in CTT, and it can close electrically that made CTT through horn successfully.

Downhole Tool String

| | |
|----------|-----------------------|
| GOT-C-TS | GOT-C-Tension Sub |
| CTT-CL | Casing Collar Locator |
| CTT-E | Electronics Assembly |
| CTT-C1 | Centralizer-1 |
| CTT-A | Actuator Assembly |
| CTT-T | Tractor Assembly |
| CTT-C2 | Centralizer-2 |

Specifications

| | |
|-------------------------|----------------------------------|
| Maximum Temperature | 300°F (150°C) for 3 hours |
| Maximum Pressure | 15,000 psi (103.4 MPa) |
| Make-up Length | 24 ft.-3.34 in. (7.4 m) |
| Weight | 188.3 lbs. (85.4 kg) |
| Tool Diameter | 2.125 in. (54 mm) |
| Maximum Tension | 10,000 lbs. (4536 kg) |
| Minimum Hole Diameter | 3 in. (76 mm) |
| Maximum Hole Diameter | 9 in. (228.6 mm) |
| Maximum Creeping Speed | 30 ft./min (9.1 m/min) |
| Power Requirements: | |
| Operating Voltage | 60-660 Vdc |
| Operating Current | 30-2000 mA (Limited by the load) |
| Maximum Continuous Load | 600 lbs. (273 kg) |
| End Connectors Top | GO Female connection |
| End Connectors Bottom | GO Male connection |



Applications

- Measure well trajectory inside the drill pipe, casing, tubing and openhole.
- Measure orientation & trajectory while drilling
- Measure orientation for sidetracking whipstock tool and directional perforation
- Measure directional parameters under magnetic interference conditions (such as cluster wells).

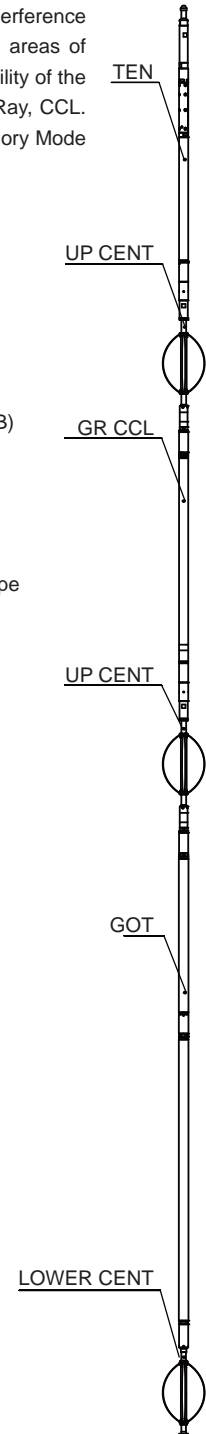


Introduction

Gyroscope Orientation Tool provides accurate and free magnetic interference directional survey in drill pipe, cased holes and production tubing, or in areas of magnetic interference. The GOT also can be run into drill pipes. The flexibility of the design allows the combination with additional services such as Gamma Ray, CCL. Also for direction perforating. GOT-C provides two operating modes: Memory Mode and Real-Time Mode.

Specifications

| | |
|-----------------------------|--------------------------------|
| Maximum Temperature | 350°F (175°C) for 4 hours |
| Maximum Pressure | 15,000 psi (103.4 MPa) |
| Make-up Length | 31 ft. (9.48 m) (without SKB) |
| Weight | 134 lbs. (61 kg) (without SKB) |
| Tool Diameter | 2.25 in. (57 mm) |
| Maximum Hole Diameter | 12.0 in. (305 mm) |
| Maximum Logging Speed | 100 ft./min (30 m/min) |
| Orientation Sensor | Dynamically Tuned Gyroscope |
| Power Requirements: | |
| Operating Voltage & Current | 200 Vac, 75 mA |
| Maximum Tensile Force | 14000 lbs. (6350 kg) |
| Sensor Accuracy | |
| Measurement Range | |
| Inclination | 0°~± 90° |
| Azimuth | 0°~360° |
| Gravity High Angle | 0°~360° |
| Gyro High Angle | 0°~360° |
| Measurement Accuracy | |
| Inclination | ≤ ± 0.15° |
| Azimuth | ≤ ± 2° (Deviation > 1°) |
| Gravity High Angle | ≤ ± 1.5° |
| Gyro High Angle | ≤ ± 2.0° |
| Wireline Requirements | |
| | Mono-Conductor |
| | Slick Line |





Applications

- Indicator the free point in the drill pipe/ tubing/ casing



Introduction

The FPI-D uses two sensors, a stretch sensor and a torque sensor to accurately determine the free point in stuck drill pipe, drill collars, tubing or casing. Within the elastic range of the pipe material, the free section of the pipe would deform linearly when the pipes are subjected to a pull or torsion. The FPI-D measures the stretch and torque over a fixed distance and calculates the amount of free pipe according to what the theoretical deformation should be.

Specifications

| | |
|-------------------------------------|---|
| Maximum Temperature | 300°F (150°C) |
| Maximum Pressure | 20,000 psi (137.9 MPa) |
| Make-up Length | 10 ft. - 2.05 in. (3.1 m) |
| Shipping Length | 11 ft. - 3.04 in. (3.43 m) |
| Weight | 31.97 lbs. (14.5 kg) |
| Tool Diameter | 1.375 in. (35 mm) |
| Minimum Hole Diameter | 1.75 in. (44.5 mm) |
| Maximum Logging Speed | 49.21 ft./min (15 m/min) |
| Motor Set Time | 56-70 sec |
| Anchoring Capabilities | 1.5 to 5 in. |
| Maximum Hole Deviation | 90 deg |
| Communications Speed | 1200 bps |
| Stretch Range | -1.5 mm to 1.5 mm |
| Torque Range | -9° to 9° |
| Accuracy | +/- 10% |
| Distance Between Arms (upper/lower) | 1.854 m |
| Power Requirements: | |
| Operating Voltage | 70 to 100 Vdc (CHV) |
| Operating Current | 60 mA (without motor current) 60 to 150 mA (one motor plus tool power) -120 to -300 mA (two motors closing) |
| Wireline Requirements | Single Conductor Cable |
| Curves Recorded | CCL/torque/stretch Variable Frequency |

SINK BAR

CCL

UA

SS

Sensor

LA



Applications

- Indicator the free point in the drill pipe/ tubing/ casing



Introduction

The Free Point Indicator Tool (FPI) uses a stretch and a torque sensor to accurately determine the free point in stuck drill pipe, drill collars, tubing or casing. Within the elastic range of the pipe material, the free section of the pipe would deform linearly when the pipes are subjected to a pull or torsion. The FPI measures the stretch and torque over a fixed distance and calculates the amount of free pipe according to what the theoretical deformation should be.

Specifications

| | |
|---|--|
| Maximum Temperature | 350°F (175°C) |
| Maximum Pressure | 20,000 psi (137.9 MPa) |
| Make-up Length | 10 ft.-11.1 in. (3.33 m) |
| Shipping Length | 12 ft.-7.57 in. (3.85 m) |
| Weight | 42.55 lbs. (19.3 kg) |
| Tool Diameter | 1.375 in. (35 mm) |
| Minimum Hole Diameter | 1.75 in. (44.5 mm) |
| Maximum Hole Diameter | 13.375 in. (339.7 mm) |
| Maximum Logging Speed | 60 ft./min (18.3 m/min) |
| Recommended logging speed (CCL) | 30-40 ft./min (9.1 m/min) |
| Motor Set Time | 45-70 sec |
| Anchoring capabilities | 1.5 to 5 in. |
| Maximum hole deviation | 90 deg |
| Curves Recorded | CCL/torque/stretch Variable |
| Output Signal | Frequency |
| Power Requirements: | Signal 1.0 Volt Peak to Peak |
| Operating Voltage | Upper Motor: 100-110 Vdc (CHV) Lower Motor: 40-50 Vdc (CHV) |
| Measure Point: | |
| Sub Bottom to CCL coil Center | 9 ft.-6.14 in. (2.899 m) |
| Upper leg Mount Center to lower Leg Mount Center. | |
| | 3 ft.-4.68 in. (1.300 m) |
| Sensor Section | 27.625 in. (0.701 m) |
| Power Requirements: | |
| Operating Voltage | Upper Motor: 100-110 Vdc (CHV) Lower Motor: 40-50 Vdc (CHV) |
| Operating Current | Upper Motor: 200 mA (max) Lower Motor: 150 mA (max) |
| Wireline Requirements | Single Conductor Cable |
| Tool O.D. | 1.375 in. (34.9 mm) |
| Total length (close/open) | 118.5 in.-133.5 in. (301 cm-339.1 cm) |
| Maximum hole I.D. (with standard spring) | 5.5 in. (14 cm) |
| Minimum hole I.D. (with standard spring) | 1.5 in. (38.1 mm) |



Applications

- Stuck releasing, combined with Free-Point Indicator tool.

Introduction

Free Point Indicator String-shot Back-off Tool is a kind of detonation device which can realize positive and negative voltage ignition. The detonating rod is bound with different explosive shells according to different needs. After the free point is determined and a string shot fired to back-off the string in a single run thus saving rig time and the possibility of complication which might arise from making several runs

Specifications

| | |
|---------------------|-----------------------|
| Maximum Temperature | 350°F (175°C) |
| Maximum Pressure | 20000 psi (137.9 MPa) |
| Tool Diameter | 1.44 in. (36.5mm) |
| Make-up Length | 9 ft.-0.8in (2.763m) |
| Shipping Length | 9 ft.-3.8in (2.84m) |
| Weight | 8.14 lbs. (3.7 Kg) |



Applications

- Non-explosive setting of bridge-plugs & through-tubing plugs
- Used in deviated or horizontal well.
- Be widely used in workover, pay zones isolation and other constructions.

Benefits

- Safe and convenience without explosive.
- Hydraulic setting through-tubing plugs in casing or open hole below the tubing string without pulling out tubing, that helps reduce the wellsite costs by saving time.
- Emergency release if needed

Features

- Surface control and obtaining setting curves
- Exact-setting depth by Casing Collar Locator (CCL).
- Composed of setting unit & emergency release unit.

Introduction

Plug-Bridge Setting Tool (PST) sets through-tubing plugs inside casing or open hole below the tubing string without pull out tubing.

The power-motor pumps oil from piston upper to down. The power piston pulls the bridge-plug rod assembly into the PST. When the bridge-plug rod assembly moves upward, the backups of bridge-plug are released by the compressive force. When the bridge-plug is set completely, the release stud breaks and the PST is released for retrieval.

If the plug is stuck or set completely, but the release stud is not broken. Pull the cable out, the PST shall be free when tensile force is 800 lbf maximum for an emergency release.

Specifications

| | |
|-----------------------------|---|
| Maximum Temperature | 350°F (175°C) |
| Maximum Pressure | 20000 psi (137.9 MPa) |
| Tool Diameter | 2-1/8 in. (54 mm) |
| Minimum Restriction | 2.18 in. (55.4 mm) |
| Make-up Length | 24 ft.-4.25 in. (7.42 m) |
| Shipping Length | 24 ft.-5.63 in. (7.46 m) |
| Weight | 97 lbs. (44 kg) |
| Maximum Logging Speed | 50 ft./min (16.7 m/min) |
| Maximum Force Tool Output | 10000 lbs. (4535 kgf) |
| Setting Hole Size | 4-1/2 to 7-5/8 in. casing |
| Plug setting time | 25 to 60 min. Affected by the plug size and temperature |
| Oil | Univis HVI 26 (recommended) |
| Service | H ₂ S resistant (less than 2%). |
| Operation | Emergency Release 800 lbf. pull maximum at logging cable head |
| Power Requirements | |
| Operating Voltage & Current | 0-500 Vdc adjustable, 1 A |
| Wireline Requirements | Single Conductor Cable |





Applications

- Thru-tubing sets inside casing
- Temporarily zonal isolation
- Set in well filled with mud or gas.

Benefits

- Reduce rig time, storage requirements, and transportation costs
- Offer more options in one tool

Features

- No need wellbore fluids
- Straight-pull released
- Larger seal area and greater anchoring capabilities.

Introduction

Through Tubing Retrievable Plug Setting is d-designed to be deployed within the casing below the tubing string without remove the tubing. This plug can be run into the well by slickline, wireline or coiled tubing. It serves as an ideal tool for a variety of operations including: testing, treatment, cementing, production and other zonal isolation applications.

The plug utilizes a Hydraulic Plug Setting Tool (PST) to be set, which features a downhole pump that inflates the plug element with fluids stored in internal chambers. This design allows the plug to be effectively used in wells filled with either mud or gas.

Once all work is completed the plug can be easily released by straight-pull and retrieved.



Specifications

| Casing Size | Element O.D. | 1.690 in. | 2.130 in. | 2.500 in. | 3.000 in. | 3.380 in. | 4.250 in. | 5.380 in. | 5.750 in. | | | | | | | | | | |
|-------------|------------------------|---|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|----------------------|------------------|
| | | (42.9 mm) | (54.1 mm) | (63.5 mm) | (76.2 mm) | (85.9 mm) | (108 mm) | (136.7 mm) | (146.1 mm) | | | | | | | | | | |
| | | Maximum Applied Differential Pressure / Maximum Temperature | | | | | | | | | | | | | | | | | |
| 2.375 in. | 1.995 in. (51 mm) | 5500 psi (38 MPa) | 300°F (150°C) | | | | | | | | | | | | | | | | |
| 2.875 in. | 2.441 in. (62 mm) | 5500 psi (38 MPa) | 300°F (150°C) | 6000 psi (41 MPa) | 300°F (150°C) | | | | | | | | | | | | | | |
| 3.500 in. | 2.992 in. (76 mm) | 4600 psi (32 MPa) | 300°F (150°C) | 6000 psi (41 MPa) | 300°F (150°C) | 6500 psi (45 MPa) | 300°F (150°C) | | | | | | | | | | | | |
| 4.000 in. | 3.548 in. (90 mm) | 3200 psi (22 MPa) | 300°F (150°C) | 5500 psi (38 MPa) | 300°F (150°C) | 6500 psi (45 MPa) | 300°F (150°C) | 8000 psi (55 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | | | | | | | | |
| 4.500 in. | 3.958 in. (101 mm) | 2600 psi (18 MPa) | 300°F (150°C) | 4300 psi (30 MPa) | 300°F (150°C) | 6300 psi (43 MPa) | 300°F (150°C) | 8000 psi (55 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | | | | | | | | |
| 5.000 in. | 4.276 in. (109 mm) | 2200 psi (15 MPa) | 250°F (120°C) | 3600 psi (25 MPa) | 300°F (150°C) | 5500 psi (38 MPa) | 300°F (150°C) | 8000 psi (55 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | | | | | | | | |
| 5.500 in. | 4.892 in. (124 mm) | 1700 psi (12 MPa) | 250°F (120°C) | 2600 psi (18 MPa) | 300°F (150°C) | 4200 psi (29 MPa) | 300°F (150°C) | 8000 psi (55 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | | | | | | |
| 6.625 in. | 5.921 in. (150 mm) | | | 1600 psi (11 MPa) | 280°F (138°C) | 2500 psi (17 MPa) | 300°F (150°C) | 4900 psi (34 MPa) | 300°F (150°C) | 6500 psi (45 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) |
| 7.000 in. | 6.094 in. (155 mm) | | | 1500 psi (10 MPa) | 280°F (138°C) | 2300 psi (16 MPa) | 280°F (138°C) | 4550 psi (31 MPa) | 300°F (150°C) | 6200 psi (43 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) |
| 7.625 in. | 6.765 in. (172 mm) | | | 1000 psi (7 MPa) | 280°F (138°C) | 1800 psi (12 MPa) | 280°F (138°C) | 3400 psi (23 MPa) | 280°F (138°C) | 4900 psi (34 MPa) | 300°F (150°C) | 6550 psi (45 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) |
| 8.625 in. | 7.511 in. (191 mm) | | | | | 1550 psi (11 MPa) | 260°F (127°C) | 2500 psi (17 MPa) | 260°F (127°C) | 3700 psi (26 MPa) | 280°F (138°C) | 4900 psi (34 MPa) | 280°F (138°C) | 8100 psi (56 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) | 8500 psi (59 MPa) | 300°F (150°C) |
| 9.625 in. | 8.681 in. (221 mm) | | | | | 1300 psi (9 MPa) | 240°F (116°C) | 1600 psi (11 MPa) | 240°F (116°C) | 2450 psi (17 MPa) | 280°F (138°C) | 3300 psi (23 MPa) | 280°F (138°C) | 5950 psi (41 MPa) | 300°F (150°C) | 6850 psi (47 MPa) | 300°F (150°C) | 6850 psi (47 MPa) | 300°F (150°C) |
| 10.750 in. | 9.760 in. (248 mm) | | | | | | | | | 1700 psi (12 MPa) | 275°F (135°C) | 2350 psi (16 MPa) | 280°F (138°C) | 4700 psi (32 MPa) | 280°F (138°C) | 5350 psi (37 MPa) | 280°F (138°C) | 5350 psi (37 MPa) | 280°F (138°C) |
| 11.750 in. | 10.772 in. (274 mm) | | | | | | | | | | | | | 3800 psi (26 MPa) | 280°F (138°C) | 4350 psi (30 MPa) | 280°F (138°C) | 4350 psi (30 MPa) | 280°F (138°C) |
| 13.375 in. | 12.415 in. (315 mm) | | | | | | | | | | | | | 2850 psi (20 MPa) | 260°F (127°C) | 3200 psi (22 MPa) | 260°F (127°C) | 3200 psi (22 MPa) | 260°F (127°C) |



Applications

TBP abandons permanently an uneconomical horizon by Plug-Bridge Setting Tool (PST) and it is widely used in workover, pay zones isolation and other constructions:

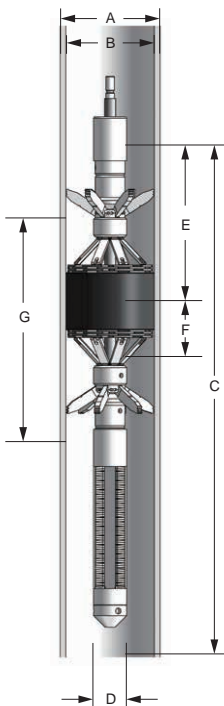
- Between zones, lower zone is producing water
- In perforations, the bottom part of a zone is producing water
- In sand screens, the plug serves as a diverter for sand/gravel consolidation via resins.
- In open hole, the plug differential rating is now a function of formation integrity.

Benefits

- Anchors center plug & tool even in horizontal wells
- Increase production by old well renovation
- No derrick and continuous plug operation resulting within one-day, reduce the wellsite costs by saving time.

Features

- Through-tubing and drillable plug
- Big elements ratio 3:1, strong metal seal support and rugged anchors



Introduction

TBP and capping with cement can be a continuous plug operation resulting within one-day. The plug is set in casing by compressing the seal elements causing expansion as the strong metal seal support and rugged anchors deploy. The compression is set with a long-stroke wireline Plug-Bridge Setting Tool (PST), and released after shearing a 10,000-lbf tension stud. The plug can withstand pressure differential across the plug has been increased to 1000 psi or more in both directions. The drillable plug with a standard casing collar locator is used for depth control.

Specifications

| Casing Size-A | 4-1/2 in. | 5 in. | 5-1/2 in. | 7 in. | 7 5/8 in. |
|--------------------------------|---|--|--|--|---|
| Casing I.D Range-B | 3.5 in. (88.9 mm) to 4.02 in. (102.11 mm) | 4.0 in. (101.6 mm) to 4.52 in. (114.81 mm) | 4.5 in. (114.3 mm) to 5.02 in. (127.51 mm) | 6.33 in. (160.78 mm) to 6.53 in. (165.86 mm) | 6.50 in. (165.1 mm) to 7.02 in. (178.31 mm) |
| Maximum Temperature | 340°F (171°C) | | | | |
| Running O.D.-D | 1-11/16 in. (42.86 mm) | | | 2-1/8 in. (53.975 mm) | |
| Minimum Restriction | 1.77 in. (44.96 mm) | | | 2.18 in. (55.37 mm) | |
| Distance Tool Bottom to Seal-E | 8.1 in. (205.74 mm) | | | 23.5 in. (596.9 mm) | 22 in. (558.8 mm) |
| Seal Length-F | 2.7 in. (68.58 mm) | 2.5 in. (63.5 mm) | 9 in. (228.6 mm) | 4.3 in. (109.22 mm) | 4.1 in. (104.14 mm) |
| Setting Tool | PST | | | | |
| Set in Perforations | Yes | | | | |
| Set in Screen | Yes | | | | |
| Cement Recommended | Yes | | | | |
| Set in Cross Flow | Yes | Yes | Up only | Yes | Yes |
| Set in Open Hole | Yes | Yes | Up only | Yes | Yes |
| Pressure Difference | 1000 psi (6.89 MPa) | 1000 psi (6.89 MPa) | 500 psi (3.45 MPa) | 1500 psi (10.34 MPa) | 1000 psi (6.89 MPa) |
| Anchor Slip Force | 25000 lbf. (11340 kgf) | 25000 lbf. (11340 kgf) | 25000 lbf. (11340 kgf) | 50000 lbf. (22680 kgf) | 50000 lbf. (22680 kgf) |
| Assemble Length | 90 in. (2286 mm) | 90 in. (2286 mm) | 130 in. (3302 mm) | 123 in. (3124.2 mm) | 126 in. (3200.4 mm) |
| Weight | 28 lbs. (12.70 kg) | 29 lbs. (13.15 kg) | 37 lbs. (16.78 kg) | 54 lbs. (24.49 kg) | 56 lbs. (25.40 kg) |
| Set Length-C | 39 in. (990.6 mm) | 39 in. (990.6 mm) | 31 in. (787.4 mm) | 49.8 in. (1264.92 mm) | 47.6 in. (1209.04 mm) |
| Anchor to Anchor-G | 11 in. (279.4 mm) | 11 in. (279.4 mm) | 14.5 in. (368.3 mm) | 23.5 in. (596.9 mm) | 22 in. (558.8 mm) |
| Setting Time (approx.) | 20 min | 20 min | 60 min | 60 min | 60 min |



Applications

- Tubing bridge plug setting
- Be widely used in workover, pay zones isolation and other constructions.

Benefits

- Safe and convenience without explosive.
- Battery power conveyed and hydraulic setting.
- Emergency release if needed.

Features

- Non-explosive , no wireline system setting permanent plugs and retrievable plug.
- Use battery power conveyed by slickline and work with lubricator BOP

Introduction

Hydraulic Plug Setting Tool (PST-5) sets bridge-plug 2-3/8 in, 2-7/8 in. with slickline or E-line.

When the bridge-plug rod assembly moves upward, the bridge-plug set by the compressive force. When bridge-plug is set completely, the weakpoint breaks and the PST-5 is released retrieval.

If the plug is stuck or set completely but the weakpoint is not broken, the PST-5 shall be free when tensile force is 800 lbf maximum for an emergency release while pulling the slickline up.

Use battery power conveyed by slickline the short length of PST-5 can be deployed in lubricator with conventional or retrievable plug.

Specifications

| | | |
|------------------------------|--|---------------|
| Maximum Temperature | Rechargeable battery | 257°F (125°C) |
| | Non-rechargeable battery | 300°F (150°C) |
| Maximum Pressure | 15,000 psi (103 MPa) | |
| Tool Diameter | 1-11/16 in. (43 mm) | |
| Length | 13.77 ft. (4.2 m) | |
| Weight | 132 lbs. (60 kg) | |
| Upper Connection (Slickline) | 15/16 in.-10 UNS | |
| Lower Connection | As Size 5, Baker E4 | |
| Maximum Setting Force | 10,000 lbs. (4,535 kg) | |
| Maximum Stroke Length | 7 in. (177.8 mm) | |
| Setting Hole Size | 2-3/8 in. / 2-7/8 in. (60.3 mm / 73.0 mm) Tubing | |
| Plug setting time | 5 to 10 min. | |
| | Affected by the plug size and temperature | |
| Operation | Emergency Release-800-lbf. pull | |



* Wireline type PST-5 is also available as per client requirement. (With special surface panel system)



Wireline Hydraulic Plug-Bridge Setting Tool *Geo-Vista* (PST-20) Memory Hydraulic Plug-Bridge Setting Tool (PST-20M)

Applications

- Non-explosive setting of packers, plugs and cement retainers normally conveyed with electric line.
- Released of retrievable plugs or packers
- Mechanically punching holes or tubing patches.
- Connected to a wireline tractor (DHT) conveyance for deep water and /or high-angle well interventions.
- Be widely used in workover, pay zones isolation and other constructions.

Benefits

- Non-explosive operation improves safe and reliability.
- Uses the advantage of the fast running capability of wireline and helps reduce the well site costs by saving time.
- Safe and convenience without explosive.
- Battery power conveyed and hydraulic setting. (PST-20M)

Features

- Offers large setting force
- Combine with packers, cement retainers and plugs of different OD.
- Exact-setting depth in conjunction with a casing collar locator.
- Surface control and obtaining some setting or releasing curves.
- Non-explosive , no wireline system setting permanent plugs and retrievable plug. (PST-20M)
- Use battery power conveyed by slickline and work with lubricator BOP. (PST-20M)



Bridge-Plug

Introduction

PST-20 and PST-20M are superior performance, non-explosive hydraulic plug setting tool which can be conveyed by wireline or slickline. The tool features a long setting stroke and high setting force, providing high reliability and quality assurance when setting or retrieving downhole containment equipment such as packers, cement retainers and bridge plugs. The instrument is connected to the packer via the usual adapter kit. When the bridge plug or packer is confirmed to be lowered to the design position via the CCL (wireline mode), the motor-pump is activated for setting and when the setting force is reached, the Plug-Bridge Setting tool is separated from the downhole packer and then retrieved to the surface.

At the wellsite, the tool can be quickly reset ready for another run.

PST-20M is no wireline system, battery power and conveyed by slickline, and can be deployed in lubricator with conventional or retrievable plug.

Specifications

PST-20/PST-20M

| | | | |
|---------------------|---------------------------|--------------------|------------------------|
| Maximum Temperature | 350°F (177°C) | O.D. | 3-1/2 in. (89 mm) |
| Maximum Pressure | 20,000 psi (137.9 MPa) | Stage | Dual |
| Length | 10.8 ft. (3.3 m) wireline | Stroke Length | 13 in. (330 mm) |
| | 13.8 ft. (4.2 m) memory | Set/Retrieve Force | 70,000 lbf. (316.4 kN) |
| Weight | 190 lbs. (86 kg) | | |

Wireline Retrievable Bridge-Plugs

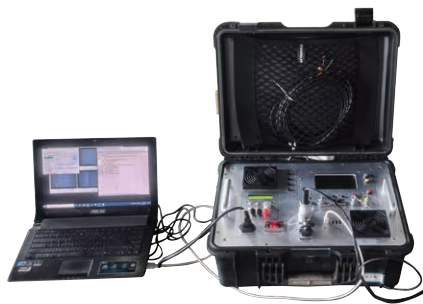
| Casing O.D. | Casing Weight | Operating Casing I.D. | | Bridge-Plug O.D. | Release Strength |
|-------------|--|--------------------------|--------------------------|--------------------------|---------------------------|
| | | Minimum | Maximum | | |
| 5 in. | 15-18 lbs./ft. (22.32-26.79 kg/m) | 4.276 in. (108.61 mm) | 4.408 in. (111.96 mm) | 4.125 in. (104.78 mm) | 30,000 lbs. (13608 kg) |
| | 20-23 lbs./ft. (29.76-34.23 kg/m) | 4.67 in. (118.62 mm) | 4.778 in. (121.36 mm) | 4.5 in. (114.3 mm) | |
| 5-1/2 in. | 15.5-20 lbs./ft. (23.07-29.76 kg/m) | 4.778 in. (121.36 mm) | 4.95 in. (125.73 mm) | 4.641 in. (117.88mm) | 30,000 lbs. (13608 kg) |
| | 13-15.5 lbs./ft. (19.35-23.07 kg/m) | 4.95 in. (125.73 mm) | 5.044 in. (128.12 mm) | 4.781 in. (121.44 mm) | |
| | 24-32 lbs./ft. (2.91-47.62 kg/m) | 5.675 in. (144.15 mm) | 5.921 in. (150.39 mm) | 5.5 in. (139.7 mm) | |
| 6-5/8 in. | 32-35 lbs./ft. (47.62-52.09 kg/m) | 6.004 in. (152.50 mm) | 6.094 in. (154.79 mm) | 5.812 in. (147.63 mm) | 55,000 lbs. (24948 kg) |
| | 26-29 lbs./ft. (38.69-43.16 kg/m) | 6.184 in. (157.07 mm) | 6.276 in. (159.41 mm) | 5.968 in. (151.59 mm) | |
| | 23-26 lbs./ft. (34.23-38.69 kg/m) | 6.276 in. (159.41 mm) | 6.366 in. (161.70 mm) | 6.078 in. (154.38 mm) | |
| 7 in. | 17-20 lbs./ft. (25.30-29.76 kg/m) | 6.456 in. (163.98 mm) | 6.538 in. (166.07 mm) | 6.266 in. (159.16 mm) | 55,000 lbs. (24948 kg) |
| | 33.7-39 lbs./ft. (50.15-58.04 kg/m) | 6.625 in. (168.28 mm) | 6.765 in. (171.83 mm) | 6.453 in. (163.91 mm) | |
| | 24-29.7 lbs./ft. (2.91-44.20 kg/m) | 6.875 in. (174.63 mm) | 7.025 in. (178.44 mm) | 6.672 in. (169.47 mm) | |
| 8-5/8 in. | 32-40 lbs./ft. (47.62-59.53 kg/m) | 7.725 in. (196.22 mm) | 7.921 in. (201.09 mm) | 7.531 in. (191.29 mm) | 55,000 lbs. (24948 kg) |
| | 40-47 lbs./ft. (59.53-69.94 kg/m) | 8.681 in. (220.50 mm) | 8.835 in. (224.41 mm) | 8.437 in. (214.30 mm) | |
| 9-5/8 in. | 47-53.5 lbs./ft. (69.94-79.62 kg/m) | 8.535 in. (216.79 mm) | 8.681 in. (220.50 mm) | 8.218 in. (208.73 mm) | 55,000 lbs. (24948 kg) |
| | | | | | |



PST-20

Applications

- Downhole Fluid Identification (Gas, Water, Oil etc.)
- Fishing operations
- Perforation inspection
- General problem identification



Introduction

The DHC tool has two operating modes: Memory and Real-Time. The Memory mode can record downhole videos, and the media files can be played back on the surface. The Real-Time mode allows for real-time viewing of downhole conditions. With high-efficiency LEDs and the latest image sensing technology, the tool ensures the highest probability of quality pictures, providing high-resolution images that eliminate guesswork from a range of diagnostic tests and troubleshooting operations.

Downhole Tool String

| | |
|-----------------|-------------------------------|
| DHC-FV | Front Video Assembly |
| DHC-SV | Side Video Assembly |
| DHC-ME | Memory Electronic Assembly |
| DHC-RE | Real-Time Electronic Assembly |
| DHC Battery Sub | Battery Assembly |
| DHC-SC | Slipover Centralizer |

Specifications

| | |
|---------------------------|---------------------------------|
| Maximum Temperature | 300°F (150°C) |
| Maximum Pressure | 10,000 psi (70 MPa) |
| Make-up Length | 13 ft.-8.39 in. (4.18 m) |
| Weight | 94.14 lbs. (42.7 kg) |
| Tool Diameter | 2.125 in. (54 mm) |
| Minimum Hole Diameter | 2.44 in. (62 mm) I.D. |
| Maximum Hole Diameter | 10 in. (25.4 cm) (centralizer) |
| Recommended Logging Speed | 16.4 ft./min (5 m/min) |
| Resolution Ratio | 16 million pixels |
| Frame Rate | 1080 p: 60 fps |
| Front Camera Angle | 60° |
| Side Camera Angle | 45° (3-8 cameras) |
| Memory | 128 GB / Camera |
| Power Requirements | Real-Time 220 Vac |
| | Memory Battery 18 cells |
| | 57.6 Vdc (Nominal) |
| | 44-59 Vdc (Range) |
| Wireline Requirements | Real-Time 7-Conductor |
| | Mono-Conductor |
| | Memory Slick Line |
| | Coiled Tubing |

Note: Every camera with microphone.



Applications

- Difficult or controlled pipe recovery situations
- Precise cuts

Benifits

- Saves time and rig costs
- Prevents damage to outer strings
- Reduces logistical and environmental risks
- Cutting multiple materials

Features

- Transports easily
- Operates at higher temperatures than chemical cutters
- Controlled by real-time

Introduction

MDC is designed to cleanly cut downhole tubulars without using dangerously corrosive chemicals or explosives. The tool has a rotating cutting head with retractable anchor arms that will cut the pipe. It uses a saw blade mechanically cut the drill pipe, tubing and casing.

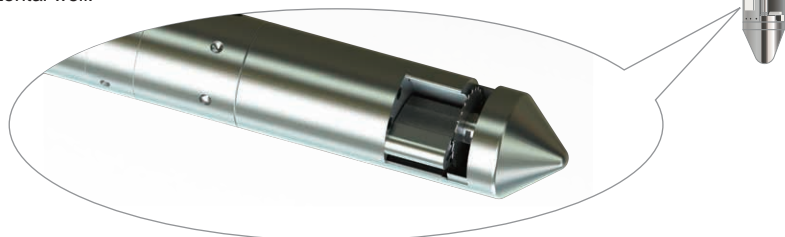
Downhole data is transmitted to surface via the wireline to enable the engineer to control the cutting operation. It is an efficient and safe cutting tool.

MDC can cutting different grades of steel or alloys, such as J55, N80, L80 P110 ,G105 and so on.

Specifications

| | |
|---------------------------|---|
| Maximum Temperature | 300°F (150°C) 350°F (177°C) (Optional) |
| Maximum Pressure | 15,000 psi (103 MPa) 20,000 psi (140 MPa) (Optional) |
| Tool Diameter | 2-1/8 in. (54 mm) 2-1/2 in. (64 mm) 3-1/4 in. (82.5 mm) |
| Make-up Length | |
| Electronic Section | 4.95 ft. (1.5 m) |
| Mandrel Section | |
| 2-1/8 in. (54 mm) tool | 8.86 ft. (2.7 m) |
| 2-1/2 in. (64 mm) tool | 8.86 ft. (2.7 m) |
| 3-1/4 in. (83 mm) tool | 9.35 ft. (2.8 m) |
| Cutting Pipe O.D. | |
| 2-1/8 in. (54 mm) tool | 2-7/8 in. (73 mm) to 7 in. (178 mm) pipe cuts 2-7/8 in. (73 mm) to 4 in. (102 mm) pipe |
| 2-1/2 in. (64 mm) tool | cuts 4 in. (102 mm) to 4-1/2 in. (114 mm) pipe |
| 3-1/4 in. (83 mm) tool | cuts 4 in. (102 mm) to 7 in. (178 mm) pipe |
| Maximum Cutting Thickness | |
| 2-1/8 in. (54 mm) tool | 0.5 in. (12.7 mm) |
| 2-1/2 in. (64 mm) tool | 0.68 in. (17.3 mm) |
| 3-1/4 in. (83 mm) tool | 0.75 in. (19.1 mm) |
| Maximum Tensile Force | 22,100 lbs. (10,000 kg) |
| Cuts Pipe Types | Steel & Alloy (chrome) Pipe |
| Wireline Requirements | Single or Multi-Conductor Cable |
| Power Requirements | |
| Operating Voltages | 60 Vdc - 600 Vdc at cablehead |
| Current | 30 mA-2000 mA |
| Borehole Deviation | Vertical to Horizontal |

*Combinable with Downhole Casing & Tubing Tractor (CTT) in high deviation or horizontal well.



Applications

- Identify the sources of sand production
- Understand sand production dynamics
- Better reservoir management decisions by eliminating sand production problem
- Improve well performance and extend productive life

Features

- Record in memory way

Introduction

USD is designed for diagnostic studies of wells. Autonomous memory instrument is equipped with a highly sensitive ultra sound sensor. The sand coming out of the formation generates noise at ultrasonic frequencies. The device counts the number of sand particles. The device counts the number of sand particles by calculating the frequency and amplitude response of the ultrasound signal. It deletes the noise of leakage of liquid and gas. Delete all sounds caused by mechanical shocks. The tool for the qualitative analysis of the sand and can delete background noise caused by liquid or gas leaks and mechanical shock of the moving tool.

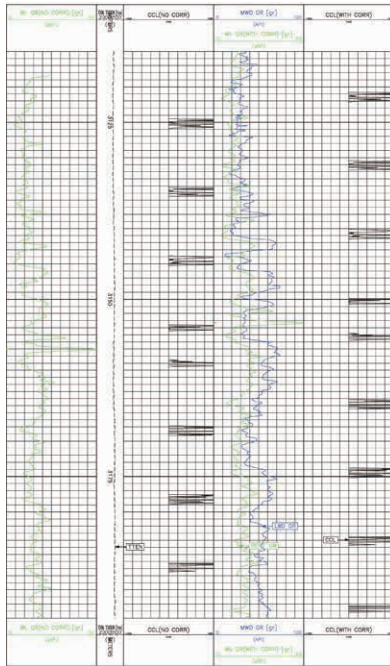


Specifications

| | |
|-----------------------------|-------------------------|
| Maximum Temperature | 302°F (150°C) |
| Maximum Pressure | 15,000 psi (103 MPa) |
| Tool Diameter | 1.69 in. (43 mm) |
| Length | 2.6 ft. (0.8 m) |
| Weight | 8.8 lbs. (4.0 kg) |
| Sensor Dynamic Range | 90 dB |
| Sensor Operating Freq Range | < 300 kHz |
| Sensor Operation Mode | Stationary / Continuous |
| Sensor Nb Spectral Channels | 1024 (512 + 512) |
| Memory | |
| Capacity | 8 GB |
| Sampling | 0.5 to 255 sec |

Applications

- Depth measurement by CCL and Gamma Ray for perforating operation



Introduction

The SGR-1 is used with wire line perforating guns when very accurate depth control is required. The Gamma/CCL tool is physically attached to the top of a perforating gun after taking the measurement of distance from the ccl to the Gamma Ray measure point and the distance to the top shot in the gun. The assembly is then run into the well. After proper depth has been verified, the Gamma/Gun assembly is positioned opposite the zone to be perforated, and the gun may be fired with the Gamma Ray tool still on the line. Safety is achieved by normally powering the tool on a positive current and then switching to a negative current to fire the gun. A special safety firing circuit prevents the gun from being fired with the Positive polarity current. Different models of the tool may feature either a Scintillation detector or a Geiger Mueller detector with a special shock mounting designed to withstand the blast and shock of the perforator.

Specifications

| | |
|--|--|
| Maximum Temperature | 350°F (175°C) for 20 hours |
| Maximum Pressure | 18,000 Psi (124 MPa) |
| Tool Diameter | 1.69 in. (43 mm) |
| Minimum Hole Diameter | 2.5 in. (63.5 mm) |
| Make-up Length | 7 ft.-9.94 in. (2.386 m) |
| Shipping Length | 8 ft.-9.75 in. (2.686 m) |
| Weight | 42 lbs. (19.1 kg) |
| Recommended Logging Speed | 20 ft./min (6 m/min) |
| Maximum Logging Speed | 30 ft./min (9 m/min) |
| Curves Recorded | Gamma Ray |
| Sensitivity Approximately | 1.3 counts/API unit |
| Operating Voltage / Current | 85 Vdc at 45 mA at cable head |
| Detector Type | 0.84 in. X 6 in. Scintillation |
| Cable Type | Single Conductor |
| Accuracy | Uncalibrated correlation device only |
| Stability | +/-15% of count rate over full temperature range |
| Shock | >1000 g |
| Depth of Investigation | 12.0 in. (304.8 mm) estimated for a 7.88 in. (200.2 mm) water-filled borehole |
| Vertical Resolution | 8.00 in. (203.2mm) given proper formation contrast |
| Measure Point (GR) | 18 in. (457.2 mm) from bottom sub |
| Measure Point (CCL) | 60 in. (1524 mm) from bottom sub |
| Line Utilization | GR & CCL: 1 & Armor |
| H2S Qualified | No |
| Measure Point: | |
| Shock Sub Bottom to GR Detector Center | 2 ft.-11.92 in. (0.912 m) |
| Shock Sub Bottom to CCL Coil Center | 6 ft.-6.72 in. (2.000 m) |
| GR Detector Center to CCL Coil Center | 3 ft.-6.84 in. (1.088 m) |

CCL

GR

Shock Sub





Applications

- Conveyed downhole tools in high deviated, horizontal or hostile well by tubing or drilling pipe.
- High temperature, high pressure, high conductivity mud and high voltage.
- Simply structure and design for easy operation at wellsite.
- No need vacuum pump and circulation system.



Introduction

Pipe Conveyed Logging Tool is used to convey logging tools under deviation and horizontal well conditions, such as high temperature, high pressure, high conductivity mud of downhole to achieve the docking cable and instruments. PCL-H can remain unchanged in the conventional logging projects. The premise and guarantee the quality of measurement tasks to complete, it can be coring, repeat formation test, dip logging, perforating and so on. Using this system can not only measured by conventional logging the best information, but can also be micro-resistivity scanning operations. During the logging operation, can measure all standard measurements, with significant economic benefits.

Specifications

Maximum Temperature 400°F (200°C)
 Maximum Pressure 25000 psi (172.4 MPa)
 Plug Diameter 1.5 in. (38 mm)
 Contact Resistance <0.1 ohm
 Insulation Resistance >200 M ohm
 Max. Latch Deviation 90°
 Docking Locking Power 1000 lbs.-1200 lbs.



7-conductor Quick Change Assembly (PCL-H-QC)
 Tool Diameter 3.54 in. (90 mm)
 Shipping Length 3 ft.-7.44 in. (1.1 m)
 Weight 46.2 lbs. (21 kg)

7-conductor Socket Assembly (PCL-H-SA)
 Tool Diameter 1.57 in. (40 mm)
 Shipping Length 6.12 in. (0.15 m)
 Weight 1.1 lbs. (0.5 kg)

Pump-down Head Assembly (PCL-H-PH)
 Tool Diameter 2.01 in. (51 mm)
 Shipping Length 3 ft.-10.56 in. (1.18 m)
 Weight 16.06 lbs. (7.3 kg)

| | | |
|---------------------------|--------------------------|-------------------------|
| Support Sleeve (PCL-H-SS) | 2.875 in. TBG | 5 in. (NC 50) |
| Tool Diameter | 3.95 in. (101 mm) | 6.5 in. (165 mm) |
| Shipping Length | 4 ft.-10.68 in. (1.49 m) | 5 ft.-3.24 in. (1.61 m) |
| Weight | 149.6 lbs. (68 kg) | 182.6 lbs. (83 kg) |

| | | |
|---------------------------|------------------------|-------------------------|
| Side Entry Sub (PCL-H-SE) | 3.5 in. (NC 38) | 5 in. (NC 50) |
| Tool Diameter | 5 in. (127 mm) | 6.5 in. (165 mm) |
| Shipping Length | 4 ft.-2.4 in. (1.28 m) | 4 ft.-5.28 in. (1.35 m) |
| Weight | 195.8 lbs. (89 kg) | 321.2 lbs. (146 kg) |

Offset Sub (PCL-H-OS)
 Tool Diameter 4.41 in. (112 mm)
 Shipping Length 3 ft.-2.28 in. (0.97 m)
 Weight 63.8 lbs. (29 kg)

Cross Offset Sub (Cross Decentralizer) (PCL-H-XO)
 Tool Diameter 5.51 in. (140 mm)
 Shipping Length 5 ft.-1.08 in. (1.55 m)
 Weight 129.8 lbs. (59 kg)

Sinker Bar (PCL-H-SB)
 Tool Diameter 1.69 in. (43 mm)
 Shipping Length 5 ft.-6.96 in. (1.70 m)
 Weight 26.4 lbs. (12 kg)

Cross Offset Sub (For Slimhole) (PCL-H-XS)
 Tool Diameter 4.69 in. (119 mm)
 Shipping Length 5 ft.-1.08 in. (1.55 m)
 Weight 121.25 lbs. (55 kg)



Applications

- The hole deviation exceeds the limits of the instrument's freefall.
- Difficult hole conditions warrant PCL-B use such as: washouts, ledges, restrictions, excessive dogleg deviation, high hydrostatic pressure.
- The customer simply elects to reduce this uncertainty.

Introduction

The Pipe Conveyed Logging Tool-B (PCL-B) is used to provide assurance that the logging tools will be able to successfully survey the intended interval of the wellbore.

Specifications

| | |
|---|------------------------|
| PCL-B | |
| Maximum Temperature | 350°F (175°C) |
| Maximum Pressure | 20,000 psi (137.9 MPa) |
| PCL-B-IC (3 1/2 IF Connector sub) | |
| Shipping Length | 7 ft. (2.1 m) |
| Weight | 88 lbs. (40 kg) |
| Tool Diameter | 5 in. (127 mm) |
| PCL-B-UC (2 7/8 UPTBG Connector sub) | |
| Shipping Length | 5 ft.-0.8 in. (1.76 m) |
| Weight | 97 lbs. (44 kg) |
| Tool Diameter | 3.5 in. (89 mm) |
| PCL-B-QC (Quick change Assembly) | |
| Shipping Length | 2 ft.-11.4 in. (0.9 m) |
| Weight | 66 lbs. (30 kg) |
| Tool Diameter | 3.38 in. (86 mm) |
| PCL-B-X1 (4 1/2-3 1/2 Crossover schedule) | |
| Shipping Length | 3 ft.-11.2 in. (1.2 m) |
| Weight | 94.8 lbs. (43 kg) |
| Tool Diameter | 6.5 in. (165 mm) |
| PCL-B-X2 (2 7/8-3 1/2 Crossover schedule) | |
| Shipping Length | 2 ft.-5.5 in. (0.75 m) |
| Weight | 61.7 lbs. (28 kg) |
| Tool Diameter | 5 in. (127 mm) |
| PCL-B-FS (Female sub) | |
| Shipping Length | 1 ft.-8.6 in. (0.52 m) |
| Weight | 26.4 lbs. (12 kg) |
| Tool Diameter | 1.4 in. (34 mm) |
| PCL-B-MS (Male sub) | |
| Shipping Length | 1ft.-9.7 in. (0.55 m) |
| Weight | 17.6 lbs. (8 kg) |
| Tool Diameter | 1.4 in. (35 mm) |
| PCL-B-SB (Sinker bar) | |
| Shipping Length | 10 ft. (3.05 m) |
| Weight | 66 lbs. (30 kg) |
| Tool Diameter | 1.65 in. (42 mm) |



Features

- Electrically releasable from the surface.
- Withstands more than the safe working load of the strongest wireline.
- Includes safeguards against accidental release.
- Top section removable for rig up and storage.
- Includes a load cell to determine the downhole wireline tension. This is a crucial feature for the efficient assessment of apparent stuck tools. It is now possible to know the magnitude of the downhole pull and determine whether the wireline or the tool is stuck. A variety of special electrical features maximize the reliability and efficiency of the CHR.
- Tool is equipped with redundant circuitry and conductor utilization: three latching relays switched with separate lines, two heaters, and four conductors powering the heaters.
- Diodes isolate the conductors from the heaters to keep a shorted conductor from disabling a heater.

Applications

- The CHR offers the ability to pull harder than a conventional cable head on stuck tools.
- Releasing the latch produces less shock than breaking a conventional wireline weakpoint.

Introduction

The Cablehead Releasable (CHR) has an electrically activated wireline release system as opposed to the tension activated release system of conventional cable heads. Tension activated heads require a safety factor to avoid premature release of the wireline. This safety factor keeps you from utilizing the full safe load on the wireline when trying to free stuck tools from the borehole. The CHR allows you to utilize this extra tension to free stuck tools. This additional tension has proven very successful at freeing stuck tools and avoiding fishing operations. This extra pull also allows you to safely run heavy tool strings in deep wells. This extra pull also allows you to safely run heavy tool strings in deep wells.

Specifications

DIMENSIONS AND RATINGS

| | |
|---------------------------|--------------------------|
| Max Temp: | 350°F (175°C) |
| Max Press: | 20,000 psi (137,9 MPa) |
| Max OD: | 3.625 in. (92 mm) |
| Min Hole: | 4.5 in. (114 mm) |
| Length: | 6.24 ft. (1.90 m) |
| Weight: | 135 lbs. (61.23 kg) |
| OD of Released Parts | 1.75 in. (4.45 cm) |
| Maximum Tensile Force | 130,000 lbs. (59,000 kg) |
| Maximum Compression Force | 130,000 lbs. (59,000 kg) |
| Torque | 600 lbs.-ft. (815 N-m) |



Applications

- Prevents stuck or lost tool string.
- Provides a short, compact design and doesn't require additional tools to enhance its operation.
- Allows electrical "pass through" to the logging companies' wireline tool string.
- Provides multiple run and activation capability.
- Uses mechanical operation. No time delay issues, or concerns with pressure and temperature.
- Accommodates instant relatching.

Introduction

The Multi-Conductor Extreme Jar (MCE) is a field-proven, cost-effective way to help prevent stuck tool strings and expensive fishing jobs during wireline logging operations.

Precision engineered to operate reliably, the MCE provides instant, unlimited activations, with no waiting periods or time delays. Once line tension exceeds the setting of the jar (indicating a stuck condition), the MCE activates and frees the stuck tool string.

Specifications

| | |
|-------------------------|----------------------------|
| Maximum Temperature | 400°F (200°C) |
| Maximum Pressure | 25,000 psi (172 MPa) |
| Tool Diameter | 3.375 in. (86 mm) |
| Make-up Length (Open) | 13 ft.-5.4 in. (4.1 m) |
| Make-up Length (Closed) | 12 ft.-9.5 in. (3.9 m) |
| Shipping Length | 15 ft.-1.10 in. (4.6 m) |
| Weight | 260 lbs. (118 kg) |
| Maximum Tensile | 210,000 lbs. (95,254.4 kg) |
| Minimum Setting | 1,000 lbs. (453.6 kg) |
| Maximum Setting | 8,000 lbs. (3628.7 kg) |
| Voltage Rating | 1000 V |



Applications

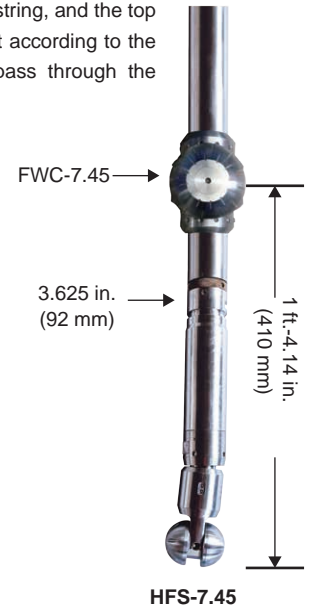
- Open hole and cased hole wireline operations, particularly stationary formation tester operations
- High deviations and horizontal wells using alternative conveyance such as pipe or tractor
- Complex well trajectories wells
- Washed-out and rugose hole profiles

Introduction

The Hole finder Sub (HFS) is flexibly connected to the instrument string, and the top wheel prevents the top from dying on the well wall. It can be bent according to the wellbore trajectory, guiding the instrument string to smoothly pass through the expansion section.

Specifications

| | |
|-----------------------|-------------------------|
| Length | 1 ft.-4.14 in. (410 mm) |
| HFS-7.45: | |
| Tool Diameter | 7.8 in. (198 mm) |
| Minimum Hole Diameter | 8.5 in. (216 mm) |
| HFS-6: | |
| Tool Diameter | 5.79 in. (147 mm) |
| Minimum Hole Diameter | 6 in. (152 mm) |



Applications

- For highly deviated well or horizontal well

Introduction

Flywheels Centralizer Sub is frequently added to a toolstring to eliminate or mitigate the risks that jeopardize safe and fast wireline interventions in modern complex wells.

These devices are clamped on at multiple points along the toolstring body their inclusion reduces the surface area in contact with the wellbore and friction forces acting on the toolstring.

Specifications

FWC-6:

| | |
|-----------------------|---------------------|
| Shipping Length | 8.17 in. (207.5 mm) |
| Weight | 16.75 lbs. (7.6 kg) |
| Tool Diameter | 5.79 in. (147 mm) |
| Minimum Hole Diameter | 6 in. (152 mm) |
| Maximum Hole Diameter | 7.4 in. (188 mm) |



FWC-7.45:

| | |
|-----------------------|---------------------|
| Shipping Length | 8.17 in. (207.5 mm) |
| Weight | 36.1 lbs. (16.4 kg) |
| Tool Diameter | 7.8 in. (198 mm) |
| Minimum Hole Diameter | 8.5 in. (216 mm) |
| Maximum Hole Diameter | 28 in. (711 mm) |





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