Well Intervention & Workover

Product Catalogue

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Archer Well Services is a result of merging Coiled Tubing, Oiltools, and Wireline into one division. Our team consists of more than 800 people globally. We have operations in over 40 countries worldwide, with offices in 13 countries. We offer a wide array of downhole technologies for various phases of the well lifecycle, spanning from Well Construction & Completion, Well Intervention & Workover, Well P&A & Slot Recovery, to Surface, Geothermal, and CCUS applications.

Introduction

Our Experience

Archer is one of the most experienced Well Services contractors in the North Sea having successfully completed over 210 wells Permanent Plug and Abandonment (PP&A) wells. We are one of the leading contractors in delivering integrated P&A solutions and P&A technology offerings. No other company provides as comprehensive an intervention service as we do in Archer.

Our People

Archer's personnel are recognized for their experience, expertise and the personal pride they take in performing their work safely and efficiently. We are constantly in search of new ways to deliver outstanding performance, which starts with selecting the right tools to solve customer challenges.

Our Performance

Our pursuit is to perform to the highest standards in safety, conduct, operations, engineering and service. The desire to succeed, the reliability to deliver on what we promise, and the discipline to be consistent in doing so safely, defines Archer's performance.

Our Product Catalogues

Our product portfolio is structured to support the full well lifecycle, aligned with industry standards. To provide clear focus and ease of navigation, our technologies are presented across four dedicated catalogues:

- Well Construction & Completion
- Well Intervention & Workover
- Well P&A and Slot Recovery
- Surface Solutions

Each catalogue highlights technologies engineered for specific operational objectives and deployed using the most effective conveyance methods, including Drill Pipe, Wireline, Coiled Tubing, and Surface-based systems.

This Catalogue

This catalogue focuses on Well Intervention and Workover solutions designed to restore, optimize, and extend the productive life of wells while minimizing environmental impact. The technologies presented are primarily deployed via wireline or coiled tubing.

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Coiled Tubing

Clean Out Jetting Switch

Seamless switch from jetting, sand & well suction modes

The Clean Out Jetting Switch redefines efficiency in well cleanout operations by providing seamless transitions between jetting, sand and well suction modes. Engineered for flexibility and ease, it attaches 2-1/8" Cleanout tooling, offering robust performance in challenging environments without the requirement for Nitrogen. Independent of bottom hole pressure, this innovative tool simplifies setup and operation. Designed for compatibility with acid, it's built from durable, industry-standard materials. Operators can achieve optimal functionality and time savings with minimal surface intervention.

Features & Benefits

- Mode Versatility: Switch between jetting, sand and well suction modes without pulling the BHA.
- Bottom Hole Pressure Independence: Operates seamlessly, ensuring reliability in varied conditions.
- Acid Compatibility: Performs effectively in acidic environments for diverse applications.
- Clear Mode Indicators: Provides a distinct pressure signature for easy mode verification.
- Inclusion of pressure and temperature memory gauge.
- No Nitrogen requirements

Typical Applications

- Breaking through consolidated fill with jetting mode.
- Efficiently cleaning sand and debris in sand suction mode.
- Removing fluids post-cleanout in well suction mode.
- Switching modes in horizontal and highly deviated wells.
- Performing acid treatments without equipment degradation.

Specifications

Tool OD	2.125"
Jetting Switch Length	59.25"
Overall Length Attached to Well/Sad Suction Tool	131"
Maximum Operation Temperature	150°C
Maximum Tool Pressure	10,000 psi
Maximum Tensile Pull	21,000 lb
Compatible Fluids	Brine, Diesel, Inhibited Acid

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Concentric Coiled Tubing Solutions

Wellbore Cleaning in a Single run

Concentric coiled tubing (CCT) solutions from Archer, serve as a crucial component of our wellbore cleaning and vacuum systems. These solutions effectively isolate reservoir fluids and enable continuous debris removal, circumventing the supply and logistical complexities associated with nitrogen usage.

Clearing debris from low-pressure wells particularly in highly deviated or horizontal wells without applying excessive pressure on the formation.

Benefits

- Extract sand and solids in a single run.
- No nitrogen circulation required mitigating logistical complexities and reducing expenses.

Features

- Well-Vac System to extract drilling mud, stimulation fluids and and other wellbore fluids.
- Sand- Vac system to clear fill while in motion both downhole and during retrieval.

Typical Applications

- Reservoirs with low pressures
- Well cleanout of wells that produce heavy oil and sand.

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High Pressure Jetting Tool

Eliminating downhole deposits with Coiled Tubing

This unique rotary jetting technology applies controlled destructive stress cycling to the deposit by precisely managing the rotational speed of the jetting nozzle. It allows for single-pass cleaning from surface to total depth. Even the toughest scales, such as silicates and barium sulphate composites, can be effectively removed. Non-damaging to the completion, it provides comprehensive insidediameter cleaning, including complex completion profiles. Additionally, it optimizes acid delivery to the formation, maximizing the effectiveness of stimulation chemicals and improving overall well performance. In conventional completions, focused radial jets ensure uniform acid distribution to each perforation.

Features & Benefits

- Effectively eliminates downhole deposits
- Compatible with a wide range of chemical scale dissolvers and acid systems
- Maximises scale removal and enhances fluid efficiency
- Ensures optimal rotation speed regardless of pump rate
- Compatible with nitrogen for improved wellbore lift
- Computerized tool design
- Provides flexible setup options, including 90º and 45º configurations
- Performs reliably across diverse deposits types and well conditions

Typical Applications

- Thru-tubing clean out operations.
- Stimulation of openhole, slotted and pre-perforated liner completions

Specifications

Tool OD	1.750"	2.125"
Top Thread (Crossover)	1.7 in. - 10 Stub Acme Box	1.7 in. - 10 Stub Acme Box
Operating Temperature (Seals)	0 to 200 °C	0 to 205°C
N2 Flow Rate	750 scfm	750 scfm
Nitrogen and Fluid Flow Rate	Use simulation software	
Tool Weight	20 kg	32 Kg
Maximum Differential Pressure	5000 psi	6500 psi
Tensile Load Limit at 5000/ 6500 psi	20,000 lb	20,000 lb
Make-up Torque (Connection To Crossover)	175 ft lb	500 ft lb
Seals	F langed/Press-in Lip Seal	Shamban Flanged Variseal / Varilip
O-Rings	HNBR 80	90Duro Viton
Required Surface Filtration	0.508 mm	0.5 mm
Overall Length	118"	105"
Compatible Fluids	Various corrosive treatment fluids and nitrification up to 100% of volume	

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High Pressure Nitrogen Pumps

Powerful, Reliable and Engineered for Excellence

Archer's 90K/180K LN2 Nitrogen Pumping Skid set standards in efficiency and performance. This self-contained units can pump and vaporize up to 90,000 SCFH / 180,000 SCFH of nitrogen at 60°F and pressures up to 10,000 psi. Designed for durability and reliability, it incorporates advanced hydraulic and coolant systems, ensuring peak performance in demanding environments. Our Nitrogen skids are housed in a certified steel skid with an acoustic enclosure for safe and quiet operations. With its intelligent control panel, the unit ensures ease of use, making it an ideal selection for the North Sea environment.

Features & Benefits

- The units can vaporise 180,000 scf/hr or 90,000 scf/hr of LN2 at 60°F and have a SWP of 10,000 psi
- All units are fitted with PRVs and overpressure shut down systems
- Robust Hydraulic System: Denison piston pumps and Volvo motors for precise operations.
- Advanced Coolant System: Thermoreg thermostatic bypass valve for optimized temperature control.
- Integrated Safety Mechanisms: Pyroban exhaust coolers and Zone II compliance.
- Soundproofed units
- All units come complete with industry standard safety features including 3GP system and DNV 2.7-1 lifting frames
- User-Friendly Design: Stainless steel control panel and accessible maintenance points

Typical Applications

- Well Cleanout
- Nitrogen Lift
- Fluid Displacement
- Stimulation

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High Pressure Pumping Unit

Durable, Efficient and Zone 2 Compliant

Engineered to deliver unparalleled performance and reliability. Designed to power our fluid pumps on separate skids, our units ensure seamless operation in Zone 2 hazardous environments. With its robust Detroit/CAT diesel engines, advanced hydraulic systems, and Pyroban safety protections, it meets ATEX, PED, and DNV 2.7-1 certifications. Integrated soundproofing, user-friendly controls, and precise operational monitoring ensure safe, efficient, and high-capacity fluid handling for demanding applications.

Features

- Certified Design: ATEX, PED, and DNV 2.7-1 compliant for hazardous environments.
- Detroit and Cat Diesel Engines Soundproofing,
- Triplex fluid ends dressed to either 3.5", 4" & 4.5" plungers
- Working pressure of 15,000 psi, and integral pressure relief valves
- Overpressure shutdown, overspeed shutdown options, and 110V power shutdowns enhancing safety
- 2 Piece units ideal for locations with reduce crane capacities

Benefits

- Reliable high pressure positive displacement pumps
- Versatile options ideal for Coiled Tubing and Fluid Pumping Applications
- High Efficiency: Optimized hydraulic and pneumatic systems for maximum output.

Typical Applications

- Well Stimulation
- Acidizing
- Well Cleanout
- Scale Squeezing
- Pressure Testing
- Cementing

Real-Time Tooling

Real-time insights for advanced Coiled Tubing

Archer's Real-Time Tooling is a versatile coiled tubing solution designed for real-time data acquisition and operational efficiency. It integrates advanced sensor capabilities, logging connections, and video diagnostics into a compact tool. This system measures downhole pressure, temperature, and CCL, while providing flow-through functionality and robust safety mechanisms. Its modular design allows seamless adaptation to various coiled tubing operations, enhancing performance and reliability. With unmatched precision and safety, our Real-Time Tooling is essential for depth-critical operations and live well monitoring.

Features

- Real-time downhole pressure, temperature, and CCL measurements.
- Option to run with: Sensor Tool, Logging Adapter (Wireline) , or Camera Modes
- Ball-actuated release mechanisms for safe BHA and wire disconnection.
- Double flapper check valves to prevent reverse flow.
- Abrasive and non-abrasive fluid compatibility with customizable flow rates.
- Tension, Compression and Torque sub to optimize milling and fishing applications.
- Available in both 2.125" & 2.875"
- Compatible with Acid, Solvent, H2S & CO2

Benefits

- Enhances decision-making with real-time data during coiled tubing operations.
- Ensures safety with robust release mechanisms and flow prevention features.
- Adapts to multiple operational needs with interchangeable configurations.
- Reduces downtime with reliable, field-tested components.
- Acid stimulation whilst tracking bottom-hole temperature
- Optimizes well interventions with precise monitoring and control.

Typical Applications

- Depth-critical operations like perforating and plug setting.
- Monitoring and verification of downhole tool performance.
- High-pressure jetting and milling with real-time feedback.
- Setting mechanical or inflatable plugs with live pressure data.
- Real-time optimization of nitrogen lift and flow analysis

Specifications

- Available on request

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Reversible Jetting Tool

Simple downhole cleaning with Coiled Tubing

Enables forwards and backward jetting to break through fill material, with the flexibility to transition to high-rate up-hole sweeping during the wiper-trip procedure to enhance well bore clean-out efficiency.

Features & Benefits

- Reduces operational costs and optimizes nitrogen and fluid usage
- Can be run in conjunction with Mill & Motor
- Can be run in conjunction with High Pressure Jetting tool.
- Engineered circulation and wiper-trip methodology
- Enhances production and extends time between clean outs
- Simple field procedures that enhance system reliability and efficiency
- Rearward-facing jets
- Enhances the Coiled Tubing fatigue life
- Ability to switch between forward and rear directions
- Cuts job time, prevents solids build up around the BHA, and reduces the risk of stuck pipe

Typical Applications

- Thru-tubing clean out operations. Removal of loose fill materials.
- Elimination of densely packed debris requiring high-pressure jetting or milling, such as scale.
- Can be used in highly deviated / horizontal wells

Specifications

Tool OD	2.125"	2.875"
Top Thread (Crossover)	1-1/" AMMT	2.125 - 08 S.A.
Operating Temperature (Seals)	0 to 121 °C	5 to 205°C
Maximum Flow Rate (Nozel Dependant)	Up to 1.6 BPM	Up to 9 BPM
Nitrogen and Fluid Flow Rate	Use simulation software	
Tool Weight	10 kg	32 Kg
Tensile Load Limit	80,000 lb	80,000 lb
Make-up Torque (Connection To Crossover)	1300 ft lb	1500 ft lb
Overall Length	20.75"	49"
Compatible Fluids	Water, diesel, methanol, brine, nitrogen, inhibited acid	

SPACE® Focus

True spatial understanding of downhole measurement

SPACE® Focus is a state-of-the-art high-resolution cased-hole ultrasound imaging tool optimised for looking ahead of the toolstring. Using the established technology applied in medical ultrasound imaging, SPACE® is designed and built for the hostile environments encountered downhole. This allows the creation of high resolution 3D images of fish and tubular deformation profiles in most production liquids.

Features & benefits

- Run in all production fluids, optical clarity is not needed
- Robust, designed and built for hostile environments
- Precise Diagnsotics - unparalleled ability to identify downhole challenges through advanced internal diagnostics
- True Spatial Understanding - comprehensive view facilitating better decision-making
- Different pipe sizes in 1 run, thanks to its optimized resolution at a given focal lengt
- Mechnical Reliability - no moving parts which means No risk of losing data!
- Non-Invasive Evaluation. Non-contact evaluation. No risk of compromising the integrity of the well!
- Intuitive & immediate results, get 3D rendering of complex downhole completion items within seconds! And without relying on subjective interpretations
- Powered by new adaptive high-speed telemetry

Typical Applications

- Inspection and evaluation of collapsed or otherwise deformed tubing or casing
- Inspection and measurement of fish and other wellbore restrictions
- General imaging applications with extended features unavailable to optical cameras

Specifications

Physical	
Outer diameter	3.2" [81.3 mm]
Length	52.2" [132.6 cm]
Weight	49.2 lb [22.3 kg]
Environmental	
Maximum temperature	275°F [135°C]
Maximum pressure	7,250 psi [500 bar]
Electrical	
Voltage	240 VDC
Current	200 mA
Functional	
Number of sensors	192
Azimuthal resolution	1.875 deg
Operational	
Logging speed	3-30 ft/min [0.9-9.1 m/min]
Logging mode	Real-time
Well conditions	
Fluid	Water, brine, oil, produced liquids
Minimum casing	ID 3-1/2" [89 mm]
Maximum casing size	9-5/8" [244 mm]

SPACE® Panorama

True spatial understanding of downhole measurement

The 2-1/8" SPACE® Panorama is a state-of-the-art high-resolution cased-hole ultrasound imaging tool. Using the established technology applied in medical ultrasound imaging, SPACE® is designed and built for the hostile environments encountered downhole. This allows the creation of high-resolution 3D images of internal tubing or casing condition in most production fluids.

Features & benefits

- Run in all production fluids, optical clarity is not needed
- Robust, designed and built for hostile environments
- Precise Diagnsotics - unparalleled ability to identify downhole challenges through advanced internal diagnostics
- True Spatial Understanding - comprehensive view facilitating better decision-making
- Different pipe sizes in 1 run, thanks to its optimized resolution at a given focal lengt
- Mechnical Reliability - no moving parts which means No risk of losing data!
- Non-Invasive Evaluation. Non-contact evaluation. No risk of compromising the integrity of the well!
- Intuitive & immediate results, get 3D rendering of complex downhole completion items within seconds! And without relying on subjective interpretations
- Powered by new adaptive high-speed telemetry

Typical Applications

- General imaging applications with extended features unavailable to optical cameras
- Inspection of downhole jewellery with complex internal geometries such as SPM and DHSV
- Evaluation of metal loss, corrosion or damaged pipe
- Inspection of wellbore restrictions
- Sand screen, ICD and perforation evaluation

Specifications

Physical	
Outer diameter	2-1/8" [54 mm]
Length	101.6" [258 cm]
Weight	58 lb [26.3 kg]
Environmental	
Maximum temperature	275°F [135°C]
Maximum pressure	8,100 psi [550 bar]
Electrical	
Voltage	240 VDC
Current	200 mA
Functional	
Number of sensors	288
Maximum azimuthal resolution	1.25 deg
Vertical resolution	0.39" [10 mm]
Azimuthal resolution	1.25 deg
Accuracy	0.5-1 mm
Operational	
Logging speed	3-30 ft/min [0.9-9.1 m/min]
Logging mode	Real-time
Well conditions	
Fluid	Water, brine, oil, produced liquids
Casing range	3-1/2" - 13-3/8" [89—340 mm]
Minimum ID for imaging	2.8" [71 mm]

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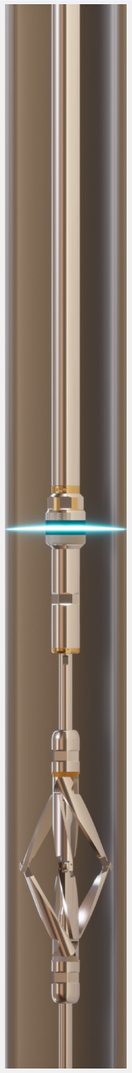
SPACE® Vernier

True spatial understanding of downhole measurement



SPACE® Vernier is a state-of-the-art high-resolution cased-hole ultrasound thickness and caliper tool. The tool is capable of measuring the internal diameter and wall thickness of tubing or casing in most production fluids. Proprietary software allows detailed mapping and visualisation of the tubing or casing, as well as statistical analysis of corrosion and damage.

Features & benefits

- Run in all production fluids, optical clarity is not needed
- Robust, designed and built for hostile environments
- Precise Diagnsotics - unparalleled ability to identify downhole challenges through advanced internal diagnostics
- True Spatial Understanding - comprehensive view facilitating better decision-making
- Different pipe sizes in 1 run, thanks to its optimized resolution at a given focal lengt
- Mechnical Reliability - no moving parts which means No risk of losing data!
- Non-Invasive Evaluation. Non-contact evaluation. No risk of compromising the integrity of the well!
- Intuitive & immediate results, get 3D rendering of complex downhole completion items within seconds! And without relying on subjective interpretations
- Powered by new adaptive high-speed telemetry

Typical Applications

- Tubing and casing measurement and analysis — internal diameter and wall thickness
- Tubular inspection—detection of corrosion, damage and deformation
- General imaging applications with extended features unavailable to optical cameras

Specifications

Physical	
Outer diameter	3" [76 mm]
Length	52.8" [134.1 cm]
Weight	49.2 lb [22.3 kg]
Environmental	
Maximum temperature	275°F [135°C]
Maximum pressure	7,500 psi [517 bar]
Electrical	
Voltage	240 VDC
Current	200 mA
Functional	
Number of sensors	288
Maximum azimuthal resolution	1.25 deg
Vertical resolution	0.39" [10 mm]
Precision-ID	0.012" [0.3 mm]
Precision-Thickness	0.012" [0.3 mm]
Measurement range-Thickness	0.2-0.8" [5-21 mm]
Measurement range-ID	4-13" [102-330 mm]
Operational	
Logging speed	3-30 ft/min [0.9-9.1 m/min]
Logging mode	Real-time
Well conditions	
Fluid	Water, brine, oil, produced liquids
Minimum casing	ID 4-1/2" [114 mm]
Maximum casing size	13-3/8" [340 mm]

VIVID® Leak

Ultra-Sensitive Acoustic Listening Platform

VIVID® Leak is designed to find leaks in tubing and casing strings. Frequency filtering means road noise can be removed from dynamic logging and statistical analysis allows leak characterisation.

Benefits

- Proven industry-leading sensitivity
- Detects casing leaks behind multiple barriers
- Continuous dynamic logging even in the presence of road or surface noise
- Highly precise depth determination
- Enhanced data quality

Features

- Detailed analysis of downhole fluid movement
- High-speed sampling rate with 220 FFT/sec per sensor
- Shorter stations durations
- Memory and real-time acquisition
- Interactive sprectrum and curve data
- Integrated accelerometer sensor, effectively eliminating noise during stations

Typical Applications

- Tubing and casing leaks
- Diagnosis of completion assemblies
- Analysis of gas-lit valves
- Evaluation of packer performance

Specifications

Sensors	
Type	Passive acoustic
Number	2
Frequency range	<1 kHz - 656 kHz
Data structure	
Frequency channels (Per sensor)	41
Statistical parameters (Per frequency channel)	Time-filtered noise Mean noise Transient
Total channels	246
Data acquisition	
Logging modes	Dynamic/Stationary Real-time/Memory
Physical	
OD	1-11/16" (43mm)
Length	29.3" (745mm)
Weight	10.8lb (2.9kg)
Environmental	
Temperature	350°F [177°C]
Pressure	15,000 psi [1 034 bar]

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VIVID® Sand

Sand detection and quantification

Ultra-Sensitive Acoustic Listening Platform. A carefully chosen sensor is paired with specially designed electronics to separate fluid flow from solid particles in a flowing environment. Unrivalled sensitivity and selective energy filtering means that both axial flow and radial in-flow containing sand can be reliably detected.

Benefits

- Reliably separates flow-induced noise from sand particle impact
- Complex zonal evaluation of produced sand
- Sand ingress quantification, supporting production efficiency

Features

- Detailed analysis of downhole fluid movement
- High-speed sampling rate with 220 FFT/sec per sensor
- Shorter stations durations
- Memory and real-time acquisition
- Interactive sprectrum and curve data
- Integrated accelerometer sensor, effectively eliminating noise during stations

Typical Applications

- Sand ingress localisation
- Sand control analysis
- 4 phase PLT analysis
- Maximum sand-free rate determination
- Produced versus transported sand analysis

Specifications

Sensors	
Type	Passive acoustic
Number	1
Frequency range	<1 kHz - > 656 kHz
Data structure	
Energy histogram bins per threshold	82
Statistical parameters (Per frequency channel)	Time-filtered noise Mean noise Transient
Total channels	366
Data acquisition	
Logging modes	Dynamic/Stationary Realtime/Memory
Physical	
OD	1-11/16" (43mm)
Length	29.3" (745mm)
Weight	10.8lb (2.9kg)
Environmental	
Temperature	350°F [177°C]
Pressure	15,000 psi [1 034 bar

VIVID® Seal

Validation of Cement Performance

Designed to set new standards in acoustic sensitivity, VIVID® Seal is optimised to detect the smallest of fluid movements downhole. High-speed sampling allows statistical parameter analysis over a broad frequency range, with greater resolution at low frequency.

Benefits

- Measure cement sealing quality
- Gauge flows, even in the presence of cement micro-annuli
- Describe minimum flow levels through a cement barrier
- Verify cement barrier integrity for P&A
- Reduce emissions by rig-time and scope reduction during P&A

Features

- Detailed analysis of downhole fluid movement
- High-speed sampling rate with 220 FFT/sec per sensor
- Shorter stations durations (15-20 sec)
- Memory and real-time acquisition
- Interactive sprectrum and curve data
- Integrated accelerometer sensor, effectively eliminating noise during stations

Typical Applications

- Locates small, flow paths and leaks behind multiple casing strings
- Validates cement integrity
- Gauges flow in the presence of micro-annuli

Specifications

Sensors	
Type	Passive acoustic
Number	1
Frequency range	<1 kHz - 223 kHz
Data structure	
Energy histogram bins per threshold	82
Statistical parameters (Per frequency channel)	Time-filtered noise Mean noise
Typical logging speed	30 ft/min [9.1 m/min]
Logging mode	Realtime and memory
Physical	
OD	1-11/16" (43mm)
Length	29.3" (745mm)
Weight	10.8lb (4.9kg)
Environmental	
Temperature	350°F [177°C]
Pressure	15,000 psi [1 034 bar]

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Raptor WHISPR®

Wireless Acoustic Barrier Monitoring

An innovative downhole surveillance tool featuring advanced wireless acoustic data transmission capabilities. The Raptor WHISPR® (Wireless High-Integrity Sensing & Pressure Relay) is positioned below the plug to collect key measurements such as pressure and temperature, monitoring barrier integrity. The data is sent as acoustic tones along the well structure to the surface system - directly, or relayed by repeaters.

Features & Benefits

- **Data Communication Across Barriers:**
  - Enables wireless transmission of data within wellbores and across barriers
  - Unique multitone signal transmission for maximum reliability
  - No tuning required, truly plug & play
  - Continuous recording at surface, including between transmissions
- **Verification:** real time data from below the barrier during pressure test
- **Monitoring:** long term surveillance of pressure and temperature up to 10 years
- **Long Transmission Range:** distances vary with actual well environment
- **Deployment:** slickline, e-line, coiled tubing , or pipe. Anchored on mechanical plug or gauge carrier or drill pipe

Specifications

Tool OD	3.6"
Pressure rating	10,000 psi
Temperature rating	125 degC
NACE compliant	MR1075 Region 3
Surface system	Zone 1 IECEx and ATEX certified
Battery life	2-5 years (up to 10 years with battery extension sub)

Additional specifications available on request.

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Raptor WHISPR®

Wireless Acoustic Barrier Monitoring

Applications

- Safe and controlled access to temporarily abandoned wells
- Regulatory compliance for extended P&A
- Accurate pressure monitoring below suspension plugs (e.g. batch drilling on deep water wells)
- Accurate measurements with the sensor close to the barrier when pressure testing from above or below
- Monitoring of barriers
- Passive monitoring on permanently abandoned wells
- Validation of new abandonment methods and materials (i.e. Bismuth)

Example of use

Raptor WHISPR® for P&A monitoring

Data reception in memory, wireline or slickline conveyed

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LeakPoint®

Fast and Accurate Leak Detection

LeakPoint® is able to expose leaks in the primary tubular and surrounding casing strings or completion equipment clearly, reliably and consistently. Results are clear and unambiguous, with leaks in the production casing or beyond able to be diagnosed, even with the well flowing.

Features & Benefits

- Fast, accurate location of single or multiple leaks
- Sensitive to wide range of leak rates
- Precise depth location
- Wells can be diagnosed while flowing, allowing hard-to-find leaks to be revealed
- Flexible deployment options: real-time and memory

Typical Applications

- Leak detection in tubing and packers
- Leak detection in completion components such as SSD, SPM, GLM
- Post remediation verification

Specifications

Physical	
Outer diameter, in [mm]	1 11/16 [42.9]
Environmental	
Maximum temperature, degF [degC]	350 [177°C]
Maximum pressure, psi [bar]	15000 [1000]
Operational	
Recommended logging speed	30 ft/min [9.1 m/min] 15 s per station
Logging mode	Memosry/ SRO
Well conditions	
Fluid	Water, brine, production, fluid, gas
Minimum casing size, in [mm]	2 [51]
Maximum casing size	N/A

Multifinger Calipers

High resolution measurements

Multifinger calipers provide high resolution measurements of the internal surface of tubings and casings used to evaluate well performance or evaluate well integrity. Spring loaded caliper arms make contact with the inner surface of the wellbore and move independently to track any variation in downhole geometry. The radial position of each arm and its relative orientation in the well are digitised and recorded in order to create a complete 360° map of the wellbore profile that is sent to surface for playback or analysis.

Features

- High resolution measurements
- Wide measurement range
- Combination with other tools/services
- Memory or surface read-out configurations
- Corrosion resistant materials

Benefits

- Precision measurements of tubular ID
- Each tool covers several pipe sizes
- Easy to operate and use
- Operates in wide range of well condition

Typical Applications

- Corrosion monitoring
- Drilling wear evaluation
- Deposition analysis
- Deformation monitoring
- Perforation mapping

Specifications

Number of fingers	**24**	**40**	**60**
Temperature Rating, degF [degC]	350 [177°C]	350 [177°C]	350 [177°C]
Pressure Rating, psi [MPa]	15,000 [103.4]	20,000 [138]	20,000 [138]
Tool Diameter, in [mm]	1 11/16 [43]	2.75 [70]	4.4 [111.76]
Tool Length, in [m]	64.6 [1.64]	66 [1.68]	61 [1.55]
Tool Weight, lb [kg]	20.7 [9.38]	70 [31.75]	70 [31.75]
Toolbus	Ultrawire	Ultrawire	Ultrawire
Measurement Range in [mm]	1.75 – 7 [45 – 178]	2.75 – 10.0 [70 – 254]	4.5 – 14 [114.3 – 356.6]
Accuracy, radial, in [mm]	0.02 [0.076]	0.025 [0.64]	0.030 in. [0.762]
Radial Resolution, in [mm]	0.003 [0.076]	0.0022 [0.06]	0.005 [0.127]

Radial Bond Tool

Detection of poor cement conditions

The Radial Bond Tool (RBT) facilitates a detailed, qualitative analysis of the zonal isolation achieved by cementing services. Effective hydraulic isolation from water-bearing formations is crucial to maximise the productivity of hydrocarbon-bearing reservoirs. Poor cementing allows unwanted fluid transfers between zones, resulting in the potential for lost or unwanted production

Benefits

- Small size, rigid isolator, and powerful transmitter allowing throughtubing operations after the completion string is in place.
- In addition to the traditional 3 ft amplitude and 5 ft VDL, the RBT has a radially segmented, calibrated amplitude measurement. This focuses the transmitted sonic pulse circumferentially, allowing the differentiation of small axial channels as opposed to poor or contaminated cement.

Features

- Single transmitter, 3 ft (near) and 5 ft (far) receivers, segmented radial receiver array for radial cement imaging
- Variable sampling rates to maximize data acquisition
- Interchangeable telemetry cartridge
- Slotted sleeve design for improved rigidity, strength, and acoustic isolation
- Can be deployed through small completions and tubing restrictions to log the liner below (minimum clearance +0.25 inches above tool diameter)
- Fully combinable with other UltraWire and UltraMemory™ tools

Typical Applications

- Identify the top of lead and tail cement
- Evaluate the cement bond quality to the casing
- Evaluate cement bond quality to the formation (VDL)
- Identify channels in cement
- Identify micro-annulus with subsequent pressure pass
- Identify the cement squeeze interval in case of a bad cement job
- Determine the depth to cut and pull casing

Archer

Production Logging Tool

Comprehensive, efficient range of flow

Comprehensive, efficient range of flow, fluid identification, and reservoir monitoring data to maximize cost-effective hydrocarbon recovery

Our production logging tools help efficiently and accurately evaluate your well's performance. You can configure these tools for optimal measurement of a wide range of production conditions, including vertical, highly deviated, or horizontal wells. Use them for a variety of well completion types, including openhole (barefoot), cased-hole, perforated, gravel-packed, or slotted-liner configurations.

All our production logging tools operate in memory or surface readout mode, and can combine effortlessly with well integrity and other tools on our unique high-speed Ultrawire tool bus. This ability to run many sensors in one toolstring not only provides appropriate data, but also reduces lost production by saving valuable operating time and resources.

Benefits

- Well's performance evaluation efficiently and accurately
- High-quality and reliable measurement

Features

- Memory or surface readout mode
- Combinable with other tools via Ultrawire tool bus

Typical Applications

- Configurations such as cased-hole, perforated, gravel-packed, or slotted-liner
- Vertical, highly deviated, or horizontal wells

Mechanical Wireline

TASK Launcher

Effectively removes all types of scale, reliably and rapidly

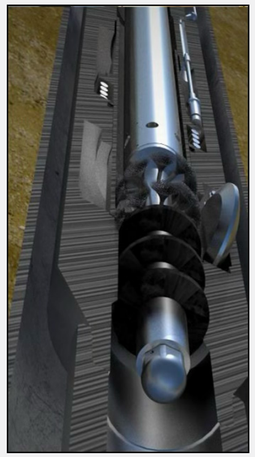
Scale is a serious oilfield challenge. It can cause restrictions in the rock matrix, reducing the rate of hydrocarbon production; it can cause critical downhole components to malfunction, and of course it can restrict flow within the production tubing. TASK has been designed to remove and inhibit all types of scale, reliably and rapidly, without harming people, the environment, or well components. TASK is deployed efficiently and precisly to th etarget area using its purpose-built delivery mechanism, TASK/Launcher.

Features & benefits

- Precise - a purpose-built chemical delivery tool that injects and activates at precise locations in the well. Commonly used for safety valves & side pockets.
- Versatile - designed to suit required specifications of target safety valve or side pocket. Minimal volume required to achieve successful treatment.
- Safe - the closed-loop system enables safe filling and disposal of chemicals without harm to people or the environment.
- Practical - simple deployment on slickline with standard SR connections and mechanical jars. Retractable discs hold fluid in place for soak & agitation.

Typical Applications

- TASK/1 optimized for hard scales. Barium & Strontium Sulphates
- TASK/2 optimized for carbonates. Green/yellow chemical
- Dissolves all types of scale
- MSDS available



Specifications

TRSV Size	3.750"	3.812"	4.312"	4.562"	4.625"	*7"
Volume	4.5 l		9.4 l			29 l
	6 l			13.3 l		
	10 l					
Total Length	142.7"		199"			223"
	172.6"			248"		
	188.4"					

archerwell.com

Carbon Rod Solutions

ComTrac®

Carbon composite rod rigless intervention system

State of the art composite materials empower the ComTrac semi-stiff rod to reach further than conventional technologies while conveying maximum payload for effective interventions. Highly deviated, deep and extreme extended reach wells become accessible for rigless interventions when traditional coil or wireline methods come up short.

Carbon Composite Rod
Cutting edge design and manufacturing produce a continuous rod of 12mm (0.47") diameter containing an embedded coaxial conducting cable. Smooth surface finish both reduces friction and simplifies pressure control, with no grease injection required. Carbon construction gives the rod twice the strength of a similarly sized wireline cable at one third of the weight.

ComTrac System
The small and lightweight injector head provides a maximum continuous load of up to 5,000kg (11,000lbs), while the electric drive system allows precise control of the rod movement. Pressure control is by means of a side-door stripper and a standard wireline valve fitted with slip, multi-line and shear rams. Heavy duty intervention, including jarring, and precision logging can be performed by the same unit in a single rig-up.

- Modular - flexible rig-up
- Precision electronic control system
- No tension from drum to injector. No need for line of sight
- Rod protected by bend-restrictor

Horizontal extended reach
In wells with long horizontal sections maximum intervention depth can be limited by the strength, weight and friction of conventional cables, even where it is possible to tractor to TD. ComTrac allows intervention with the confidence that the toolstring can be safely retrieved, where wireline safe working load is exceeded for much of the well.

Typical applications

- For land and offshore opreations
- Extreme extended reach wells: MD/TVD > 5, TD > 12,375m
- Long horizontal sections with tortuous well paths
- MRC wells with extreme azimuth adjustments in well path
- Large perforation scopes: >100m underbalanced perforated intervals
- Heavy mechanical interventions
- High-rate production logging and injection profiling

Features

- Slick rod: Reduced friction drag
- Composite material: stronger and lighter
- Non-abrasive: Eliminate line wear in completions
- Precise, digital drive system: Exceptional data quality, confidence in depth control
- Real-time data: immediate indication of downhole anomalies

Benefits

- Furthest reach in extended reach and MRC wells
- Complex trajectories easily navigated
- Flexible rig-up: No high- tension lines, no line-of-sight requirements
- Precision logging and mechanical intervention
- Risk minimisation during underbalance perforations
- Eliminate tool lift hazards for high flowrate PLT evaluation

Specifications

Lower friction	Typically less than half of braided cable
Sour service	H2S and CO2 resistant (NORSOK M710)
Rod weight	230g/m in air, 110g/m in water
Stretch coefficient	0.42m/Km/5KN
Breaking strength	>15,000Kg
Maximum continuous load	5,000Kg
Electrical	1,500VDC - 9A
Temperature	150C
Max pressure	10,000psi

Specifications may be subject to change.

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