



reliable technology
intelligent solutions



Production Logging Solutions

One string, all the data you need

Analysis of the downhole fluid environment enables you to diagnose problems and take the necessary steps to produce more hydrocarbons and control water production.

The right tools make all the difference...

www.probe1.com

Standard Production Logging

Getting the data you need

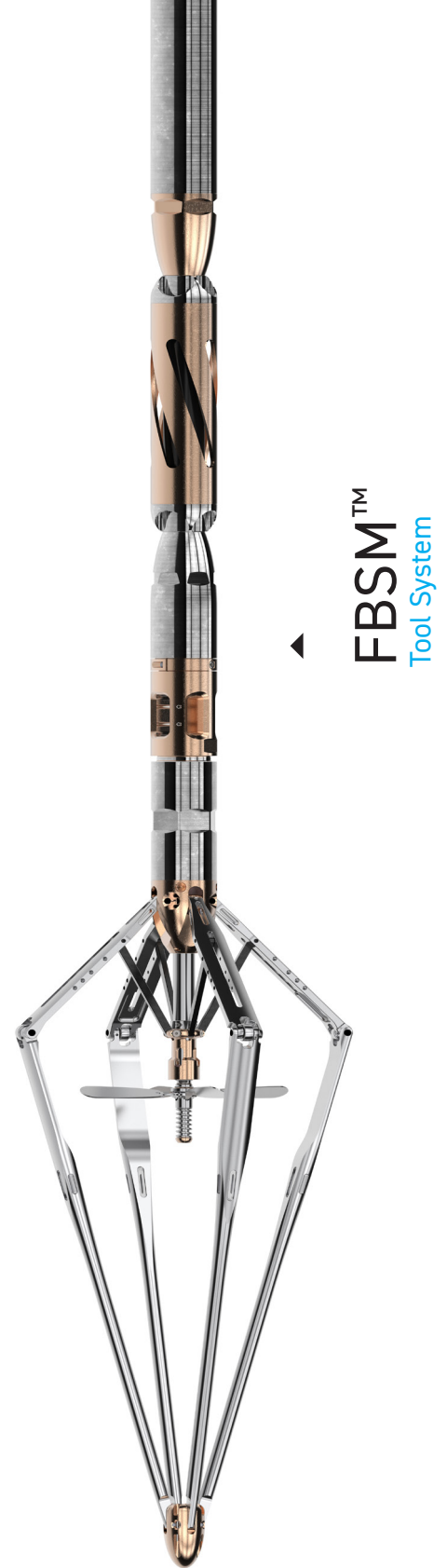
Whether for advanced reservoir performance monitoring, one, two or three-phase production logging, injection profiling, or diagnostic applications such as leak detection or identification of water influx point, our proprietary production logging suite enables you to reliably acquire accurate data in either real-time surface readout (SRO) or memory modes.

Since all Probe production logging tools operate on the Hunter tool bus, they can be run below the telemetry control unit (TCU) mono-conductor telemetry tool, or the high capacity memory logging tool (MLT) and combined with

other technology such as our Reservoir Analysis System, scintillation and spectral gamma ray, RADii™, iQ™ & MAC™ well integrity products.

You can meet your flow measurement objectives with in-line and fixed-cage flowmeters for small diameter pipes (1.69-in. to 3.15-in.), as well as our full-bore spinner for larger diameter pipes from 4.5-in. to 9.625-in. For openhole scenarios or completions with unknown pipe sizes, the X-Y Caliper provides accurate ID measurements to enable accurate volumetric flow rates to be calculated.

▼ HELICAL 4 ARM CENTRALIZER Tool System



Basic PL components

Gamma Ray
CCL
Quartz Pressure

In Line Flowmeter
Temperature
Fixed-Cage Flowmeter

Optional Components

— Fluid Density (RA and X-ray)
— Fluid Capacitance
— Combo Capacitance, Temperature, and Flow

— X-Y Caliper
— Tension / Compression
— Deviation & Rotation

Features — Production Logging Suite

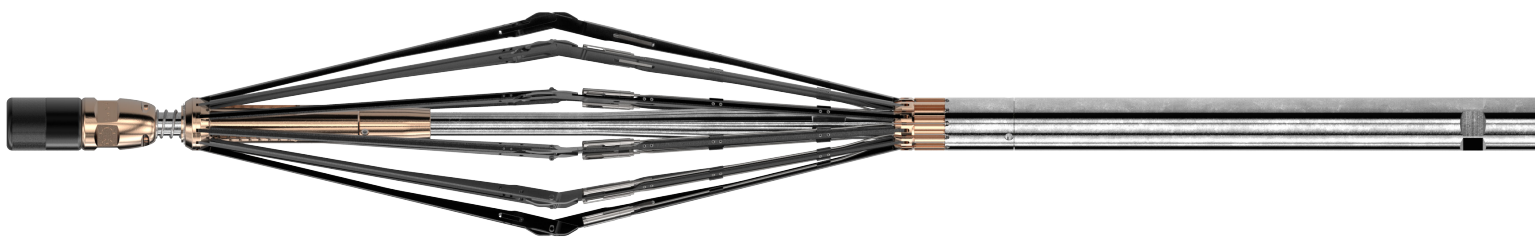
- Standard pressure rating 15,000 psi (103.4 MPa)
- Standard temperature rating 350°F (176°C)
- Supported in Warrior version 8
- Stackable with Reservoir Analysis System pulsed-neutron tool, PL/array PL tools, and well integrity tools
- Solder-free plug-in electronic PCB enables local upgrade and repair
- Operates in real-time surface readout or memory modes

Array Production Logging

Built for Your Challenges

In complex flow regimes in vertical, deviated, and horizontal completions, our array production logging tools accurately identify fluid holdups and phase velocities. All array tools feature continuously variable opening diameters, allowing a precise opening diameter to be set. Our suite of array tools includes:

Array Fluid Resistance (AFR) / Array Fluid Capacitance (AFC) tools:

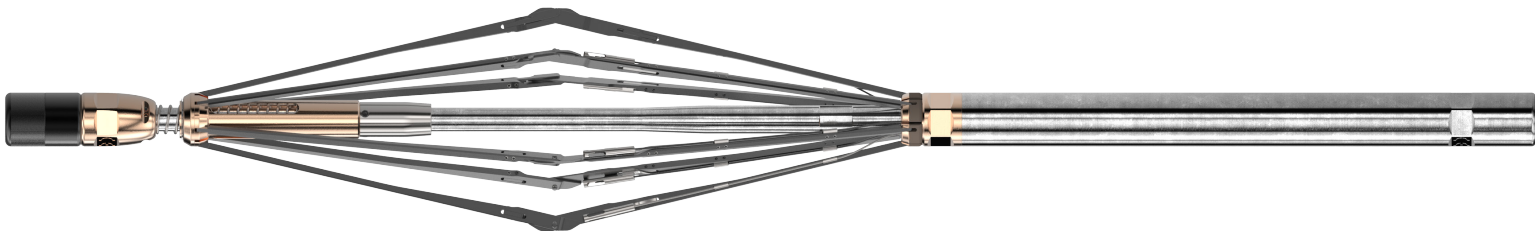


12-sensor devices that identify hydrocarbons or water - differentiating between fresh and salt water - and identify the presence of water, oil, and gas



Array Fluid Velocity (AFV) tool:

6-sensor device which helps determine fluid velocities around the wellbore



Array Optical Gas Holdup (AGH) tool:

6-sensor tool used to determine gas holdup and also provide a bubble count



You can get the right production data, even in the most challenging and hostile well environments.

And with our rigorous product testing, unbeatable customer service, and world-class log analysis support, you'll end up with the high-value answer product you need.



WELL
INTEGRITY



FORMATION
EVALUATION



PRODUCTION
LOGGING



WELL
INTERVENTION



SURFACE
SYSTEMS



DOWNHOLE
INSTRUMENTATION



WELL
MONITORING



WIRELESS
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