



**The Flow Array Sensing Tool (FAST) enables comprehensive and accurate evaluation of multiphase flows in deviated and horizontal wells, unlocking surveillance opportunities previously unachievable with conventional technology.**

Eight robust and interchangeable probes, mounted either side of 4 centralising arms, enable a wide range of complex flow regimes to be accurately quantified. High resolution temperature, MEMS pressure and Doppler flow imaging are also incorporated into the ultra-compact design. Oil, water and gas phase identification is achieved by combining miniaturised and highly responsive optical, electrical and flow-meter sensors. These are positioned cross-sectionally across the well-bore at 90 degree intervals, with multiple tool sections combined to increase the spatial resolution as required.

For more information, please contact your Scientific Drilling sales representative or visit:

<http://scientificdrilling.com/cased-hole-services>

## APPLICATIONS

- + Gas, oil, and water hold-up detection
- + Qualitative sand and solids detection
- + Multiphase flow profiling in highly deviated and horizontal wells
- + Quantitative assessment of mixed and segregated flow regimes
- + In-depth phase analysis

## BENEFITS

- + Ultra compact and lightweight design (3ft, 12lbs) reduces rig-up time and deployment risk
- + True three-phase hold up fractions in segregated flow conditions
- + Improved accuracy of production evaluation for highly deviated wells
- + Ultra low flow rate measurement with Doppler flow imaging
- + Deployable on slickline, electric line, coil tubing or tractor

## FEATURES

- + Multi-electrode technology
- + Embedded computation of gas and water hold-ups & bubble count
- + Highly accurate cross sectional profiling of three phase hold-up at a single measurement point

## GENERAL SPECIFICATIONS

<b>TOOL DIAMETER</b>	1 <sup>11</sup> / <sub>16</sub> in. (430 mm) - 1 <sup>3</sup> / <sub>8</sub> in. slim tool optional
<b>MAX CASING ID</b>	7 in.
<b>LENGTH</b>	3.5 ft. (1.07 m)
<b>WEIGHT</b>	10 lbs (5.0 kg)
<b>TEMPERATURE RATING</b>	302° F (150° C)
<b>PRESSURE RATING</b>	15 kPSI (1034 bar)
<b>MEMORY CAPACITY</b>	192 MB
<b>MEMORY/BATTERY DURATION</b>	Up to 150 hrs (continuous)
<b>ACQUISITION MODE</b>	Memory/surface read out
<b>SHOCKS</b>	250 G, 2 ms
<b>MECHANICAL CONNECTION</b>	Top: 15/16 SR Pin Bottom: 15/16 SR Box
<b>MATERIALS</b>	NACE compliant stainless steel 316L, inconel, nickel, sapphire

## ARRAY HARDWARE & MEASUREMENT SPECIFICATIONS

<b>FLUID DETECTION</b>	8 (2 per arm)
<b>NUMBER OF ARMS</b>	4
<b>GAS HOLDUP PROBE</b>	Optical
<b>WATER HOLDUP PROBE</b>	Electrical
<b>FLOWRATE PROBE</b>	8 ultrasonic Doppler array or 8 mini spinners
<b>PRESSURE</b>	MEMS pressure sensor Accuracy 1.0 psi / Resolution 0.01 psi
<b>PRESSURE ACCURACY/RESOLUTION</b>	± 1.0 psi / 0.01 psi
<b>TEMPERATURE PROBE</b>	Platinum RTD probe Accuracy 0.1 °C / Resolution 0.01°C
<b>SAND DETECTION</b>	Acoustic sensor
<b>CCL</b>	Differential Magnetometer
<b>RELATIVE BEARING RANGE/ACCURACY</b>	0-360° ± 3°
<b>INCLINATION RANGE/ACCURACY</b>	0-90° ± 1°

\*Specifications are subject to change without notice

