CASED HOLE LOGGING
Multiphase Array Production Logging Tool

Spartek Systems specializes in providing the oil and gas industry with high quality data to monitor well performance and diagnose potential problems. Founded in 1994, Spartek Systems leads the industry in providing cost effective solutions for acquiring reliable production data.

Product Overview

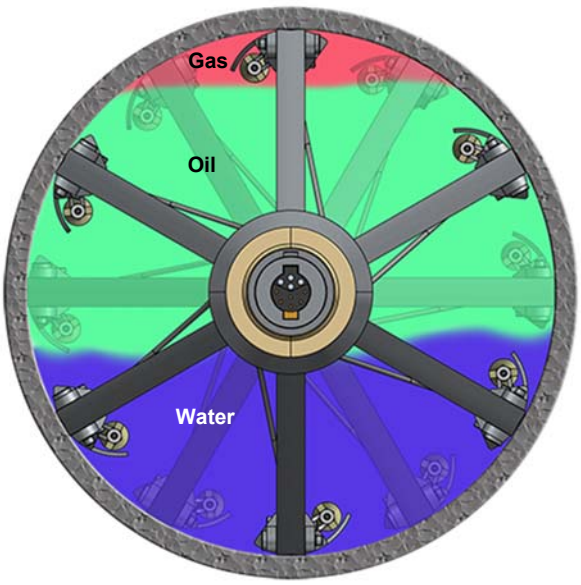
The Multiphase Array Production Logging Tool has been designed to address the deficiencies in the first generation of production logging tools targeted for quantifying multiphase flow in highly deviated or horizontal wells. The platform utilizes a circumferential array of six Multi-Sensor Arms. Each Arm makes the following measurements:

- Water Holdup: Capacitance, Resistivity
- Gas Holdup: Acoustic Density
- Flow: Spinner, Fast Response Temperature

These measurements are made just below the arms, near the casing wall, providing a complete profile of the fluids across the wellbore. The sensors are all in close proximity, ensuring that you are measuring both phase and velocity in real time over the measurement interval.

Water Holdup

In order to differentiate between water and hydrocarbons (oil or gas), the system employs an array of six capacitance sensors and six "four electrode" micro resistivity's sensors. The combination of these sensors provides a quantitative water hold up measurement. And though correlation techniques can be used to provide velocity data.



Gas Holdup

To differentiate between liquids and gas, a proprietary sensor has been developed that measures the density of the fluid. This provides a very high contrast between liquids (oil or water) and gas. An array of six of these sensors are positions circumferentially around the well bore providing localized identification of gas holdup.

Flow Velocity

On each of the six arms, there is a small diameter turbine flow meter to measure the local flow velocity. The flow meter uses jewel bearings and a low mass impellor to improve sensitivity. In addition to the flow meter a fast response RTD is also available to monitor small changes in temperature due to fluid entry into the well bore.

Features and Applications

- Multiphase flow profiling in highly deviated and horizontal wells
- Identification of fluid and gas entries.
- Improved reliability and measurement integrity over first generation multiphase flow tools.
  - All sensor measurements are simultaneous at the same depth interval.
  - Arm radial position is "settable".
  - Combinable with one or more MAPLT and other "Open Architecture" Spartek Tool Bus tools.
  - Tool rotation improves coverage and provides measurement redundancy.
  - Integrated RB Sensor for orientation information.
  - Cross correlation velocity measurements.
  - Multiple fluid ID measurements for improved redundancy.

SPARTEK SYSTEMS

Providing Our Customers With "Best In Class" Technology

Email: sales@sparteksystems.com **http://www.sparteksystems.com**

SPARTEK SYSTEMS
GEOPHYSICAL INSTRUMENTATION

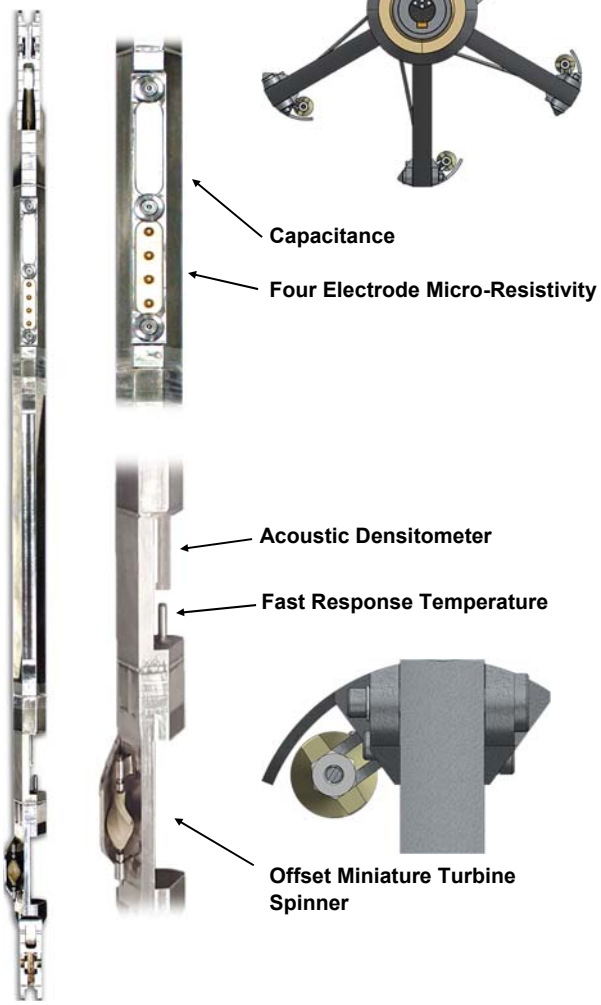
Rev: 12/05/2020

Specifications:

Operating Specifications	
Pressure rating	15,000 psi [103,425 kPa]
Temperature rating	350°F [177°C]
Corrosion Resistance	NACE MRO175
Tool Diameter	2.13 inch [54 mm], 1.688 inch [42.9 mm]
Tool Length OAL Make Up	 6.36 ft [1.94 m] 6.16 ft [1.88m]
Tool Weight	50 lb [22.68 kg] (2 1/8" Diameter)
Hole Size	Up to 7.0 inch [177.8 mm]
Minimum Restriction	2.28 inch [57.9mm], 1.81 inch [46mm]
Sensor Specifications	
Spinner Range Operating Diameter Resolution Accuracy Threshold	 ± 200 rps 2.25 in [2.13 in] minimum 1.81 in [1.69 in] minimum 0.5 rps minimum ± 2% 9-11 ft/min (oil flow)
Temperature Range Resolution Accuracy	 -40°F to 350°F [-40°C to 177°C] 0.0018°F [0.001°C] ± 1.8°F [± 1°C]
Fluid Capacitance Resolution WHI Accuracy	 0.1% 2% (range 0% - 30%) 5% (range 30% - 60%)
Fluid Resistivity Resolution Accuracy (larger of)	 < 0.1 ohm m ± 1% of Reading or ± 0.03 Ohm m
Gas Holdup Sensor Range Resolution Accuracy	 Acoustic Densitometer 0 - 1.4 g/cc ± 0.002 g/cc ± 0.04 g/cc

Specifications subject to change without notice

Six Arm Circumferential Array



For More Information, Pricing, and Technical Support Contact:

#1 Thevenaz Industrial Trail
Sylvan Lake, Alberta
Canada,T4S 2J6

Tel: (403) 887-2443
Fax: (403) 887-4050

Providing Our Customers With "Best In Class" Technology

Email: sales@sparteksystems.com **http://www.sparteksystems.com**