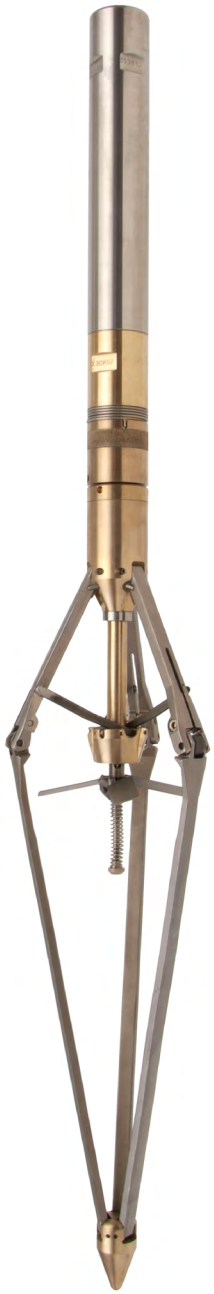
Production logging tools

High resolution measurements



Production logging tools provide high resolution measurements of the fluid compositions and flow rates in the downhole environment that are used to evaluate well performance. A typical production logging toolstring is comprised of multiple sensors covering a range of physical measurements in order to identify fluid types, volumes and rates of their production or injection. Each of these measurements is digitised and recorded in order to create a comprehensive profile of the wellbore environment.

The combination of sensors and their configuration may be tailored to suit producing or injecting wells and to resolve single-phase, two-phase or three-phase flow regimes. Tools come in a range of sizes to provide optimal coverage and resolution across a range of tubular diameters. Production logging tools can be deployed in surface read out or memory configurations and can be combined with integrity or other diagnostic services to meet customer specific requirements.

Production logging tools

Toolstring composition

Measurement	Sensor technology	Resolution
Temperature	Platinum resistance	0.003 ºC
Pressure	Quartzdyne pressure gauge	0.008 psi
Correlation	Gamma ray Collar locator	1.1 Counts/API 1 inch @ 60 ft/min
Water hold-up	Capacitance	0.1%
Fluid density	Radioactive absorption Inertial response	0.01 g/cc 0.01 g/cc
Flow meter	Full bore & Inline spinner	10 pulses/revolution

Photos courtesy of GE Oil & Gas

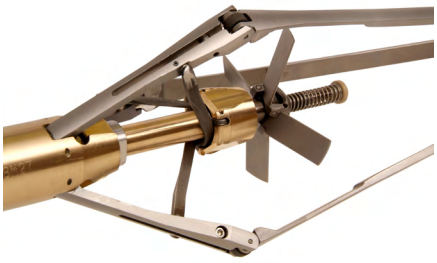
Toolstring specification

Temperature Rating, degF [degC]	350 [177ºC]
Pressure Rating, psi [MPa]	15,000 [103.4]
Toolstring Diameter (Max), in [mm]	2 1/8 [54]
Toolstring Length, in [m]	336.8 [8.55]
Toolstring Weight, lb [kg]	140.2 [63.6]
Toolbus	Ultrawire
Maximum opening	Up to 7 in casing
Materials	Corrosion resistant throughout

Features
- High resolution measurements
- Fast response and low threshold sensors
- Combination with other tools/services
- Memory or surface read-out configurations
- Corrosion resistant materials

Key benefits
- Single-phase, two-phase and three-phase fluid quantification
- Coverage of several pipe sizes
- Easy to operate and use
- Operates in wide range of well conditions

Typical applications
- Production/injection profiling
- Zonal contribution evaluation
- Stimulation performance evaluation
- Water break-through identification



Archer