

# Production Logging Tools

**Nan Gall Energy Systems produces Cased Hole Production Logging Tools for both Memory and SRO (Surface Read Out) operations, together with all the surface hardware and software required to produce API logs ready for analysis.**

The downhole standard Production Logging Tool string is rated to a temperature of 175°C and a pressure of 16Kpsi, and is available in both 1<sup>3</sup>/<sub>8</sub>" and 1<sup>11</sup>/<sub>16</sub>" versions\*.

The Logging Tools interface with either a downhole memory module for slickline operations or a downhole telemetry module for electric line applications.

The downhole memory module is available in various data memory size options. The downhole telemetry module interfaces with a personal computer via a small surface interface box.

Nan Gall Energy Systems provides its own proprietary software (Uni-Soft) with each tool string to allow easy data processing, analysis and presentation.

**The downhole logging tools include:**

- Pressure and Temperature Tools (Quartz or Strain)
- External Temperature
- Casing Collar Locator
- Gamma Ray
- Fluid Identification

**Flowmeters**

- Fixed Bore (various sizes and configurations)
- Full Bore (various sizes and configurations)
- In-line (various sizes)

together with standard accessories such as centralisers and knuckle joints.

(\*A special tool string is available which is rated to 200°C. Please contact us for details.)



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measured performance

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Product Specification Table

Tool Type	Outside Diameter	Maximum Pressure	Maximum Temperature	GR Sensor	GR Sensitivity Range	GR Resolution
Gamma Ray/ CCL	1.69" (4.29cm)	16,000psi (1103 bar)	175°C (347°F)	Scintillator Crystal	0 – 20,000 API	± 1 API

Tool Type	Outside Diameter	Maximum Pressure	Maximum Temperature	Pressure Resolution	Temperature Resolution	Long-Term Drift
Correlation Tool	1.69" (4.29cm)	10,000psi (690 bar)	150°C (302°F)	0.01psi	0.01°C	15psi/annum

Tool Type	Outside Diameter	Maximum Pressure	Maximum Temperature	Pulse per Resolution	Range	Sensor Reference
Continuous Flowmeter	1.6878" (4.29cm)	16,000psi (1103 bar)	175°C (347°F)	10	5 – 5,000 ft/min	Fixed Bore 3.5" from bottom

Tool Type	Outside Diameter	Maximum Pressure	Maximum Temperature	Density Range	Density Resolution	Viscosity Range	Viscosity Resolution	Temperature Range
Viscosity Fluid Density	2.125" (5.39cm)	10,000psi (690 bar)	175°C (347°F)	0 – 1.5 gm/cc	0.001 gm/cc	0 – 20,000 cP	± 0.1 cP	0.01°C
Cement VFD	2.75" (6.98cm)	10,000psi (690 bar)	175°C (347°F)	0 – 2.2 gm/cc	0.001 gm/cc	–	–	–

Tool Type	Outside Diameter	Maximum Pressure	Maximum Temperature	Sensitivity Range
Fluid Capacitance	1.6878" or 1.375"	16,000psi (1103bar)	175°C (347°F)	3 – 40% water, oil continuous mixture only