



Compact™ Dual Neutron (MDN) Tool

Weatherford's Compact dual neutron (MDN) tool provides a borehole-compensated porosity measurement. The MDN is fully characterized for air and mud-filled environments in both open- and cased-hole wells. The tool design minimizes sensitivity to environmental effects; for example, borehole size corrections are smaller than those for conventionally sized tools. Full environmental corrections are applied automatically during data acquisition.

Porosity is recorded simultaneously in apparent limestone, sandstone, and dolomite porosity units. Enhanced resolution processing is available when acquiring data at a high sample rate.

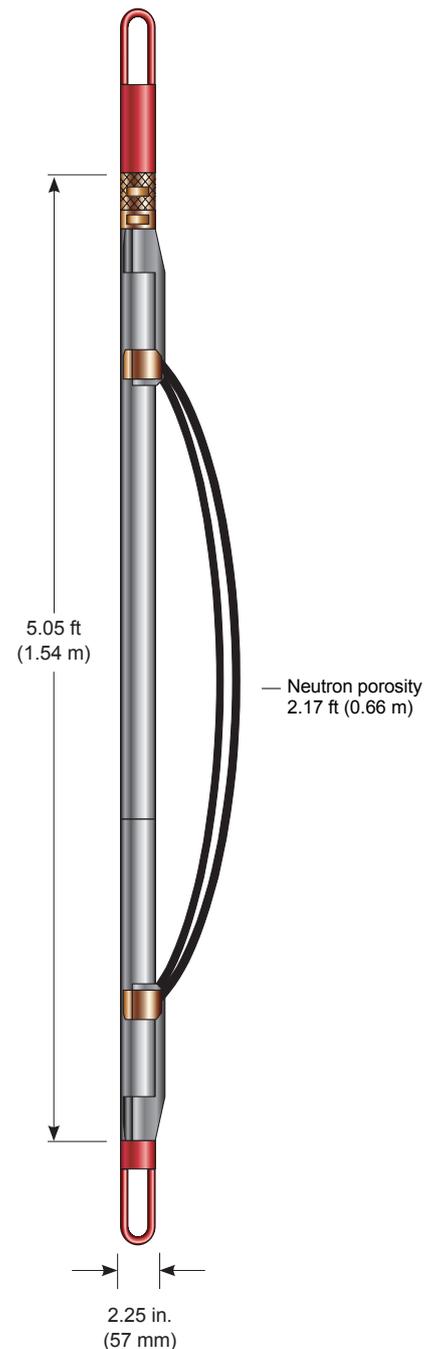
The MDN tool is usually run with a V-bow spring, which forces the tool against the borehole wall for maximum porosity sensitivity. In oval boreholes, this double-spring eccentricizer can keep the photodensity (MPD) tool, which is normally placed below the MDN, aligned along the short axis.

Applications

- Determining porosity and lithology
- Gas identification (with density porosity)
- Determining shale volume
- Providing input for water-saturation calculations
- Providing detailed well-to-well correlation
- Delineating the reservoir
- Determining porosity in open- and cased-hole environments

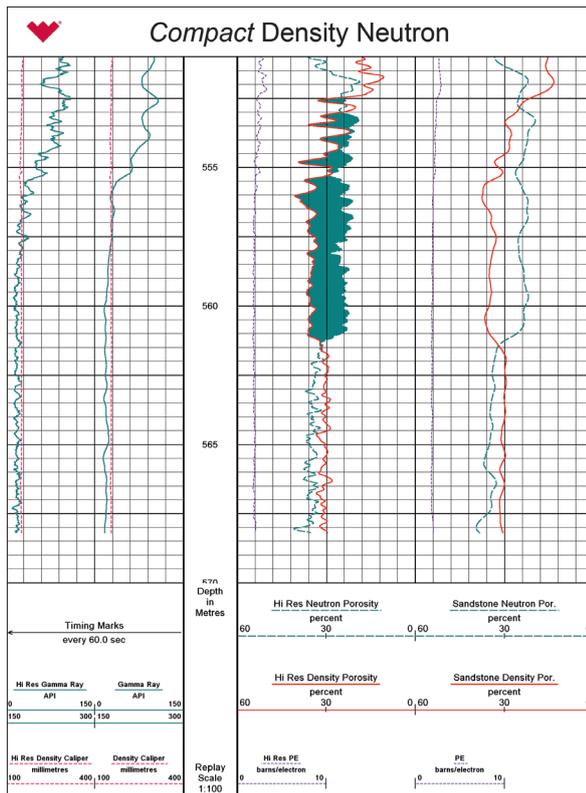
Features, Advantages and Benefits

- The MDN tool is designed with the latest advances in modeling and detector technologies to deliver excellent porosity sensitivity and a 65 percent reduction in radioactive source activity for safer operation and simpler transportation.
- The tool's small diameter enables flexible deployment.
- The tool is characterized for air- and mud-filled environments.



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Log Presentation



Specifications

Measurement specifications

Data	Neutron porosity
Logging speed	3,600 ft/hr (1,100 m/hr)
Measurement range	- 3 to 100 limestone porosity
Vertical resolution	Standard mode: 24 in. (610 mm) VECTAR™ mode: 16 in. (410 mm)
Depth of investigation	10 in. (260 mm) at 20 pu
Borehole fluids	WBM OBM Salt Air (limited)
Resolution	Better than 0.05 at 20 pu

Mechanical specifications

Maximum outer diameter	2.25 in. (57 mm)
Length	5.04 ft (1.54 m)
Weight (in air)	51 lb (23 kg)
Maximum temperature	300°F (150°C)
Maximum pressure	15 kpsi (103 MPa)
Maximum borehole diameter	15.70 in. (400 mm)
Minimum borehole diameter	2.80 in. (70 mm)