

Sidewall Density and Sidewall Density/Guard Probe

The sidewall density gamma probe uses dual shielded detectors to provide a borehole-compensated density measurement with good bed-boundary resolution. The sidewall-density/guard probe offers an additional LL3 focussed electrical measurement with good vertical resolution and depth of investigation.

Principle of Measurement:

The probes contain a detachable ^{137}Cs gamma source and two scintillation gamma detectors. The active windows of the source and detectors are maintained in contact with the borehole wall by a motorised caliper arm. Gamma radiation back-scattered by the formation (Compton effect) reaches the detectors where the relative count rates provide a measure of formation density.

probe specification

> Features

Compensated density output in engineering units (g/cc)
Short-spacing detector for high vertical resolution
Tungsten shielding reduces borehole effects
Standard calibration blocks for field or base use

> Measurements

Bulk density
High-resolution density (HRD)
Natural gamma
Caliper
Options: Guard resistivity, Bed-resolution density (BRD), Temperature

> Applications

Minerals

Density and porosity
Lithology
Bed thickness and boundary location
Coal ash and moisture content

Engineering

Rock strength and elasticity parameters (with sonic log)
Detection of weathered or fractured zones

Water

Location of aquifer and aquitard
Detection of cavities and missing cement

> Operating Conditions

Borehole type: open-hole, water-filled

> Specifications

Diameter: 50mm
Weight: 20kg
Temperature: 0-70°C (extended ranges available)
Max. pressure: 20MPa
Density range: 1.1 to 2.95g/cc
Caliper range: 50mm to 300mm
Resistivity range: 1 – 2,000 ohm-m

> Sales Information

Probes:
I002013 Sidewall density probe
I002016 - includes BRD and temperature
I014720 Sidewall density guard probe with BRD
I001638 Sidewall density aluminium calibration block
I002578 100mCi ^{137}Cs radioactive source
I015114 Elog / Sidewall density guard test box
I015464 Gamma test blanket

