

ABSTRACT

Modular Resistivity Logging Tool Systems and Methods

Resistivity logging tool module systems and methods enable efficient logging string assemblies and logging operations. In some of the disclosed embodiments, a resistivity logging tool module includes a mandrel with a connector section at each end and a ring support section between the connector sections. The resistivity logging tool module also includes a composite layer disposed around the ring support section. A set of ring electrodes is positioned along the ring support section around the composite layer, wherein the composite layer electrically isolates the ring electrodes from the ring support section. One of the modules of the multi-module resistivity logging tool includes an adaptor in an isolation joint configuration with one of its connector sections. A related assembly method includes obtaining a mandrel with a connector section at each end and a ring support section between the connector sections. The method also includes disposing a composite layer around the ring support section. The method also includes moving a set of ring electrodes to a position along the ring support section, wherein the composite layer electrically isolates the ring electrodes from the ring support section. One of the modules of the multi-module resistivity logging tool includes an adaptor in an isolation joint configuration with one of its connector sections.

Fig. 4b