GEOPHYSICAL LOGGING PROBES

Magnetic Deviation

MEASUREMENT PRINCIPLE

The probe employs a combination of 3 axes magnetometers and accelerometers (APSS44 unit) and to measure the probe’s orientation with respect to the earth’s magnetic field (azimuth) and gravitational field (inclination).

The magnetic deviation probe continuously transmits data to the surface logging unit during the survey which is monitored by the operator for integrity, magnetic effects and probe rotation. The probe also measures the magnetic field strength which can be used as a quality indicator for the calculated magnetic azimuth.

This is not a memory system.

The probe records the individual axial strengths of the 3 axes magnetometer and accelerometer thus allowing magnetic vectors to be calculated.

Ideally suited for:

- Borehole directional surveys within non-magnetic ground.
- Magnetic field strength surveys for iron ore exploration and mining.
- Offhole magnetic surveys.

Operations & Calibration:

Minimum borehole diameter of 50mm.
- Air and/or fluid filled borehole.
- Open borehole and/or PVC cased borehole.

Typically recorded in an uphole logging direction at logging speeds of 5 - 7 m/min. (Downhole logging can be recorded for QA purposes).

Final curve units can be degrees magnetic north for the direction and degrees from vertical for inclination.

Calibration is set by the manufacturer.

Probes can be stacked to the top and the bottom of the probe. Typical combinations are:

- Gamma, dual laterolog, dual induction, fullwave sonic, formation density.

<table>
<thead>
<tr>
<th>PHYSICAL SPECIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
</tr>
<tr>
<td><strong>Length</strong></td>
</tr>
<tr>
<td><strong>Diameter</strong></td>
</tr>
<tr>
<td><strong>Sensor Package</strong></td>
</tr>
<tr>
<td><strong>Direction Accuracy</strong></td>
</tr>
<tr>
<td><strong>Inclination Accuracy</strong></td>
</tr>
<tr>
<td><strong>Maximum Pressure</strong></td>
</tr>
<tr>
<td><strong>Maximum Temperature</strong></td>
</tr>
</tbody>
</table>
GEOPHYSICAL LOGGING PROBES

Magnetic Deviation

SINGLE PROBE RUN

COMBINABLE PROBE STACK

Borehole Wireline  781 South Road, PO Box 21 Black Forest SA 5035, Tel + 61 8 8351 3255

reliability | flexibility | transparency | safety  www.borehole-wireline.com.au