Multiple Array Production Suite (MAPS)

In deviated and horizontal wells conventional logging tools are often inadequate to provide a comprehensive analysis of the downhole flowing conditions. MAPS is an innovative well logging technology which enables you to deploy multiple sensors to build a clearer and more accurate image of the flow regime. MAPS makes it possible to provide quantitative estimates of the volumetric flow rates of each phase with a greater degree of confidence. MAPS software shows you how your well is performing by creating detailed 3D images.

Features and benefits

- Complementary suite of well logging solutions:
  - Resistance Array Tool (RAT)
  - Capacitance Array Tool (CAT)
  - Spinner Array Tool (SAT)
- Can be run with any Sondex Ultrawire* tool
- Enhances reliability and reduces maintenance costs
- CATview software (optional) is available for 3D phase profiling
- Provides memory and real-time logging
- Logging can be performed upwards, downwards and stationary
- Detects thin phase layers on the high or low side of a well
- Tool orientation determined by internal relative bearing sensor
- Enables through tubing phase identification
- Allows radial fluid phase measurement
- All tools have collapsible bow-spring arms

CAT features

- 12 radial capacitance sensors
- Cross-sectional water holdup profiling
- Identification of water entry points
- Phase identification of well deviation
- Memory or surface readout operation
- Can be run with any Sondex Ultrawire* tools

RAT features

- 12 micro resistance sensors
- Cross-sectional water holdup profiling
- 3D imaging of water hold up profile with MAPview software
- Water holdup in any fluid regime in vertical to horizontal wells
- Memory and surface readout operation
- Can be run with any Sondex Ultrawire* tools

SAT features

- 6 miniature turbines
- Cross-sectional velocity profiling
- Reduced tool diameter
- Greater tolerance to well debris
- Memory or surface readout operation
- 3D imaging of velocity profile with MAPview software
- Phase velocities in segregated fluid streams in deviated and horizontal wells
## Technical specifications

<table>
<thead>
<tr>
<th></th>
<th>CAT</th>
<th>RAT</th>
<th>SAT004</th>
<th>SAT005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature rating</strong></td>
<td>350°F (177°C)</td>
<td>350°F (177°C)</td>
<td>350°F (177°C)</td>
<td>350°F (177°C)</td>
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<tr>
<td><strong>Pressure rating</strong></td>
<td>15,000 psi (103.4MPa)</td>
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<tr>
<td><strong>Tool diameter</strong></td>
<td>1 11/16 in (43 mm)</td>
<td>1 11/16 in (43 mm)</td>
<td>1.72 in (43.69 mm)</td>
<td>2.125 in (53.98 mm)</td>
</tr>
<tr>
<td><strong>Tool weight</strong></td>
<td>17.3 lb (8.1 kg)</td>
<td>18.0 lb (8.2 kg)</td>
<td>17.2 lb (7.8 kg)</td>
<td>17.2 lb (7.8 kg)</td>
</tr>
<tr>
<td><strong>Tool length</strong></td>
<td>23.25 in (590.55 mm)</td>
<td>51.4 in (1.306 m)</td>
<td>45.5 in (1.156 m)</td>
<td>45.5 in (1.156 m)</td>
</tr>
<tr>
<td><strong>Toolbus</strong></td>
<td>Ultrawire*</td>
<td>Ultrawire*</td>
<td>Ultrawire*</td>
<td>Ultrawire*</td>
</tr>
<tr>
<td><strong>Current consumption</strong></td>
<td>28 mA</td>
<td>70 mA</td>
<td>25 mA</td>
<td>25 mA</td>
</tr>
<tr>
<td><strong>Maximum opening</strong></td>
<td>7-inch casing</td>
<td>7-inch casing</td>
<td>Up to 7-inch casing</td>
<td>Up to 7-inch casing</td>
</tr>
<tr>
<td><strong>Number of sensors</strong></td>
<td>12</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Sensor measure point</strong></td>
<td>18.2 in (462 mm)</td>
<td>15.7 in (398.8 mm)</td>
<td>16.5 in (419 mm)</td>
<td>16.5 in (419 mm)</td>
</tr>
<tr>
<td><strong>Relative bearing accuracy</strong></td>
<td>5°</td>
<td>5°</td>
<td>5°</td>
<td>5°</td>
</tr>
<tr>
<td><strong>Relative bearing development range</strong></td>
<td>5° to 175°</td>
<td>5° to 175°</td>
<td>5° to 175°</td>
<td>5° to 175°</td>
</tr>
<tr>
<td><strong>Materials</strong></td>
<td>Corrosion resistant</td>
<td>Corrosion resistant</td>
<td>Corrosion resistant</td>
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