The micro spherically focused log (MSFL) is used to measure the flushed zone resistivity (Rxo) in boreholes. The tool has a high vertical resolution, and due to its pad design has limited influence by the borehole. When logged in combination with the DLL, the MSFL will provide the shallow measurement for invasion profiling.

The MSFL is a pad mounted device and incorporates a focusing system to direct its measurement current into the formation. The placement of the measuring electrodes is such that it allows the tool to measure the flushed zone. The tool uses two fully independent caliper arms to force the pad against the borehole and output a hole diameter measurement as well.

**Features**

- Fully compatible with Ultrawire™ tools
- Fully independent tool that can be placed anywhere in the string
- MEL/MSFL use a common sonde body allowing the pads to be interchangeable
- Easy to transport – length less than 10 ft
## Micro Spherically Focused Log

**Specifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum OD</td>
<td>3.38 in (85.7 mm)</td>
</tr>
<tr>
<td>Makeup Length</td>
<td>9.27 ft (2.8 m)</td>
</tr>
<tr>
<td>Weight</td>
<td>194 lbs (88 kg)</td>
</tr>
<tr>
<td>Maximum Temperature</td>
<td>302°F (150°C)</td>
</tr>
<tr>
<td>Maximum Pressure</td>
<td>20 kpsi (137.9 Mpa)</td>
</tr>
<tr>
<td>Minimum Hole</td>
<td>6 in (152 mm)</td>
</tr>
<tr>
<td>Maximum Hole</td>
<td>16 in (406 mm)</td>
</tr>
</tbody>
</table>

**Sensor Offsets**

- MSFL: 1.91 ft (0.58 m)

**Borehole Conditions**

- Borehole Fluids: Fresh, salt
- Recommended Logging Speed: 30 ft/min (9.1 m/min)
- Tool Position: Centralized/Decentralized

**Measurement**

- Accuracy: MSFL: +/- 0.5%
- Caliper: +/-3.8 mm
- Caliper: +/-0.15 in.
- Vertical Resolution: 4 in (10.2 cm)
- Radial DOI (50 %): 4.0 in (10.2 cm)
- Measurement Range: 0.2 - 200 ohm-m

**Primary Curves**

- MSFL

**Secondary Curves**

- MSFLCAL

**Hardware and Power Requirements**

- HTool Bus: Ultrawire
- Power: 18 VDC (165 mA)

Specifications courtesy of GE-Energy