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## TECHNICAL DATA SHEET

# SAT

## Spinner Array Tool

The Spinner Array Tool (SAT) utilises 6 mini turbines on collapsible bowspring arms to directly measure local fluid velocities at 60 degree intervals around the circumference of the well bore.

Phase segregation coupled with high well deviation may lead to stratification, slugging or recirculation, which can further complicate data interpretation. With phase separation across the well bore, each moving at different velocities and even different directions, the SAT provides the critical information to simplify and enhance understanding of complex horizontal multiphase flow regimes.

The new miniature Titanium spinner assemblies are mounted on low friction jewelled bearings to reduce mechanical resistance and improve sensitivity to fluid flow.

### APPLICATIONS:

- Measurement of mix and segregated flow regime
- Detection of heavy phase reverse flow
- Quantification of zonal production
- Identification of water fall back
- Leak detection

### BENEFITS

- Quantify the individual flowing velocities of each fluid phase in segregated flow regimes
- Improved accuracy of production evaluation for highly deviated wells
- Slim tool body with bowspring deployed sensors for thru-tubing data acquisition
- Deployable on Slickline, Electric line, Coil Tubing and Tractor
- Designed for all well deviations, particularly horizontal
- Titanium spinners for improved performance



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## Specifications

<b>Temperature rating</b>	350°F (177°C)
<b>Pressure rating</b>	15,000 psi (103.4 MPa)
<b>Tool diameter</b>	1 <sup>11</sup> / <sub>16</sub> in (43mm)
<b>Tool length</b>	49.3 in (1.252 m)
<b>Tool weight</b>	14.3 lb (6.5 kg)
<b>Range of operation</b>	3 - 7 in (76.2 - 177.8 mm)
<b>Number of sensors</b>	6
<b>Spinner diameter</b>	0.4 in (10.16 mm)
<b>Spinner threshold (fluid dependant)</b>	2 - 3 ft/min (0.01 - 0.015 m/s)
<b>Relative Bearing accuracy</b>	±5°
<b>Relative Bearing deviation range</b>	5° to 175°
<b>Materials</b>	Corrosion resistant throughout