HEX (Heat Exchange Logging Tool)

Deployment	Borehole		
Log Name	HEX		
Math Symbol	δT_{hex}		
Model	Fluid flow velocity along the tool		
Sensor Type	Thermoanemometer		
Units	**SI**	**Oil Metric**	**Oil Field**
	°C	°C	°F = 9/5 T [°C] + 32
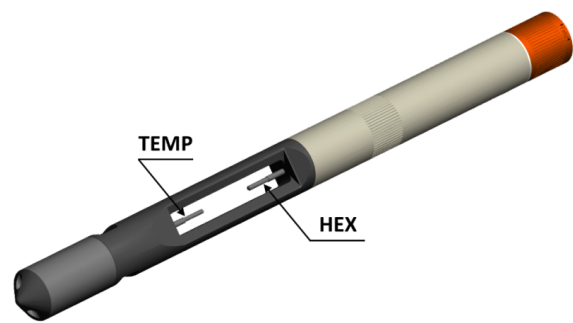
Applications

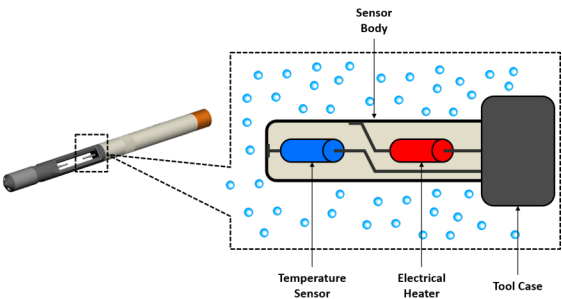- Assesing donwhole flowrate

Sample Logs

Tool Schematic

One sensor is measuring the intake fluid temperature.

The other sensors is heated with constant power.

The difference between heated and unheated temperature sensors depends on fluid velocity and fluid type:

$$HEX = T_{\text{heated}} - T_{\text{intake}}$$

Mathematical Model

$$H_{exf} = S_{\text{slope}} \cdot (v - v_{th})$$

where S_{slope} is some constant depending on tool construction and well completion , v_{th} a critical value of the flow speed which can initiate spinner rotation, v – flow velocity.

See also

[Thermoanemometer]