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HFP-2375 Data Sheet

Heat Pulse flowmeter probes are used to measure water movement up and down the borehole from which fracturespecific flow intervals and rates can be derived. The unique design permits low flow rates to be resolved.



Heat pulse flow meter fitted with centralisers and deviation collar.

A grid heats ambient fluids and if there is up or down flow in the well, this heated fluid mass is detected at thermistor sensors (2 cm from grid) allowing the time (and flow rate) through a known x-sectional area to be recorded by an amplifier. A complete flow measurement is made when the time is accurately measured from when the heat grid is fired to when a peak temperature change, carried by the flow, is detected by either the upper or lower sensor.

MATRIX Heat software is required for recording the data from the HFP-2293 as it is impressive the probe is stationary



during the measurement procedure in order to accurately measure the flow rate.

Although the HFP-2293 cannot be stacked it is necessary to use a calliper probe to accurately measure the diameter of the borehole. In some instances an acoustic televeriewer can be used in place of a standard calliper, but not in all situations.

The Heat Pulse flow meter requires centralisers and a deviation collar to ensure flow is directed thought the measurement chamber. A variety of centralisers are supplied with the tool for common borehole diameters (20cm, 15cm & 10cm diameters).

Applications

- · Measure interval and/or fracture-specific low flow rates
- Identification of hydrostratigraphic units
- Determine transmissivity and hydraulic head
- Confirmation of predicted transmissive zones in open hole

Period will vary of flow rate shorter	dependent on flow rate. Greater distance, and vice versa.				
Sharp drop due to back EME.	Polarity dependent Amplitude depende (not linear relations	on flow direction. ent on water temp ship).	Gradual decay cu	rve. Deph: Acq Time: Pok Time: Row:	2 00 m 06/00/2011 09 45 50 10/35 0 0 0412757 Gal Jmn.
Depth [N] 100 200	Acq Time 08/03/2011 00 10 30 08/03/2011 00 25 42 08/03/2011 00 25 42 08/03/2011 00 25 57 08/03/2011 00 30 59 08/03/2011 00 30 59 08/03/2011 00 30 59 08/03/2011 00 32 31 08/03/2011 00 32 31 08/03/2011 00 31 65	Pick Time[1] 12.45 0.00 0.05 0.95 0.95 0.95 1.15 1.55 1.60 1.60 1.60 2.00	Prev (Gat Anin] 0 0002295 1 0904 0 043023 0 51600 0 634595 0 034695 0 236531 0 395631 0 395631 0 19503		

Typical station record from a the Heat Pulse flow meter. Image courtesy of Mount Sopris Instruments.

Operating Conditions

W - Water ? M - Mud D- Dry

S - Steel ? P - PVC Borehole ? UC- Uncased ?



*Centralization is required

Product Dimensions

Physical	Dimensions (L x W x H)	Weight
(instrument only)	122cm x 4cm x 4cm	5.5kg

Technical Specifications

Sensor:	Two thermistors.
Measuring Range:	0.113 lpm to 3.785 lpm (0.03 gpm to 1.0 gpm).
Measuring Range:	0.046 m/min to 3.962 m/min (0.15 ft/min to 13 ft/min).
Accuracy:	5% midrange to 15% extremes.
Resolution:	5%.