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WIRED POWER PROBE

Measures motor power and current in order to determine overall system effeciency.

FEATURES

- Max Voltage 600
- Max Amps 300

USES

- Pumping Unit Balancing
- Determine Net Gearbox Torque
- Analyze Motor Power Data
- Motor Sizing

The power-current transducer is used for measurement of motor power and current. The amount of power that the motor uses can be measured and compared to the amount of theoretical power required to lift liquid from the net liquid level depth (obtained from an acoustic liquid level test) to determine an overall system efficiency. This is very important for determining wells that are candidates for improved operation. A conventional beam pumped well should have an overall electrical efficiency of approximately 50%. Wells operating at low efficiencies can be further analyzed to determine the proper procedure to improve operations.

Most pumping unit motors consume electricity when the weights are horizontal and generate electricity when the weights are vertical at the top and bottom of the polished rod stroke. The power transducer measures the instantaneous power usage of the motor and this data is digitized. The power consumed and the power generated by the motor are both measured and recorded. This data is analyzed to determine the proper size motor for the well, the loading of the motor and the cost of the electricity supplied to the motor. Most electrical charges also include a demand charge for the electricity used, and the software calculates a consumption and demand charge for each installation.

The power data can be further analyzed to determine instantaneous motor torque. This can be converted to gearbox torque by software-applied efficiencies and the pumping unit speed that is determined from the software. The upstroke and downstroke gearbox torque are both calculated and a recommended distance to move the counterweights to balance the unit is displayed. Pumping unit balance is easy using this power measurement equipment. The power requirement on the upstroke should be balanced against the power requirement on the downstroke for more efficient operations.

The power-current transducer consists of three voltage probes that are attached to the three wires to the motor. Two current transducers are installed around two of the three wires that power the motor. The power-current transducer assembly is compact and has approximate dimensions of 8" x 12" x 8". Wires do not need to be removed or changed in any way to install the power-current transducer.