A New Method of Pump Stroke Position Measurement

Position measurement on pumping units is a significant challenge. Traditional Hall Effect sensors on the crank arm are subject to frequent misalignment, causing erroneous dyno card analysis. Inclinometers are employed to provide a continuous position measurement, but these inclinometers present their own set of challenges. Because they must be mounted on the walking beam, access and safety for installation and maintenance are a concern. Inclinometers operate on the angle of the walking beam relative to gravity and may be less precise at different angles. Some inclinometers have compensation for this. Long stroke linear units do not have a walking beam and so inclinometers are not even applicable to that subset of unit geometries. This presentation will introduce a completely new approach to measuring stroke position that is immune to the alignment issues of the crank arm mounted Hall Effect sensor, and that further can provide a continuous direct linear position measurement. Additionally, this approach enables the sensing of a unique and secondary rod-string dynamic, which has not previously been quantifiable.