



Ex-approved encoders from Leine & Linde provide reliable pipe couplings

General Tubular Services GmbH in Vechta near Osnabrück in Germany has been using optical incremental encoders from the Swedish manufacturer Leine & Linde since its foundation. The general manager of GTS, Udo Boerrigter, is well versed in oil, gas and geothermal drilling, and he has appreciated the extraordinarily high level of reliability and long service life of the encoders for more than 10 years.

Udo Boerrigter, the general manager of GTS, and Leine & Linde sales engineer Andreas Frochte, behind the 7 5/8" hydraulic tongs with a revolution counter. It is centred around an ATEX 632 encoder.

Hydraulic tongs with computerised recording

The hydraulic tongs are used for connecting different types and sizes of connectors in the oil and natural gas industries as well as for geothermal drilling. The tongs are driven hydraulically with a volume flow of 150 to 250 litres per minute and pressures of up to 160 bar. Drilling depths in practical operations are between 100m and 6000m, and the pipe diameters between 1.9 and 20 or even 30 inches.

The lower part of the tongs serves as a holding device for the pipe, which is already in the borehole. The upper part turns the threaded stem of the new pipe into the coupling. As the new pipe turns, the revolutions are measured by a measuring wheel. The rotational motion of the measuring wheel is transmitted to the incremental encoder via a diaphragm coupling. Based on the signal from the encoder, the screw connection computer calculates the rotational speed and the number of revolutions the pipe has already performed. When

the preset number of revolutions is reached, recording of the connection parameters' torque, number of revolutions and rotational speed starts. Using these parameters, the hydraulic tongs are turned off when the preset parameters are reached. This enables very high accuracy to be achieved in the tripping torque, which is essential for a correct connection.

ATEX 632 Incremental encoder

The 632 incremental encoder is intrinsically safe and has ATEX certification, complementary signals and index signal. It meets the requirements of the Ex II 1 G EEx ia IIC T4 safety class and the IP65 protection class.



Satisfied user

From personal experience, what general manager Udo Boerrigter appreciates about the optical incremental encoders from Leine & Linde is their extremely high reliability and long life, as well as their

extraordinary resistance to shocks, humidity, and variations in ambient temperature in the -30 to +40°C range. The high degree of IP65 protection in the application prevents penetration of humidity, and the diaphragm coupling connected to the measuring wheel absorbs a substantial proportion of the mechanical impacts.

Mr Boerrigter also praises the Swedish manufacturer's quick service, good advice and technical documentation, as well as the reliability of delivery dates. Other aspects that he finds highly impressive are the way in which the encoder is modified to conform to the number of pulses he specifies. During the last 10 years his experience of the encoders from the same manufacturer has been nothing but positive.

Company: General Tubular Services GmbH
Location: Vechta, Germany
Production: Hydraulic tongs
Employees: 15 people