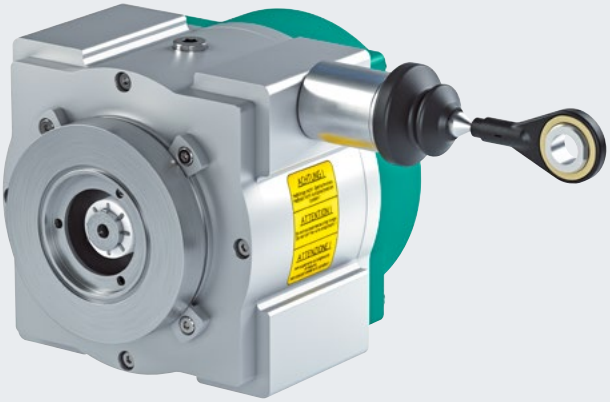
Linear Position Measurement for Pipe Handlers on Offshore Oil Rigs

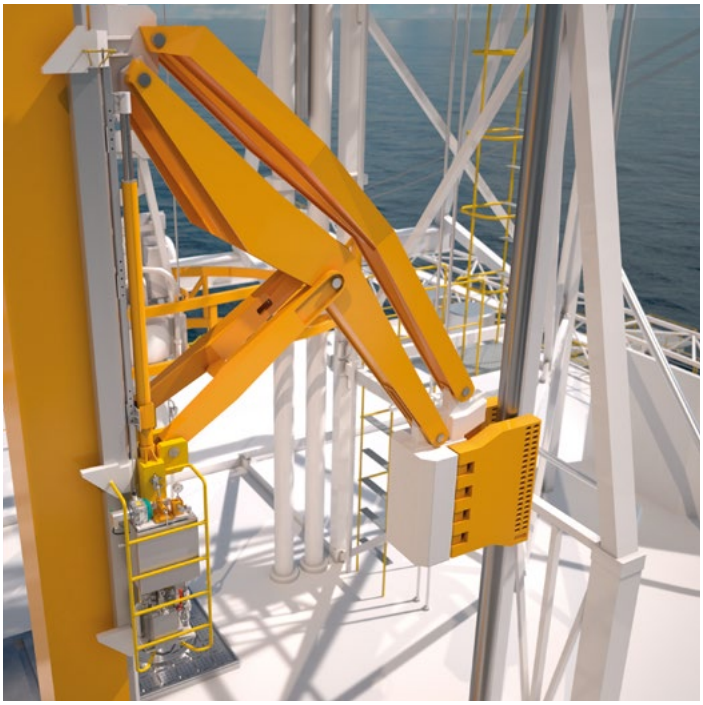
Cable pull rotary encoders for vertical positioning of the gripping unit



The Application

Oil production on offshore oil rigs is not only demanding on people, but also on technology. Extreme weather, high vibration, and the corrosive environment present plenty of challenges.

Production takes place at depths of several thousand meters. Various drill pipes need to be used in order to reach these depths. Drill pipes are supplied by a pipe handler, which transfers them from the interim storage location to the drilling device.



The Goal

A high level of accuracy is required when vertically positioning the gripper arm of the pipe handler. Cable pull rotary encoders are ideal for recording this linear motion sequence. Reliable linear position measurement is essential for ensuring that the drilling process can be carried out without interruption. It is also vital that the harsh ambient conditions do not affect the measurement results.

The Solution

The cable pull rotary encoder records the lift height of the hydraulic cylinder and measures the distance traveled using the measuring cable, which ensures that the pipes required for drilling are reliably transferred.

In combination with 78 series rotary encoders from Pepperl+Fuchs, the cable pull provides absolute reliability and consistently precise measurement results, even in harsh environments. Features of the cable pull include axial drum movement via a threaded spindle, an optional HART-COAT® coating, and various attachments that guarantee optimal protection for the cable pull, thereby increasing the service life. Moreover, a measurement length of up to 60 m allows for precise recording even over longer distances.

The Benefits

With a temperature range of –40 °C to 70 °C, the rotary encoder can reliably withstand even extreme offshore conditions. The robust housing is designed to ensure a longer service life and reduce maintenance. The cable pull provides reliable measurement results over long distances and when there are frequent changes in movement . In addition, the cable pulls are equipped with a mechanical structure that is specially designed to ensure minimal wear and a long service life. The modular design of the rotary encoder and cable pull makes mounting and maintenance easier. Since the cable pull and rotary encoder can be separated, the entire device does not need to be replaced when one component needs to be changed.

At a glance:

- Rugged solution for reliable operation in harsh environments
- Drum is moved in axial direction via threaded spindle to ensure high level of measurement accuracy and reliable processes
- Optional HART-COAT® coating for use in harsh environments
- Ex rotary encoder with removable connection cover: flexible mounting and wiring on-site
- Easy maintenance: separation of the cable and rotary encoder means there is no need to replace the entire device

More information can be found at
www.pepperl-fuchs.com/px-exencoder