

Pipe Handler Positioning in Harsh Conditions

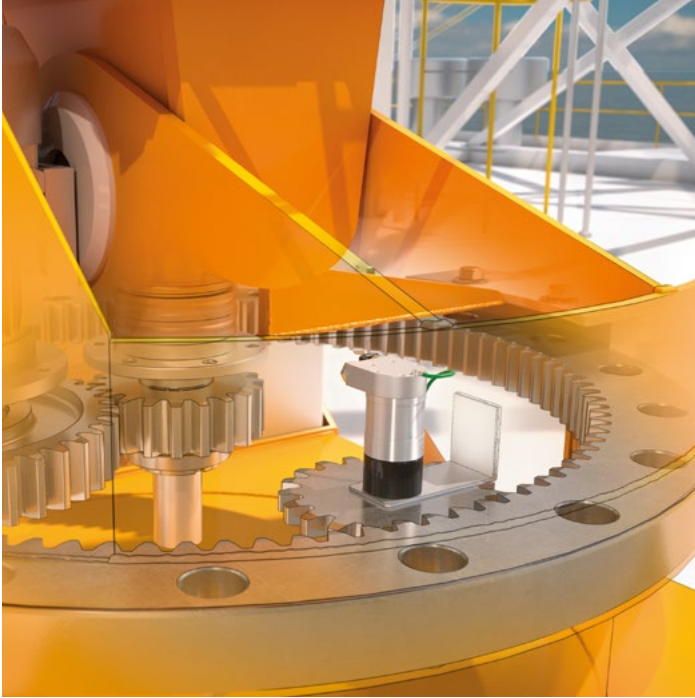
78E series ex rotary encoders for
use on oil rigs



The Application

Oil production on offshore oil rigs is not only demanding on people, but also on technology. Extreme weather conditions, severe vibrations, and the corrosive atmosphere present plenty of challenges. Production takes place at depths of several thousand meters. Various drill pipes need to be used to reach

these depths. The drill pipes are supplied by a pipe handler, which transfers them from an interim storage location to the drilling device. A rotary encoder is one of the elements responsible for ensuring that the complete unit and grabber are positioned correctly.



The Goal

Various drill pipes are used to reach depths of several thousand meters. From its mount on the actual drilling device, the pipe handler removes the required drill pipes from the interim storage location and then feeds them to the drilling device. Positioning the pipe handler requires high accuracy to ensure that the drilling process can be carried out without interruption. It is also vital that the positioning is not affected by adverse ambient conditions.

The Solution

The AVM78E rotary encoder from Pepperl+Fuchs is ideal for high-precision positioning tasks in extreme ambient conditions. It was developed especially for use in explosive and harsh environments. The rotary encoder is also suited for rotational speeds of up to 3000 rpm and is designed to withstand temperatures from $-40\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$, meaning that it performs reliably, even in extreme offshore conditions. The robust housing ensures a longer service life and reduces maintenance.

The Benefits

The modular design with removable connection cover makes mounting the device easier. Because the cable connection cover and rotary encoder can be separated, the entire device does not need to be replaced when one component needs to be changed. The rotary encoder also conforms to Ex d protection and meets the international ATEX, IECEx, and Ex-NEPSI requirements for gases in Zones 1 and 2, and dust in Zones 21 and 22.

For fieldbus versions, the bus coding can be freely programmed directly on-site. The rotary encoder is certified for use in both hazardous areas (Group II) and firedamp hazardous mining areas (Group I).

At a glance:

- Rugged design that has been tailored for offshore applications
- Removable connection cover: flexible mounting and wiring onsite
- Simple servicing: separation of the cable and rotary encoder means there is no need to replace the entire device
- ATEX, IECEx, and Ex NEPSI certification for global use in Zones 1 and 21
- Wide range of versions for easy adaptation to any application