CAMERON
A Schlumberger Company

Tool Joint Assist

Camera-based tool joint detection system

APPLICATIONS

Onshore and offshore operations requiring roughnecks

FEATURES

- Precise height adjustment
- No mechanical wear
- Easy configuration and storage of predefined pipe profiles

BENEFITS

- Integrates with the X-COM* operator chair
- Enables high-quality images from camera(s)
- Contributes to the fast and efficient auto cycle operation of iron roughneck
- Reduces need for personnel on drill floor
- Provides confirmation of stickup height before machine obstructs view

Cameron set the standard for multifunctional drill floor tools, and the tool joint assist system further enhances the level of efficiency and operational safety of the iron roughneck.

The system comprises one or more digital cameras located in either safe or hazardous area.

A computer-based system interfaces the cameras and uses software to evaluate the images for assisting the operator in setting the correct stickup or tool joint height.

Product description

As an optional feature for the roughnecks, the tool joint assist system enables the control system to assist the operator in adjusting the stickup or tool joint height, in order to position the iron roughneck at the correct height during auto cycle operation.

With the camera-based system, the need for a visual check of stickup height positioning by personnel on before drill floor is highly reduced and, in most cases, eliminated.

The main objective of the system is to assist the operator in efficient and safer operation.

Typical sequence

1. Roughneck idles
2. Operator confirms sequence start
3. Tool joint assist system takes picture of stickup and tool joint and proposes height setting
4. Operator can easily adjust detected stickup height before machine clamps on

The image that the operator sees is a clear picture of the pipe, with no machines obstructing the view.

Product platform

The tool joint assist system uses high-resolution camera(s) to capture images of pipe target(s).

The image from the tool joint assist system indicates the current height configuration with a red line.

The images are triggered when the roughneck is ready to position itself to make up or break out pipe connections and joints. These images are presented to the operator with a red line representing the current height configuration for the roughneck.

The operator can easily adjust the height setting up or down, using the operator joystick before confirming the correct stickup height. The operator adjustment dynamically adjusts the height indicator in the presented image.

The tool joint assist system helps the operator to set the correct stickup height for the roughnecks. It is especially helpful where the operator cannot see the opening of the tongs, either due to other machines blocking its view or the physical placement of the machine on the drill floor.

The tool joint assist system offers a graphical view of the pipe and a presentation of stickup height integrated in the X-COM chair. This enables fast operation and precise height adjustment of iron roughnecks.

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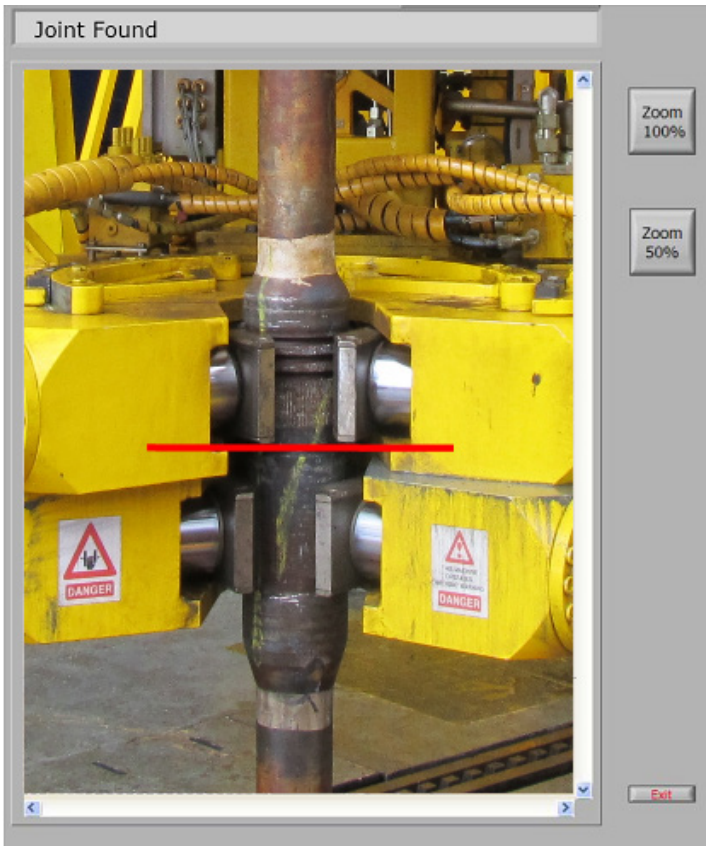
Specifications		
Technical Specifications	**SI**	**Imperial (US)**
Diameter range, drilling tubular pipes	89 to 254 mm	3½ to 10 in
Working area	600 mm (± 300 mm of camera height)	23 in (± 11.5 in)
Design temperature range (only relevant for IECEx housing)	–20 to 40 degC	–4 to 104 degF
Classification (only relevant for IECEx housing)	Suitable for IECEx Zone 1	

Scope of supply

- One camera for single target
- Computer with software
- Integration with X-COM operator chair

Options

- Additional cameras for additional targets
- IECEx camera housing for hazardous area mounting
- Integration with third-party operator chair



The tool joint assist system camera picture is integrated to the HMI and indicates a red line where it found the joint between the upper and lower tool joint.

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