



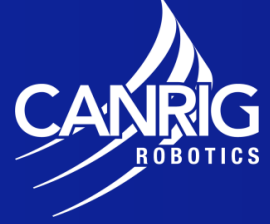
Robotic Roughneck

World's first fully electric.



Robotic Roughneck

RRN-250



The electric robotic roughneck is the world's first fully electric, robotic roughneck for making precise connections during drilling operations.

Replacing the need for casing crews and manual tongs, the electric roughneck is capable of handling high torque (250 kNm) and enables full control of all parameters. It can be used for various sizes of both drill pipe and casing. The height of the torque wrench and backup tong can be individually adjusted to handle bottom hole assemblies and other challenging drilling operations. The all-electric make / break functions and clamping functions allows for applying accurate torques in accordance with OEM tubular recommendations. Its large range from 4 inches to 14 inches allows the RRN to torque casing and combining data from the RPH's Spinner Grippers with the data from the RRN which gives a complete torque-turn curve for the connection.

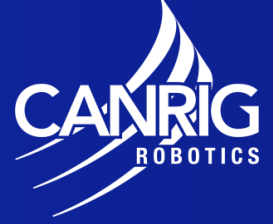


Features & Benefits

<ul style="list-style-type: none">• Fully electric, nine axis robot for pipe and casing	<ul style="list-style-type: none">• Built-in HTV capability
<ul style="list-style-type: none">• Self-contained with hardware controls• built-in for easy installation and integration	<ul style="list-style-type: none">• 3500 kg handling capacity on each pipe handler manipulator arm
<ul style="list-style-type: none">• Capable of spinning stands	<ul style="list-style-type: none">• Stand/casing building capability
<ul style="list-style-type: none">• Low maintenance requirement	<ul style="list-style-type: none">• Lower arm/gripper can be used for BHA components and lifting subs

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Specifications

Service	Make up and break out connections of drill pipe, tubing, subs and casing
Torque (preliminary, based on prototype actual capacity)	250,000 Nm (between torque wrench and backup tong) 75,000 Nm (between torque wrench and tracks)
Pipe Capacity (Diameter)	4 in to 14 in
Weight	12,000kg
Dimensions (HxWxD)	3,9 m x 2,5 m x 3,4 m
Power Requirements (Preliminary)	<ul style="list-style-type: none">• Approximately 80 kW peak, 22,75 kW on average• Voltage: 400-480 VAC, 50/60 Hz / 3 phase+ N• Circuit Breaker: 100A• Built-in Energy Recovery System

