Vero™ Conventional System

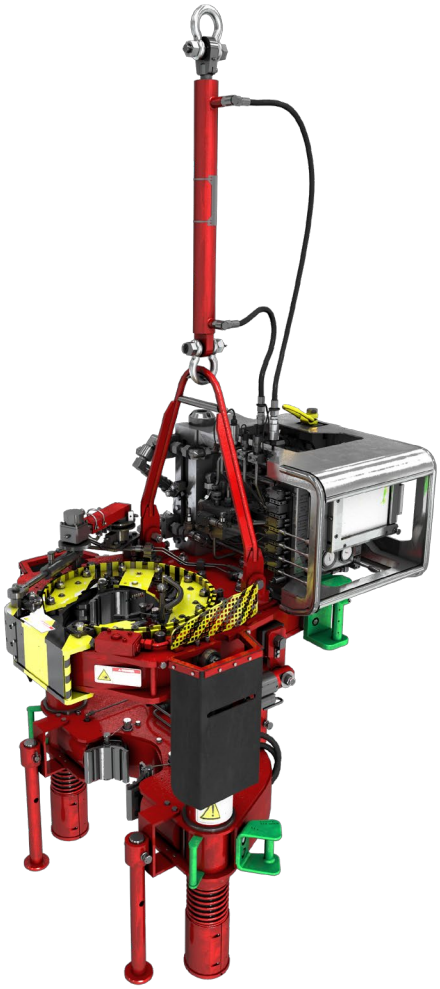
Automates the makeup and evaluation, or breakout, of premium pipe connections on land and shallow-water rigs

Applications

- Standard tubular strings
- Premium, corrosion-resistant alloy (CRA) tubular strings
- Completion strings

Features and Benefits

- The Vero conventional system automates the final makeup and breakout with computer-controlled precision for enhanced efficiency and integrity:
  - A speed-control algorithm uses continuous torque measurements, which signals the system to automatically slow down the makeup speed when approaching the optimum torque. These speed adjustments eliminate the need for a traditional dump valve and the corresponding sudden stops in the process.
  - A system-mounted controller uses a speed-control algorithm to maintain consistent, repeatable makeup to the same OEM (original equipment manufacturer) connection parameters every time.
- The built-in Vero software feature autonomously evaluates and accepts or rejects connections with improved accuracy:
  - Automatic torque-shoulder detection increases accuracy, which eliminates the need for manual data adjustments by an operator.
  - Integrated Vero software evaluates connections according to OEM criteria.
  - The troubleshooting advisor application identifies root causes of makeup issues and recommends corrective action.
- The conventional system reduces human input and physical work to enhance safety and minimize risks:
  - Prepopulated parameters eliminate the need for manual entry and an on-site operator.
  - Load-cell identification capability eliminates the need to manually enter load-cell information, which reduces the possibility of overtorqued or undertorqued connections and potentially catastrophic failures.
  - Electric load cells mounted on each side of the system negate the need to switch load cell connections between makeup and breakout and the redundancy of measurement values.
- The system combines the latest technologies with proven equipment to provide reliable access to operations:
  - Remote-viewing of makeup graphs is included, which depends upon an Internet connection on the rig.
  - WiFi-enabled computer system makes monitoring possible on an additional computer in the doghouse.
  - Zone 1 rated tablet enables viewing the evaluation software on the system.



To operate the Vero conventional system, the operator simply pushes a button. The system automatically controls the final makeup speeds, detects shoulder torques, and evaluates connections.

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Tool Description

Used for applications on land and shallow-water rigs, the Weatherford Vero conventional system enhances connection integrity by automatically making up or breaking out pipe and by autonomously evaluating pipe connections. Automated makeup enables precise control of the process, independent from any operator-specific influences or other human factors. Autonomous evaluation eliminates subjective graphical interpretations.

The conventional system fully controls makeup to the final torque, and it evaluates makeup data with resolution 10 times more refined than the human eye can see on legacy screens. During the connection makeup process, real-time torque monitoring and adaptive speed control help to regulate the torque and revolutions per minute. This precise control and consistent evaluation increase dependability and repeatability to reduce well integrity risks.

The system offers simple operation, which shortens the learning curve and reduces the knowledge requirement for personnel. To initiate the final makeup process, the operator pushes a single button on the handgrip of the system. The system then controls the process and makes up and evaluates based on the pipe and thread OEM criteria. The dual displacement motor and hydraulic valve section enable the system to precisely control the connection makeup speed. A tablet mounted on the system displays a torque/turns graph, indicates system status, and enables data entry.

The system includes real-time access for remote viewing of the connection data produced during the well construction process. This access enables offsite monitoring and review of connection makeup graphs and autonomous evaluation results from the system software.

Specifications

Model	7.6-30
Pipe range	2-3/8 to 7-5/8 in.
Maximum torque	30,000 ft-lb (40,675 N·m)
WiFi enabled	Yes
CRA capability	Yes
Remote evaluation access	Yes
Remote diagnostic access	Yes

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