Weatherford®

REAL RESULTS

Weatherford, Sumitomo Collaborate, Design New Threaded Tubular Makeup/Breakout System, Set Record Torque Value of 375,000 ft-lb

The custom-built, hands-free pipe-feeding, hydraulic makeup/breakout system could accommodate tubulars from 2-3/8 to 20 in. with a maximum weight of 7.5 tons (6.8 metric tons) and provide up to 375,000 ft-lb (508,431 N·m) of torque.

Objectives

- Provide a makeup/breakout system that enabled Sumitomo Metal Industries to perform laboratory and simulated rig-site testing of all of its existing and new premium, integrated connection designs.
- Integrate the system within Sumitomo's SMI testing facility, including being able to conduct tests with real-world conditions on the facility test rig while meeting operational objectives and strict governmental specifications.
- Use a 100% hands-free system to improve personnel safety.

Results

- Working with Sumitomo's operations team, Weatherford custom-designed and built a hands-free, pipe-feeding, hydraulic makeup/breakout system that could accommodate tubulars from 2-3/8 to 20 in. with a maximum weight of 7.5 tons (6.8 metric tons) and provide up to 375,000 ft-lb (508,431 N·m) of torque.
- The horizontal loading frame, specifically designed for Sumitomo, was capable of handling tubulars from 2-3/8 to 20 in. with a maximum weight of 7.6 tons (6.8 metric tons).
- The TorkWizard™ 20-375 Ultra horizontal makeup/breakout unit was newly designed to handle tubulars from 4-1/2 to 20 in. with 375,000 ft-lb (508,431 N·m) maximum torque available for a 20-in. OD tubular.
- Weatherford designed the complete system so that the tubulars could be placed onto the loading frame and each component perform its function before handover to the next stage.

The *PowerFrame* III hydraulic positioning device, the mechanized casing tong CT 14-100, and the TPC-DF torque process control system simulated real rig-site conditions within Sumitomo's testing facility.

Client
Sumitomo Metal Industries

Location
Japan

Products/Services
- Horizontal loading frame
- ComCAM 20-160 bucking unit
- *TorkWizard* 20-375 Ultra horizontal makeup/breakout unit
- Torque process control (TPC-DF) computer system
- PowerFrame™ III hydraulic positioning device
- CT 14-100 mechanized casing tong

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Results (continued)

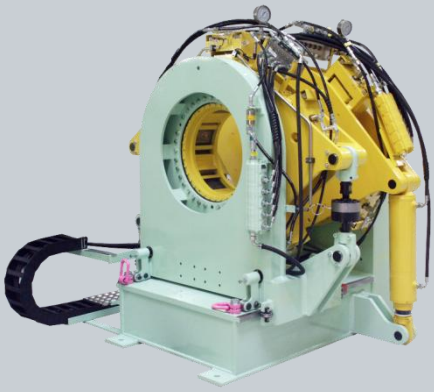
- To simulate real rig conditions during connection testing, a *PowerFrame* III, a mechanized 14-100 casing tong, and a TPC-DF torque monitoring system were provided to test and record the connection designs in vertical positions.
- Operated from the control panel, the entire integrated, mechanized horizontal and vertical makeup/breakout system complied with Sumitomo's objectives and strict government specifications.
- The hands-free solution removed personnel from hazardous areas, improving overall safety.

Value to Client

- Weatherford personnel worked with Sumitomo to integrate particular components within the testing facility and customize those components to meet Sumitomo's requirements and government specifications.
- Weatherford extended Sumitomo's research, development, and testing capabilities for all existing and new tubular connection designs.
- The hands-free operation enabled Sumitomo to safely and efficiently handle tubulars and perform connection testing.

The designed-for-purpose loading frame handles tubulars from 2-3/8 to 20 in. with a maximum tubular weight of 7.5 tons (6.8 metric tons).

The ComCAM 20-160 bucking unit accommodated tubulars from 2-3/8 to 20 in., matching the loading frame's weight and size requirements



The *TorkWizard* 20-375 Ultra unit was designed to meet Sumitomo's specifications and can handle tubulars from 4-1/2 to 20 in. with a maximum torque of 375,000 ft-lb (508,431 N m).

