

Catwalk on Jackup Rig Helps Improve Efficiency and Safety of Tubular Pipe Handling

The Challenge

Jackup drilling rig manufacturers and contractors continue to seek differentiation from their competitors' offerings by adding features that can help operators improve drilling effectiveness, while reducing downtime, cost of ownership and HSE risks. Their challenge, based on the comparable day rates between jackups and deepwater rigs, is to incorporate efficiency-gaining technologies on a limited budget. Historically, jackup rigs offered minimal pipe handling capabilities, which allows them to operate within their allocated day rate budgets.

A leading jackup rig builder wanted to think outside the current pipe handling product offering and provide a better solution to transport tubulars from the pipe deck to the rig floor. They were searching for a pipe transfer solution that was cost-effective, lightweight and modular in design. They also envisioned using it in conjunction with their existing offline activity crane (OAC) to build stands safely and efficiently.

The client chose to collaborate with the Forum Energy Technologies team because they have historically been able to safely deliver tubulars with their Pipe Wranglers® hydraulic catwalks. Forum was asked to design and manufacture a jackup-specific catwalk that would help change the way drillers handled pipe transfer, yet fit into the available confined deck space. This joint solution could then be retrofitted for different rig models.

The Solution

After reviewing the customer's challenges and other jackup tubular handling and pipe transfer solutions, Forum and the rig builders' engineering team concluded that tailoring the Forum Pipe Wranglers pipe delivery system for the contractor's jackup rig would offer immediate and numerous differentiation opportunities.

Compared to conventional elevated systems, Forum's solution would provide improved visibility across the pipe deck area, allowing a single crane to load and unload pipe onto the catwalk at the rig deck level. It also eliminated the need for employees to work at significantly elevated levels; thus, improving efficiency and safety. The new catwalk filled the standard jackup void for tubular handling processes by providing key features, including:

- A self-powered traversing system to mimic the cantilevered drilling package movement without the assistance of a deck crane
- Unparalleled accessibility since pipe could be loaded in singles or bundles onto the catwalk staging section using the rig supplied deck cranes—additional pipe handling cranes were not needed
- The ability to run 30-in. surface casing utilizing specialized conductor carts

- A rack and pinion skate and tailing arm system that offered precise presentation and control of the pipe from pickup and lay down sequences by the rig floor pipe racking system or topdrive
- Integration software allowed the builder to incorporate the joint catwalk into third-party controls, further helping the rig builder to upgrade their product offering by enhancing the standard drilling package



The Benefit

While initially designed for new builds, the rig design was proven standard and has been adopted by various contractors. The catwalk can easily be added to an existing rig to enhance the pipe handling capabilities.

Through the combined effort between Forum and the drilling contractor, this special-model, automated system requires no physical connection with the drill floor module and moves transversely independent of the drilling module when repositioning port/starboard. This could significantly reduce safety risks for the drilling crew, and improve drilling productivity and performance.

The partnership offers operators an offshore catwalk with best-in-class cycle times for moving drilling and completion tubulars from the pipe storage area to the mousehole (55 sec) and well center (75 sec) pickup positions on the drill floor.

The contractor also saw:

- Improved automated stand building times versus manual stand building, reducing downtime
- Improved efficiency by minimizing crane usage and mitigating waiting-on-weather events
- Overall project cost savings with the tailored solution for pipe handling