

Forum's Innovative Choke Manifold Design Allows Fast-Track Program to be Completed, While Delivering Cost Savings

The Challenge

Installing manifolds on a new rig or ship, as it is being constructed, can be an easy task provided all planning has been completed (i.e., ensuring that manifolds are available for integration on the drill floor before closing off sections or installing other equipment, which could obstruct manifolds). Adding a new manifold on an old rig can be a more challenging project.

A global drilling contractor contacted the Forum Energy Technologies Drilling team to safety design, manufacture and install a choke and kill manifold (54 valves; 4200mm x 4200mm x 5000mm; 42 ton weight) through a 3000mm x 1850mm opening in the drill floor roofing structure, without disturbing existing machinery or piping. The customer required a short construction program due to the need to make the rig available for contract.

The Solution

The contractor created an opening in the roof structure to allow the new equipment to be installed. The opening size was restricted to minimize structural alterations. Forum's engineering group worked with the customer to develop the requested manifold. The design was approved with no major changes before manufacturing, assembly and testing were completed over a 28-week period.

Forum designed a split-able choke manifold assembly that included the latest industry specifications. Upon completion, all pieces (listed below) were dismantled and packed for shipment. The assembly design allowed the sections to be road transportable to the customer's shipyard and inserted onto the drill floor through the small opening. Once all components were laid out on the drill floor, the manifold was re-assembled and successfully pressure tested.

- Choke and kill manifold (42 tons, 3-1/16" 15K working pressure x 4-1/16" 10K working pressure)
- 3-1/16" API 15K choke valves
- 3-1/16" API 15K gate valves, manual and hydraulic
- 2 1/16" API 15K gate valves, manual
- 4-1/16" API 10K gate valves, manual
- 2-1/16" API 10K gate valves, manual
- Instrumentation, structural skid, ladders and walkways

The Benefit

The contractor was able to install a significant piece of new machinery onto an existing rig with minimal dismantling, ensuring that most of the existing machinery remained in place. The restricted opening and separate pieces ensured a safe working environment during the re-assembly phase and allowed the crew to work on other projects on board at the same time.

Forum was able to provide a performance-proven manifold assembly tailored to meet challenges. The customer was able to have the rig available for its next drilling contract while keeping the project refurbishment time and costs to a minimum.

