



TenarisHydril Blue® Riser connections successfully run in triple stands in the deepwaters of the Mediterranean Sea

The Blue®Riser offered superior fatigue and galling resistance, robustness and outstanding internal pressure ratings in the landing string operations of a multi-well development campaign.

Summary

Reusable landing string for deepwater environment

A major operator working in the challenging deepwaters of the East Mediterranean Sea approached Tenaris to request products able to perform in this extremely demanding environment. A faultless completion campaign was required in order to conduct well testing operations on eight deepwater wells located at a water depth of 650 meters producing from a high-pressure sour reservoir. In addition, the oil and gas company decided to install the joints in triple stands to improve running times.

To face these challenges, the operator needed products able to offer optimum sealability and high fatigue resistance, as well as reusability and the low risk of galling associated to it. TenarisHydril Blue® Riser connections were selected for this deepwater project, and they were successfully tested and run with the support of Tenaris field service specialists. The connections were smoothly installed in triple stands, helping the operator achieve a running time of 9 joints/hour.

Challenges

A landing string for multiple use

To face the difficulties posed by this harsh deepwater environment, the operator needed a 9 5/8" sour resistant landing string with an internal pressure rating of 15 ksi to land the completion assembly and carry out the planned well testing operations. This string had to be reliable and strong enough to land the completion assembly on 8 wells of the same reservoir.

The products selected for this application had to meet the requirements of ISO 13628-7:2005 for completion/workover riser systems, including additional testing like fatigue and multiple make-and-break (bending to failure limit load).

PROJECT PROFILE

Location East Mediterranean Sea	Products Highlighted TenarisHydril Blue® Riser connection
Type of Well Deepwater Development	Services Provided <ul style="list-style-type: none"> • Tubular accessories • Full-scale testing • Field services



▲ The TenarisHydril Blue® Riser connection proved to be a valuable answer to face deepwater challenges.

Further challenges came from the customer's decision to run the string in triples using a collar type elevator, to improve the running speed and reduce operational times at the rig site.

Solutions

Proven reliability

The operator chose the TenarisHydril Blue® Riser connection for the 9.625" OD x 0.860" WT (80.8 #) C110 casing string. This connection offers an exceptional level of fatigue resistance and sealability performance.

The Blue® Riser was tested for sealability under the API RP 5C5 CAL-IV testing protocol. A dedicated gap analysis was conducted with Engineering Analysis & Design Consultants to compare the available qualifications versus the ISO 13628-7:2005 requirements, confirming the suitability of the connection for this particular operation.

Make-and-break testing

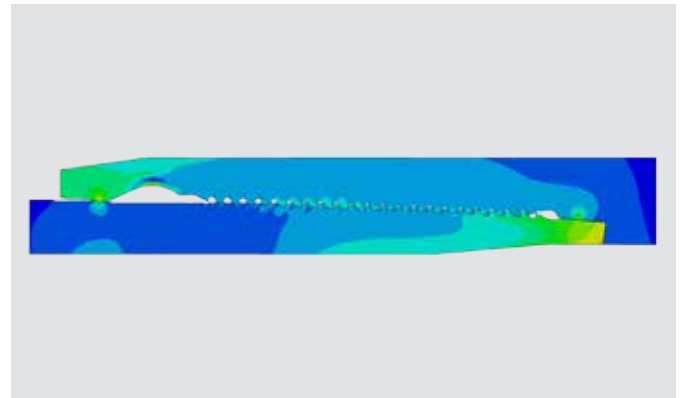
As part of the customer qualification process, a full-scale test was carried out on the 9.625" OD x 0.860" WT (80.8 #) C110 Blue® Riser connection to verify its galling resistance. The test also helped the operator define the optimal power tong capacity for the intervention campaign. As a specific feature, this connection has a higher break-out torque than make-up torque, which mitigates the risk of accidental breakouts due to vortex-induced vibrations in open water operations. During the full-scale test, up to 15 make-up/break-out cycles were performed on the same connection without damage.

Internal pressure rating on sour service material

The accessories (CrossOver) were selected in Inconel 718 alloy and a surface treatment process was applied to further ensure satisfactory galling resistance. Additionally, Test Fixtures (Cap/Plug) rated up to 15ksi internal pressure were requested. Since these products must resist multiple make-and-break cycles, a dedicated soft seal was selected and designed to achieve the required performance.

Field service assistance

Tenaris field service specialists were present at the rig site during the operation. These highly trained and certified experts promote operational safety and efficiency, offering advice on the appropriate use of Tenaris products and on the application of the relevant operational practices during installation.



▲ FEA: bearing face load evaluation.

Results

A safe operation with big achievements

The operator conducted a field trial during the running in stands of the Blue® Riser connections, to verify their run-ability as well as their racking and protector performance. The tests showed that the Blue® Riser was able to withstand the difficulties posed by such demanding deepwater conditions.

The operator conducted eight cycles of running-in and pulling-out of hole for the string with TenarisHydril Blue® Riser connections, showing they can be effectively reused without damage.

The joints were run in triple stands, with approximately 400 connections made-up at the rig site. The operator was able to smoothly conduct this challenging operation with outstanding results. With the help of Tenaris field service specialists, the oil and gas company reached a running speed of 9 joints/hour.

After the operation was completed, the customer voiced its satisfaction, underlying the timely delivery of the pipes, the quality of the products and the support provided by Tenaris's field service specialists. The oil and gas company mentioned it is already considering the use of TenarisHydril Blue® Riser connections in deepwater operations worldwide.



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