



Tenaris provided a drilling with liner solution in an offshore operation in Brazil

TenarisHydril ER™ connection proved to be efficient overcoming circulation losses.

Summary

The operator decided to use the TenarisHydril ER™ connection on a drilling with liner application with OCTG (casing) pipes at an offshore platform and requested a complete technical analysis to make sure the connection would perform under the expected circumstances.

Although the customer ordered a special clearance option of the connection, the operational results obtained were satisfactory. It proved to be resistant to material abrasion, and was able to handle the necessary torque. The use of the TSH ER™ reduced operating costs and time, thanks to the special method for simultaneously drilling and casing the well.

The operation was scheduled to be completed in a few days, which is why quick analysis and the expertise of those involved in the challenge made a difference to the work, which turned out to be a successful operation in Brazil for both companies.

Challenges

Time and Cost Reduction

The permanent search for new energy sources has led the oil and gas industry to develop new drilling, completion and production technologies. For example, drilling with standard OCTG pipes –unlike drilling with pipes specifically manufactured for that purpose (drill pipe)– has undergone significant growth. One of the major impacts of this trend is the reduction in the number of operations at the platform, leading to lower costs, since the well is drilled and cased at the same time.

The possibility of minimizing the problems that may arise due to delays while drilling in difficult areas (risk of lost circulation, well collapse and changes in the salt layer) makes this technique a great ally of cost reduction, since complex offshore environments require agile implementation of solutions, given the high cost of rig space and materials.

In this case, considering its prior experiences, the customer was expecting lost circulation during the drilling stage of a well to obtain information on the reservoir in the Campos Basin.

PROJECT PROFILE

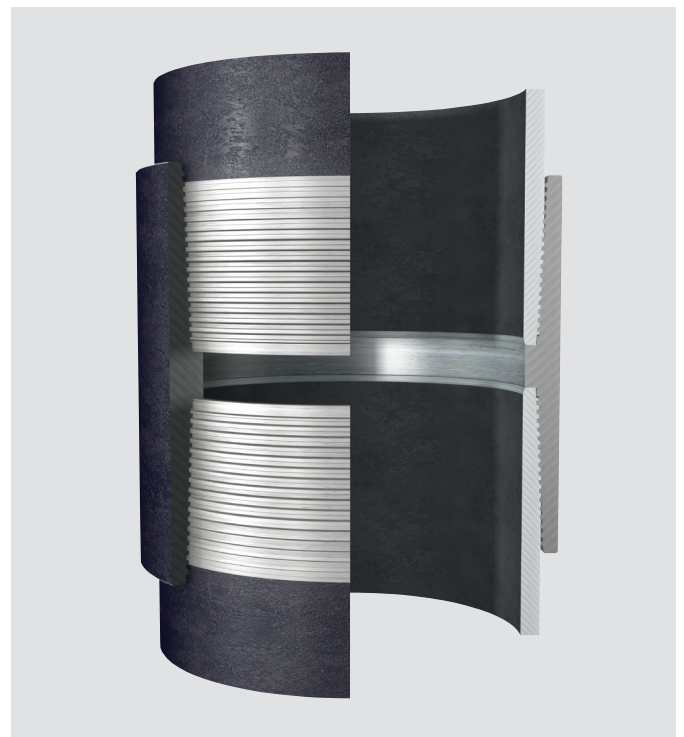
Location

Badejo Field -
Campos Basin.
Rio de Janeiro,
Brazil



Products highlighted

16" TenarisHydril ER™



▲ TSH ER™ connection minimizes the cross threading risk, is easy to stabilize and fast to make up.

Solutions for the Customer

Resistance and Strength for High Performance

The standard OCTG connections have not been designed to undergo dynamic stresses for long periods of time. Thus, for the drilling operation to be successful, the connection should be strong enough to be able to withstand the stresses that develop during operation and to keep the structural integrity and sealability of the connection upon completion of the process. In this operation, the string rotates while drilling. Other important features of this application are: resistance to material abrasion, ability to absorb over-torque, resistance to compression and high fatigue performance. The worst scenario is when dynamic stresses are considered, since the presence of alternative stresses causes fatigue during pipe-connection makeup.

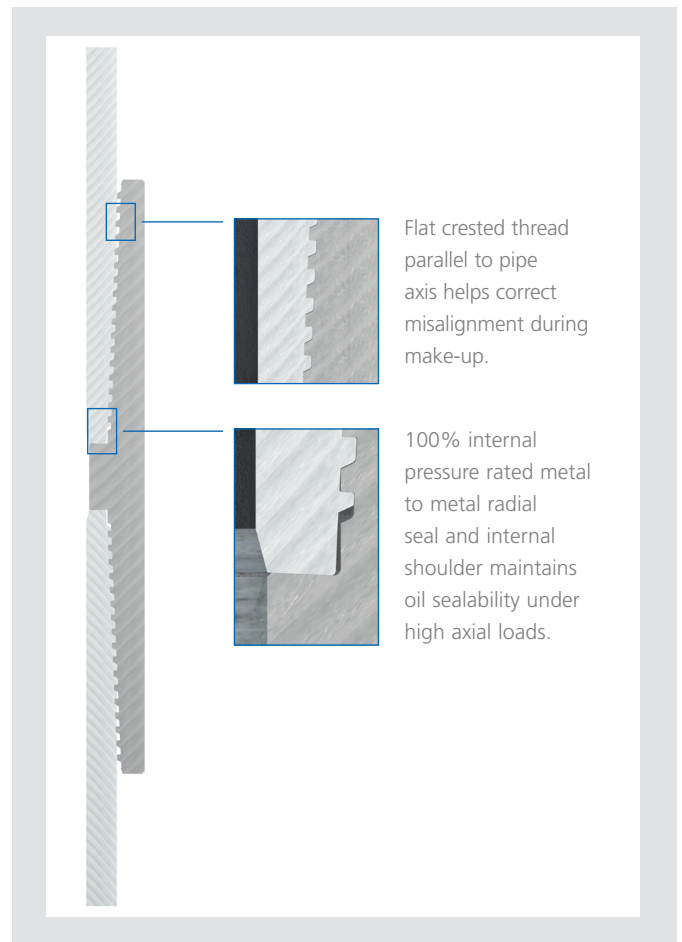
Application of Know-how

The first step was to involve well design and technology experts from the Tenaris research centers, working on the identification of stress concentration factors. The geometry of the connection has a strong influence on this factor.

Finite Element Analyses (FEA) were conducted to evaluate the stress concentration factor of the connection during the drilling job to be conducted. The study predicted that the connection could be used in this specific operation and that its robustness and the torque, tension and compression capabilities met the minimum limit required for operational handling.

The operator ordered a special clearance thread; this type of thread is usually manufactured with 80% of the pipe stress capacity, which makes it possible to have a smaller OD. These features were requested because a smaller liner OD improves the string penetration into the formation, besides helping the return of the well fluid through the annulus, thus minimizing lost circulation risks.

Tenaris was able to provide a solution to this customer's complex requirement by resorting to its R&D specialists' theoretical knowledge and expertise. The solution was manufactured locally, at the Pindamonhangaba plant, in São Paulo, Brazil, thus speeding up product delivery and further strengthening the long-term relationship between Tenaris and the customer.



Results

The TSH ER™ connection minimized operating time, thus allowing fast and easy make-up. Its torque, tension and compression resistance reached satisfactory levels and the drilling with liner operation could be efficiently completed. The operator is considering the use of this technology in future wells in the pre-salt fields. The challenges that lie ahead with Brazil's energy development are imminent, but Tenaris is committed to always working beside its customers, with functional solutions to increasingly demanding offshore applications, minimizing operating risks, costs and time.



For contact information, please visit our site:
www.tenaris.com