



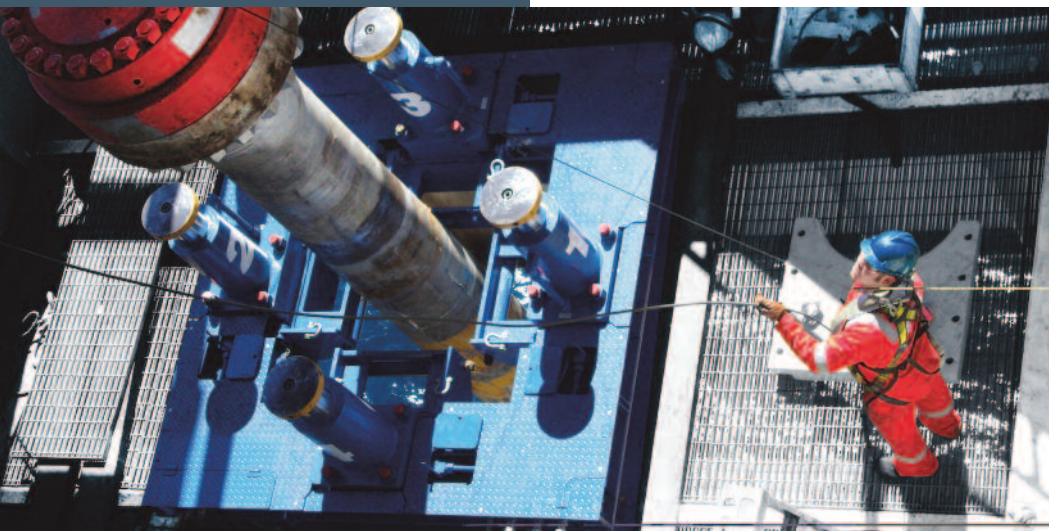
# RAISING THE BAR FOR DRILLING RISERS.

Claxton's unrivalled subsea riser supply capability in action.

The oil and gas industry innovates to exploit hydrocarbon resources in harsh environments or locations where access is difficult. In recent years, the focus of these operational challenges has been on dealing with higher operating pressures and deeper water. A key aspect of this is having access to well-designed and reliable drilling risers that cover the full range of operational pressures.

As industry leader in riser provision, Claxton is accustomed to designing and providing product and service solutions for these critical systems under extreme time pressures. Darren Bowyer, product leader, risers, Claxton, explains, "Sometimes, clients find it difficult to predict exactly when they will need a particular piece of equipment. Rig schedules can be very fluid and many factors influence the management of drilling teams. As a result, clients often give us short notice of their riser needs.

For example, in April 2013 we started work on a riser system that had to be ready for client operations in November, but this is about half the time it normally takes to construct a riser of this kind." How does Claxton cope with these extreme time pressures? There are options for compressing a construction schedule, as Bowyer says, "At Claxton, we can accommodate tight schedules by refining our processes and reducing or eliminating non-essential, time-consuming elements. For example, we saved time on



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a recent project by not applying the full coating system to the riser joints. We knew that we could do this because this riser was to be in use subsea for approximately 30 days before returning to us as part of our rental inventory. The full coating system was subsequently applied following the riser's return from its first deployment, as this helped to ensure timely delivery."

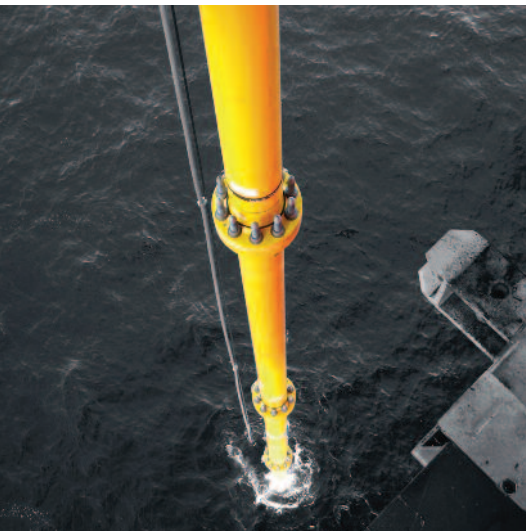
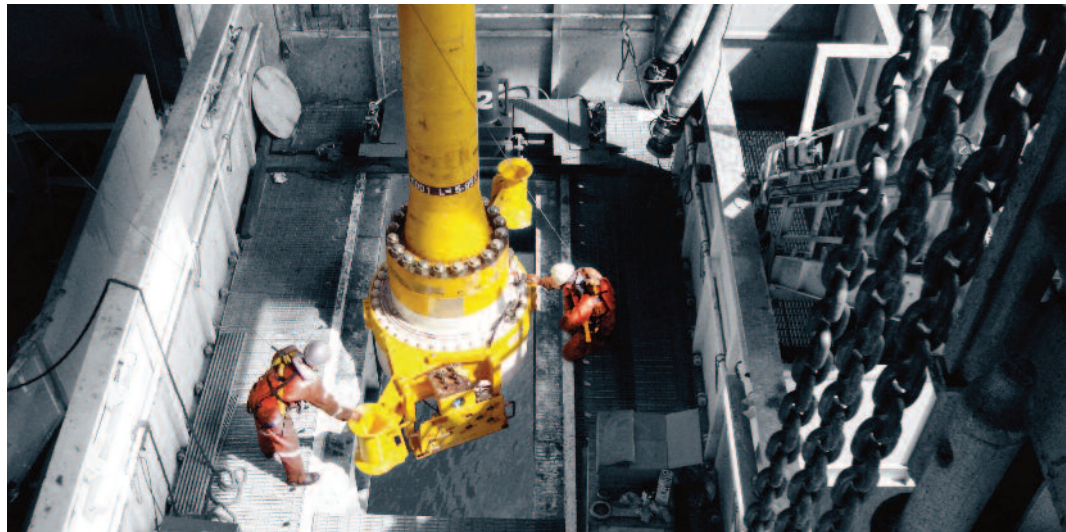
A key aspect of the Claxton approach to customer service is anticipating trends and market needs. Bowyer says, "We were about to run a feasibility study to assess the demand for 16-in. outside diameter risers when we received orders for two of them. The first of these, a 5000-psi riser system, we supplied to a client for 90 days and it now forms part of our rental inventory. The other, a 6500-psi system and the first fully forged riser for Claxton, was ready in October 2013.

Understanding and anticipating the market means we are often working on solutions before clients ask for them." That Claxton holds one of the largest drilling riser stock inventories in the UK, with API NACE compliant systems up to 12,200 psi and a full inventory of

supporting equipment, helps its fast response. "This is a real bonus for clients," says Bowyer, "We have more pressure options, connection types and overall complete system options in-house than any other supplier. In addition, our ancillary items for riser handling, installation and tensioning have all been developed through years of experience and all with the aim of providing safe and efficient systems that reduce critical path rig time. So clients can be sure we are offering the best fit riser for their drilling

campaign, not just a system we want to push."

For oil and gas operators managing the equipment costs is a key consideration, but equally important is the need to ensure that they are procuring the most appropriate systems. Claxton responds to changing client needs by offering flexible commercial options. "We can provide risers on sale or rental terms to suit client projects and experienced crews to run the system offshore if necessary," says Bowyer. "Being fully independent means







that we focus on what the client actually needs and recommend the most effective solution. As part of the Acteon group of companies, we can draw on support from specialist sister companies such as 2H Offshore and Subsea Riser Products for access to combined levels of riser knowledge and expertise that no one else can match.”

Claxton’s riser expertise also played a key role in the success of a new development in the UK North Sea in water depths of approximately 90 m. This development includes a floating production, storage and offloading vessel, which was specially modified to meet the field’s requirements; six wells; and a 12-km gas export pipeline connected to the BP Central Area Transmission System pipeline to enable gas export to the UK. The production facilities will have a production capacity of about 30,000 bbl/d of oil.

Once again, Claxton’s contribution to this project met a tight deadline. Bowyer says, “We supplied a flanged high-pressure riser system package for the project, including interface connectors subsea

and at surface. The project took six months from start to finish and was on time and on budget. The installation phase was completed smoothly, notwithstanding some early technical challenges interfacing the tension system, also supplied by Claxton, to the rig’s existing systems.”

The Claxton approach at this field during this project was driven by its significant previous deployment experience, which enabled it to offer a range of operational enhancements. For example, Claxton suggested having double riser joints racked back in the derrick and deploying the subsea trees with the riser system delivered significant time savings and so reduced operational costs. At the project wash-up meeting, the client’s team rated Claxton’s equipment and the services that the company had provided as “excellent”.

Claxton had to work as part of a large team and carry out the work scope in association with other specialist contractors. This called for a high level of flexibility, collaboration and coordination to ensure that the drilling riser was delivered

and installed on time. Planning and executing the various tasks was a complex challenge, as several key players each made key contributions.

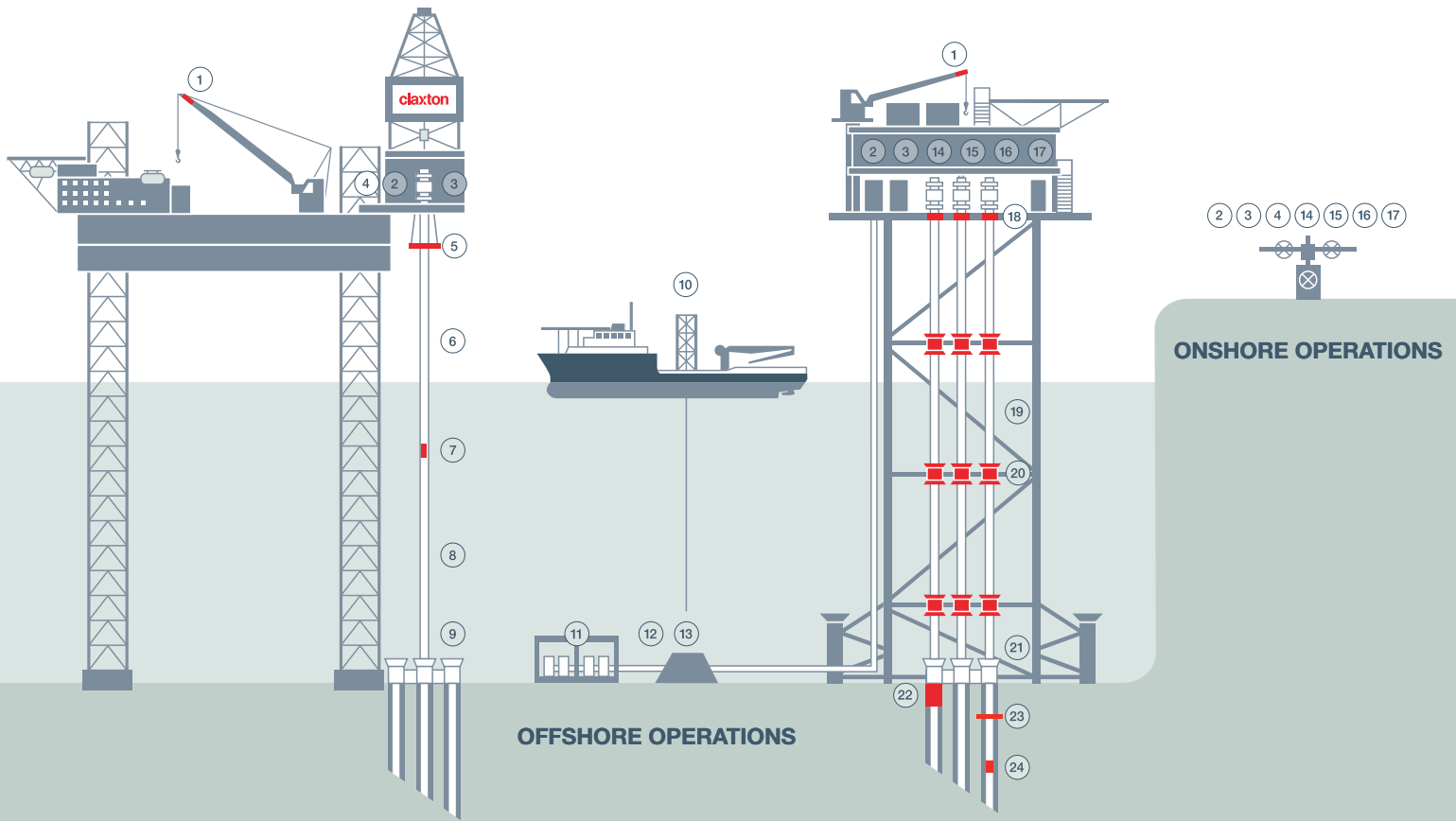
The drilling manager for the project stressed the importance of teamwork and attributed the success of the project to excellent interaction across the team and a willingness to learn from the performance coaches.

“Throughout most of the project there would have been more than 50 people actively engaged in delivering the drilling programme, with as many as 20 service companies being represented,” he said. “Understandably, every company focused on its own specialist tasks, so managing this extended team to deliver the project on time and on budget was crucial,” Bowyer continues. “The performance coaches played a vital role by standing back from the operation and taking an impartial view of what was going on. This enabled them to capture all the lessons learned from the project execution and feed them back to the team to promote continuous improvement.”

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