



Pushing the limits with **FMC** and **Howco**

Nuclear AMRC machining specialists helped two oil and gas engineering companies create a new manufacturing method for a demanding component.

The development project focused on a riser slick joint produced by FMC Technologies, a leading supplier of technologically advanced products and systems for the international oil and gas industry.

A slick joint is a safety-critical part of the surface equipment for the riser system connecting a subsea well with a platform or ship. FMC's design includes a complex deep hole and other features which presented some challenging production problems.

"This is a very complex high-risk machined part that had a history of scrap and defects," says Stuart McGuire, procurement manager for well access systems at FMC. **"We had to change how we approached the manufacture of this product."**

FMC approached a number of its established UK suppliers, but found few were willing to take the job on. Glasgow-based Howco stepped up to the challenge, and McGuire brought in the Nuclear AMRC to provide independent support.

"We brought in the Nuclear AMRC because of the technology and experience they've got working with other companies and industries," McGuire says.

"Challenging the design and investing time to get the engineering right upfront adds value because you're reducing the quality risk, and making the manufacturing efficient which then reduces your cost."

The project kicked off with a pre-manufacture meeting involving technical, quality, procurement and project managers from all three sides, to identify risks and agree strategy and responsibilities throughout the engineering and manufacturing phases.

The Nuclear AMRC machining group worked closely with Howco to redesign the machining strategy.

"There were two or three features which caused us problems," recalls Hugh Rankin, engineering manager for Howco. **"The main one was a deep, highly finished, high tolerance bore of 23 inches or thereabouts. There was a bit of concern with machining this bore and achieving the finish, and there was a tolerance issue."**

The Nuclear AMRC was able to call on specialist tooling and drilling expertise from member companies TBT and Sandvik Coromant.





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Together, the team developed an approach using new tooling including special Brunswick reamer holders, and a small boring tool to eliminate any deviation in concentricity before the reamer went in.

“There were a lot of new tools, and stretching the techniques and the way we do things to the extreme,” Rankin says. “We’d never dreamt of pushing these things that far before.”

“I probably wouldn’t have taken the job on without the Nuclear AMRC’s support,” he adds. “It was a real breath of fresh air, knowing there was someone I could talk things through with.”

Howco produced two slick joints using the new approach, with both manufactured right first time. Both have now been fully assembled and have passed FMC’s factory acceptance test.

“It’s been a great success, and a great example of collaboration, innovation and quality,” McGuire concludes.

www.fmctechnologies.com

www.howcogroup.com

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