Forum’s AMC Team Provides Tailored Test Equipment to Improve Verification and Programmable Functionality, While Decreasing HSE Risks

The Challenge

A leading downhole equipment manufacturer—with a broad range of products, such as casing accessories and completion tools—needed to develop and install equipment that would test and authenticate the design performance of its bow-spring centralizers for multiple reasons:

- Ensure a safe operating environment that minimized HSE risks
- Comply with changing testing requirements under API licensing
- Provide recordable charts detailing the performance of cementing centralizers, which are required by leading operators

Once complete, the centralizer test rig would need to integrate into the facility’s day-to-day operations and allow for client-witnessed testing. Additional client key tasks and performance requirements included:

- Perform tests to API standards across the varied OD range
- Meet all HSE and machinery directives
- Deliver graphs and information
- Provide an enhanced calibration and maintenance program

They approached the Forum Energy Technologies’ AMC team to engineer and manufacture a solution because of their reputation of building high-performance equipment, backed by Forum’s long-standing industry reliability, global engineering and manufacturing abilities.

The Solution

After reviewing the technical specifications and working closely with the client, the Forum team designed a modular centralizer test rig that helped ensure safe and efficient low-level loading of test pieces. An automated bow-spring indexing system was developed to increase safety by automatically rotating test piece while running horizontal force tests. This removed the need for the machine operator to enter the test area to manually rotate the pipe to the next bow spring.

The Forum tablet interface was also created to allow the operator to move around the test rig with full-operation control, while receiving real-time testing data. Additional features included:

- Unique modular design for individual API tests
- Linear transducers for pinpoint accuracy
- High-accuracy rod, end-load cell for true force-readings to OIML 76 standards
• Customized software design, allowing for customer specified data extraction, graph report formatting and test automation sequences
• Calibration ensuring verified accuracy

The modular design of the Forum centralizer test unit also allowed it to be cost-effectively upgraded to meet any future licensing requirements without any changes to the original test rig frame.

The Benefit

The Forum turnkey package was delivered to the client on time, with minimal installation required. The Forum software worked seamlessly with the customer’s chosen interface and test parameters to provide high-accuracy data capture and multiple report capabilities. The low-loading equipment helped reduce NPT and increase operational safety over current products in the market.

The customer also received numerous benefits, such as:

• Long-term viability since the equipment was sized to accommodate future technological advancements and market demands
• Minimized HSE risks by modular design
• High-accuracy and compliance with third-party calibration tool verification
• Programmable automatic operation delivered flexibility to production demands