

Engineered Solutions Group

Expert services to provide viable, fit-for-purpose artificial lift solutions

APPLICATIONS

- Feasibility, concept, and front-end engineering design (FEED) studies
- Artificial lift well and field production optimization
- Advanced and complex artificial lift applications:
 - Subsea
 - Dual ESPs
 - Multizone
 - Heavy oil or viscous fluid production
 - Multiphase flow simulation
 - Complex ESP completions
 - Multizone comingling simulation
 - HPHT
- Completion design and tubing stress analysis
- Alternate deployment systems
- Factory acceptance test and system integrated test
- Electrical power optimization studies
- Project management

ADVANTAGES

- Provides comprehensive artificial lift solutions
- Lowers total cost of ownership
- Achieves viable, fit-for-purpose solutions for your asset
- Improves production and asset worth
- Extends run life
- Achieves optimal production and enhanced ultimate recovery
- Optimizes systems integrity and reliability



The Schlumberger artificial lift engineered solutions group is a team of technical experts in artificial lift application technology. The multidisciplinary team comprises petroleum, mechanical, and electrical engineers and project management practitioners with extensive experience in providing complete artificial lift solutions. The engineered solutions group provides artificial lift concepts, application engineering, completion engineering, alternative deployment techniques, surface power system evaluations, and project management.

The team collaborates with manufacturing, engineering, and operations teams to deliver holistic, customized, fit-for-purpose solutions.

FEED studies

Selecting the most viable and economic artificial lift method for a field or well requires careful consideration. Feasibility, concept, and FEED studies use advanced workflows, expertise, and software packages to design, optimize, and recommend the most comprehensive solution.

Advanced and complex artificial lift designs & optimization

The group provides advanced and complex artificial lift design for challenging applications, including subsea wells, dual ESPs, heavy oil or viscous fluid, gassy applications, encapsulated ESP systems, dual bypass, dual-ESP boost systems, dual concentric, and HPHT applications.

Completion design and tubular stress analysis

An ESP creates pressure and temperature changes that exert forces on the completion string. Tubular stress analysis verifies the mechanical integrity of the completion string



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under different static and dynamic operating conditions. The engineered solutions group uses a TDAS* tubing design and analysis software system to perform tubular stress analysis of the artificial lift system and its auxiliary components to ensure that the ESP completion can be installed, operated, and retrieved while remaining within the required safety factors.

Alternate deployment systems

The group reviews various alternative or rigless deployment systems, including coiled tubing, wireline, or the ZEITECS Shuttle* rigless ESP replacement system. Proprietary software tools assess the suitability of the different methods.

System integration test

In the event of a new completion design or new completion equipment, a system integration test is recommended to test the mechanical integrity, validate the installation and operational procedures, and ensure training of the field personnel involved in the installation process. Our team of experts ensures these tests follow the proper quality plan and processes.

Engineered completions architecture solution

The group is able to design and engineer specific completion components to suit the most challenging applications as required.

Electrical power optimization studies

For ESP applications, power supply to the unit is crucial to the success of the run life of the unit. Our engineers ensure the selected units have the necessary power supply for the application and provide guidance in surface equipment selection, assessment, integration, and packaging. In addition, the group works with third-party companies to provide analysis of load flow, short circuit, harmonic, protective device coordination, and arc flash.

Project management

Project management is a critical element to ensure on-time, on-scope service and product delivery. Tools and methodologies are put in place to ensure that project milestones and desired results are achieved, the most efficient resources are utilized, and stakeholder expectations are surpassed.

Artificial lift well and field production optimization

It is an imperative to get the most out of assets in a safe manner to increase overall net worth. Well optimization looks at the system from a nodal perspective, ensuring each part of the production system, including the near-wellbore reservoir, is analyzed and all aspects of the completions are reviewed so the system operates as anticipated.

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