



**UNDERWATER SOLUTIONS WORLDWIDE**

## Engineering

Phoenix's engineering division is ideally suited to address the complexities of the offshore oil and gas industry. With skills and expertise in the disciplines of electrical, mechanical and ocean and marine engineering, our dedicated staff of experienced engineers are fully adept at addressing subsea challenges in the offshore industry. Whether performing major structural underwater repairs ever present difficulties of drilling in the Gulf of Mexico, or simply designing more competitive tooling, Phoenix's engineering department has the experience to get the job done right the first time.

### Engineering Capabilities

- Concept phase engineering and planning
- Front End Engineering Design (FEED)
- Advanced underwater robotics system design & build
- Research and development
- 3D modeling and design
- Mechanical, electrical and marine and ocean engineering
- Hydrostatic testing and evaluation
- Finite element analysis

### Operational Support Capabilities

Our highly skilled engineering staff of electrical, mechanical and ocean & marine engineers and first-rate CAD designers are available to provide comprehensive project support to Phoenix clients worldwide. Over the past 25 years, our engineers have demonstrated that we have the skills, knowledge and experience to design and build complex subsea vehicles, develop robust underwater rigging plans and provide onsite engineering support for challenging offshore operations such as riser installation and tension leg platform repairs. Operational support capabilities include:

- Vessel load-out drawings
- Logistics planning
- On-site engineering
- Procedure development
- Documentation and reports

### Contact us to learn more

[www.phnx-international.com](http://www.phnx-international.com)

985.399.0606—Bayou Vista, LA | 954.523.4038—Ft. Lauderdale, FL

281.815.8050—Houston, TX | 301.341.7800—Largo, MD

757.855.7516—Chesapeake, VA | 808.486.6595—Aiea, HI

619.207.0871—San Diego, CA | 228.731.7898—Stennis Space Center, MS



## Research and Development Capabilities

At Phoenix, we understand the rigors of the offshore oil and gas industry and the need for specialized robotics, tooling, and underwater solutions required to facilitate getting the job done. As a result, we have established a vigorous research and development capability focused on addressing subsea challenges. Through this capability, we have designed and built many specialized solutions including:

### Advanced Underwater Robotics

In-house designed and built:

- 6,000 msw Remotely Operated Vehicles (Remora II, 25hp and Remora III, 40 hp)
- 6,000 msw Fiber Tether ROV (xBot)
- 6,000 msw Pinger Locator System
- 5,000 msw Autonomous Underwater Vehicle Payloads (for Phoenix's Artemis AUV)
- Building and upgrading ROV control systems using programmable logic controller technology
- 6,000 msw CURV 21 ROV
- 1,500 msw Hydros ROV

### Expert Underwater Systems

- Tele-presence: Real-time / remotely monitored ROV data acquisition, editing and transmission system designed and built for the NOAA Office of Ocean Exploration & Research. This system provides shore-based scientists real-time access to at-sea operations
- Cofferdam: underwater welding habitats and associated rigging plans
- Saturation diving system" 300 msw rated mobile SAT system

### Tooling and Subsea Technology

- Sea chest inspection system
- Various specialty ROV and diver tooling
- Pressure tolerant electronics
- Rigging design, installation and recovery (surface to deepwater)

**Phoenix International Holdings, Inc.**

An employee owned company

