

Engineering Services

Capabilities

Overview

OceanWorks offers a full range of design and engineering services. Our engineers are specialized in working to high specification commercial and military standards. They are creative problem solvers with extensive design experience using solid modeling and animation, systems engineering and analysis tools and have extensive expertise in the design and analysis of a wide variety of subsea equipment and components including:

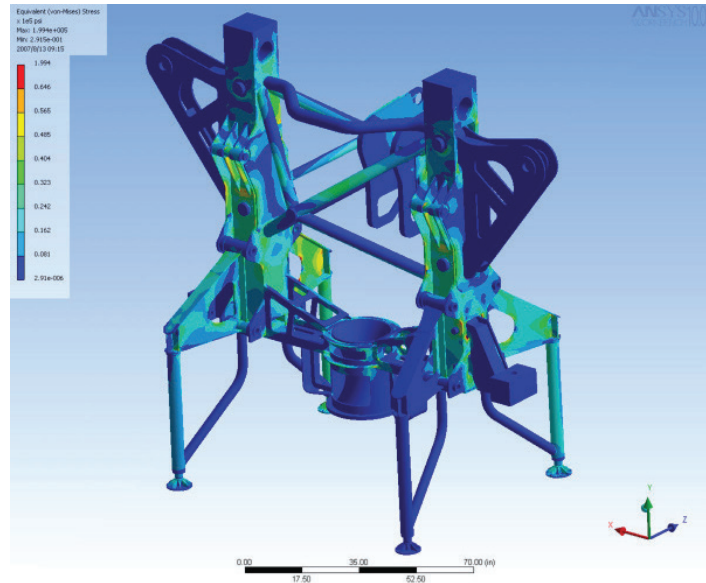
- ▶ Manned and unmanned vehicle systems
- ▶ Launch and recovery systems
- ▶ Life support systems
- ▶ Control and monitoring systems
- ▶ ROV tooling systems/packages
- ▶ Subsea distribution equipment
- ▶ Subsea structures
- ▶ Pressure hulls for manned submersibles
- ▶ Pressure vessels for subsea equipment
- ▶ Weight optimized structures and systems
- ▶ Hydraulic power units & systems

OceanWorks engineers specialize in high specification commercial and military systems:

- ▶ Mechanical and hydraulics
- ▶ Electrical and electronics
- ▶ Structural, pressure vessels and welding
- ▶ Prototyping and testing
- ▶ System simulation, modeling and animation
- ▶ System engineering
- ▶ Design and Manufacturing in accordance with ISO 9001-2008

Primary design and analysis tools used include:

ANSYS, AutoCad, PCad, ProEngineer, Doors, Math-Cad, Tango



Engineering Services

Capabilities

Features

Electrical

- ▶ Electrical Analysis: short circuit analysis, thermal analysis, optical system suitability, control system analysis, EMI and EMC analysis
- ▶ Circuit simulation, circuit boards, embedded software
- ▶ High technology power supplies

Commercial Design

- ▶ IEEE 45, CEC, NEC, ABS, Lloyd's, DNV

Military Design

- ▶ SS800-AG-MAN10/P9290, SS521-AA-MAN-010
- ▶ MILSTD /MILSPEC
- ▶ DEFSTAN

Advanced Testing Integration

- ▶ Mechanical and hydraulics
- ▶ Electrical and electronics
- ▶ Structural, pressure vessels and welding
- ▶ Prototyping and testing
- ▶ System simulation, modeling and animation
- ▶ Thermal & environmental stress testing

Systems Engineering

- ▶ Specifications
- ▶ FMECA
- ▶ Reliability and maintainability
- ▶ Human factors
- ▶ Test procedures

Structural and Mechanical

- ▶ Advanced FEA analysis: linear elastic analysis, non-linear contact analysis, dynamic analysis, random vibration analysis, thermal analysis
- ▶ Corrosion analysis
- ▶ Fatigue analysis
- ▶ Commercial design: CISC S16.1, AISC LRFD
- ▶ Oxygen cleaning
- ▶ System integration and testing
- ▶ Prototyping, custom jigs and test procedures
- ▶ Development of custom mechanical and electrical test procedures
- ▶ Hydrostatic testing—large packages to 2500 psig; smaller packages to 8000 psig
- ▶ Process and procedure control
- ▶ Stringent quality assurance and OQE traceability
- ▶ Configuration control and management

Solid Modeling and Animation

- ▶ 3-D modeling
- ▶ Simulation

