

**SEAN MICHAEL ROY**

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Mr. Roy has nine years of experience in mechanical design, fabrication, and testing. Experiences include structural steel and bolted joint design, clean sheet mechanical system design, fabrication and operability testing, setup and management of full-scale test programs including destructive and non-destructive high energy testing, design, development, and marketing of consumer retail products.

**EDUCATION**

BS Mechanical Engineering University of Texas at San Antonio, 2013

**EMPLOYMENT HISTORY**

2013-Present: ETA International Inc., Mechanical Engineer

**AFFILIATIONS**

American Society of Mechanical Engineers

**PATENTS / PUBLICATIONS**

United States Patent US11021946B2 – Systems and methods for measuring loads applied to downhole structures

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**TYPICAL PROJECT EXPERIENCE**

Mr. Roy's project experience includes the following.

**Mechanical and Structural Design**

Design and fabrication of a hydraulic torsion mechanism to twist riser pipe undergoing full scale design validation testing.

- 66,000 lb-ft of torque
- +/- 10 deg of rotation
- Direct measurement of torque load

Use of Nastran FEA and Visual Analysis to design load frames and test equipment.

- Spoolable pipe test fixtures and bend radius guides
- Riser pipe test fixtures and bend radius guides
- Platforms to support industrial equipment and personnel
- Fall Arrest Anchor System
- 10 Ton Gantry Crane
- SAE J684 Class I tow hitch test fixture

**Spoolable Pipe Testing**

Full system designs to perform long term exposure studies.

- Pressures up to 5000 psi
- Temperatures up to 212 °F
- Autonomous set point control
- Containment of potential high energy release

Full system design to perform high energy burst testing.

- Combustible bore media
- Compressible bore media
- Energy release equivalent to five pounds of TNT

**Prototype Design and Testing**

Designed, prototyped, fabricated, and tested a novel down-hole tool for the on-shore oil field. The tool incorporates a custom sensor and data logging package to measure and record rod string loads applied to the well casing. The tool is installed in line with the rod string and is self-contained.

- 37,000 lbf of tension
- 10,000 ft well depth
- 5000 psi external pressure
- 300 °F

**Consumer Product Design and Testing**

Conducted load testing according to SAE J684 to validate an existing sports car tow hitch. Advanced the design for new sports car versions. Revised the designs for ease of manufacturing. Created new designs to develop a product line environment.

**Test Program Manager**

- Spoolable Pipe Exposure Testing \$236K
- Gas Permeation \$191K
- High Energy Burst \$125K
- Choke and Kill Hose Design Investigation \$68K
- FEED for pipe manufacturer test facility \$20K
- Spoolable Pipe Qualification Testing \$617K