LOAD PIN INTEGRATION IN QUICK-RELEASE MOORING HOOK

Client's Background:

A leading Indian manufacturer specialising in marine rubber and offshore engineering products. One of their key offerings includes **Quick-Release Mooring Hooks (QRMHs)** used in port and offshore mooring operations.

Fig. 1 – QRMH system with integrated ATEX-certified Load Pin

Fig. 2 – Multiple QRMH systems with Load Pin integration

Application Overview:

Mooring operations demand both safety and efficiency. QRMHs are designed to secure vessels and enable quick, controlled release during emergencies.

However, without real-time load monitoring, operators face challenges such as:

- Risk of overloading and line snap-back accidents
- Lack of preventive maintenance
- Reduced equipment lifespan due to undetected fatigue

The customer wanted to integrate a Load Pin solution to enable real-time tension monitoring, predictive maintenance, and enhanced operational safety.

Main Objectives of Load Pin in QRMH:

- Continuously monitor mooring line loads.
- Prevent overload and unsafe release conditions.
- Improve crew safety by providing alarms and data-driven decision support.
- Extend equipment life through fatigue monitoring and predictive maintenance.

Client's Challenges:

- Difficulty sourcing **ATEX-certified Load Pins** from India
- Dependence on imported Load Pins from Europe with no local **technical support**
- Need for **integration** with existing SCADA system
- Post-installation **accuracy issues** during field testing

Thames Side Sensors solution:

Thames Side Sensors India provided:

- ATEX-certified Load Pins, customized to the customer's dimensional requirements
- Transmitters converting Load Pin signals into RS485 output for seamless SCADA integration
- Remote integration support and assistance with lead time management

When post-installation accuracy issues were observed, Thames Side Sensors:

- Conducted an application study at the customer's testing facility
- Noted variations in the current hydraulic testing machine configuration, which were affecting the accuracy of the load measurement
- Recommended and carried out the necessary adjustments

After calibration and validation, the system achieved accurate and reliable load readings.

Results / Benefits:

Parameters	Before Load Pin Integration	After Load pin Integration
Overload Protection	Not Available	Real-time alarm at set limit
Maintenance Downtime	Reactive (post-failure)	Predictive (based on load history)
Data Availability	None	Continuous load history logging
Operations	Operator judgment only	Automated and Data Driven

The integration resulted in a safer, smarter, and more reliable mooring operation. The customer achieved:

- Enhanced crew safety through real-time overload alarms
- Reduced downtime via predictive maintenance
- Extended equipment lifespan
- Local technical support and faster response times

The customer expressed high satisfaction with Thames Side Sensors' responsive support and engineering expertise.