

CASE STUDY: ENERGY SOLUTIONS

SETTING GLOBAL STANDARDS IN FLANGE INTEGRITY AND LEAK TESTING

Delivering specialist joint integrity and training services for a major FPSO development in China.



CLIENT
Cosco

YEAR
2014-2017

BUSINESS LINE
Energy Solutions

The Challenge

EnerMech was engaged to support the Dana Western Isles Development project at the COSCO Shipyard in Nantong, China.

The scope included flange management, nitrogen/helium leak testing, and controlled bolting training—delivered across a multi-year timeline.

With over 9,000 joints to manage and a multinational workforce, the challenge was to ensure consistent quality, full traceability, and knowledge transfer in a high-pressure fabrication environment.

The Solution

We then deployed a multi-skilled team to deliver project engineering, flange management, leak testing, and PSV recalibration.

Using our proprietary System Integrity Management (SIM) software, we calculated precise bolt loads and stresses, generated real-time documentation, and tracked the full lifecycle of each joint.

Our supervisors were embedded within COSCO's piping teams to ensure quality at every stage.

Additionally, we trained 50 COSCO employees in controlled bolting practices to ECITB-equivalent standards, supporting long-term capability building.

The Outcome

EnerMech successfully completed all scopes, including final leak testing in early 2017, with full documentation and system close-out.

The use of SIM enabled real-time global access to joint integrity data and streamlined future maintenance planning.

The project not only ensured the mechanical integrity of the FPSO systems but also left a legacy of improved standards and trained personnel within the COSCO yard.

The client praised EnerMech's technical leadership, digital integration, and collaborative approach.

We Delivered...

- Flange management and bolt load calculations for over 9,000 joints
- N2/He leak testing, PSV overhaul, and recalibration
- Controlled bolting training for 50 COSCO personnel
- Real-time documentation and work pack generation via SIM software
- Embedded supervisors to ensure quality and integration with piping teams

Lifecycle Traceability

Full documentation from assembly to leak testing and final close-out.

Future-Proofing

Data captured during operations supports future shutdown and maintenance planning.