

Fully automated Ballast Water system for unmanned offshore platform

CLIENT CONFIDENTIAL

YEAR 2025

PLATFORM TYPE

Tension Leg Platform

CLASS

DNV

SOW

Turnkey engineering, automation software development, equipment supply, and installation support for ballast system.



10

INSTALLATION DAYS

6

TEAM MEMBERS

5+

YEARS OF OPERATION WITHOUT MAJOR OVERHAUL

CLIENT CONTEXT

Remote ballast control for unmanned offshore asset

The client required a compact, fully automated ballast system for an unmanned offshore platform operating in Greek waters. With no crew onboard, the system needed to be remotely operated, highly reliable, and compliant with DNV and local regulatory standards – all while fitting within tight spatial and operational constraints.

THE WORK TO BE DONE

Project phases

Develop a complete engineering package covering ballast, ventilation, and tank instrumentation systems, including detailed 3D modeling and execution drawings. Design and approve all mechanical foundations and structural supports. Supply pumps, valves, filters, sensors, and electrical components. Implement full automation software and integrate remote control capabilities. Support installation with supervision as required by the client. Perform system testing, calibration, and documentation approval with classification society DNV.

THE CHALLENGE

Confined-space integration

Integrating all pumps, valves, filters, and electrical equipment in a compact, confined technical room below deck. Meeting strict redundancy and remote access requirements to ensure system reliability and minimal maintenance offshore. Coordinating mechanical, electrical, and automation engineering with equipment procurement and installation supervision.

Steps

01. Engineering and 3D Modeling

Complete 3D modeling and detailed design of ballast, ventilation, and tank instrumentation systems, including collision checks and execution drawings. Prefabrication of equipment foundations, piping spools, valve supports, and seawater chesons.

02. Mechanical Installation in Technical Room

Installation of ballast pumps, valves, filters, and axial flow fan in the dedicated technical compartment below tank WB F2. Integration of piping and mechanical equipment according to design and foundation drawings.

03. Electrical and Automation Installation

Mounting and wiring of ballast switchboard cabinet on the main deck for easy access. Connection of sensors, electric actuators, control panels, and full automation enabling remote monitoring and control.

04. Testing, Calibration and Handover

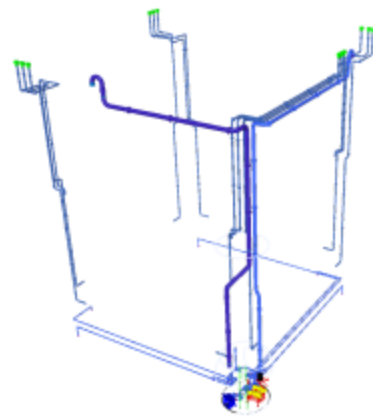
Hydrostatic pressure testing and air leak testing of piping and pneumatic systems. Calibration of level, pressure, and temperature sensors. Final inspection, approval by DNV, and delivery of complete installation documentation for client operation.

The outcomes

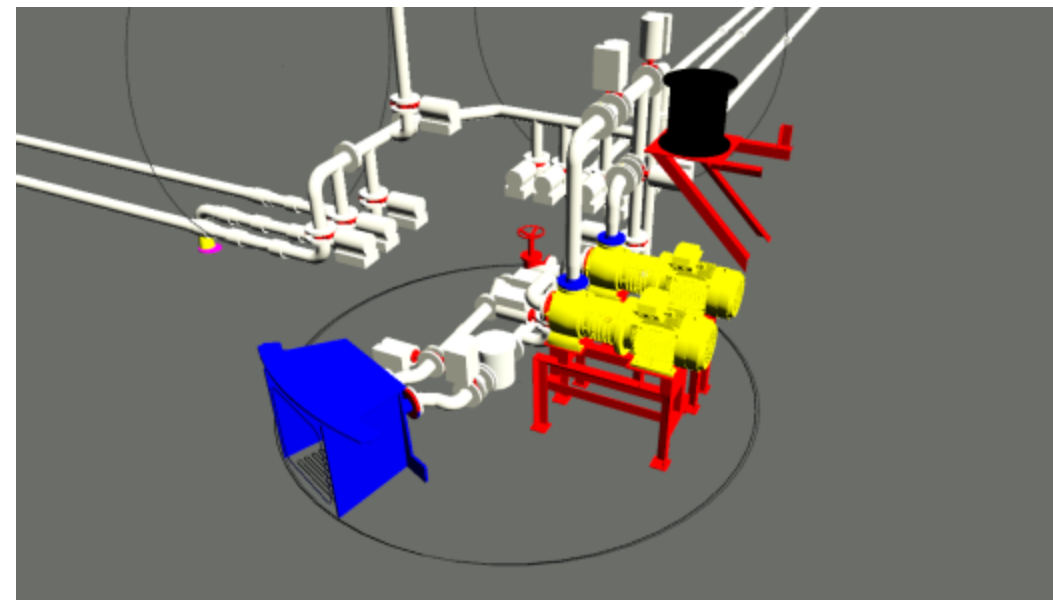
Final Results

- Successful completion of the ballast system installation on the Tension Leg Platform within the scheduled timeframe, without impacting platform deployment.
- Full compliance with DNV offshore unit regulations and Greek environmental requirements.
- Zero safety incidents recorded during execution.
- System delivered fully automated with remote control capabilities and ready for operation with no pending issues.

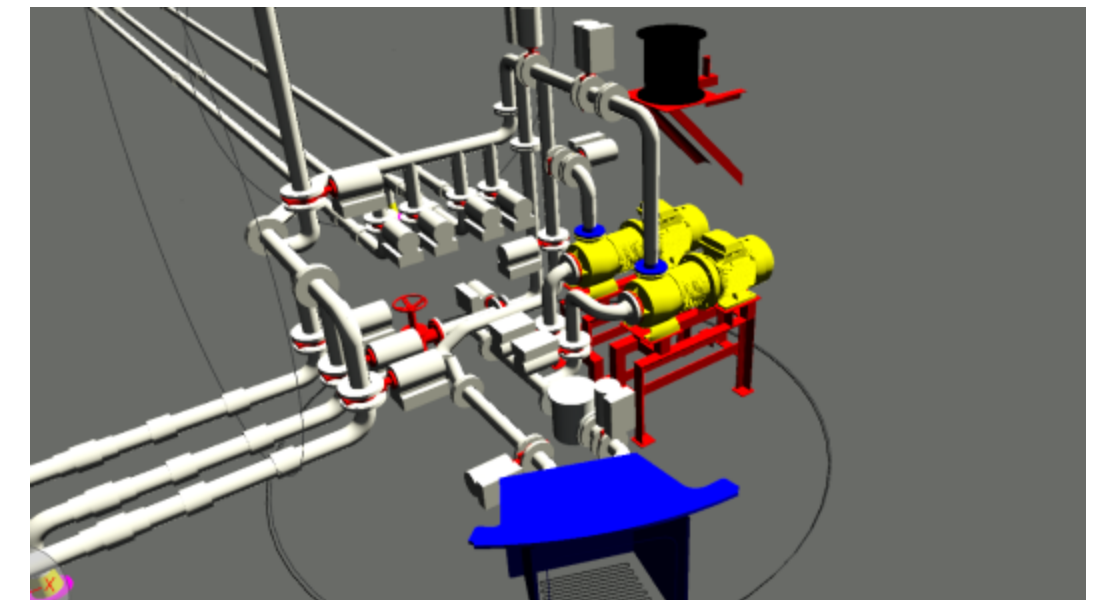
GLO Marine delivered a full turnkey solution for this project, covering every phase from detailed engineering and 3D modeling to mechanical and electrical installation, system testing, and final handover. Our integrated approach ensured smooth execution, reduced risks, and full compliance with technical and regulatory standards. This project showcases GLO Marine's capability to deliver complex offshore infrastructure with reliability, precision, and end-to-end accountability.



Entire ballast system and ventilation system piping across a tension leg platform.



Ballast system main core inside of technical room of a tension leg platform.



Ballast system main core inside of technical room of a tension leg platform.

GLO Marine

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