



CASE STUDY

OHL Industrial successfully designs and builds a new hydrocarbon storage terminal in one of the busiest harbors in Europe

Key facts:

Company: OHL Industrial

Website: www.ohl.es

Industry: Construction

Country: Spain

Octave products used:

Forte 3D (*Intergraph Smart 3D*), Facets Instrumentation (*Intergraph Smart Instrumentation*), Smart Materials, Facets P&ID (*Intergraph Smart P&ID*), Forte Review (*Intergraph Smart Review*), Aspect Pipe Stress (*CAESAR II*)

Forte 3D and Intergraph Smart Materials provide the construction company with additional design and procurement quality

Obrascon Huarte Lain (OHL) is one of the largest international concession and construction groups. It boasts one hundred years of experience and has significant operations in 30 countries across five continents. The OHL Group is composed of four divisions: OHL Concesiones, OHL Construcción, OHL Industrial and OHL Desarrollos. Since its establishment in 1911, OHL has been involved in all types of activities in the construction field all over the globe.

Identifying goals

The port of Algeciras (Cádiz, Spain) is located in the Strait of Gibraltar. With nearly 80,000 vessels handled per year, the harbor is the largest port in Spain and one of the busiest in the world. Vopak Terminal Algeciras awarded OHL Industrial the turnkey contract for the construction of a marine terminal, storage and distribution of hydrocarbons in the harbor. The project included the development of all detail engineering, supply of materials and equipment, construction and assembly, commissioning and start-up of the maritime terminal.



The project aimed to meet two main objectives: to increase the fuel supply to vessels and to offer greater environmental and safety guarantees. In order to undertake this project, OHL invested 165,000 hours of engineering and more than 2 million hours of construction with more than 600 workers during peaks.

As a result of the project, the terminal Algeciras will offer international customers the opportunity to safely store their product ashore, optimally capitalizing on any developments in the Mediterranean gas and oil trading market.

OHL Industrial has leveraged Octave solutions for their scalability, the integration of engineering disciplines and because they cover all the phases of a project lifecycle. The products used include Forte 3D, Facets Instrumentation, Facets P&ID, Smart Materials, Forte Review and Aspect Pipe Stress.

Key benefits:

- Better quality design and detailed design
- Enhanced integration of project outputs during different phases of the project lifecycle
- Reduced lead time (modifications) and 'processing' time of requested information
- Improved efficiency and coordination between different disciplines

Overcoming challenges

The main challenge came from using a new design tool, whose catalogs needed to be customized to OHL requirements. A longtime PDS® user, the switch to Forte 3D required training the users and making catalog adjustments, which put pressure on the deadline. The company initially trained nine designers and two administrators.

The challenges experienced with Smart Materials had to do with including the catalogs of electrical and instrumentation disciplines in a short period of time, and improving company standard work process and workflows through the system. Once all the departments used the system during the entire execution, the project experienced better communication in planning, project structure, strategies, teamwork and distribution of responsibilities.

Realizing results

With Forte 3D, OHL tackled the modeling of structures, platforms, equipment, piping design, modeling of stands, and the design of electrical trays and instrumentation, as well as interference analysis, reporting, isometrics and plant drawings. The model was presented to the customer in Smart Review.

Facets P&ID was used for process and instrumentation diagrams, while the list of instruments, cables, controls, hook-up diagrams, electrical connections, instrument data sheet and process data sheets were created with Facets Instrumentation. Aspect Pipe Stress was responsible for the piping flexibility analysis, while Smart Materials centralized all the material management, coding, planning, reception, stock, dispatch to subcontractors and reporting.

The company experienced the following benefits:

- Better quality design and detailed design
- Enhanced integration of project deliverables during different phases of the project lifecycle
- Reduced lead time and "processing" time of requested information
- Improved efficiency and coordination between disciplines

The terminal has 22 storage tanks with nominal storage capacity of 403,000 cubic meters: 346,000 cubic meters for fuel oils and gas oils and 57,000 cubic meters of gasoline. The terminal also has more than 200 mechanical equipment, both static and dynamic. In order to complete the project successfully, OHL Industrial invested more than 50 engineers, two years and an investment of 130 million euros.

Using the latest technologies available, such as 3D modeling of the terminal to the highest detail, enabled the company to have full project traceability. This resulted in improved management of materials and teams, greater design coordination, smoother decision-making and minimal disruptions during the construction phase.

Together, these contributed decisively to the project being finished successfully. This terminal is the largest built in Spain in a single project and was granted recognition for high security levels.

Moving forward

The next steps will involve extending Forte 3D and other Octave solutions to other projects, as soon as the catalog has been further customized to include OHL database items, specific valve requirements and the company's materials catalogs. Additional pipe modeling formats will be created and the catalog specifications will be simplified to make it more intuitive. The company aims to integrate its design tools using SmartPlant Foundation as a central management system.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

©2026 Intergraph Corporation and/or its affiliates. All rights reserved.