CASE STUDY

How Iacino Progetti optimized engineering solutions with Octave Aspect Pressure Vessel

Key facts:

Company: Iacino Progetti

Industry: Chemical

Region: Italy

Octave products used: Aspect Pressure Vessel *(PV Elite)*

Key benefits:

- Accelerated design cycles through automated calculations and simultaneous load case analysis
- Reliable stress evaluations that enhance confidence in meeting real-world performance standards
- Seamless integration of components ensures accurate, space-efficient and safe vessel designs
- Comprehensive reporting tools simplify compliance with client and regulatory requirements

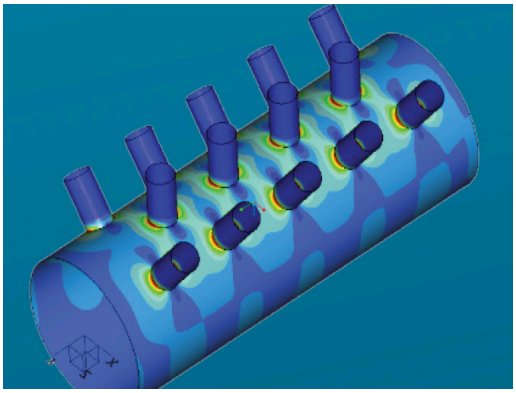
Iacino Progetti is an engineering company specializing in providing highend services for the chemical and petrochemical industries, with a strong focus on pressure equipment and piping. The company offers a wide range of services, including reparation procedures for existing systems, fitness for service assessments, advanced design (such as fatigue and creep analysis, finite element analysis and thermal analysis) and new equipment certification according to the PED directive 2014/23/EU.[1]

Identifying goals

As a part of the project for an oil and gas company, Iacino Progetti was tasked with designing and evaluating pressure vessels. The company wanted to ensure that its pressure vessels and heat exchangers followed all the safety standards and industry regulations. The goal was to optimize a design that resists high-pressure conditions while maintaining long-term reliability. To achieve this, Iacino Progetti required a solution to handle complex load cases and provide efficient design processes.

Overcoming challenges

During the timeline of the project, Iacino Progetti faced various challenges. The key challenge was optimizing vessel designs to adapt to constrained spaces while being strong under high-pressure conditions. Additionally, integrating multiple components within a single structure demanded accurate alignment of nozzles and supports.



To mitigate this significant challenge, Iacino Progetti chose Aspect Pressure Vessel for its ability to provide efficient and intuitive modeling and conduct comprehensive pressure vessel calculations under varying conditions, including seismic and wind loads. The solution's robustness in replicating real-world vessel performance enabled the team to address these complex engineering challenges and deliver flawlessly.

Realizing results

Aspect Pressure Vessel significantly streamlined the engineering team's design and analysis process, which was key in delivering the project on time. The software's flexibility in handling complex calculations, including nozzles, loads, external loads, lifting lugs, clamps and external piping, allowed the team to ensure that they designed each pressure vessel for optimal performance. Ultimately, the team experienced better resource management and a more structured workflow.

"As projects become more complex, Aspect Pressure Vessel remains significant in managing these technical demands, helping us focus on accuracy, compliance and practical engineering decisions."

Antonino Iacino
Senior Engineer and API 510 Inspector, Iacino Progetti

The benefits of using Aspect Pressure Vessel included:

- **Improved Efficiency in Design and Analysis:** With Aspect Pressure Vessel, the engineering team could quickly design pressure vessels, significantly reducing the time spent on manual calculations. The software could handle multiple load cases simultaneously, reducing repetitive tasks and freeing the team to concentrate on critical design tasks.
- **Accurate Stress Analysis:** The team performed a detailed stress analysis, carefully evaluating the loads on supports and nozzles to ensure each vessel met industry standards and could handle real-world conditions. Aspect Pressure Vessel's ability to model different scenarios increased the team's confidence throughout the design process.
- **Powerful Integration of Design Components:** Aspect Pressure Vessel's functionality seamlessly integrated various project design elements, such as nozzles and support systems, to maintain design accuracy within the project's limited spaces. This ensured that all components fit together while ensuring safety or reliability.

Aspect Pressure Vessel's advanced analysis and reporting features benefited the project, ensuring that all the final designs fully complied with client specifications and regulatory standards. The software summarized significant parameters such as required thickness and maximum allowable working pressure, confirming easy validation of each design element.

Moving forward

With operations growing, the company now plans to expand its use of Aspect Pressure Vessel for fatigue analysis projects, especially where Division 2 and complex stress evaluations are involved. The software's ability to handle these detailed calculations helps the engineers assess long-term performance under cyclic loading, which is critical for projects exposed to demanding conditions.

One challenge the team faces is the limited material selection when working with EN codes. Aspect Pressure Vessel has a much larger library of ASME materials, so the team often uses those materials even for EN projects. When needed, they manually adjust the material properties, such as yield strength and calculate the allowable stresses themselves. This helps them stay flexible and get the most out of the software while still meeting project requirements.

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.