CASE STUDY

# Engineers India Limited succeeds with Octave Aspect Pressure Vessel on Coalescer Design

## Key facts:

**Company:** Engineers India, Ltd.

**Website:** www.engineersindia.com

**Industry:** Petrochemical

**Country:** India

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

Engineers India Ltd. (EIL) is a leading provider of design, engineering, procurement and construction services in the oil and gas and petrochemical industries.

Bharat Petroleum Corporation Limited (BPCL) selected EIL to provide mechanical engineering of the tail gas coalescer for the Sulfur Recovery Unit (SRU) at its Kochi, India, facility. The coalescer separates sulphur from tail gas to prevent its discharge, something that is severely restricted by environmental regulations. The equipment requires constant heating using internal and external steam coils to avoid choking by sulphur which could lead to a costly shutdown of the SRU.

## Evaluating support options with Aspect Pressure Vessel

Process specifications typically start after the design of long lead items, and Aspect Pressure Vessel proved vital throughout the project. Due to the size and weight and the requirement of the steam coil both inside and outside the vessel, the initial choice of support was skirt.

However, after the Aspect Pressure Vessel model design, the company's piping department determined that the skirt was not viable due to the space constraints. A second natural choice would be brackets, but the evaluation indicated that would result in less area coverage for the steam coil, causing them to lose their primary purpose.

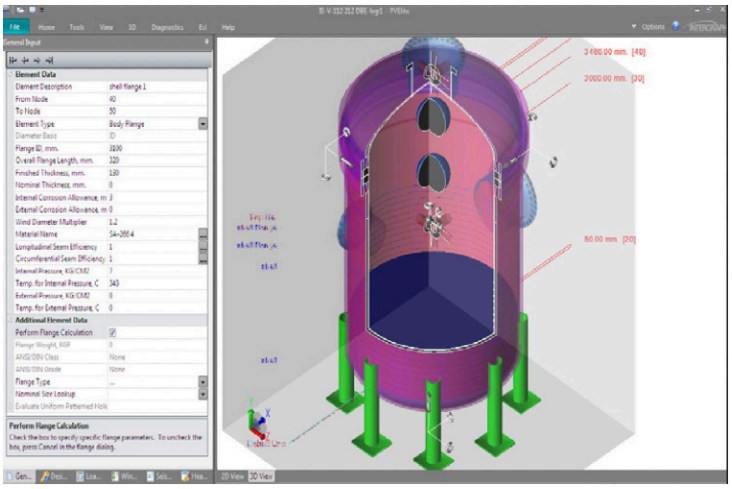
## Designing a solution beyond governing standards

Out of the options, EIL determined to support 62.4 MT of weight on pipe legs for both the process and piping requirements. This rare design involved eight legs of 250 nominal bore (NB) 120 schedule pipe and a base plate with four bolts instead of the standard two bolts, a 124-inch flange design with the leg and base plates above standard.

With the short remaining time, designing this equipment became even more challenging when it was determined that the size of body flange would be 124 inches, a size with no governing standard. The maximum size in the ASME B 16.47 standard was 60 inches and the largest installation to date was only 96 inches. The overall vessel was 4,180 mm long and 3,100 mm in diameter with a fabricated weight of 22 MT and a hydro-test (field) weight of 62.4 MT.

## Saving 15% in material with Aspect Pressure Vessel

Aspect Pressure Vessel provided wind and seismic design, internal pressure analysis, detailed calculations, and all necessary deliverables. According to Sourabh Agarwal, a senior engineer at EIL, "Not using Aspect Pressure Vessel would have certainly delayed the project schedule. More importantly, without the confidence of Aspect Pressure Vessel, the equipment would likely have been sent back for reevaluation by either the process or piping department, which would have thrown the entire project into unknown territory and caused costly delays."



## 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.

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