



## CASE STUDY

# Mahler AGS significantly saves labor hours by upgrading to Octave Forte 3DWorx and Aspect Pipe Stress

### Key facts:

**Company:** Mahler AGS

**Website:**  
[www.mahler-ags.com](http://www.mahler-ags.com)

**Industry:** Oil & Gas,  
Chemical &  
Petrochemical

**Country:** Germany

**Octave products used:**  
Forte 3DWorx (*CADWorx Plant Professional*), Aspect Pipe Stress (*CAESAR II*)

### Key benefits:

- Improved efficiency: Up to 15 percent savings on project work-hours
- Streamlined work processes: Up to 30 percent less hours spent on stress calculations
- Accurate and structured pipe stress analysis
- Fast implementation: Reduced project delay and downtime

Mahler AGS is the leading manufacturer and supplier of cost-effective, safe, and reliable gas generation and purification plants for hydrogen, oxygen, nitrogen, biogas, and protective gas. Mahler AGS offers a variety of cost-effective, onsite plants for users in a wide field of industries. More than 60 years of experience in plant design and engineering guarantee high operational availability of all Mahler AGS gas generation and purification plants.

### Identifying goals

Mahler AGS is an international leader in designing and manufacturing hydrogen generation plants, specializing in steam reforming and pressure swing absorption technology. With more than 60 years of experience in the business, the company provides tailored, turn-key solutions for clients across different chemical sectors.

Mahler AGS was employed to design and manufacture a modular hydrogen plant for a leading global company in the palm oil business. The resulting plant is now used to refine crude palm oil and crude palm kernel oil. The plant design is based on Mahler AGS' HYDROFORM-C hydrogen generation plant series. This is Mahler's turnkey plant design solution for hydrogen generating plants, focusing on flexibility and full automation. As part of the modular design principle, Mahler preassembled and delivered the plant as prefabricated units.



Mahler AGS was looking for both a new pipe stress analysis software as well as one to replace its existing design software (X-Plant) that included a modern 3D planning solution. The new system needed to be compatible with the previous AutoCAD-based software, easy-to-use, and fast to implement so it could minimize project downtime and delay. Forte 3DWorx and Aspect Pipe Stress were chosen due to their AutoCAD®-based structure, scalability, and suitability for the project scope.

## Overcoming challenges

A tight time schedule and mixed existing ASME/DIN EN piping codes affected the design and manufacturing process of the new plant. Meeting the strict project deadlines was ensured by the efficiency and accuracy of Forte 3DWorx. As an AutoCAD-based solution, most users already had experience with a similar product and were able to get up-to-speed quickly. Even though this was the first of Mahler's projects using Octave solutions, only a short adoption time was needed because training and design were performed in parallel. Due to the ease of use and quick implementation of both Forte 3DWorx and Aspect Pipe Stress, the design for the new plant was completed within approximately five months from the project start date.

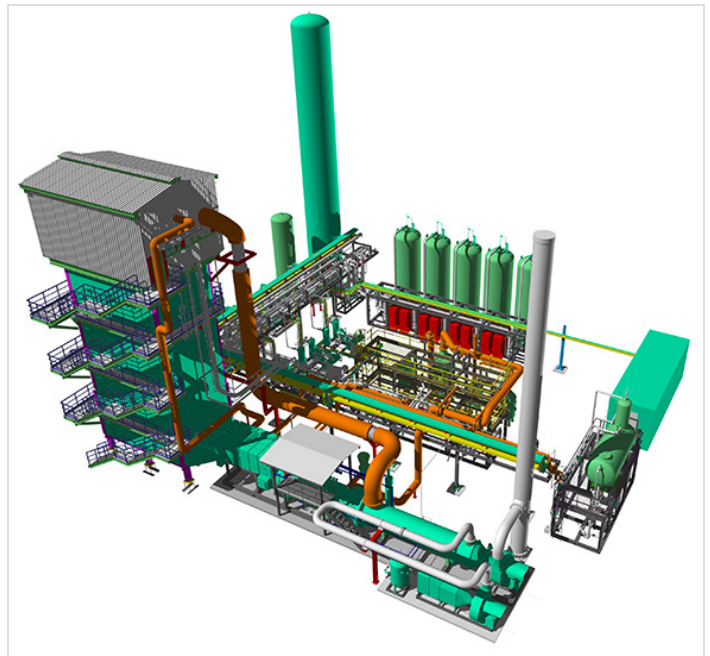
Aspect Pipe Stress was used throughout the project for all of the pipe stress analysis needs, and provided Mahler with a way to ensure the accuracy and safety of the piping specifications and pipe stress analysis.

## Realizing results

Forte 3DWorx was used to create an intelligent 3D plant model of the new plant, including:

- Intelligent 3D models of equipment, steel structures and piping
- 2D layout drawings and civil guide drawings
- Isometric drawings
- Bills of material for piping and steel

Aspect Pipe Stress was used for all piping stress calculations, datasheets, and piping specifications. As a default, Aspect Pipe Stress creates bi-directional links between plant design and engineering analysis. This enabled Mahler to pass data between different departments without data loss. Training and setup were completed by an employee with previous experience in both Forte 3DWorx and Aspect Pipe Stress. Currently, the CAD department of Mahler has full access to the system.



Ultimately, by choosing Forte 3DWorx and Aspect Pipe Stress, Mahler AGS reduced project work-hours by 10 percent to 15 percent, with an additional 25 percent to 30 percent reduction in time spent on stress calculations. The latter is attributed to the overarching compatibility between Octave solutions, requiring fewer model revisions throughout the design process, regardless of the amount of overall changes.

## Moving forward

Following the successful HYDROFORM-C series plant design, Mahler AGS has designed four new plants using Forte 3DWorx and Aspect Pipe Stress. The company continues to use the software in all future projects, such as ordered design and manufacture projects for two hydrogen plants, a nitrogen plant, and an oxygen plant.

## 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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