CASE STUDY

Giorgi Engineering Srl optimizes safety of expansion joint design with Octave Aspect Pipe Stress

Key facts:

Company: Giorgi Engineering Srl

Website: giorgiengineering.com

Description: Giorgi Engineering Srl is one of the leading Italian brands for the design and production of flexible steel, rubber and PTFE (polytetrafluoroethylene) hoses, expansion joints, springs, hangers and supports.

Employees: 50

Industry: Engineering and design

Country: Italy

Octave products used: Aspect Pipe Stress *(CAESAR II)*

Identifying goals

Giorgi Engineering Srl is one of the leading Italian brands for the design and production of flexible steel, rubber, and PTFE (polytetrafluoroethylene) hoses, expansion joints, springs, hangers and supports. This case study discusses a project where Giorgi Engineering was hired to design and simulate loads for parts of a food and beverage factory's power plant, including the expansion joints and pipe supports.

The project's key goal was to optimize design of the expansion joints, flexible hoses, hangers and supports for a boiler that was located in the client's existing power facility of their food and beverage factory. Additionally, stress analysis of the complete system needed to be executed to ensure safety.

Giorgi Engineering needed software that would enable the company to define the correct placement for the supports and expansion joints faster while also reducing the total stress of the system.

Overcoming challenges

Making sure that the client would avoid unnecessary downtime at the facility was the biggest challenge to overcome. How could we deliver the project scope in the fastest possible time? Providing safety was also a key issue – as the work took place in the power area of the facility and was executed in high temperatures (more than 700 degrees Celsius). The analysis of the existing pipelines was time-consuming as the systems being used could not be integrated and many manual checks were needed.

" We have witnessed approximately 50% time savings when switching to Aspect Pipe Stress. We can simulate the loads in hangers, expansion joints as well as actually design the joints in the same system. The software offers a true real-in-one solution for expansion joint analysis, design and simulation."

Dr. Kambiz Reshad
Senior designer and project engineer, Giorgi Engineering

Realizing results

The scope of the project included designing and simulating loads for parts of a food and beverage factory's power plant, including the boiler, by pass lines, piping systems, silencer, and expansion joints.

Giorgi Engineering chose Aspect Pipe Stress, the industry standard for pipe stress analysis, for the project. This was done because of the user friendliness and flexibility of the software combined with the reduced time needed for the calculations and the better accuracy of the simulation and the calculations.

Giorgi Engineering used Aspect Pipe Stress to define and specify the locations for the supports, expansion joints, and hangers. The software was also used to ensure that the overall stress of the piping system was in an acceptable range.

In this case, the food and beverage facility had its own power plant with a large boiler. Because of the high temperatures, the type and position of the expansion joints was crucial for safety.

Giorgi Engineering received the drawings of the boiler and adjacent piping from the client. These plans were placed in Aspect Pipe Stress to review the current system and check for the optimized place for the expansion joints to be placed. In addition to this, Giorgio Engineering also recommended where the piping support would need to be located and checked the loads on the nozzles throughout the piping to make sure that all the equipment and pipes would be safe.

Moving forward

Giorgi Engineering found Aspect Pipe Stress to be very user friendly and fast to get started with. "Users can learn quickly – I started my first project, asked a few questions from my colleagues and I was ready to go!" said Dr. Reshad. Because of this ease of use, the company will be using Aspect Pipe Stress in all of its upcoming projects in the piping plant sectors: "We currently use Aspect Pipe Stress across our project piping engineering and technical departments. It is extremely easy to build expansion joints in Aspect Pipe Stress – and the overall time needed for calculating loads is very low."

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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