



## Giorgi Engineering Srl, Italy

### Key Facts:

**Company:** Giorgi Engineering Srl

**Website:** [www.giorgiengineering.com](http://www.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

### Products Used:

- CAESAR II®

## Giorgi Engineering Srl Optimizes Safety of Expansion Joint Design with Hexagon's CAESAR II®

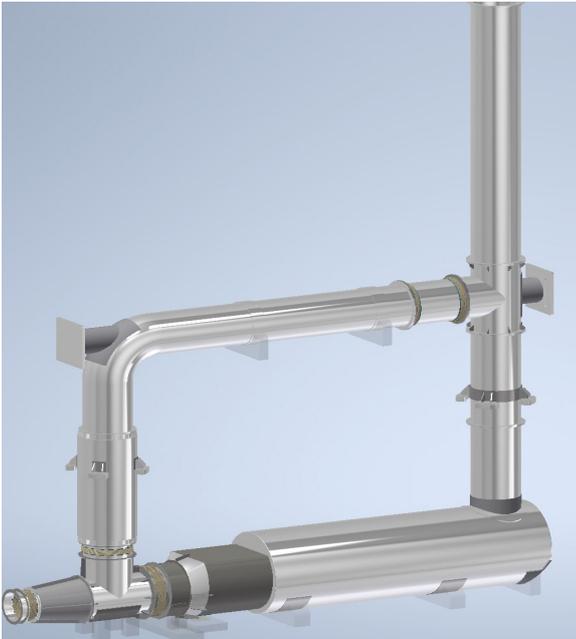
### Identifying Goals

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.



**Figure 1:** This is a 3D model of the total system that should be imported using Finite Element Method (FEM) software for FEM analysis

## 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 Hexagon's CAESAR II, 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 CAESAR II 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 CAESAR 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 CAESAR II 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 CAESAR II in all of its upcoming projects in the piping plant sectors: "We currently use CAESAR II across our project piping engineering and technical departments. It is extremely easy to build expansion joints in CAESAR II – and the overall time needed for calculating loads is very low."



**We have witnessed approximately 50% time savings when switching to CAESAR II. 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

## About Hexagon

Hexagon is a global leader in digital reality solutions, combining sensor, software and autonomous technologies. We are putting data to work to boost efficiency, productivity, quality and safety across industrial, manufacturing, infrastructure, public sector, and mobility applications.

Hexagon's PPM division empowers its clients to transform unstructured information into a smart digital asset to visualize, build, and manage structures and facilities of all complexities, ensuring safe and efficient operation throughout the entire lifecycle.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 22,000 employees in 50 countries and net sales of approximately 4.3bn EUR. Learn more at [hexagon.com](https://www.hexagon.com) and follow us @HexagonAB.