



CASE STUDY

TUREFEN advances in pharmaceutical piping solutions with Octave Aspect Pipe Stress

Key facts:

Company: TUREFEN Engineering Ltd. Co.

Website:
www.turefen.com

Industry: Engineering and design

Country: Turkey

Octave products used:
Aspect Pipe Stress
(CAESAR II)

Key benefits:

- The ability to verify that the equipment and the piping meets design constraints under the pharmaceutical process conditions.
- Quick evaluation of allowable limits implemented in the software for use in challenging scenarios.

Identifying goals

TUREFEN Engineering is an engineering company specializing in project design and engineering analysis for various sectors - including chemical, oil and gas, power and bottling. This case study examines a recent investment where TUREFEN was commissioned by a pharmaceutical company headquartered in Switzerland to carry out a stress analysis of piping systems under seismic conditions and to assess the loads on supports and equipment nozzles.

The main objective of the project was to ensure that the overall stress of the piping of the plant to be installed was within acceptable limits according to standards, and that the loads on the equipment nozzles and supports were within the vendors' limits.

TUREFEN needed a software solution that could perform modelling, analysis and review operations more smoothly and in less time.

Overcoming challenges

The most significant challenge within the project's scope was to ensure that mechanical structures such as the reactors, heat exchangers, pump skids and main distribution collectors could coexist within a compact area, and to achieve the ideal solution with few modifications and in line with its limits.



In this context, limits were met, and a solution was produced that suits the working and assembly conditions of the construction team in the field.

Furthermore, in the pharmaceutical process, since the utility and main lines are connected to the same pump skids or collector lines, highly variable systems were analyzed in which different minimum and maximum temperature conditions were examined in other parts of the same calculation. The solutions produced had to provide answers for various scenarios at the same time.

“The scope of the work was extended with Aspect Pipe Stress, when the analyses offered the simplest solutions for the complex piping systems. As the project expanded, so did the team, enabling more robust solutions to be delivered more quickly.”

Kağan Yavuz
Senior Mechanical
Engineer, TUREFEN



Realizing results

The project included modeling, simulating and controlling the plant's piping systems connected to reactors, pump skids, filters, heat exchangers and other vessels.

The TUREFEN team chose Aspect Pipe Stress for this project. The software was selected for its flexible input and output features, the integration of its library with international standards and its ability to solve even the most complicated models using fast iterative methods.

Additionally, tools such as Flange Check, Nozzle Load Screening and Restraint Summarized Values helped to save time by checking specific areas of concern.

Aspect Pipe Stress was used by TUREFEN to study the load conditions of the supports, determine their type and location, bring the overall stress condition of the system to acceptable limits according to the EN13480 code, and optimize the loads on the equipment nozzles according to the vendors' datasheets.

The reports to be provided to the client include details of all supports and nozzles, as well as a stress analysis of the system according to the scenarios consisting of 35 load cases. Importantly, Aspect Pipe Stressscan perform these functions with a single click.

Moving forward

As TUREFEN expands into the pharmaceutical sector, it leverages Aspect Pipe Stress solution to ensure accurate and reliable studies. This strategic adoption of advanced technology will enable TUREFEN to effectively address the unique challenges of the pharmaceutical industry and enhance its project outcomes.

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.

©2026 Intergraph Corporation and/or its affiliates. All rights reserved.