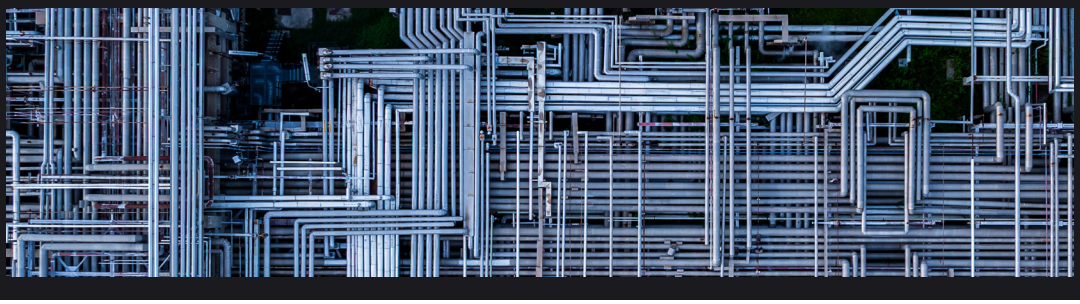
CASE STUDY

Amiantit Fiberglass enhances productivity using Octave Aspect Pipe Stress on the YANSAB project



Key facts:

Company: Amiantit Fiberglass

Website: www.amiantit.com

Industry: Petrochemical

Country: Saudi Arabia

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

Established in 1977 in Dammam City, Saudi Arabia, Amiantit Fiberglass Industries Ltd (Amiantit Fiberglass) is part of the Amiantit Group. The worldwide company is comprised of 30 pipe system manufacturing plants, six technology companies, four materials suppliers, and eight supply and engineering subsidiaries located around the globe and serving customers in more than 70 countries.

Amiantit Fiberglass is one of the world's largest thermosetting fiberglass reinforced plastic (FRP) pipe manufacturers, having produced more than 10 million meters (32.8 million feet) of FRP piping to date for customers in Asia, the Middle East, North Africa and the Pacific region. The company uses Flowtite® FRP pipe production technology that offers high production efficiencies.

Identifying goals

Yanbu National Petrochemical Company (YANSAB) is the largest petrochemical complex in Saudi Basic Industries Corporation's (SABIC) affiliate in Yanbu city, Saudi Arabia. Upon completion, the eight plants will add a total annual capacity of more than 4 million metric tons of petrochemical products, including ethylene, propylene, polyethylene (LLDPE, HDPE), polypropylene, ethylene glycol, benzene, xylene, toluene, butane 1, butane 2 and MTBE.

The Amiantit Fiberglass project for YANSAB involved several key components. It included the design and engineering, as well as the manufacturing and fabrication of the FRP piping system. The project also covered inspections and testing, along with marking and packing. This comprehensive effort was directed at the seawater and cooling water piping systems within the petrochemical complex. The components involved in this project included elbows, tees, nozzles, reducers and flanges.

The project included developing spooled isometrics and shop fabrication drawings; designing FRP pipes, fittings and flanges and performing stress analysis and finite element analysis calculations.

Overcoming challenges

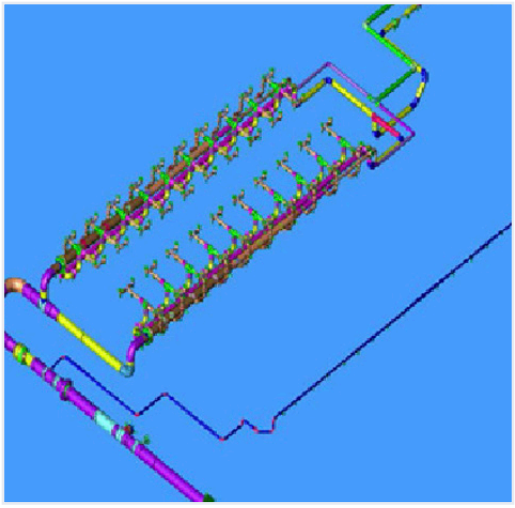
Amiantit Fiberglass identified two major project challenges. The first was the detailed stress analysis calculations required for huge seawater and cooling water piping systems. The other was the strict and tight schedule for manufacturing and fabricating the FRP piping. To solve these project challenges, the company chose Aspect Pipe Stress Octave's pipe stress analysis software, citing its ease of use and wide acceptance.

Key benefits:

- Saved significant time and increased accuracy in integrating FRP piping with interconnecting metallic piping.
- Successfully managed detailed stress analysis calculations for large seawater and cooling water piping systems.
- Met strict and tight manufacturing and fabrication schedules, ensuring timely project completion.
- Improved visualization and reduced modeling hurdles using an intuitive graphical user interface, leading to first-time approval of deliverables.

Realizing results

Among the many positives that the team reported with Aspect Pipe Stress, one highlight was the software's built-in capabilities for FRP macro level analysis that proved a great help in simulation and analysis. "We also appreciated the superb graphical user interface that really simplified visualization and the excellent Aspect Pipe Stress technical support," said Farrukh Shaikh, senior design engineer at Amiantit Fiberglass. "They resolved our challenges in the modeling and simulation of FRP piping systems, which kept us productive" Shaikh explained.



At completion, Amiantit Fiberglass supplied around 20,000 meters (65.61 thousand feet) of FRP piping including elbows, tees, nozzles, reducers and flanges. Piping diameters ranged from DN100 mm to diameter 4000 mm.

"With Aspect Pipe Stress for piping analysis, we solved our project challenges, avoided confusion and increased our accuracy in integrating FRP piping with interconnecting metallic piping in the seawater and cooling water systems," added Shaikh. "The technical reference of Aspect Pipe Stress and its wide usage combined with quick and comprehensive support saved us time and enhanced our overall productivity."

.

"With Aspect Pipe Stress for piping analysis, we solved our project challenges, avoided confusion and increased our accuracy in integrating FRP piping with interconnecting metallic piping in the seawater and cooling water systems."

Farrukh Shaikh
Senior Design Engineer, Amiantit Fiberglass

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 Octave Intelligence plc and/or affiliates. All rights reserved.