

Elevating Heat Exchanger Performance: Teadit's

Heat Exchanger World recently had the pleasure of speaking with Teadit's Mark Ruffin, Vice President of Sales; Jerry Railey, EPC Sales Director; and Ibere Souza, Expansion Joint Market Specialist, to discuss the company's unique expansion joint capabilities, its meticulous processes to ensure quality, and the future goals that drive Teadit's interest in creating custom solutions.



Teadit completed 14 custom expansion joints for a major LNG project in Q2 of 2023.

By Heat Exchanger World

While Teadit is globally recognized for its gaskets and sealing solutions, many in the industrial sector know of the company due to its expertise in engineering and manufacturing expansion joints. With over 50 years of experience, Teadit's engineering team has perfected the ability to create expansion joints that not only meet but exceed the unique requirements of the heat exchanger designs.

Designing tailored solutions

Within the world of industrial equipment, one crucial yet often overlooked component is the expansion joint. These vital assets play a significant role in maintaining the integrity and functionality of various systems, including heat exchangers. Heat exchanger expansion joints require precision, reliability, and durability to ensure that the application functions as required. By absorbing the movements caused by the thermal contraction and expansion of the system, they ensure safe operation. In collaboration with heat exchanger manufacturers,

Teadit produces custom solutions based on the detailed specifications for the metal bellows required in heat exchanger assemblies. These joints are not mere off-the-shelf products, but made-to-order solutions designed to accommodate thermal movements in diverse materials, temperatures, and pressures.

"Our engineering teams specialize in designing expansion joints, ensuring they meet movement requirements and other performance criteria, such as temperature, pressure, and resistance to the media. Multiple design options may fulfill a given set of requirements, and the team collaborates with clients to clarify any uncertainties before finalizing the design," explained Souza. "Once approved, the manufacturing process begins, which includes bellows design, inspections, and quality control measures." This collaborative approach between clients and the manufacturing team ensures that each expansion joint meets the specific standards required for its intended application. To distinguish itself from competitors, Teadit has implemented a series of processes and quality

Expansion Joint Expertise



Teadit offers more!

Since 1970, Teadit has manufactured Metallic Expansion Joints and Flue Duct Expansion Joints whose main function is to absorb the movements and vibrations of a pipe compensating for dimensional variations. In addition to designing expansion joints to the prescribed specifications for use in heat exchangers, required by EJMA and ASME, Teadit fabricates solutions that serve many different industries including refining, petrochemical, chemical, power generation, sugar processing, steel & mining, and other applications where it is necessary to compensate for thermal growth.

Teadit's Metallic expansion joints allow greater flexibility and minimize pressure drop and energy loss, which then reduces design and installation costs. Teadit expansion joints can also be used as vibration isolators and, in some cases, to compensate for small duct or equipment installation misalignments.

a gap in the market, the company further positioned itself as a reliable option for customers seeking superior service and products. In particular, the company's emphasis on engineering expertise sets it apart.

With a team primarily comprised of engineers, Teadit offers unparalleled technical knowledge and support to customers; it instills trust in its capabilities as a manufacturer. The advantage of this technological skillset is directly reflected in both the finished assets as well as in all the unique capabilities and offerings Teadit has.

Flexible material selection

For example, Teadit offers unparalleled flexibility when it comes to material selection. Whether it is standard alloys or exotic materials, the company can accommodate a wide range of preferences and specifications.

"Depending on the application, each heat exchanger has various forms of media and pressures that the expansion joint will have to withstand. A shell and tube, for example, will likely have very different material needs than an air-cooled exchanger," explained Souza.

tests, offering a comprehensive approach to design, manufacturing, and testing.

"In the design phase, we incorporate third-party testing as part of our quality control process to ensure the integrity of our products," added Railey. "Third-party testing is crucial, particularly in instances where specialized techniques like X-ray inspection of welds are necessary. Subsequently, during the manufacturing phase, we adhere to stringent quality control measures, including pressure, movement, dimensional, and dye penetrating testing. Additional welding specifications mandated by regulatory standards, such as those in the United States, necessitate the involvement of third-party inspectors to validate compliance. This approach ensures that our products meet rigorous quality standards and regulatory requirements."

Unlocking Teadit's capabilities

Teadit prides itself on its commitment to quality, efficiency, and customer satisfaction. That is why, upon recognizing



⚡ Heavy wall bellows commonly used in the mining industry.



➤ Heavy wall bellow with internal hinge device.

“By having such a versatile range of material options, we can accommodate almost any customer request,”
- Ibere Souza

This flexibility allows clients to choose materials that align with their specific application requirements, ensuring optimal performance and longevity.

Specialized capabilities

Teadit's expertise in heavy-wall construction and the ability to manufacture rectangular expansion joints allow it to mitigate challenges, that others simply cannot. Metal bellows with heavy walls enable the accommodation of higher pressures and cryogenic applications, setting Teadit apart from others in the field. Its unique capability with heavy wall bellows also positions it as a versatile provider, catering to diverse needs within the heat exchanger industry. “While others may shy away from this challenge, we embrace it,

further solidifying our position as an industry leader,” stated Ruffin.

Certifications and expertise

Teadit not only adheres to industry standards but surpasses them. The company's engineering team is adept at adapting calculations and manufacturing processes to align with ASME standards. More specifically, Teadit designs expansion joints according to ASME VIII and B31.3 and all its welders are certified according to ASME IX. It is also a member of the Expansion Joint Manufacturers Association (EJMA), a global association of leading expansion joint manufacturers and suppliers, which provides it with the ability to deliver high-quality products in each location it services.



Teadit Juntas received the first EJMA certificate in October of 2014. Since 2014 Teadit has been involved in several tasks to develop the standard.

Going the extra mile

“To truly ensure that we offer the customer the best experience possible, we conduct a comprehensive analysis of gasket applications. It is crucial to ensure the correct gasket is specified for the particular application and that it is compatible with the expansion joints,” stated Railey. “Our process involves torque calculations in accordance with ASME PCC-1 standard, to guarantee accuracy and reliability. Additionally, if necessary, we employ WRC 538 calculations to assess flange strength in sealing applications, ensuring optimal performance. We meticulously size the gasket to fit the specific requirements of each application, considering factors such as expansion angles.”

These considerations not only ensure the effectiveness of the gasket but also highlight Teadit's expertise and commitment to delivering superior solutions. “Beyond sealing capabilities, we excel in processes such as welding, which is integral to gasket applications. Our proficiency in welding surpasses industry standards, positioning us as a leader in providing comprehensive and high-quality solutions for our clients' needs,” added Ruffin.



➤ Reinforced single axial expansion joint, intended for high pressure.





➤ One of the custom expansion joints done for a major LNG project in 2023.

“While others may shy away from this challenge, we embrace it,”
- Mark Ruffin

Reaching new markets

Looking forward, the company has strategically positioned itself as a forerunner in the heat exchanger expansion joint arena. While price and delivery timelines are crucial factors, Teadit’s commitment to quality, certifications, and unique capabilities are the real differentiators. The company’s ability to handle heavy-walled expansion joints, combined with its adherence to stringent standards, positions it as a top choice for heat exchanger solutions as it continues to expand in the North American market. “Teadit will remain committed to expanding its presence in North America while leveraging our expertise and experience from South America,” stated Ruffin. “We recognize the ongoing need for expansion

joints in various industries, as they are essential for accommodating thermal expansion and ensuring system reliability, and for that reason, we are dedicated to providing engineered solutions that meet every specification standard there is.”

Teadit’s approach to expansion joints exemplifies a blend of technical expertise, quality assurance, and customer-centricity. As the company continues to grow and innovate, it will evolve with the needs of the industry. ■

Teadit at a glance

Teadit Group is recognized worldwide as a leader in the development and manufacturing of innovative products for critical fluid sealing processes. The wide variety of sealing solutions developed by Teadit have been important tools for many industries including Oil & Gas, Chemical Processing, and Power Generation. Teadit has helped numerous clients as they strive for the goal of an emission-free environment within their facilities. Teadit is constantly investing in research and development to keep up with the evolution of the industry’s needs.

Teadit North America is located in Houston, Texas with seven worldwide locations in South America, Europe, and Asia. The variety of sealing solutions developed by Teadit is fundamental to achieving the leakage-free goal in the many industries served. The quality and effectiveness of these solutions are based on management and innovation, which are the basis for all products manufactured at any Teadit plant. As a result of this continuous process of quality improvement, an ISO 9001 certification was obtained in the Teadit plants in Brazil, the United States, and Europe.

The 65-year history of Teadit began in Rio de Janeiro and has led to more than twenty patents on products and processes. Its corporate values of Integrity, Reliability, Safety, and being Customer-focused all culminate in its vision statement: Sealing For A Safer And Greener Tomorrow.

