Teadit: Leading R&D for critical

As a worldwide development and manufacturing leader of critical process sealing solutions, Teadit continues to exceed customer expectations by providing high-quality service, impressive testing capabilities, and a full line of award-winning products that are guaranteed to meet the demands of the most stringent environments. Serving the refining, petrochemical and power generation industries, among others, Teadit's extensive research and development (R&D) group has continuously developed new products, helping many end-users achieve facility emission goals.

Heat Exchanger World **spoke with Chris Day, President of Teadit North America, about the company's high-quality product offering, expanding R&D capabilities, and recent product innovations for the heat exchanger market.**

By Sarah Bradley & Stephanie Matas

Since its establishment in 1958, Teadit has expanded its production and distribution network across 52 countries. The company has experienced significant growth in recent years, with dedicated locations spanning from the USA (Texas), to Brazil (Rio de Janeiro and Campinas), Argentina (Buenos Aires and Bahia Blanca), India (Vadodara), Austria (Kufstein), Germany (Köln), and China (Shanghai).

The Teadit Group is recognized worldwide as a leader in the development and manufacturing of innovative products for critical fluid sealing processes in many industries including the Refining, Chemical Processing, Pulp and Paper, and Power Generation. Teadit has helped several customers achieve the goal of a leak-free environment within their facilities while constantly investing in R&D to keep up with the evolving industry needs.

Teadit is relied upon by many of the country's top heat exchanger manufacturers for their products and technical expertise. Depending on the industrial sector, service, and heat exchanger type, the gasket recommended and supplied changes. Some designs utilize metal gaskets including spiral wound gaskets, camprofile serrated gaskets, corrugated gaskets, and double jacketed gaskets. It is also common to use Teadit sheet gaskets or soft gaskets in heat exchangers including compressed fiber, filled PTFE, and expanded PTFE. Gaskets are supplied with torque values and assembly instructions by their engineering department when requested. Teadit is a Master Distribution Partner

process sealing solutions

« *Mr. Chris Day, President of Teadit North Americas.*

« *North American Headquarters in Pasadena, Texas, USA.*

of Jet Lube and supplies the thread lubricant Jet Lube 550 Extreme to ensure that the flanges are assembled using accurate torque values with accurate friction factors.

Award-winning products

Teadit camprofile gaskets have become the most popular gasket utilized in shell and tube heat exchangers. They can produce a reliable seal and avoid field application issues that other more traditional solutions, such as double jacketed and corrugated, are not able to address. They are designed to maintain seal integrity under pressure and temperature fluctuations, flange rotation, and bolt stress relaxation. Teadit camprofile gaskets are constructed from a precision serrated metallic core with a soft facing material bonded to each side, either flexible graphite or expanded

« *Teadit Style 942 camprofile with graphite facing, a robust design generally used for high-temperature and high-pressure applications.*

« *Teadit Style 942 camprofile with PTFE facing, a design utilized for high-pressure applications, as well as extreme chemical resistance.*

» *Teadit Style 25BI gasket tape used for fragile flanges, extreme chemical service, large diameters, and/or custom-shaped flanges.*

PTFE. Teadit camprofile vessel gaskets are used in all major industrial sectors in heat exchangers, but they can also be found in standard piping as well.

For applications that require a high degree of chemical resistance and low stress-to-seal, Teadit 25BI gasket tape, has raised the bar for what should be expected out of expanded PTFE gasket tape. Due to its excellent malleability and adaptability, it is particularly well suited to compensate for irregularities or damages on the sealing areas and can easily bend around the radius of a round flange. A propriety manufacturing process results strong tensile strength in both the longitudinal and cross direction. As a result of this, the material does not change its width under compression. "Because of this property, it is extremely well suited as a gasket material for narrow sealing areas and in all applications where a defined gasket width (under load) is required, such as enamelled and glass-lined flanges, heat exchangers, large flanges and containers, pressure vessels, suction filters and strainers, etc.," said Day.

Ever-evolving R&D

Teadit considers themselves a market-driven R&D company, "This means that the market is going to dictate to us what we develop. We do not want to sit in our labs and come up with something, then see if we can sell it. If a product holds no value in the customer's eyes, there really is no reason to bring it to them. 'Market-driven'sounds like a buzzword, but we live by it," commented Day.

When searching for materials, Teadit is very integrated with the end-user either directly or through their distribution partners. "A lot of plant employees communicate with us directly, especially in the Houston industrial region" explained Day. "Outside of Houston, we still strive to maintain direct contact, but much of it is with and through our distribution partners. We will accompany our distribution partners into different facilities to talk to the engineers, planners, and maintenance personnel to find out what their needs are and any challenges they face."

Teadit's research facilities receive feedback from all over the world. "We want to be the primary reference and prime choice for fluid sealing advice," said Day. "When considering what projects to consider working on, we talk to different customers all over the world. We get their feedback and organize that information in a matrix of priorities in order to see what would be the easiest to develop with the quickest and greatest potential for success."

Teadit's quarterly meetings bringing together their global directors and technical experts to share and exchange information, to maintain consistency amongst their worldwide locations. "We always look for opportunities to use what could have been developed elsewhere," commented Day.

Leaders in technological innovation

It is important for Teadit to set the benchmark for the industry, rather than playing catch-up with their competitors. "For a long time, the U.S. market never really knew who Teadit was. Everyone seemed to think we were only in Brazil, as we were the dominant market share player down there, taking very good care of our customers, helping them meet whatever challenges they encountered," said Day. "We knew we had to do something differently in the

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« *Many of Teadit's sealing solutions are for very unique pieces of equipment.*

US, to allow us to be accepted here, too."

Teadit quickly realized the market was not just focused on lower pricing, but lower total cost of ownership. "If we can provide a better, longer lasting solution with quality service, it outweighs product price," said Day. "We are always looking to elevate Teadit in the eyes of our customers."

Teadit is also recognized as one of the leading manufacturers of standard pipe size and pressure class spiral wound gaskets. "To my knowledge, we are the only global manufacturer that does the level of product evaluation and testing that we do for the standard size and class range. This allows us to ensure that all the standards that we put forth meet or exceed the new performance specifications mandated," said Day.

Teadit's flagship packing product, style 2236, was born from the desire to create a better product for the market. "We saw an opportunity to make things simpler for our customers - a single material making up a complete packing set providing the best emissions results at that time. The simplest solution for the best results," said Day. "Our customers are the driving force behind our advanced testing capabilities and market-driven R&D initiatives."

In-house testing capabilities

The Teadit Group has robust in-house testing capabilities in all the regions that it serves. This testing includes compression and leakage monitoring for metal gaskets, ranging from ½" to 18-inches in size, across multiple pressure classes. "This gives us the ability to not only measure how good our gaskets are, but measure the effectiveness of process improvements we develop," said Day. "When we first started testing, we saw that we were, what I consider, in the middle of the road. We did things about as well as everybody else and in about the same way."

Teadit then started looking at incorporating improvements into different aspects of the gaskets based on a variety of variables that affected ultimate sealing ability. They found that those variables sometime fit together in different ways, to produce different results. "We finally got the right combination that would enable the parts to perform very well, but this testing dictated a lot of tweaking of our processes," commented Day. "We're testing up to fifty gaskets per week in our facilities to make sure that we can validate our performance and continue to look for opportunities to improve performance. It gives us a very clear indicator of where we are and where we need to be."

Day stands behind the company's testing procedures. "This evaluation process is something nobody else is doing, but everyone should be. We have reached a critical point where we want to continue to differentiate ourselves in the market. We are a high quality, high volume production manufacturer with the ability to really dictate the future of the sealing products industry."

In-house testing is critical to Teadit, because it is one of their major differentiators from competing manufacturers. "As long as we remain focused on the fact that it is all about quality, we will forge ahead. We must be able to test our product; go out into the shop, make it faster, and lower costs. It is all about performance, in everything that we do. In-house testing gives us the ability to experiment with production efficiencies, we put a lot of emphasis into and behind our testing, and we do it well," stated Day.

Typical gasket testing is conducted in two phases – destructive, and then performance. The first phase involves conducting a destructive test, where multiple pieces are destroyed, to ensure full compliance to specification construction requirements. In the second phase, leakage tests and compression tests are performed to ensure the specification requirements are met per ASME B16.20 (2017). Testing lasts approximately four hours from start to finish. For this evaluation, Teadit has logged data now for the last four years, which gives operators a backlog of case studies to extract information from if they do ever encounter a problem.

Day mentioned the group has two testing rigs in North America, two in Brazil, and one in India. "We can conduct twenty gasket tests per week here – and can do twenty in Brazil, and ten in India. We are testing a wide range of sizes to ensure consistency. We want to make sure that wherever we are producing a product, it holds the same caliber of performance regardless of the manufacturing site. Everyone is starting to demand this in the industry – quality control across the globe," said Day.

Looking ahead

When asked about the future of the industry, Day is hopeful for future generations. He maintains that it is not difficult to produce great quality products over lower quality items. "With genuine and sincere effort, the price to produce and the price to procure can both be about the same, it is almost negligent to supply to the market without proven quality gaskets and packing these days," said Day. "If we stop emissions, we're stopping the loss of product, right? It's the product that's going in the air rather than going through the piping. We need refineries and industry to thrive, but I also want this world to be around for my grandkids to enjoy. We get too caught up in our day-to-day routine to really worry about this thing called a 'carbon footprint', but it's important," commented Day. "It's important for our future and I want to make a difference. That is what is cool about being part of a company like Teadit, they help me accomplish this!" «