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BI-TORQ Valve Automation – Leading the thermal shut-off valve market



High pressure natural gas turbine installation.

In the days before ISO standards and consistent mounting patterns, automation was a unique thing. During its foundation period in the early 1980s, the Illinois-based company focused primarily on customized valve automation hardware designed to mount any manufacturer's valve to any other manufacturer's actuator. Adding specialty extensions and tandem linkages among other unique designs soon after, the foundation of custom designs and manufacturing was laid and still remains an important part of the business today even as it has grown into a full valve automation company.

Valve World had the opportunity to speak with Vice President of Sales and Marketing for BI-TORQ Valve Automation, Mr. David Marut to discuss the company's rich history of innovation, commitment to safety and the importance of offering customizable solutions to their customers.

By Sarah Bradley



The BI-TORQ division joined the growing world of valve automation in 1995, offering quarter turn pneumatic and electric actuators. The product line grew with a diversity of quarter-turn products, including a full line of ball and butterfly valves for virtually every application. The strength of those two sides of the company eventually led to the most important part of the business. In 1997, BI-TORQ designed its first "fusible link assembly" by combining the company's valve automation skills with its custom design expertise to

create a way of reducing the spread of fire. Originally designed for a wide range of manufacturers' fire safe valves, BI-TORQ brought on a full range of API 607 approved quarter turn valves by 2008 to provide a complete solution for safety. Having received FM Approval on fire safe valve products and thermal shutdown actuators in 2010, the company's line of thermal shutdown valves (also called fusible link assemblies, emergency shutdown valves and emergency block valves) represent innovation and continuous development. "Over the past decade, our focus primarily has been thermal shutdown valves, which is an exciting product for us because it is extremely unique in a commodity-based world. We defined the marketplace with a product designed for safety--not just the safety of plant personnel, but also that of the surrounding communities," Mr. Marut revealed. The BI-TORQ Valve Automation Way, which emphasizes flexibility, safety, dedication to total customer satisfaction and a nearly unmatched level of experience, sets the company apart in the marketplace. With over 35 years in manufacturing, BI-TORQ has accrued a truly unique group of people who have helped create and develop a dynamic company.

"Total customer satisfaction has always been the cornerstone of our mission statement. It sounds like a cliché, but it really is the central principle we built the company on. We go as far as we need to in order to ensure that we listen to every customer's needs and do whatever we can to meet them - whether that be turning around quote requests as quickly as possible, supplying test information, creating a Solidworks model prior to order, or providing a custom design to be able to fit into a certain type of system. We are not just selling straight out of a catalog. We pride ourselves on really listening to our customers, taking that feedback to design products to fit their needs, and doing everything with the customers' best interest in mind. That's truly what makes the company unique," he said.

Ensuring customer satisfaction is one of the reasons BI-TORQ remains "lean & mean." Efficiency and the ability to react immediately allows the company to provide their custom services quickly. Having the "one-stop shop" capabilities onsite allows BI-TORQ to reduce lead times and provide their clients with quick, quality product. "Our ability to be able to customize on site and respond in a quick manner are the hallmarks of the manufacturing part of our business. We offer an emergency service

where we can provide custom design from concept to completion within 48 hours. If we can get an order by 10 o'clock on a Tuesday morning, we can design, manufacture, paint, assemble and ship that product by Wednesday afternoon. Being able to react quickly and manufacture on site really does make all the difference for us," explained Mr. Marut. "Personally, it is to not just about selling products, but about working with people and finding solutions for them."

Innovative & Safe Product Solutions

BI-TORQ's diverse product portfolio has allowed the company to supply unmatched safety solutions for an array of applications, from high pressure valves for hydraulic applications to sanitary valves for food and beverage in industries ranging from automotive to handling jet fuel at airports. Fire safe products in particular have been a significant part of BI-TORQ's recent growth. "Our recent focus has been with fire safe products and the thermal shut-off actuators, which has really been a primary part of our growth. This product is for any type of flammable media, including gas and oil, oxygen lines, generator fuels and ethanol



Re-settable block valve (R-EBV).



Carbon steel FM approved thermal shut-off valve.

applications. We do a lot of work with refineries and chemical processors with midstream and downstream applications, but our product diversity has really helped us explore so many different applications that require safety solutions. While our focus right now is in the refinery world and chemical processing, we are involved with a lot of manufacturing and production facilities as well as hospitals and municipalities," Mr. Marut said.

For nearly two decades, BI-TORQ Valve Automation has been an innovator in the thermal shutdown valve marketplace. BI-TORQ's focus on specialty fire safety products and custom designs based on industry input sets the company apart from a product standpoint. Designed as a critical component for fire safety systems, the company's first unit was quickly followed by other innovations as they added manual operation, and the ability to both remotely monitor and trigger their assemblies.

"Our product differentiator is our thermal shut-off actuator, also referred to as fusible link assemblies, emergency shutdown valves, or emergency block valves - essentially valves that are made to shut automatically in the presence of heat or fire. I think we really have defined this market segment. This is a safety product that really did not exist prior to our design in 1997," he revealed. "We have by far the largest torque output in the industry so we can custom fit these on to any other manufacturers 24" API 607 butterfly valve, all the way down to a ¼" ball valve. We are able to provide these not just on our own fire safe valves - we have a diverse line of those - but also on client specified or AML quarter-turn valves as well."

One of the unique features of the thermal shutdown actuators is that the unit can still be manually operated even while it is on. This was another really big differentiator for BI-TORQ, as previously you had to use two different valves in line - one for manual operation and one that would be armed with a thermal fusible link on it. With BI-TORQ's design, one valve does it all.

"These are for lines conveying flammable or toxic media--essentially anything that can either feed a fire or will cause the release of a toxic chemical. The product is made to shut down those lines and either keep the product in a flame proof tank or to evacuate the pipeline of product and get it out of the building. The idea behind it is not to necessarily prevent a fire, but to shut down those critical pipelines if there



3-way sanitary ball valve on an apple sauce hopper.

is a fire in the facility," Mr. Marut stated. "I think that with large torque outputs, custom designs, manual operation, the ability to continually monitor the product through proximity sensors, and to be able to remotely trigger these units through a low voltage signal help to create by far the best product in the industry. We designed an industrial product that looks and acts like the rest of the valves an end-user has in line, but with a significant additional safety feature along with that."

Resettable EBV for refineries

The next generation of thermal shutoff actuators is the R-EBV (Resettable Emergency Block Valve), designed as a continuously maintainable and re-settable product that can be tested, re-set, or triggered off by one person in a safe manner. The R-EBV is designed for critical applications like hydrosphere containment or chemical processing, and can be triggered via local heat from a fire, a remote signal sent to a limit switch, or a local push button control. Features and options include manual operation, switches for continuous indication, remote triggering options, and most important, the ability to do regular maintenance tests. "We came up with our new product based on feedback we received from a major worldwide refiner. We originally supplied a standard product but during the testing phase we realized that they would be using them differently than anticipated. We worked with maintenance people and engineers within the company for a three year period and came up with a design that was made specifically for the refinery world. That is not something we would have been able to do if we had been



Bulk loading stations at a refinery.



High pressure thermal shut-off assemblies for a compressed gas trailer.

using a third-party engineering firm or third-party manufacturing," he explained. "To be able to have all that control over the product in-house and to be able to work directly with the customer to design the product that they need for their specific application is incredible."



Outfitting a brand new chemical manufacturer's plant in 2012.

Mr. Marut explained that investing in research is important to growth by keeping up with what the industry needs through talking to people who actually are using the products. By speaking with maintenance personnel who are installing and using the product every day, the company is able to truly understand the customer needs. "With the R-EBV, we spent time meeting with personnel who handle these valves every single day and talking about their challenges with the existing product and how they are being used. They emphasized the dangers involved in maintenance and testing, about the manpower and the time it takes, or in some cases issues with not being able to operate them at all," Mr. Marut said. "The reason the refinery contacted us in the first place was because they realized that the safety products that they had currently did not work because they had not been able to test them. They had been installed for 25 years, basically frozen in place. Our design engineers and product development team worked with the refinery and talked about weight and space concerns - they have to mount these in a variety of different ways--and we talked about what the challenges would be with that. We ultimately came up with a product that is exactly what they wanted. That was only possible because of working with the people that have their feet on the ground that can give us that kind of information and feedback."

Merging into the future

In September 2015, the company merged with Strahman Valve, a move which expanded their worldwide presence while

adding a variety of products to their portfolio, including washdown equipment, drain and sample valves, and large fabricated valves. The additional products have allowed BI-TORQ to increase their already diverse product scope while still maintaining their reactive nature. "When I first started with the company a lot of big companies were buying up everyone and I remember thinking, 'How is one guy sitting here in a little town in Illinois going to compete with these valve conglomerates?' I quickly realized that our advantage was that these companies are huge luxury liners and we were a little speed boat - the advantage that the speed boat has over a luxury liner is that we can turn around on a dime and react really quickly," he said. "Having 35+ years of experience in manufacturing has allowed us to figure out different ways of doing things in the most efficient way. We have built a company for the long term - this is something we obviously care about a great deal. We are in it for the long run." Today, with more than 10,000 thermal shutoff actuators in the field, BI-TORQ Valve Automation continues to develop technology based on their experience with refineries, chemical processors and production facilities as they remain a leader in fire safe valves for critical applications. "I think our future is very bright and I am very encouraged by our position in the industry. I truly believe that with our thermal shutdown valves, we defined that marketplace and we are continuing to be a leader within it," he stated. "I anticipate that will continue to be the case because we are continually developing product. And I believe that because we listen to our customer base, we will remain the leaders well into the future."