

# Farris Engineering – the First

Since the early 1940s, the Farris Engineering business unit of Curtiss-Wright has been a pioneer in the design and manufacture of a wide range of spring-loaded and pilot-operated pressure relief valves. Used as safety devices, pressure relief valves prevent the over pressurization of vessels, pipelines and equipment. Farris has provided automatic and positive protection against overpressure situations in thousands of industrial plants and facilities with over 70 years of proven performance. As a recognized leader in the hydrocarbon production and processing, pharmaceutical, fossil and nuclear power generation industries worldwide, Farris Engineering has created many products that are industry standards. Farris has remained a leader in the industry by integrating its core hardware with technology. Farris was the first relief valve manufacturer to originate computer software, SizeMaster, to assist customers in the sizing and the selection of pressure relief valves. More recently, Farris developments include their patented iPRSM™ software for the management of complex pressure relief systems, as well as solutions that allow pressure relief valves to communicate via wireless protocol.

Valve World Americas had the opportunity to visit Farris Engineering's headquarters in Brecksville, Ohio to meet with General Manager, Frank DiTomasso, Kevin Mixell Manager, Strategic Business Development and Cynthia Andersen, Marketing Manager, to discuss the company's growth, industry innovations, its commitment to understanding customer needs and its position as a worldwide leader in delivering solutions that improve plant safety and reliability.

By Sarah Bradley



Frank DiTomasso.

Established in 1943 by Victor Farris, Farris Engineering was acquired by Curtiss-Wright in 1999 as part of the corporation's desire to expand their position in the flow control marketplace. By this time, Farris had a well established reputation as "the First Line of Safety", the result of Farris innovations that have evolved into industry standards for pressure relief valve design.

Farris Engineering's core product lines are available in sizes ranging from 1/2" to 20" inlets, with numerous connection and material options to meet all of their customer's requirements for set pressures through 10,000 psig. Farris Engineering's design focus is on long service life, convertibility and ease of maintenance. This has resulted in less downtime and a lower total cost of ownership for their customers. They have an extensive pressure relief valve offering that can cover all their customer requirements for spring loaded and pilot operated relief valves.

Their flagship product line, the 2600 series direct spring loaded valve, has played a major role in making Farris a leading global supplier of pressure relief valves. This is a steel flanged valve that complies with the API 526 standard, as well as super capacity versions and is available in a variety of inlet connections, optional features and materials for specific processing requirements. The 3800 Series pilot operated valve product line also complies with the API 526, and features both snap-acting and modulating controls. The 2700 Series direct spring loaded product line is available for applications requiring threaded, flanged, socket weld, sanitary and other types of connections. All three product lines are AMSE certified Section VIII and are offered in carbon and stainless steel as well as other specialty service materials. Their steam service valves include the 4200 and 6400/6600 Series and are both ASME Section I and VIII certified.



Aftermarket Inventory.



Farris Engineering's headquarters located in Brecksville, OH.

## Pressure Relief Management Solutions

In addition to a complete line of pressure relief valves, Farris provides total pressure relief system management solutions that support a facility's entire lifecycle. Farris developed and introduced iPRSM software in 2004 after recognizing a need in the industry for an engineering solution to help customers manage and achieve regulatory compliance with their pressure relief systems. iPRSM is a powerful engineering calculation and documentation repository tool designed to assist in meeting the pressure management related requirements for process safety management (PSM) compliance.

The software introduction, which has received two patents, has been a strategic addition to the company's portfolio. With iPRSM, customers can design pressure relief systems based on the types of over-pressure scenarios that a plant could potentially encounter. Customers can also use the program to audit the existing pressure relief system, as required by OSHA 1910.119, to ensure that it will perform as designed during an over-pressure event. The web-based software provides cost effective management of pressure relief system documentation and assures compliance with regulatory codes and company standards over the facility's lifecycle. Combining valve hardware, iPRSM and engineering services, Farris can provide comprehensive pressure relief system design and audit services, providing facilities with a safer work environment.

"Being able to provide customers with a total pressure relief management solu-



Farris pressure relief valves being prepared for shipment.

tion is a key strategy for Farris and it is a true market differentiator. Farris is the only company in the industry that is able to provide a complete package to our customers and that is of such importance to us and our clients," said Frank DiTomasso.

"Five years prior to the introduction of iPRSM, plants would have all their sizing calculations on Excel spreadsheets. As time passed, plants changed their operating parameters, but didn't keep their spreadsheets and sizing calculations up to date, resulting in potentially unprotected systems. iPRSM provides best in class management of change features that allows users to keep everything documented, and most importantly, updated," said DiTomasso. "We can provide an itemized list of equipment required to maintain all pressure relief systems compliant."

"iPRSM is promoted by our Farris Engineering Services (FES) team. In addition to licensing the software, FES provides engineering services – our team can design and audit a pressure relief system using iPRSM. Once FES has designed a relief system, we can help specify the valves and identify equipment needed to build the system. Farris also offers a wireless monitored SmartPRV in partnership with Emerson, so in addition to building the system, Farris can also help you monitor your pressure relief valves. In the event of a discharge, plants can understand what was discharged and calculate the volume of the discharge. There is nothing else available in the market today that can do that," explained Cindy Andersen.

# Line of Safety

## AFTERMARKET SUPPORT & DISTRIBUTION

Farris has maintained its leadership position in the industry by outpacing the market through their Total Pressure Relief Management Solution strategy, but also through their strong commitment to customer service. Farris meets their customers' needs by providing competitively priced products and services supported by a global network of strategically located regional and independent representatives which offer sales and product support. Farris currently has 115 representatives covering territories in 84 countries. Farris representatives are given comprehensive training in the theory and operation of PRVs. The company's global network of regional sales offices and independent reps work closely with customers on a geographic basis, helping Farris to ensure optimal customer service, product availability and support.

In order to be more responsive and exceed the expectations of their customers, Farris Engineering formalized their aftermarket group into the Farris Authorized Service Team or FAST Centers. FAST Centers are independent companies who have committed to providing a higher level of service and support to their territory by providing technical support, valve repair and local inventory to reduce lead-time. Farris currently has over 41 FAST Centers located in 17 countries.

FAST Centers hold approximately USD\$50 million in Farris assembled valves and OEM parts inventory in strategic geographic locations. This strategic placement of inventory allows Farris to reduce turnaround times and to meet the outage needs of their customer base. Farris' web based inventory exchange program allows FAST Centers to access one another's inventory in real time and to leverage this extensive inventory to satisfy their customer needs for expedited deliveries. With the recent expansion of their headquarters in Brecksville, OH, Farris has installed a fully equipped onsite FAST Training Center. FAST technicians are brought into their facility to learn about proper assembly, test, diagnosis, repair and maintenance of Farris pressure relief valves in both hands-on and classroom settings.

"It is important to have localized inventory and that is where the FAST Centers come into play - they have valves and parts in stock tailored to the local market. They have been trained on our valves and are able to go into facilities and quickly per-

form repairs or replacements to keep plants operational," said Andersen.

## COMMITMENT TO ENGINEERING EXCELLENCE

With the strict requirements placed on the industry and Farris Engineering's commitment to ensuring the highest level of safety for their customers, their engineering team is an important factor in the company's success. Supported by its engineering group, Farris maintains an extensive list of regulatory certifications including ASME Sections I, III, and VIII, PED, CSQI, GOST among many others. Farris' engineering group continuously upgrades its knowledge of code, regulatory and industry standards requirements by being an active member company of several industry groups and regulatory bodies including ASME, National Board, DIERS, API, VMA, VRC, ISA, ISO, NUPIC, CSA and others.



Farris Steam Test Stand.

Farris' engineering group also provides unique solutions and extends the range of relief valve applications for its customers to help them bridge the critical and ever increasing demands of their plant operations. To assist in research and development, as well as compliance for capacity/performance certification, the Company has a flow test lab allowing them to test valve capacity and performance. Additionally, back pressure and other situations can be simulated. This ensures Farris valves are able to function properly in a wide range of applications. Farris' test lab is one of 14 ASME PRV certified flow test labs in the world. The Company also has a full range of pressure test capabilities for all appli-



Farris' Assembly Area Features Adjustable Height Workstations.

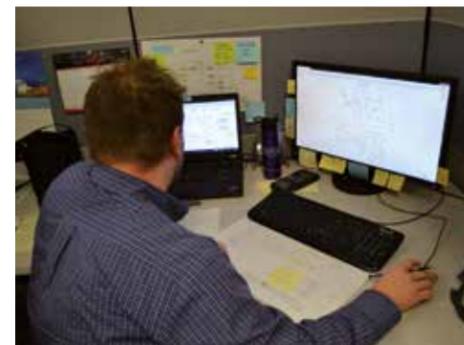
cable services including air, vapor, liquids, steam, helium and cryogenic.

## INVESTMENTS IN THE FUTURE

Farris Engineering's global headquarters, R&D and main manufacturing facility is located in Brecksville, Ohio. In North America, the company has ASME/ISO certified facilities and sales offices in Brantford, Ontario and Edmonton, Alberta, Canada, as well as Houston, TX. Farris also has locations across the globe in Tianjin and Beijing, China, in Corby, UK and New Delhi, India. Recent large capital investments were made, including new machining and test equipment, plant expansions in Brecksville, Ohio and Tianjin, China, a new ERP system, and relocation of their assembly facility in the UK. After analysis of customer needs, the plant expansions allowed Farris to implement new value streams in order to improve customer service. There are five value streams within their factory in Brecksville: Standard, Project, FAST Track, Sprague Pumps & Boosters and Car Carrier valve product line.

Another way the company has demonstrated its commitment to the future is by investing in the safety of their employees, including a focus on reducing redundant movements and eliminating waste. Farris Engineering has a very strong safety and Lean culture. "At the root of our values is our commitment to provide a safe and healthy working environment for our employees and to avoid adverse impact to the environment and community. We believe that all occupational injuries and environmental incidents are preventable and we work diligently to prevent all incidents" said Mr. DiTomasso. Their commitment to their people is evident; they have provided the resources, training and support

necessary for employee safety, and health & wellness. For example, each station in the valve testing and assembly area is individually equipped with a set of tools and cranes so that heavy valves can be lifted and lowered into place on the test stand without requiring workers to manually or physically manipulate the valves. "We have installed workbenches with adjustable heights to accommodate each worker in order to eliminate strains. Additionally, we have made investments in vertical storage which allows employees to easily retrieve parts and inventory while also helping us maximize our manufacturing footprint" said Kevin Mixell.



FES Engineer Designing with iPRSM.

"Farris continues to look for ways to expand the reach of its mission to contribute to safer processing facilities worldwide - geographically or through new product development. We have a business development team tasked with identifying opportunities in our served markets," said Mixell. Their latest project is a manufacturing and assembly/test facility in Brazil. This operation will allow them to service the Farris on-shore and off-shore installed base, meet local content rules for new projects and provide support to the South and Central American regions.



Ergonomically Designed Hydrostatic Testing Station (LEAN investment).



FAST/Aftermarket Training Facility.