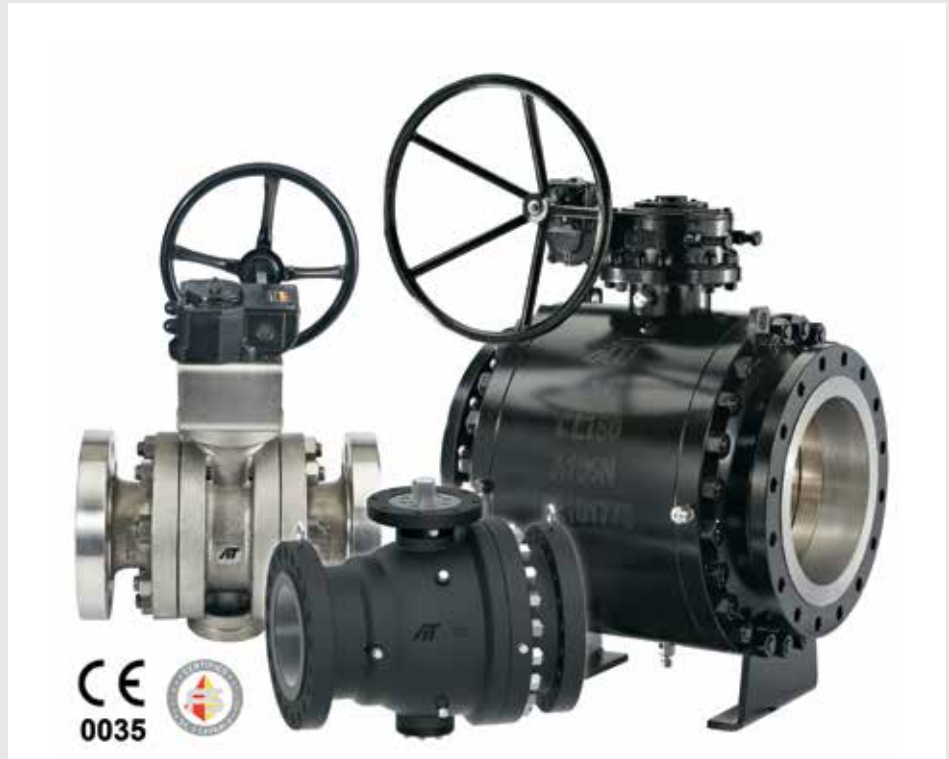
The Future of Fugitive Emissions

A-T Controls, a global leader in the design and manufacture of manual and automated engineered valve solutions, has been dedicated to the reduction of fugitive emissions for over two decades. As a wide range of industries are paying more attention to the issue of fugitive emissions, A-T Controls is ideally positioned to assist their clients in their environmental endeavors.

Valve World Americas recently spoke with Brian Wright, President and CEO, Ron Ruehlmann, Vice President, and Chris Bernardo, Engineer, about the company's proven history in managing fugitive emissions, the ISO and API certifications their products have achieved, and what comes next as the conversation on fugitive emissions becomes more prominent throughout all industries.



By Brittani Schroeder and Sarah Bradley

A-T Controls began offering automation, actuation and quarter-turn valve accessories in 1994, but it was not until 1997 that they began offering three-piece valves in simple pre-sized, engineered and pre-priced packages. From there, product lines expanded with the introduction of flanged and three-way valves, resilient seated and high-performance butterfly valves, as well as sanitation and fire-safe valves made from stainless and carbon steels. With a goal of providing efficient and convenient packages, A-T Controls has served as a single point of contact for all their customers' needs.

Managing Emissions

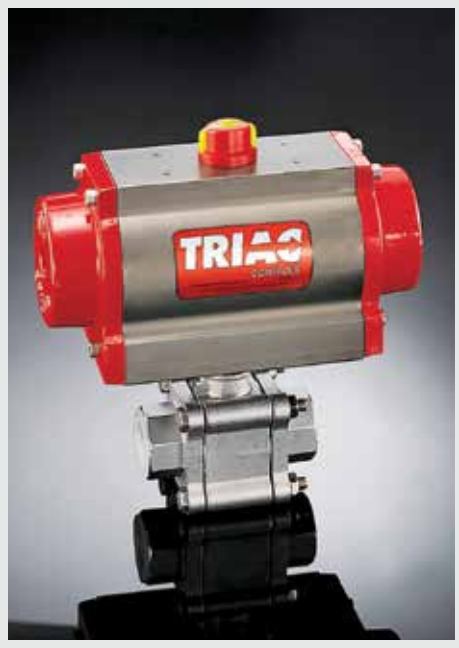
The topic of fugitive emissions has been evolving for the last few decades, and is now at the forefront of conversation. "It began in the pulp and paper industry," said Ron Ruehlmann. "When you walked through a paper mill, you could smell sulfur leaks – which smells like rotten eggs. From there, a movement started to clean our air and reduce pollutants in the atmosphere. This is where sniffers came into play, as they detected leaks in different areas, be it methane gas or methyl chloride, or some other contaminant that is bad for the environment."

As Ruehlmann describes it, there were a few valve types that were known to be bad actors in terms of leaking. "With a rising stem valve, the stem is constantly being dragged through the packing, which could lead to leaks through the stem, releasing pollutants into the air," he explained. When rotary valves were introduced, the stem was able to rotate 90° within the valve, which helped eliminate some of the leaking; however, there was still an issue with the packing, as there could still be a leakage.

"When valve specifications tightened up, more fire-safe valve packing was requested, so graphite was used; graphite, however, was not as good as Teflon for packing. New designs had to be created, and fugitive emissions bonnets were highly sought after. New shield designs were made to help contain the gases from leaking out into the atmosphere. We knew we needed to design something that would work for our clients," said Brian Wright.

A-T Controls started designing their valves over 20 years ago with a unique 3-packing system. The company created valves using a pyramidal stem seal. The initial sealing of the stem to the packing is through a pyramid-type design, with Teflon. The secondary seal is an O-ring, and it seals both the stem side and the body side of the valve. The tertiary seal is the live loaded packing.

"When we first designed these valves, we tested at the TA-Luft standards, and we passed those tests," said Ruehlmann. "Since then, the standards have evolved quite a bit; the TA-Luft standards allowed a certain amount of leakages, but when API and ISO came along, those standards were tightened up and leakage was not allowed." From these new standards came the requirement for fugitive emissions bonnets, a double set of packing, bellow seals, and much more for the rotary valve market.



ISO and API

ISO 15848-1:2015 is a standard that evaluates how well valve seals prevent fugitive emissions. The standard tests valve stem seals and body seals for leakage (measured in concentration or a leak rate) and categorizes valves into different 'tightness classes' based on how well a valve performed through a series of tests (endurance classes) at different temperatures and pressures (temperature classes). These classes are determined based on the test fluid used, the amount of

Management: A-T Controls

cycles the valve undergoes, the temperature the test, and how a valve is identified (isolating or control valve). Isolating valves can be tested to 2,500 cycles, while control valves can be tested to 100,000 cycles. Methane and Helium are both allowed as test fluids, and the standard does not allow for any correlations between them.

ISO 15848-2 testing uses helium for production testing of valves that have already passed ISO 15848-1 testing. The allowable leakage rate of stem seals is also characterized in tightness classes, and the allowable leakage from body seals.

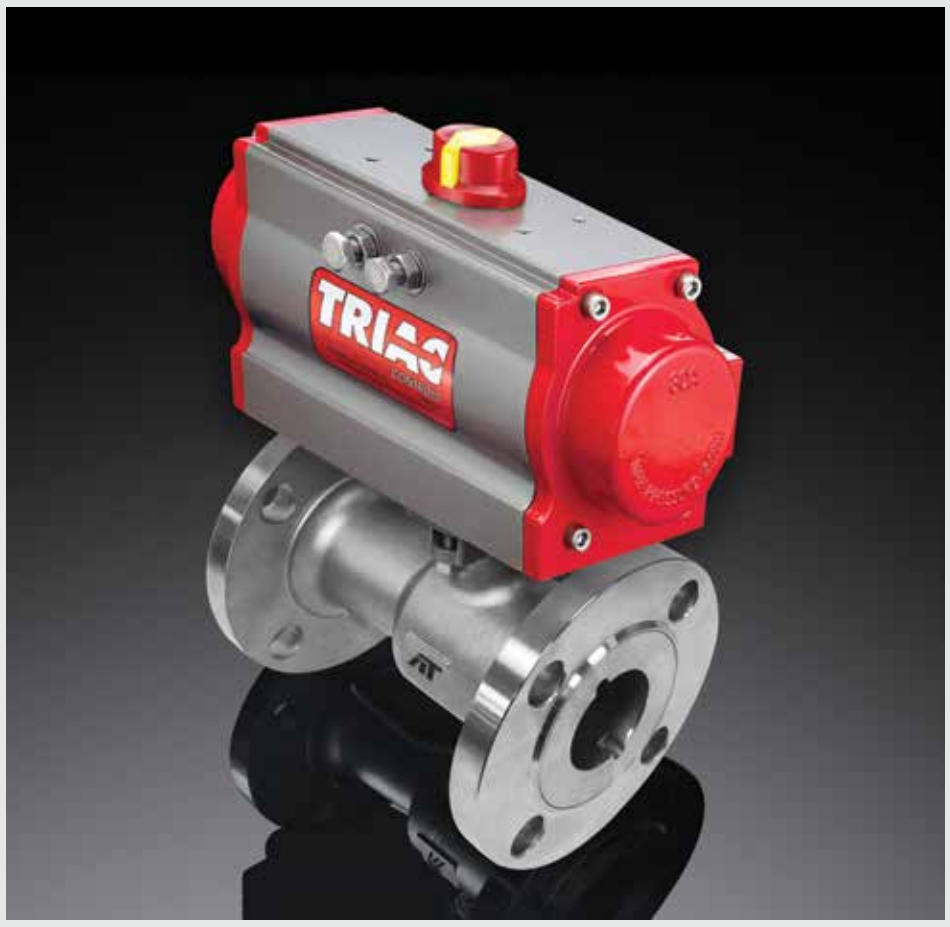
A-T Controls, Inc. can provide ISO 15848-2 testing at their Cincinnati facility. All valves are identified with a tag that indicates the unique test for each valve.

"For our trunnion designed valves, we follow the API 641 standard because they are API 6D valves. We decided it would be best to parallel an API valve to an API spec," said Chris Bernardo. "Our standard ball valves can go into power plants, chemical plants, and more, in a range of industries, so we use ISO standards. ISO is recognized above other standards. ISO standardization is more difficult to achieve, but we want to take that extra step for our customers."

A-T Controls' wide range of products, including the F88 Series, the F90 Series, the FD9 Series, FR9 Series, and TS2/TS3 Series valves, have the most up-to-date ISO 15848-1 and API 641 certifications to meet the needs of any customer application.

Customer-Driven Compliance

A-T Controls believes there are two kinds of company cultures: leading or following. We are dedicated to being the leader – we do not want to fall behind and follow other companies as we move toward stricter fugitive emissions regulations. We want to be known for our high quality and our high standards," Wright commented.



To ensure they are providing their customers with the best products, the company sends all their valves to an independent third party for testing to ensure nothing is overlooked. "It may not be as cost efficient as doing the testing and inspections in-house, but we are committed to ensuring the best for our customers," said Ruehlmann.

Obtaining an ISO 15848-2 certification is typically a customer-driven specification. These requests can be a proactive decision made by the facility, or it could be a reactive decision, based on LDAR (leak detection and repair) inspections or consent decrees. "Chemical plants, for example, typically require this certification because of the nasty substances they have to deal with," said Ruehlmann. "Once, a chemical plant had an outage when using another manufacturer's valves, and they conducted an LDAR inspection. There were seven or eight valves that had failed, and it would have been very costly to fix the problem. If the problem was not fixed, they could get fined for the leaks. Instead, the plant replaced their valves with A-T Controls valve packages, which were ISO 15848-2 certified. The valves have now been installed in the plant for a year and a half with no issues."

Critical Future for Fugitive Emissions

A-T Controls believes fugitive emissions regulations are going to be more stringent in the future. "I think more areas of plants will be facing these regulations, and it will differ from industry to industry. American companies are really focused on reducing emissions and creating green deals," relayed Ruehlmann.

"In the food and beverage industry, a little bit of spilled milk is not the end of the world, but if CO_2 is leaking out, that is a big issue," said Wright. "As the U.S. becomes more inclined towards green initiatives, more processes are going to be examined and scrutinized. Any application or industry that deals with the high pollutant gases will be hit first, and then everyone else."

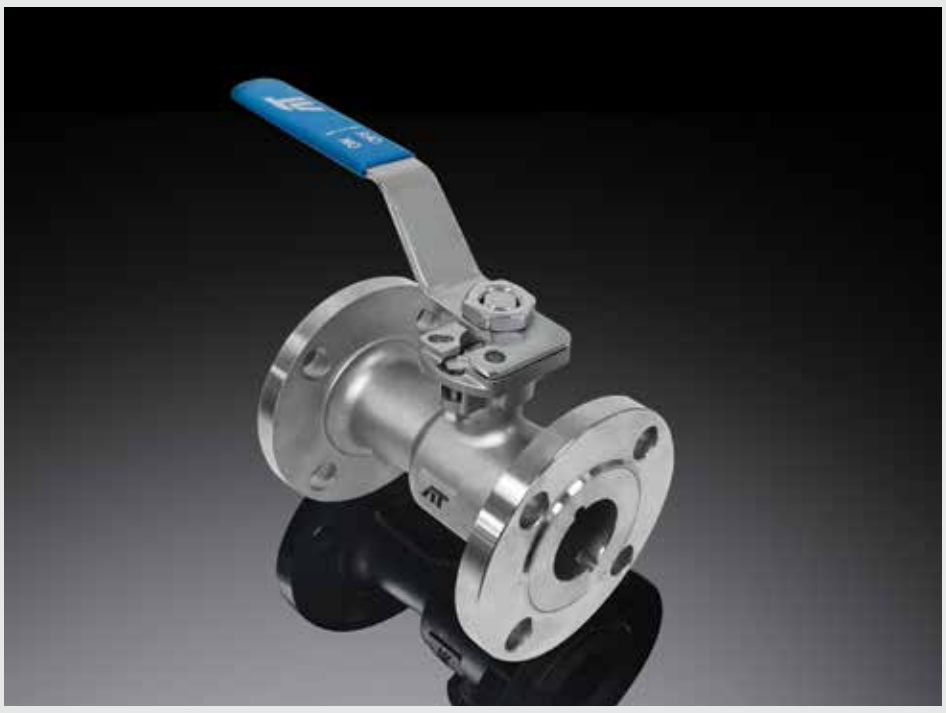
If regulations tighten, A-T Controls is already well positioned to meet rising demands. "We are the leading manufacturer for valves that meet strict regulations at the shop floor level," stated Ruehlmann. "We will not have to change our products to meet these stricter regulations – we are already there. A valve a customer bought from us five years ago will still meet all current standards."

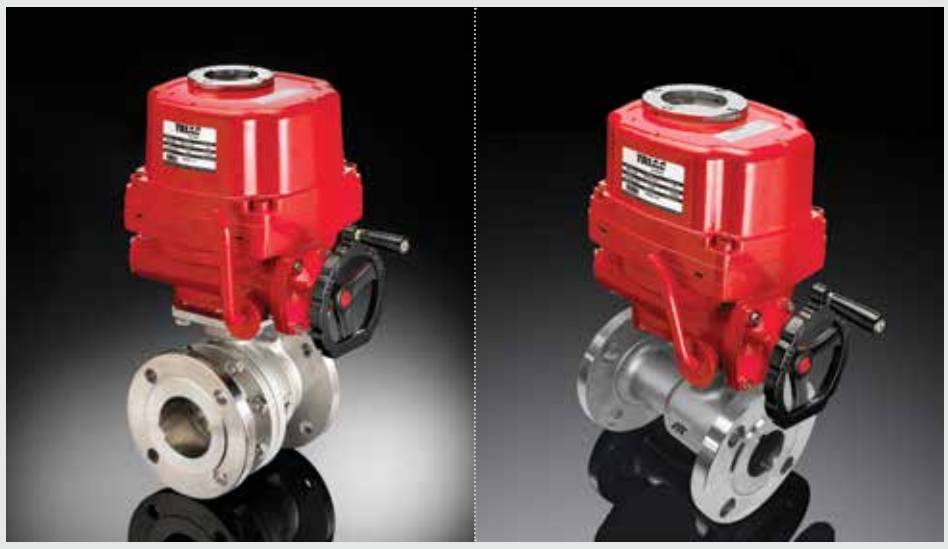
Planning Ahead

The company is ready for whatever the future holds. "A-T Controls will continue to introduce products to the market based on distributor and end user feedback, and offer the broadest selection of quarter-turn valves in the market," explained Wright. "For all new products, we are testing in ISO and API to ensure the highest standards for fugitive emissions." A-T Controls also purchased a small instrumentation company in the last few years, which has helped them manufacture controller devices to better serve their customers. The Mighty Controller is extremely versatile and programmable. It is available in panel mount and multiple enclosure mounts. A very "open platform" that can do what you want it to do, A-T Controls can provide programming and configurations or the customer can program to customize.

"We plan to introduce a higher-pressure trunnion class set of valves that are API 641 certified in the near future," said Ruehlmann. "The valves will range up to 8 inches, be available in class 150 and 300, and be ISO 15848-1 certified, with ISO 15848-2 available upon request."

A-T Controls' hope for the future is to grow in areas driven by customers. As Wright stated, "When looking back, we know we are most successful when we pay attention to our customers' needs. We listen to what they want, make product modifications and create new products to meet their needs. We have been doing that from the very beginning, and will continue to do so in the future."





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