

# CIRCOR International Inc.

CIRCOR International, Inc. is a company dedicated to their customers' success. From decades of designing and manufacturing highly engineered products and sub-systems for some of the world's most severe-service and mission-critical applications, CIRCOR has become a well-known, global name responsible for some of the most respected brand names in the oil and gas, industrial, aerospace, defense, and power industries.

Valve World Americas had the opportunity to speak to CIRCOR's cryogenic, power and process, and aftermarket divisions to discuss new product advances and their global reach.

By Brittani Schroeder and Sarah Bradley

## Cryogenics

### A Space Anniversary

While talking to Stanley Levandowski, Business Program Manager for CIRCOR Cryogenics, about significant company milestones, he mentioned the 50<sup>th</sup> anniversary of the Apollo 11 mission where a man was sent to the moon. "Our cryogenic products were founded back in the late 1950s, and we became incorporated in 1961. President Kennedy said we would beat everyone to the moon," he said. CIRCOR cryogenic products have been involved in the United States Space Program for over six decades, and now supply a variety of cryogenic equipment to NASA for its new SLS



CPC-Cryolab, CV8 Series - Vacuum Jacketed Shutoff Valve.



CIRCOR Aftermarket Rotable Program.

(Space Launch Systems) program, as well as United Launch Alliance (USA) and Blue Origin.

When CIRCOR designs products for use in space launch systems, they are mainly focusing on large cryogenic valves, which fall into their CV8 Series. "There are decades of evolution and innovation going into our valves, which must keep up with today's advances happening at the Space Center," said Levandowski. "We have to meet the high engineered expectations that are required for such demanding applications, and so we are continuously expanding into new sciences and technologies to try new things."

There are two sides to the cryogenic business: a cold-to-warm side, and a cold-to-ultracold side. Looking at the CV8 series valves, one feature that stands out is that they were developed over 60 years ago for usage in operations in the ultra-cold world of cryogenics. These valves operate at temperatures as low as -452°F. "The valves operate close to absolute zero, where a molecular movement is minimalized and structure stops moving. We offer these valves in a variety of different configurations," explained Levandowski. The Cv flow capabilities range from as low as 0.00001 to Cvs over 2,000, and that is the largest range of capability of any cryogenic ultra-cold valve series in the world.

### Constant Research and New Developments

Research and development for CIRCOR's new products is done in-house. Levandowski explained, "Most of the projects we are working on are based on customer expectations, and by keeping it in-house we can keep our knowledge to ourselves. There are always new products and technologies coming out, and we have worldwide competition nowadays. It is important to us to maintain our leading edge."

CIRCOR regularly updates their products based on worldwide demand. "When we look at the new applications, we see that liquid hydrogen and liquid helium, and even LNG will play an important role in rocket launchpad

propulsion systems, as well as alternative clean energy, and fuel cell technologies," said Levandowski. "Technological advancements have driven us to change our process, from how our raw materials are melted at the mills all the way up to how we make specialty components."

As with their research, CIRCOR keeps their testing in-house as well. "In cryogenics, we are using liquefied gas; as liquefied gas warms, it will expand, and as it expands in volume it increases in pressure. We test our valves to ensure that they can withstand any pressure or volume," explained Levandowski. Along with 100 percent in-house testing, CIRCOR has all their products certified by outside sources. Levandowski continued, "Many of our 30+ product lines have CRN certifications for Canada, PED certifications for Europe, KGS certifications for Korea, and SELO certifications for China, to name a few. We have a 9001 certified facility, and as the industry continues to expand, we continue to get new certifications to meet the needs of our customers. Our goal for our solutions is to provide our customers with the highest level of safety and performance. Products in this industry demand both of these standards."

### A Changing Industry

CIRCOR has been noticing a change in the industry, and believe it is because of the demand for a clean environment. Driving forces of this change include fuel cell technology, and the global forces pushing hydrogen mobility. Rocket launch systems also demand large volumes of liquid hydrogen and helium. As rockets sizes and payloads increase for future Space explorations, the demand for larger volumes of liquid hydrogen and helium will prevail.

Levandowski foresees that the cryogenic market will continue to grow in space launch pad propulsion systems as more commercial entities enter the race for Space. "This change will require CIRCOR to use larger valves than we have in the past, which will operate at higher pressures. The valves will

be under more stringent and demanding operating conditions than ever before," he explained. "We are in a very unique market, and it is a market that will continue to grow beyond everyone's expectations."

### Process & Power

#### Notable Progress

CIRCOR puts a strong focus on new product developments. Recently, CIRCOR has been updating their range of control valves and revamping their range of electrical actuators. Roger Ingemey, PhD, Vice President for Industrial Valves EMEA, said, "Some of the new features of our control valves include the 'quick change' feature, which allows engineers and technicians to easily change the valve's parts and do maintenance without needing a special tool. They are able to take out the internal parts, fix the problem, and easily put everything back in place." The new features for electrical actuators include an intelligent brushless motor technology, which stands for the newest drive technology with the highest efficiency that generates up to 60 percent in energy savings and includes a very sophisticated sensor system that controls the exact position of the motor in real-time, which is interconnected for remote monitoring with Profibus or CanOpen and a fail-safe that unlike other actuators offers two system-saving features, a standard emergency closing unit and

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Jason Carpenter, Business Program Manager Steam/HVAC

# Excellence in Flow Control

*"We do everything with the customers in mind. We focus on them, and what they need from us, and we develop products based on that. From there, our product ranges continue to grow. We are always learning and setting the pace."*

*Roger Ingemey, PhD, Vice President for Industrial Valves EMEA*

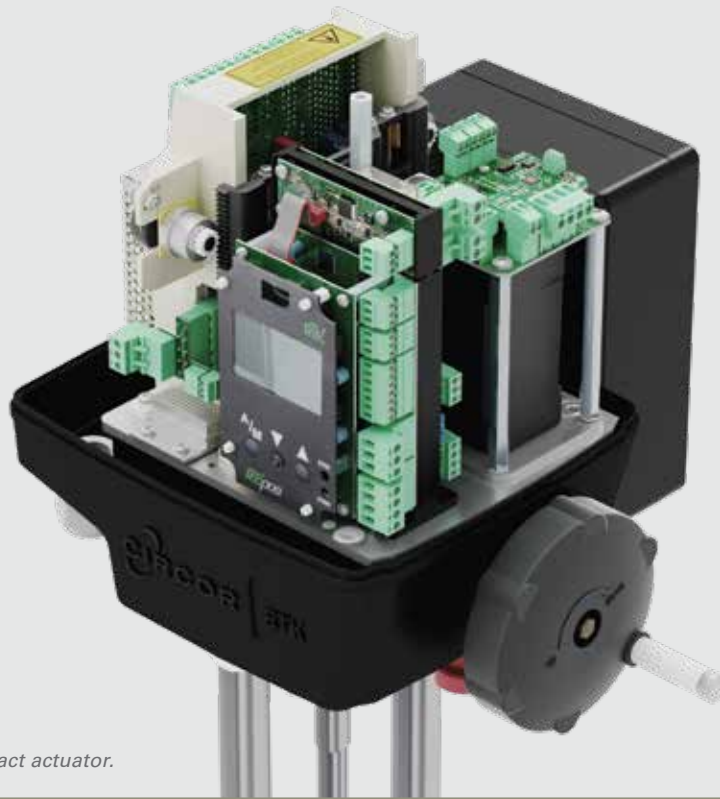
an emergency power supply. Lastly, the intelligent electric actuator series are systems interconnected for remote monitoring through the IoT.

Looking at the industry, CIRCOR can see a trend where customers are moving from pneumatic actuation to electric. "We are seeing the change happen quite often with customers that do not need to run air outside of valve actuation requirements like campuses and hospitals. Maintaining air lines and compressors is a significant expense and CIRCOR | RTK electric actuation for control valves solves this customer concern," said Jason Carpenter, Business Program Manager Steam/HVAC.

## Keeping the Customer in Mind

When asked about CIRCOR's research practices, Ingemey said, "We do everything with the customers in mind. We focus on them, and what they need from us, and we develop products based on that. From there, our product ranges continue to grow. We are always learning and setting the pace."

For CIRCOR, it will always start with what the customers need. "Sometimes," said Jason Carpenter, "the customers do not even know what they need until they talk through their requirements with us. We work together



RTK REact actuator.

to see what will best fit their solution. If we do not have what they want, we see if we can make it for them. Our goal is to solve their problems."

## Rigorous Testing

Testing power and process products before releasing them to end users goes beyond just testing for their quality and capability. "We have pressure tests and leakage tests, and tests to look at the overall function of the product," explained Ingemey. "We also test how the product will perform in different geographical regions. Different markets require different standards for products, so sometimes we know right away if we will be able to send a product or not. Other times, we need to research what is required for a certain market, and we need to test our products to make sure they meet those requirements."

## Aftermarket Innovations

On the aftermarket side of the business, the CIRCOR team has completely revamped their service program. Earlier in 2019, the company initiated a new CIRCOR Strategic Service Partners (CSSP) program for North America. "We have providers across North America, and hold factory trainings, product trainings, and hands-on training as well. Once service providers have completed the trainings, they become a certified program provider," explained Ed Hallenbeck, Senior Program Manager for CIRCOR Power and Aftermarket Valves.

CIRCOR also recently initiated a Rotable Program. CIRCOR customers can send back a key component of a CIRCOR product and have it refurbished or exchanged for a new part. This changes the way end users treat their old or malfunctioning valves. Previously, end users had two options: repair the valve on-site, or completely replace the valve. Now, with the Rotable Program, CIRCOR is extending the life of their valves for their customers. "This is something new in the industry—offering to refurbish our products in our factories, and

then sending them back to the end user," said Hallenbeck. "We have been getting great feedback on the program so far. A large power company in the United States heard about it and showed up on our doorstep to get a quote for the valves they needed refurbished. End users are always interested in extending their valves' lifecycles."

## Rebuilding the Value of Valves

Ed Hallenbeck compared the experience of rebuilding old valves to fixing an old car. "You own a car, and now that it is over 10 years old, it is worn out. The body of the car is still perfect, but the engine and transmission are not working as well as they used to. Instead of replacing the whole car for USD \$50,000, you could replace just the engine for USD \$12,000 hence extending the life of the car you have already invested in," he said. "The same principle applies to valves. Our goal is to do what is best for our customers and provide value added benefits."

All of CIRCOR's valves come equipped with a serialized tag, so that the company has the ability to track the order history for their customers. When a product comes back in for refurbishment or replacement, CIRCOR can track where that valve came from and what specifications it would need to meet. They will be able to tell if the trim can be refurbished, or if it will need to be fully replaced based on the condition it arrives in. CIRCOR terms this 'BER: Beyond Economic Capabilities' of the shop. When a valve is considered 'BER', it is far too damaged, and the part is simply replaced.

## A Global CIRCOR

CIRCOR is a global company, and their many brands across the various geographic regions exemplify this mission. One thing that most end users do not always realize is that CIRCOR oversees close to 40 different brands. Leslie Controls, Inc., Schroedahl, RTK, and CPC-Cryo are just a few under the large CIRCOR umbrella.

"One thing that CIRCOR does really well is focus on the history of their brands, and they show that they are creating a global footprint; whatever we can do in America, we can also do in Europe, China, India, and beyond," said Ashish Dutta, Vice President CIRCOR China & Industrial APAC.

"Customers need local support from anywhere in the world, and someone from CIRCOR will always be there to help the customer. Nowadays, the customer may not even have to wait for someone to hop on a plane to get to them," Ramji Sethuramalingam, Director of Design Engineering, added.

## Smart Tech and Digitalization

As Ingemey would say, "CIRCOR is a very agile and innovative company. We are always looking for ways to better our product lines and update them with new technologies." He continued, "We are really focused on mobile communication and making data available. We want our customers to be able to access information from wherever they need it, and we strive to make that possible."

What makes CIRCOR stand out is the dedication to their customers and what they need. "If there is a problem, we sort it out right away. If we do not have the solution, we are searching for it as quickly as we can," said Ingemey. Jason Carpenter added, "CIRCOR is also very broad when it comes to their product lines. From RTK, to Leslie Controls, there is a wide breadth of support that CIRCOR can offer to a lot of end users and markets."



RTK Reflex with QCS (quick change seat) and fail-safe function (PoP).



RTK REact L smart electric linear actuator for high forces (up to 30kN).

The views and opinions expressed in this article are those of the profiled company and do not reflect the position of Valve World Americas.