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July 2024

## Plant Utility Automation

37

2024 AICD Show Report

- 12 **Atlas Machine & Supply Drives Efficiency at Hitachi Astemo**
- 18 **Hoffman & Hoffman HVAC System Design**
- 22 **Johnson Controls on Central Utility Plant Automation**
- 29 **Choosing the Best Dew Point Sensor**
- 33 **The Case for Modular Chillers**



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## COMPRESSED AIR SYSTEM FEATURES

- 7 Compressed Air Technology & Industry News**
- 12 Hitting the Gas on Efficient Compressed Air Delivery at Hitachi Astemo**  
By Nellie Fonner, Freelance Business Writer
- 29 Selecting the Optimal Dew Point Sensor for Compressed Air Dryers**  
By Simon Gleissner, SUTO iTEC
- 37 The 2024 AICD Show Report**  
By Bill Smith, Compressed Air Best Practices® Magazine



## COOLING SYSTEM FEATURES

- 18 Hoffman & Hoffman Grows by Following Their Customers, Staying Flexible**  
By Troy Dreier, Chiller & Cooling Best Practices Magazine
- 22 Challenges and Benefits of Digital Optimization for Chiller Plants**  
By Terri Perrin, Freelance Business Writer, and Kiran Waghmare, Johnson Controls
- 33 Why Use Modular Chillers?**  
By Mark R. Rogan, ClimaCool Corporation
- 46 Chiller & Cooling System Technology & Industry News**

## EVERY ISSUE

- 6 From the Editor**
- 26 Subscriber Corner | “Crazy” Systems & Maintenance**  
Subscribers from Around the World
- 49 Advertiser Index**
- 49 The Marketplace | Jobs and Technology**



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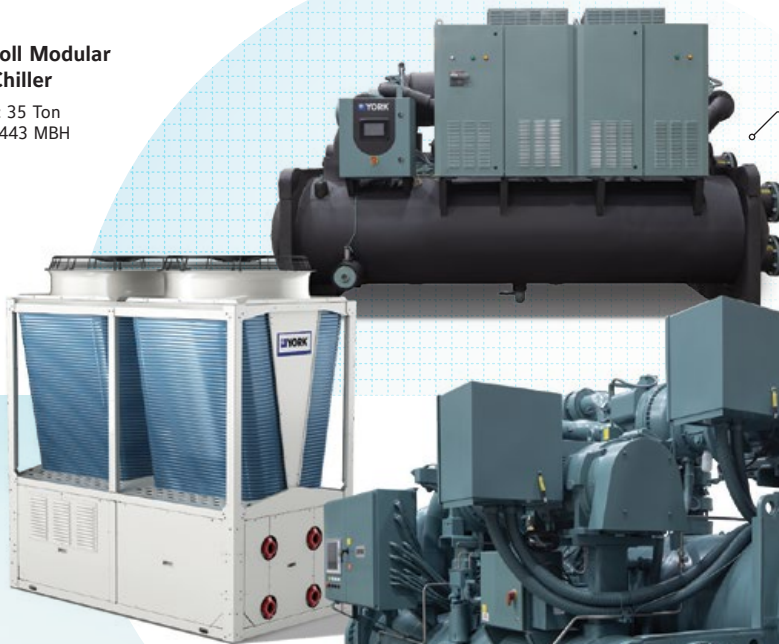
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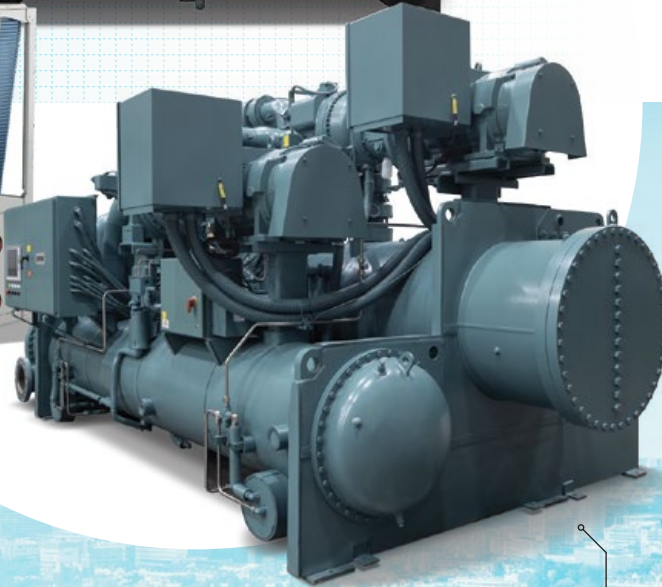
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# FROM THE EDITOR



## Efficient Plant Utilities Powering Automation

We'd like to thank Andy Poplin, from Atlas Machine & Supply, for sharing his company's compressed air energy-saving efforts working with the Ohio plant of Hitachi Astemo, a major automotive brake pad and shock absorber manufacturer. The plant had 1800 horsepower online across four different air compressor rooms. Thanks to Atlas Machine & Supply, it started using spiral valve technology for part load conditions, along with a modern master control system. Adding together maintenance and energy costs, it reduced total operating costs by 26%.

Hoffman & Hoffman has been assisting commercial and industrial clients with HVAC systems and building automation since it was founded in 1947. Our Senior Editor, Troy Dreier, interviewed Vice President Chuck Honeycutt to learn more about this firm with 900 employees at 21 locations in the mid-Atlantic.

We'd like to thank Johnson Controls for sharing an article on the costs, challenges and benefits of digital optimization of chiller systems and central utility plants (CUPs).

When asked, "what's next for compressed air," one reply I always give is "compressed air quality will be *verified* before all critical use applications." We therefore appreciate receiving an article from Simon Gleissner of SUTO ITEC titled, "Selecting the Optimal Dew Point Sensor for Compressed Air Dryers."

Mark Rogan is an expert cooling system engineer who sets records for the most letters after his name (PE, CEM, REP, CBCP, GBE). He also has an uncanny knack for making complicated topics easy to understand. His opinions have weight and I hope you take the time to read and enjoy his article, "Why Use Modular Chillers?"

Our own Bill Smith has come through with another excellent report from the 2024 AICD Conference. I also had the chance to attend and was pleased to see that this excellent association is as strong and healthy as ever.

Registration is now OPEN for the Best Practices 2024 EXPO & Conference taking place October 29-31 in Atlanta at Cobb Galleria. Please sign up for the Super Early Bird discounted rates right away at <https://cabpexpo.com/registration/atlanta-2024/>!

Thank you for investing your time and efforts into *Compressed Air and Chiller & Cooling Best Practices*.

**RODERICK M. SMITH**

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## 2024 MEDIA PARTNERS



# Compressed Air Technology & Industry News

## Gardner Denver Announces Electra TS and TSV Air Compressors

Gardner Denver is excited to announce the release of the new Electra TS and TSV 200-hp to 300-hp two-stage air compressor models to its oil lubricated product portfolio. This release rounds out the evolution of the Electra product family, which has taken place over the last few years.

The New Electra TS and TSV are built on the proven design of the current Saver/Saver II G2, which ensures simplicity and proven robustness in a market-leading two-stage compressor. The new, state-of-the-art 10-inch Governor Controller and iConn module are also featured in these premium compressor packages for convenient control and monitoring.

The two-stage Electra TS fix speed and Electra TSV variable speed product family will round off the company's premium product segment and enable Gardner Denver to offer a complete range of products.

### About Gardner Denver

*Gardner Denver is a leading provider of mission-critical flow control and compression equipment and associated aftermarket parts, consumables and services, which it sells across multiple attractive end-markets within the industrial, energy and medical industries. Its broad and complete range of compressor, vacuum and blower products and services, along with its application expertise and over 160 years of engineering heritage, allows Gardner Denver to provide differentiated product and service offerings for its customers' specific uses. Gardner Denver supports its customers with sales, service and technical support through an extensive network of factory-trained and authorized local distributors. For more information, visit <https://www.gardnerdenver.com>.*



Gardner Denver launched the Electra TS and TSV.

## Aerzen USA Appoints Kristen Grunza Company President

Aerzen, a global company delivering reliable, high-performing and energy-efficient blowers and screw compressors, is pleased to announce the appointment of Kristen Grunza as the President of Aerzen USA Corp. Ms. Grunza brings over 25 years of experience in the industrial sector, with a proven track record of

driving growth and operational excellence and fostering customer-centric cultures.

In her new role, she will spearhead Aerzen USA's strategic vision, leveraging her extensive background in executive leadership and deep industry knowledge to propel the company forward. She will focus on strengthening Aerzen's market position, enhancing customer value and driving operational efficiencies to meet clients' evolving needs across various industries.

Ms. Grunza's leadership style, characterized by collaboration, empowerment and a focus on excellence, aligns perfectly with Aerzen's values and strategic objectives.

"I am honored and thrilled to lead Aerzen USA during this transformative time in our industry," said Ms. Grunza. "We have a talented team, a portfolio of cutting-edge solutions, and a commitment to delivering unmatched value to our customers. I look forward to working closely with our team to drive innovation, expand our market presence and continue delivering exceptional results for our clients."



Kristen Grunza is hired to lead growth initiatives and drive innovation at Aerzen USA.

## Compressed Air Technology & Industry News

Ms. Grunza's appointment is pivotal for Aerzen USA as the company continues to innovate and expand its offerings to meet the growing demands of the industry that Aerzen serves.

Her leadership will drive the company's growth trajectory and solidify its position as a trusted partner for industrial solutions. She is the first female president in Aerzen's company history. Aerzen's global leadership welcomes Kristen to the leadership team.

### About Kristen Grunza

*Kristen is a senior executive with 25 years of experience driving business results in energy and industrial markets. She has broad experience leading global matrix organizations and has demonstrated expertise in business strategy*

*and planning, executive management, sales and commercial leadership, business transformation, client relationships and contract structuring and negotiation.*

*Most recently, Kristen was the Vice President of Commercial Strategy for Johnson Controls and, prior to that, the Vice President of Commercial Operations and Transformation at Building Solutions North America, where she was responsible for leading all aspects of driving commercial success across the \$10B BSNA product, solutions and services portfolio.*

*Prior to joining Johnson Controls in 2021, Kristen spent two decades in various leadership roles with Xylem, Honeywell, Global Power and General Electric. In her previous leadership roles,*

*she was responsible for sales, engineering, marketing, commercial operations, risk, quality and field execution. She began her career as a manufacturing engineer.*

*Kristen earned a Bachelor of Science degree in Industrial & Systems Engineering and an MBA from the University of Florida. She is also a graduate of GE's Operational Management Leadership Program and is a Certified Six Sigma Black Belt.*

### About Aerzen USA

*Aerzen USA is a wholly owned division of the German manufacturer Aerzener Maschinenfabrik GmbH, which is a global company delivering reliable, high-performing and energy-efficient blowers and screw compressors since 1868. Aerzen USA is based in Coatesville, Pennsylvania,*

# Quincy Products Now Extend to Air & Nitrogen Boosters

Quincy Compressor is pleased to announce that in January 2024, we acquired the assets of Hycomp, Inc. This exciting news offers tremendous opportunities for current Hycomp and future Quincy Compressor customers. The acquisition brings a wealth of expertise in air and nitrogen boosters, aftermarket parts, and services, allowing us to expand our capabilities and ensure that your existing and new products receive top-notch maintenance and support.

If your application doesn't fit within the published QDS Odyssey lineup, don't worry, we have boosters capable of delivering a range of pressures, flows, and gasses (beyond Air and Nitrogen), and can design a package specifically to fit your needs.

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and has offices, service and rental centers throughout the country. The company also owns and manages members of the Aerzen group: Aerzen Rental USA LLC, Vooner FloGard LLC, Aquarius Technologies Inc. and Specialty Treatment Solutions. For more information, visit <https://www.aerzen.com/us>.

**Quincy Expands QCMD Modular Desiccant Compressed Air Dryer Line**

Quincy Compressor is thrilled to unveil the latest expansion to its QCMD Modular Desiccant Compressed Air Dryer Line. By introducing 4-64 cfm models, Quincy extends its commitment to delivering superior air treatment solutions to a wider range of industrial applications. The QCMD desiccant dryer line now boasts a comprehensive capacity range from 4 to 690 cfm, achieving a -40° dew point with the integration of the longest-lasting desiccant in the market.

The QCMD is loaded with standard features, from the advanced controllers that offer service alerts to the energy-saving dew point demand system. The QCMD is ready to operate

at peak performance and reliability whenever you need it.

The new QCMD 4-64 key features include a seven-year desiccant life (12-64 Models), two-year standard package warranty, advanced Quincy DC1 Controller, package filtration included, and PDP and wall mount kit options.

With the expansion of the QCMD Modular Desiccant Dryer line to include 4-64 cfm models, Quincy Compressor reaffirms its commitment to innovation and customer satisfaction. These new additions not only broaden the range of applications its dryers can serve but also exemplify the company's dedication to providing reliable, cost-effective

solutions that meet the evolving needs of its customers.

**About Quincy Compressor**

Quincy Compressor is a leading designer and manufacturer of reciprocating and rotary screw air compressors, vacuum pumps and a full line of air treatment components. In business since 1920, Quincy has built its reputation on quality and rugged reliability, building tough air compressors for the most demanding applications. The Quincy brand is synonymous with quality, delivering "Performance You Demand. Reliability You Trust." Quincy's dedicated network of authorized distributors offers top-notch installation and after-sales services for reliable, efficient air year after year. For more information, visit <https://www.quincycompressor.com>.



Quincy Compressor has expanded the QCMD Modular Desiccant Dryer Line (4-64 cfm).





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## Compressed Air Technology & Industry News

### Best Practices 2024 EXPO & Conference Registration Opens

Registration is now open for the 6th annual Best Practices EXPO & Conference happening Oct. 29 to 31, 2024 at the Cobb Galleria Centre in Atlanta, Georgia.

The Best Practices 2024 EXPO & Conference is devoted to sustainable, safe and reliable on-site utilities powering automation – including compressed air, blower, vacuum, pneumatics and cooling water systems. Equipment sales engineers, engineering firms and manufacturing personnel will have opportunities for continuing education, taking certification exams, networking and more. Attendees can earn up to 12 personal development hours.

The Compressed Air & Gas Institute will offer the Certified Compressed Air System Specialist Exam during the event at a reduced price of \$275. The Compressed Air Challenge will teach the course *Level 1: Fundamentals of Compressed Air Systems*.

The event is focused on three key best practices topics:

- **Sustainability:** Learn to dramatically reduce energy and water consumption in plants through system assessments.
- **High-Quality and Safety:** Protect food products or high-tech equipment from contamination. Learn how to set a specification and verify compliance.
- **Reliability:** Maximize up-time through proper sizing, system design and monitoring instrumentation.

The Best Practices 2024 EXPO & Conference is the largest North American event for on-site



Largest North American event for on-site utilities to take place Oct. 29 to 31.

utilities. There will be nearly 100 exhibitors in attendance and access to the latest technologies as well as product introductions. Guests will be able to hear from top engineering, sales and service experts from leading global manufacturers located across the country and beyond.

Attendees can choose between several ticket options – the Full Conference pass, a Single Day Conference Pass or the EXPO Hall pass. Visit <https://cabpexpo.com/registration/atlanta-2024> to register now to secure super early bird rates.

Among the expo and conference events, the annual in-person meeting for the Women In Compressed Air, Vacuum & Cooling Networking Group is scheduled. This group was created to provide support to women who have chosen or are thinking of choosing a career in the compressed air, vacuum or cooling industries. The WVCV Networking Group provides members with personal and professional development opportunities, including the ability to establish meaningful connections with peers and grow your network, gain valuable industry insight to further career and improve leadership and communication skills.

The Best Practices 2024 EXPO & Conference is co-sponsored by the Compressed Air & Gas Institute and the Cooling Technology Institute.

#### About Best Practices EXPO & Conference

*The Best Practices 2024 EXPO & Conference is the leading North American event focused on sustainable, safe and reliable on-site utilities powering automation. The event takes place Oct. 29 to 31, 2024, at the Cobb Galleria Centre in Atlanta, Georgia. Attendees come from engineering firms, manufacturing plants and equipment companies responsible for specifying, purchasing, operating, selling and maintaining on-site utility equipment in industrial compressed air, vacuum and cooling water systems. For more information, visit <https://cabpexpo.com/attend>.*

#### JHFOSTER Creates Parent Company Tavoron in Restructuring

JHFOSTER, a recognized leader in automation solutions and services with operations in nine states throughout the United States and Canada, announced a reorganization under a newly founded holding company, Tavoron. This new structure will allow the company to stay focused on its core competencies within defined territories and marks a significant

milestone in JHFOSTER’s commitment to deliver robust automation solutions across North America.

Under the corporate umbrella of Tavoron, JHFOSTER and its collective businesses will continue its mission to streamline manufacturing and production operations by providing innovative automation solutions through the unique expertise delivered by its diverse group of companies. The new structure will give more independence to the individual businesses of Tavoron, including JHFOSTER, and will provide a dedicated brand to focus on the integration of solutions offered by the collective group of companies nationwide.

JHFOSTER President and CEO, Nicholas Martino, will assume the leadership position for both Tavoron and JHFOSTER.

“Aligning the JHFOSTER family of companies under the Tavoron brand matches perfectly with our strategic goal to expand our geographic footprint across North America,” said Martino. “Fundamentally, we believe this restructuring enables our individual divisions to concentrate on the revenue generating activities in their designated markets, while simultaneously enabling Tavoron to focus on and advance its core competencies of industrial automation solutions and services to enterprises across the nation and Canada.”

Following the restructuring, JHFOSTER and its individual brands will operate as business units of Tavoron. Clients, partners and suppliers of JHFOSTER can expect the same high



JHFOSTER announced a reorganization under a newly founded holding company, Tavoron.

standards of service and expertise that they have come to rely on, now with an expanded geographic footprint.

**About Tavoron**

*Tavoron, a leader in manufacturing automation and industrial systems, delivers the most comprehensive range of automation solutions and services to increase efficiency, improve production quality and create safer work environments. Our innovative technologies, including electrical and air automation, robotic systems and compressed air technology, paired with our collaborative business approach and commitment to customer satisfaction, positions us to deliver breakthrough technology solutions with lasting value to our customers. Headquartered in Eagan, Minnesota, and comprised of a diverse*

*group of 10 companies, Tavoron employs approximately 400 dedicated team members across the United States and Canada. For more information, visit <https://tavoron.com>.*

**About JHFOSTER**

*Headquartered in Eagan, Minnesota, JHFOSTER is a strategic collection of industry-leading compressed air experts, skilled engineers, support teams and distributors of automation and robotics. Specializing as a provider in automation motion control, compressed air and robotics, JHFOSTER is dedicated to advancing technology, driving innovation and delivering comprehensive solutions nationally and globally. For more information, visit <https://jhfooster.com>.*

# Atlas Machine & Supply Provides Compressed Air Efficiency for Hitachi Astemo

Sullair system upgrade brings energy savings and efficiency to U.S. auto brake facility by doing more with less

By Nellie Fonner, Freelance Business Writer

► Infrastructure replacements are inevitable – technology changes, as do the needs of any facility. When that replacement is also an upgrade it promises long-term, sustaining benefits that keep operations on track, reliable and efficient.

Atlas Machine & Supply Industrial Products Group Senior Vice President Andy Poplin was at the helm of one recent such upgrade with Hitachi Astemo, a major producer of

automotive brake pads and shock absorbers that touts Honda as its primary customer. Poplin, a three-decade veteran of the compressed air industry, said Atlas Machine's momentum with the customer – replacing much of its previous system with Sullair air compressors – was multipronged.

## In the Industry Since 1950

Atlas Machine, established in 1907, has been a compressed air distributor since the 1950s. The

firm represents Sullair compressed air system products and now maintains eight Midwestern branch locations in Kentucky, Tennessee, Ohio and Indiana, in addition to its Louisville, Kentucky, headquarters. All of its locations are ISO 9001 certified.

Hitachi Astemo, meanwhile, also has a storied history. Located in Sunbury, Ohio, it has plants across the Midwest and supports the domestic



Andy Poplin, Atlas Machine & Supply Industrial Products Group Senior Vice President



The LS160, one of Sullair's newest air compressors, has an electronic spiral valve to automatically moderate air intake.

needs of Honda. Its 281,000-square-foot Ohio facility has 700 employees.

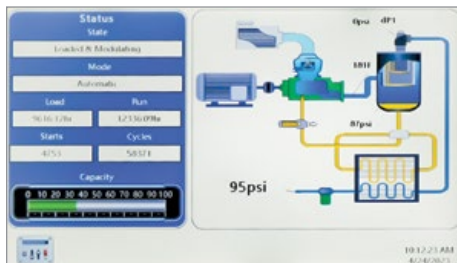
**System Audit Reveals Oversupply**

Hitachi Astemo’s previous compressed air system had simply served its purpose and needed an efficiency overhaul. Before working with Atlas Machine, the client had two 400-horsepower (hp) fixed speed air compressors and five 200-hp fixed speed air compressors running in load/no load control. These were spread across multiple rooms and controlled by an older model master control system. Created nearly 25 years ago, the master controller only looked at pressure measurements and switched air compressors on or off.

“They needed a little more sophistication,” Poplin said. “The client was essentially cycling air compressors more than they should and also had to have the pressure higher because of the load/no load scenario. They had to run higher pressure to maintain the target pressure for the operation of the facility.”

The aging system was also becoming expensive to maintain; between the inefficiency and maintenance costs, Hitachi Astemo’s bottom line for compressed air was ballooning.

Before any work was done, Atlas Machine performed an audit of the previous system. This week-long audit was designed to locate pain points and obstacles.



The display on the Sullair LS160 shows the machine’s current state and capacity.

# HITACHI

## Inspire the Next



# WHEN OIL FREE AIR IS CRITICAL

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Hitachi Global Air Power

## Atlas Machine & Supply Provides Compressed Air Efficiency for Hitachi Astemo

“The biggest takeaways from the audit is they were running more air compressors than they needed to based on the flow consumption,” Poplin said, noting that because of the master controller in use, the facility’s pressure was “nowhere close to being as stable as it should have been” and was running harder than required.

Post-audit, the Atlas Machine team recommended newer equipment and technology that would deliver significant improvements in energy efficiency and maintenance. What was seven air compressors became three – but those three were ready to take on even more work than ever for the client.

### Saving With Spiral Valve Variable Capacity Control

An eight-person Atlas Machine crew replaced three of the 200-hp air compressors with a Sullair two-stage 300-hp spiral valve rotary screw air compressor and two single-stage 160-hp spiral valve rotary screw air compressors. Four of the previous air compressors were kept on-premises as backup, although they aren’t currently being used.

Atlas Machine also installed ACES, a more advanced master controller. ACES is based on the Allen Bradley RSLogix 5000 platform, and contains algorithms to manage the facility across four different air compressor rooms.

In the end, a plant that had been run inefficiently with seven air compressors and an aging master controller was able to run efficiently with three air compressors and a state-of-the-art controller. One reason the new air compressors are more efficient is because they use

Sullair’s electronic spiral valve technology, which automatically adjusts compressed air supply to meet demand.

“We made sure we had the right air compressors and control system for the job at the right time. We introduced the variable displacement machines that can help minimize the loading and unloading necessary because the machines would modulate efficiently on the spiral well, so we were able to lower the playing pressure as well,” Poplin said.

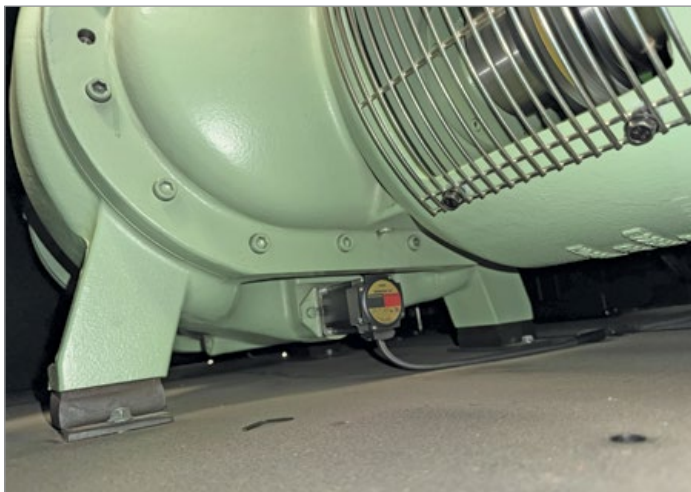
One fan of the new system is Adrian Kalmon, the senior facility technician who oversaw the project for Hitachi Astemo. “I really like the spiral valve technology and the ability to set up trim compressors,” he said. “I wasn’t able to set up a trim compressor before. Doing so took away a lot of my power peaks, which helped drop our electric costs.”

The entire project, from the audit through to the commissioning of the new system, ran from April 2023 to February 2024.

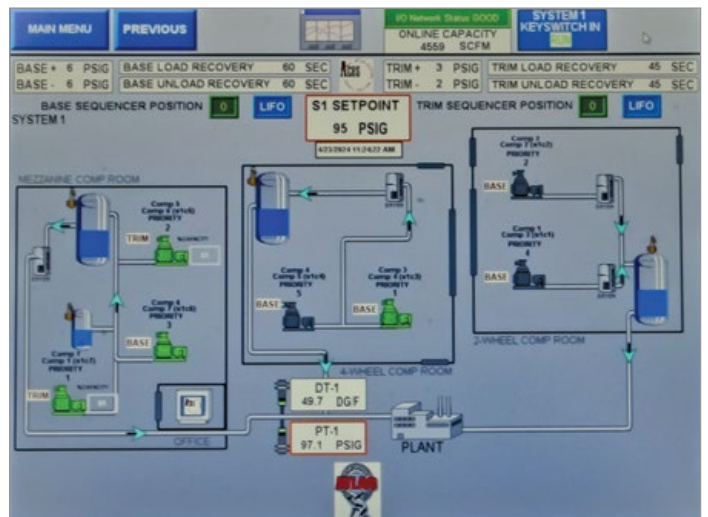
“It took a while because the installation of the air compressors was a challenge,” Poplin said. “They had these large 400-hp air compressors on a mezzanine in a plant that grew after they set the air compressors, so the logistics of getting those out and getting a new air compressor in was a challenge.”

### A Master Control That Goes Farther

The ACES master control system is a huge improvement over the client’s previous master control system. Pressure is only one of many things it examines.



One reason Hitachi Astemo’s new system is more efficient is because of the Sullair electronic spiral valves on its new air compressors. These work like a VSD, but instead of changing the speed of the motor, they change the length of the air end.



The ACES master control overview screen shows the status of the entire plant system at-a-glance.

“It can control the air compressors based on input information, more so than just pressure. It can do flow-based decisions, it can do location-based decisions; It’s very customizable and flexible,” Poplin said. “It’s unlimited in terms of what type of air compressor you control, and what type of information we can use to make these decisions. An extremely open platform.”

Atlas Machine does something unique after installing an ACES master control system: It gives the customer the software. There are companies that don’t install a master control system unless clients sign a license agreement, Poplin shared, one that requires the client to call their distributor for even small software changes. Atlas Machine lets customers do their own programming.

“If they have programmers on staff that can handle these logistics and they want to add a pressure transmitter on the other side of the plant, they can go in and add that in without bringing us in,” Poplin said, pointing out that clients don’t need a \$5,000 service call for a \$300 part.

“The cost of the master control system versus the savings was really surprising to me,” Kalmon said. “I’ve used the calculated flow rate daily to try to pinpoint opportunities to tweak the settings so that it was more efficient, and I was able to find opportunities for efficiency gains. I looked at it one day and found I didn’t need to be running the 400-hp air compressor. I found if I changed the sequence it helped me identify the threshold where the trim compressors would take care of the changes in our load more efficiently.”

### Cost Savings of 26% for a Start

“In the future, after we fine-tune the system as those air compressors get replaced, they may not get replaced with the same horsepower,” Poplin said. “We may find that a 100-hp air compressor is something they need to trim the system properly, or maybe another 300-hp is what they need. Those are potential additional upgrades to be made, and that’ll be based on the performance of the system. If there’s any production changes, we want to be flexible to provide hardware that best matches how they’re running.”





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## Atlas Machine & Supply Provides Compressed Air Efficiency for Hitachi Astemo

Model	Energy Cost (kW-Hrs)	Compressor Energy Cost	Maint Cost	Total Operating Cost	Optimization Savings	Pressure Reduction	Total Savings	Specific Energy(kW/100 cfm)	% Eff Gain	First Cost	Simple Payback (YRS)
Previous	10,446,852	\$ 1,149,154	\$ 128,240	\$ 1,277,394	\$ -	\$ -	\$ 0	24.40	n/a	n/a	n/a
Current	8,168,824	\$ 871,731	\$ 97,281	\$ 941,959	\$ 277,423	\$ 26,840	\$ 335,435	18.51	24%	\$ 605,000	1.80

“The efficiency gains were achieved through better control of a distributed compressed air system. It’s not all concentrated in a single room, but across four air compressor rooms. Sometimes it’s difficult to know which air compressor should load next, because production is different at different times of the day.”

Hitachi Astemo’s efficiency gains will turn into significant cost savings. The table below outlines the savings reported by the client since the changeover was complete. It shows a sizeable reduction in energy costs, air compressor energy costs and maintenance costs to the tune of 21.95%, 24.14% and 24.14%, respectively. Total operating costs to date have dropped from \$1,277,394 to \$941,959 with the new system – a decrease of 26.25%.

With this project complete, Atlas Machine and the Hitachi Astemo plant managers are already looking ahead to future plans. Their next project will involve separating Hitachi Astemo’s existing air knives from the compressed air system and instead using blowers to reduce energy consumption. Atlas Machine identified several undersized pipe drops with pipes half the diameter they should be. These require the compressed air system to run at a higher than needed pressure to compensate. With that corrected, the system will be able to run at a lower pressure. Finally, Atlas Machine will add cellular connections throughout the plant allowing for remote visualization and control of the system, and will even perform remote monitoring while Hitachi Astemo hires new staff.

It’s not uncommon to find up to one-quarter of compressed air consumption in a plant like this one goes to some kind of inappropriate

use rather than just leaks, Poplin noted. The challenge is to find, diagnose and rectify it.

“That’s our next phase with this client: to see if we can move outside of the air compressor room from the supply side into the demand side and capture even more savings,” Poplin said. **BP**

*All images courtesy of Atlas Machine & Supply.*

### About Atlas Machine and Supply

Established in 1907, Atlas Machine & Supply, Inc. is a fourth-generation family business dedicated to providing top-notch manufacturing, repair, and rebuild services for various industrial machinery. Atlas has grown from a single facility to eight facilities in four states. For more information visit <https://www.atlasmachine.com>.

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# Hoffman & Hoffman Grows by Following Their Customers, Staying Flexible

For this North Carolina-based company, the key to success has been listening to customers and supplying whatever they ask for

By Troy Dreier, Chiller & Cooling Best Practices Magazine

► In Spring 2024, *Chiller & Cooling Best Practices* interviewed Chuck Honeycutt and Brad Davis from Hoffman & Hoffman to discuss best practices in chiller and cooling tower sales and system design. This article will explore how the company has expanded into new areas during its 75-year history. It will also explore a large cooling tower installation at a Colorado biotech in the attached sidebar.

“We’ve gotten a lot better at helping customers figure out how to meet their sustainability goals,” says Chuck Honeycutt, vice president of Hoffman & Hoffman. “It’s easy to say, ‘I’m going to reduce my carbon footprint by 30% by 2030.’ When somebody asks how, that’s when it gets complicated. Yes, they could go buy carbon credits. That’s the easy way. But if they want to do it within their own system and save energy while doing it, Hoffman & Hoffman has a lot of success helping customers meet those goals.”

Hoffman & Hoffman was founded by brothers Harry and Louie Hoffman in 1947, as a rep firm, and now carries leading brands EVAPCO, Atlas Copco, Daikin Applied, and many more. The Hoffman family of companies includes Hoffman Building Technologies, which offers building management system and maintenance services; Hoffman Mechanical Solutions, which services commercial HVAC and hydronic

equipment; and Hoffman Hydronics, which focuses on commercial hydronics and engineered plumbing for commercial buildings. The company is based in Greensboro, North Carolina.

“Like a lot of companies, we started out as a rep firm and grew from there,” Honeycutt says. “The reason we grew is the early leadership managed their resources well, and so the customer base expanded. And as customers grew, they pulled us along with them. We also had manufacturing partners we did well with that would call us and say, Hey, have you guys ever thought about opening up shop in Knoxville? We’d like to have you represent our product in Knoxville. And so we did.”

That openness and flexibility led to organic growth, taking the company from a manufacturer’s rep business to adding a controls business in the 1980s. Next, it added a service business so it could properly support the start-up service and warranty the equipment it sold. It later added groups specializing in critical projects including large industrial plants, data centers and electric vehicle manufacturing sites.

“We cover the lifecycle of a project,” Honeycutt says. “We have applied and airside equipment, building automation, service, parts supply and distribution. Often in our business, companies are limited to DDC [direct digital controls]. At Hoffman, we have both PLC [programmable logic controller] and DDC controls capability. PLC controls are primarily used in the industrial sector, and, with the trend of onshoring of manufacturing, our PLC controls capability has been of great benefit to many of our current clients, as well as new ones.”

## Employee-Focused, Customer-Committed

Hoffman & Hoffman became employee-owned in 2016. With its employee stock ownership plan (ESOP), employees are able to share in the company’s growth.



Company founders Harry and Louie Hoffman

“Our saying is, ‘We hire you to retire you,’” Honeycutt notes. “Our investors are our employees, not private equity, not Wall Street. That drives great teamwork, as well as longevity within our business.”

Since the company isn’t publicly traded, it’s free to make investments that might take years to pay off. Whatever it sees as good business, it can do.

Today, Hoffman & Hoffman has 21 locations across the mid-Atlantic. It counts over 900 employees, 200 sales positions, and 200 service technicians. It also has 4 training centers and 3 warehouses (with a promise of another coming later this year and up to 3 in 2025).

Hoffman & Hoffman has multiple ways of supporting the engineering firms it works with. It meets the needs of busy consulting engineers by hosting seminars where they can keep up to speed with the latest ASHRAE recommendations and code regulations, all while earning PDH credits.


It also supports engineers through the design process. “Design engineers understand systems really well, but our expertise is critical to ensure they’re




*Chuck Honeycutt attended an open house at the Hoffman & Hoffman Charlotte location. Customers, engineers and manufacturing partners were able to tour the facility and earn PDH credits.*

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## Hoffman & Hoffman Grows by Following Their Customers, Staying Flexible

aware of all the different cooling and heating technologies out there,” Honeycutt says. “Our goal is to be a technical trusted advisor to our engineers and help them design the best systems possible.” That means going beyond upfront costs and keeping an eye on installation complexity, long-term maintenance and lifecycle costs.

### Decades of Cooling Tower Experience

As a longtime employee of Trane, Honeycutt learned to appreciate EVAPCO well before he worked with the company.

“We didn’t have cooling towers. We sold the equipment the cooling towers connected to. I would see EVAPCO on job after job after job, and I always assumed that it must be a pretty

good tower since so many people were using it,” Honeycutt says. “Now that I’ve got it, I can see why: They’re a great engineering company. They have great quality. Their selection software [called SPECTRUM] is fantastic.”

Like Hoffman & Hoffman, EVAPCO is also employee-owned, giving the two companies a shared culture. EVAPCO doesn’t look at things transactionally, Honeycutt says, but focuses on building long-term relationships with customers.

“Cooling towers are more complicated than I thought when I was just a ‘chiller guy,’” Honeycutt says. “We encourage all of our salespeople, whenever they do cooling tower selections, to call EVAPCO’s applications



A cooling tower installation Hoffman & Hoffman completed at a local hospital in Greensboro.

### Finding Ideal Heat Rejection Solutions for Industrial Plants

The Greenville, SC office for Fluor Enterprises, a global engineering firm approached Hoffman & Hoffman to create a custom installation for the heat rejection needs of an expanding biotech plant in Colorado. According to field engineer Brad Davis, several variables made this a uniquely challenging job. The site is 5,000 feet above sea level and local regulations limited how much water could be used.



Brad Davis, Sales Engineer, Hoffman-Hoffman.

- Required MBH: 2,316 tons
- Wet Bulb Temperature = 64.7°F
- Dry Bulb Temperature = 94.6°F
- Hot Water Entering = 110°F
- Cold Water Leaving = 100°F
- Range = 10°F
- Approach = 5.4°F
- Barometric Pressure = 24 inHg

Given the design conditions, Davis got to work using EVAPCO’s selection software, SPECTRUM, to find the best heat rejection solution for the client. “We provided energy and water analyses, budget pricing and payback analyses for evaporative, dry, adiabatic, and hybrid technologies. Ultimately, we found dry coolers to be the ideal solution to meet the plant’s heat rejection requirements and comply with local water regulations,” said Davis.

#### Equipment Specified:

- (7) 3-fan EVAPCO EAW-DD CTI-certified double stack dry coolers each 12’x39’x19’ rated for 1,100 gpm

- Material: 304L stainless steel coil and shell, heavy-gauge aluminum fins
- Belt-drive fans, with high-temperature, high-elevation NEMA motors

Delivered ahead of schedule on a 20-week lead time, installation has been completed, and is awaiting the plant expansion completion for startup. The parties also decided to switch the process fluid to a water/glycol mix with 47% propylene for freeze mitigation.



An EVAPCO EAW-DD double stack dry cooler prior to shipment.

group, show them the model and system you recommend and challenge them to give you a better selection than the one they came up with. EVAPCO expects and encourages that, and they offer world-class factory support. If we call and show them we've gone from a hundred different options and we're torn between two or three, they love that. They're very helpful."

Hoffman & Hoffman has a four decade relationship with Daikin, as well, repping Daikin Comfort and Daikin Applied, selling everything from commercial rooftop units to large air- and water-cooled chillers. That area has seen robust sales growth in the last three years.

Looking to the future, Hoffman & Hoffman's biggest challenge might be finding enough skilled labor to handle its growth. With manufacturing growing in the U.S. and many facilities planned for the mid-Atlantic, growing a quality workforce is an effort.

"As Covid got under control, plants began moving faster than most manufacturers of HVAC systems could support. They're not asking for you to build one air handler in six months. They want you to build 80 or 100. So these projects are like nothing I've ever seen in my 26-year career. The nice thing for Hoffman is we have an extensive line card and long-term relationships with these manufacturers."

Staying flexible and meeting the needs of each customer – even if it means creating new solutions – is how Hoffman & Hoffman will continue. It's the same kind of organic growth that's gotten the company this far.

"We got involved in a battery plant, a large one, biggest construction project I've ever seen in my entire career about a year-and-a-half ago. If you remember from high school chemistry, lithium is highly reactive to moisture, and not in a good way. In battery plants, keeping humidity levels at ultra-low atmospheric dew point conditions can be critical. We didn't have a product that could do that in November, but by January we did. We went out, researched partners, and found one in Covington, Georgia, Innovative Air, a respected company specializing in commercial and industrial dehumidification.



Employee Janice Lytel assisting a customer at Hoffman & Hoffman's Greensboro warehouse.

"That would be difficult to do at a larger company with internal politics at play. The ability to be agile and adjust our offerings to support our customers by providing a one-stop solution is a big advantage for us." **BP**

All images courtesy of Hoffman & Hoffman.

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# Challenges and Benefits of Digital Optimization for Chiller Plants

When transforming central utility plant performance through advanced solutions, pay attention to the human element

By Terri Perrin, Freelance Business Writer, and Kiran Waghmare  
Mech. Eng., MEng, Global Product Manager, Johnson Controls

► When building operators are under pressure to grow profits and increase energy efficiency, it can be easy to forget the human factor. The fact is, not all employees at central utility plants are going to be comfortable with digital optimization. Some may feel it's a threat to their employment. Bearing this in mind, recognize that the introduction and installation of advanced digital solutions at central utility plants (CUPs) requires both technological expertise and attention to valued human resources.

The goal for CUP operators is to balance system performance and stringent environmental regulations with user comfort and ambitious sustainability goals. Driving down operational and equipment lifecycle costs is also important. Coupled with an ongoing workforce shortage, achieving these results increasingly requires a new approach.

When optimizing CUP operations, it's important to not only look at equipment as standalone units, but also to understand how each component works together as a complete system. Even the most advanced equipment becomes inefficient when it's not operating properly. A comprehensive energy analysis should be the first step in CUP optimization.

## Discovery and Exploration Phases

Achieving an optimized CUP requires taking a holistic approach that encompasses the entire

system, beyond chiller type and functionality. System designs must enable all relevant equipment to intelligently communicate with each other, as well as adjust to dynamic variables such as weather conditions, occupancy patterns and projected energy costs. By leveraging dynamic information sharing, CUP operators can make real-time decisions that drive down costs, increase reliability and advance sustainability goals.

*A robust optimization system will provide copious data to demonstrate its value. Typical ROI is less than five years.*

An important part of the discovery process is mindset. Recognize that the people who operate the CUP have a shared knowledge of operations, various skill sets and pride in their ability. Ensure that operators feel they are still a necessary part of the process, and you'll have buy-in from the team.

Scalability is one of the first factors to consider. Greater optimization is achieved when there are at least two or three fully functional chiller assets. Rarely will you see return on investment across the value stream with just one chiller asset. Digital optimization can be implemented for several chillers serving a single building to hundreds of chillers serving several blocks of buildings. A college campus or large healthcare campus, with 50 or 60 different types and sizes of buildings, are prime examples.

While the goal is to launch optimization throughout the entire CUP, taking a scaled approach allows operators to manage capital expenses while providing proof of performance.

Application of digital optimization solutions is applicable across all sectors in commercial, industrial and institutional applications. Some examples include healthcare, higher education, office buildings and manufacturing.

One advantage of digital optimization is that the system can determine which assets to operate – and at what capacity – at any time. It factors in utility rates, demand changes and ways to shed load during peak times. This saves money and increases energy efficiency.

Optimization can also automate the asset maintenance and diagnostic processes. If vibration on an asset is out of range, for example, it may be an early indicator of a need for service.

Existing assets must be inspected and evaluated for compatibility before any steps toward further digital optimization occur. One shortfall in existing systems can be that there may not be enough data points. Often, new sensors can be installed on top of existing equipment, then connected to the control panel of the central optimization control system. This new technology is easily integrated into existing building systems

and is often complimented by the addition of another screen in the operator's office so plant optimization activities can be monitored.

If replacement of chiller assets is required, the trend is toward new units with smaller footprints that are designed to reduce embodied carbon while also delivering higher operating efficiencies. This translates into more capacity, taking up less space in the mechanical room. Keep in mind the need for successful integration, overall energy efficiency and advancing strategies to move away from fossil fuels.

**Setting Digital Optimization in Motion**

With new construction or major renovations, the project starts with field sales experts working directly as part of the construction team. Digital optimization is an integral

part of the early planning stages. It ensures connectivity of all system components. As operators begin to reimagine CUP design, it's important to maintain flexibility to accommodate future growth.

The ideal scenario starts with at least two to three chillers coupled with a highly variable load profile. In many comfort cooling situations, there can be a wide variation in load due to weather, occupancy, time of year and number of buildings occupied. Many systems are at highest efficiency when they are at full load or off. But in reality, variability in load demand and the resultant need to deliver part-load performance is the norm.

With several assets engaged – chillers for cooling, boilers for heating – it's not

uncommon to have multiple assets operating simultaneously. With optimization, you can move energy for maximum efficiency. For example, using heat pumps to repurpose the normally wasted heat energy from the chiller so the boiler doesn't have to engage improves efficiency three to five times.

Onsite thermal storage, whether chilled or hot water or both, can help manage loads to operate minimally during peak utility charge times. Operating assets to generate heat or cold to store when energy costs are low is becoming a popular strategy to achieve ideal optimization.

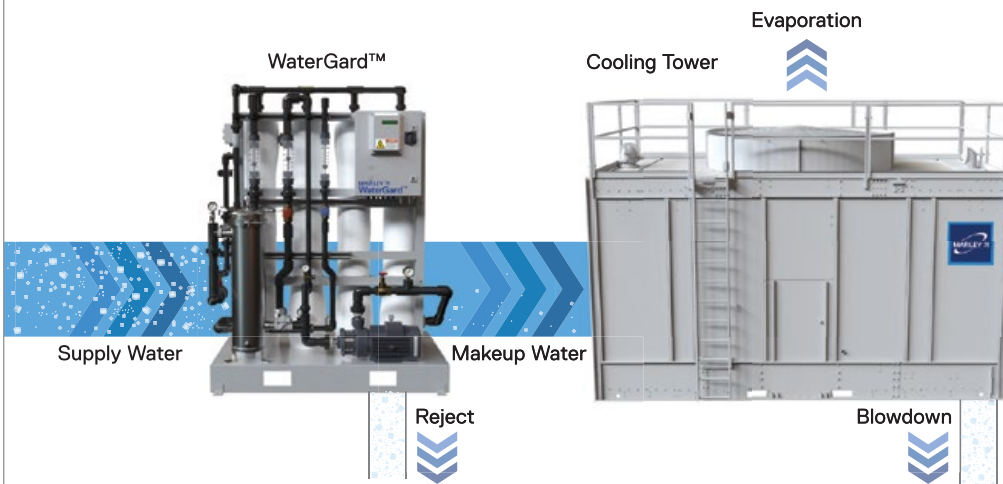
**Collecting and Analyzing Data Points**

Digital transformation is critical for enabling real-time data that optimizes central plant performance. Without this data, plant operators

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## Challenges and Benefits of Digital Optimization for Chiller Plants

are at a disadvantage in predicting future states and backing decisions with proof points. But tracking and reporting data manually takes time – a resource many CUP operators don't have. A typical chiller has over 100 components that can impact its efficiency. The average building automation system (BAS) is unable to accommodate these vast data points, much less analyze and interpret the data in a meaningful way.

Central plant optimization software empowers operators with advanced analytic and diagnostic technology. Smart sensors collect data from equipment and external inputs such as weather and utility pricing. Combined with unique parameters set by operational teams, the system creates a digital twin of the building that includes models of all equipment within the CUP. This is used to predict energy performance and costs under all operating variables.

Look for systems that use artificial intelligence and predictive algorithms. Data is gathered and analyzed continuously throughout operation to identify when equipment declines below peak performance, then it automatically adjusts to help regain maximum efficiency. Equipment health is monitored through fault detection and diagnostic (FDD) tools to identify performance drift or component malfunctions and maximize up-time. Factors such as weather forecasts, building schedules and historical trends are leveraged to predict hourly heating and cooling loads and optimize energy usage.

Data aggregation and monitoring should happen seamlessly with little required from facilities teams. If an issue requires extra attention, technicians can perform remote inspections, freeing up internal teams, or a notification can be sent directly to key personnel onsite.

### Find the Right Partner for Digital Optimization

Beginning a CUP digital transformation requires strategic planning and consultation with an experienced partner. In a new facility, digital optimization is part of the initial design and construction cycle. For existing CUPs, however, implementation typically takes at least three to four months. Bear in mind that the system learns as time progresses, measuring current use and future predictions against historical data. Continued refinement should yield increasing benefits.

A robust optimization system will provide copious data to demonstrate its value. Typical ROI is less than five years.

Using a combination of predictive analysis and historical information helps companies make sound decisions relating to CUP operations. Ever-changing loads, weather and utility prices combine with hundreds of components that all impact energy efficiency. While previous strategies focused on individualized equipment efficiency and automation, CUP optimization considers the complete system. With this strategy, intelligent data collection



The benefits of central utility plant digital optimization (graphic from Johnson Controls)



The YORK® CYK Water-to-Water Compound Centrifugal Heat Pump can help reduce water and operational costs by as much as 50% when compared to traditional boiler and chiller applications.

and predictive algorithms monitor and adjust CUP performance while empowering plant operators to make informed decisions. **BP**

All images courtesy of Johnson Controls.

**About the Author**

Kiran Waghmare, Global Product Manager, Johnson Controls, earned his Mech. Eng. degree in 2010 and his MEng. in thermal engineering in 2013, both from the Indian Institute of Technology in Bombay, India. After graduation, he worked in the HVAC industry for five years as a product engineer before joining Johnson Controls' team in 2019. His first three years with Johnson Controls he applied his skills as an applications engineer, focusing on air- and water-cooled chillers, before moving to product management.

**About Johnson Controls**

From its head office in Cork, Ireland, Johnson Controls offers the world's largest portfolio of building technology, software and services. Supported by a team of more than 100,000 dedicated employees working across 150 countries, it helps customers achieve sustainability goals and power their missions. Johnson Controls' mission is to provide customers with the most sustainable central plant systems, starting from the most basic equipment to the highly technical control systems that help it all operate most efficiently. Its U.S. headquarters is in Milwaukee, Wisconsin, while much of its chiller operations are in York, Pennsylvania. For more information, visit <https://www.johnsoncontrols.com/>.

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## "Crazy" Systems & Maintenance

Edited by Troy Dreier, Senior Editor, Compressed Air Best Practices® Magazine



Manufacturing plants perform admirably under “crazy” profit expectations to remain viable. Plants often experience “crazy” staffing and operational budget reductions. Our editorial staff salutes our subscribers who keep on-site utilities up and running reliably every day, with fewer resources at hand. These subscribers requested we publish some observed “crazy” system designs and maintenance practices, present due to budget reductions in plants. Our goal is to raise awareness, providing a learning opportunity and encourage increased investments in staffing and systems.

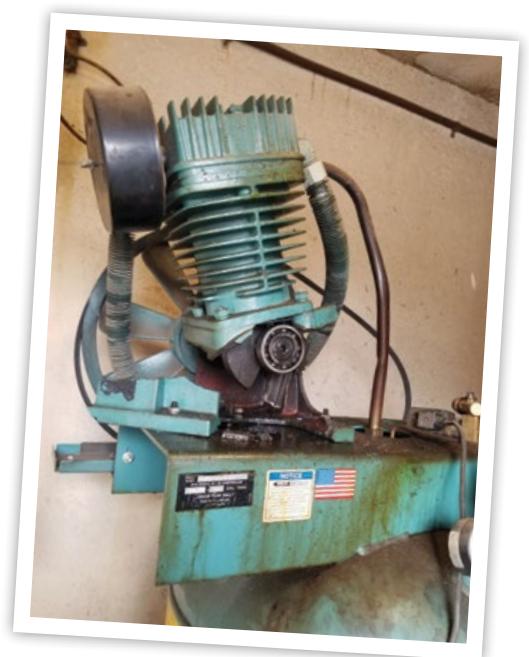
### The Value of Certified Technicians

Cary Carlisle is a manager for Air Compressor Supply of Tulsa, Oklahoma.  
Visit <https://aircompressorsupply.com>.

It should go without saying: Always use a certified air compressor technician for installation. Even for a small job, having a certified installer is crucial.

“I recently called on a car dealer that needed some help with their air compressors,” Carlisle says. “The air compressors were wired by someone who had no idea what they were doing. The air compressor pictured was wired to a pressure switch on an unused, isolated tank (with 0 psig). So, the air compressor ran continuously until it completely failed, thinking it had 0 psig.

“A second air compressor had a note on the motor to at least warn others of the condition of its wiring. Needless to say, we removed both air compressors and all of their wiring and installed two new air compressors and an air dryer. We expect the dealership to have many years of trouble-free operation – as long as their previous electrician stays away.”



*Hiring a certified air compressor technician for small jobs prevents them from turning into large hassles.*



### The Case of the Overheating Cooler

Flavio Poenar is the president and founder of Critical System Advisors, a business consultancy in El Dorado Hills, California. Visit <https://www.criticalsystemsadvisors.com>.

“This is a lesson in how not to keep your cooler cool,” Poenar says. One of his customers had a pre-cooler for a water cooled 150-horsepower air compressor that was plugged up with dust, dirt and other debris. When the unit started to overheat, the customer decided to take matters into their own hands. Rather than calling the service company, the customers assigned an unqualified employee to clean the cooler. The cleaning didn’t go well, and resulted in severe damage (visible in the middle of the second picture).

That damage caused the cooler’s temperature to spike even more, which led to equipment failures that negatively impacted production. But the customer still refused to call a service company and instead installed a water sprinkler that sprayed the cooler and air compressor.

After additional equipment failures, production downtime and a small flood, the client at last called Poenar’s company. What could have been a cleaning job that cost a few hundred dollars ballooned into a cooler replacement that cost thousands.

Cooling off with a sprinkler might seem to make sense, but it wasn’t the right call here. When cooling problems crop up, call an authorized service technician.

*Bolting a sprinkler in place wasn't the best option for cooling this cooler.*



### Buried Pipes Make Maintenance a Chore

Albert Williams is a freelance energy auditor and energy engineering training instructor based in South Africa. Visit <https://www.linkedin.com/in/albertedwardwilliams/>.

This picture is from a plant in South Africa that decided to bury its pipes underground. There are reasons to do this, such as providing protection from harsh outdoor conditions, but it makes maintenance a challenge. The plant’s compressed air leak rate was high, Williams notes, but the pipe arrangement ensured that those leaks would never be fixed.

Compressed air leaks are inevitable, so designing systems for easy accessibility is one hallmark of good design.



*Repairing leaks to this buried compressed air pipe is extra challenging.*

### Submission Guidelines

We invite our subscribers to send their observed “Crazy” Systems & Maintenance experiences to Troy Dreier at [troy@airbestpractices.com](mailto:troy@airbestpractices.com). Please send a high-resolution picture as a JPG or GIF file and a note describing the installation, what was wrong and what the solution should be. We will edit the text and remove equipment brand names and references from all materials. If we publish your submission, we’ll thank you with a \$25 Amazon gift card.



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We're grateful to Abdulaziz Al-Dulajjan for showing us how far our magazine travels. Al-Dulajjan is a consultant engineer who has worked for Saudi Aramco for over 30 years, leading compressed air audits and optimization studies, developing and maintaining compressed air systems standards, developing compressed air projects design and evaluating new technologies. Visit <https://www.aramco.com>.



Air compressors have taken Leandro Huertas around the world many times over. A Senior Technical Supervisor for Ingersoll Rand in Sant Vicenç dels Horts, Spain, Huertas has worked on major projects in Algeria, Germany, Jamaica, Kuwait, Saudi Arabia, Morocco and Bangladesh. He starts up new plants, checks and fine-tunes the equipment, and gives the operators a course on management and conservation before he leaves. "I hope to continue enjoying air compressors for many more years," he says. Visit <https://www.ingersollrand.com>.

### Submission Guidelines

We invite our subscribers to send in pictures so we can see the people who read our Best Practices magazines! Those holding a recent magazine issue will receive first consideration. Please send a high-resolution picture as a JPG or PDF file and a note describing the team and company to Troy Dreier at [troy@airbestpractices.com](mailto:troy@airbestpractices.com). If we publish your submission, we'll thank you with a \$25 Amazon gift card.



# Selecting the Optimal Dew Point Sensor for Compressed Air Dryers

By Simon Gleissner, Managing Director, SUTO iTEC

► Compressed air is a vital utility in various industries, powering pneumatic tools, machinery and processes. However, the inherent moisture content in compressed air can pose significant challenges, leading to corrosion, equipment malfunction and compromised product quality. To mitigate these risks, proper compressed air treatment is essential, typically involving the use of compressed air dryers to remove moisture. This comprehensive guide will examine the key considerations for selecting the most suitable dew point sensor for a compressed air dryer system, with the objective of achieving optimal performance and reliability.

## Understanding the Importance of Dry Compressed Air

Compressed air is inherently humid, containing varying levels of moisture depending on factors such as ambient conditions and the compression process. While water and oil separators can effectively remove bulk liquids, a dedicated compressed air dryer is necessary to reduce the moisture content to acceptable levels. The failure to maintain dry compressed air can result in a range of detrimental effects, including corrosion of equipment, reduced process efficiency and product contamination.

## Types of Compressed Air Dryers

Compressed air dryers are classified into two main categories: refrigerated dryers and desiccant dryers. Refrigerated dryers, the most common type, use cooling to condense moisture from compressed air, typically achieving dew points around  $+37.4^{\circ}\text{F}$  ( $+3^{\circ}\text{C}$ ) Td (temperature dew point). In contrast, desiccant dryers employ adsorbent materials to remove moisture, enabling lower dew points ranging from  $-76^{\circ}\text{F}$  Td to  $-148^{\circ}\text{F}$  Td ( $-60^{\circ}\text{C}$  Td to  $-100^{\circ}\text{C}$  Td). The choice between these dryers depends on the specific application requirements, with desiccant dryers commonly used in critical processes demanding ultra-dry compressed air.



Humidity can cause damages in a compressed air system, e.g. rust.

## The Role of Dew Point Sensors

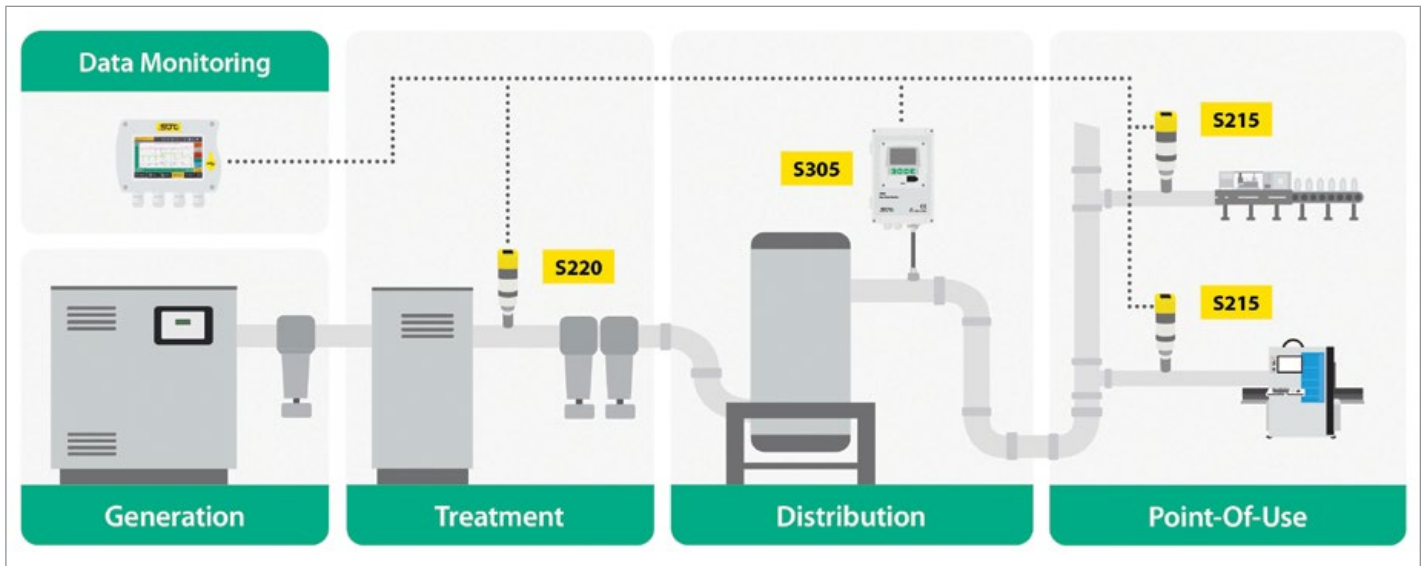
Dew point sensors play a crucial role in monitoring the effectiveness of compressed air dryers and ensuring the compressed air remains within the desired dew point range. These sensors measure the temperature at which moisture begins to condense from the compressed air, providing valuable insights into the compressed air quality and dryer performance. By promptly detecting deviations from the target dew point, dew point sensors enable proactive maintenance and intervention, preventing potential damage and downtime.

## Considerations for Selecting Dew Point Sensors

### 1. Installation Method

The manner of installation of dew point sensors has a significant impact on their accuracy and reliability. One possible method is to mount the sensors directly into the compressed air line with threaded process connections, thereby ensuring direct exposure to the compressed air stream for rapid response times. An alternative approach is to use optional measurement chambers equipped with purge airflow, which provide a constant compressed

## Selecting the Optimal Dew Point Sensor for Compressed Air Dryers



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air supply to the sensor. This is particularly suited to applications where direct installation is impractical.

### 2. Measuring Range

Selecting an appropriate measuring range is of critical importance to ensure the accuracy and reliability of dew point measurements. While sensors with a wide range of capabilities – extending from -148°F Td to +68°F Td (-100°C Td to +20°C Td) – offer versatility, they may be prohibitively expensive for applications with specific dew point requirements. The selection of a measuring range that aligns with the dew point range of the dryer system optimizes both accuracy and cost-effectiveness, ensuring the sensor provides actionable data within the desired range.

### 3. Signal Output

Dew point sensors offer a variety of signal outputs to communicate dew point measurements to monitoring systems or control devices. These include 4-20 mA analog signals, digital signals such as Modbus/RTU,

and integrated alarm units with visual and audible alerts. The selection of an appropriate signal output depends on the compatibility with existing monitoring systems, as well as the level of automation and control required for the application.

**4. Calibration and Accuracy**

It is of the utmost importance to ensure the accuracy of dew point measurements to maintain the integrity of compressed air systems. Dew point sensors should undergo regular calibration to maintain accuracy over time. Some advanced sensors feature self-calibration capabilities or allow for field calibration adjustments, which minimizes downtime and ensures consistent performance. Additionally, selecting sensors with high-precision measurement capabilities enhances confidence in the data obtained, especially in critical applications where precision is paramount.

**5. Environmental Factors**

Environmental conditions, such as temperature and pressure, can influence the measurement of the dew point. Therefore, it's necessary to select the dew point sensors based on their ability to withstand a wide range of operating conditions and environmental factors. In addition, it's important to consider factors such as vibration, humidity and exposure to contaminants, which can affect the performance and longevity of the sensors. By choosing sensors with robust construction and suitable environmental protection ratings, it's possible to ensure reliable operation in diverse industrial environments.

**6. Integration with Monitoring Systems**

It is of the utmost importance dew point data be integrated seamlessly with existing monitoring and control systems. To achieve this, it's necessary that dew point sensors be compatible

with industry-standard communication protocols such as Modbus/RTU, Profibus or Ethernet/IP. This allows for the straightforward integration of the sensors with supervisory control and data acquisition (SCADA) systems, programmable logic controllers (PLCs) and building management systems (BMS). This enables the implementation of a centralized monitoring system, remote access capabilities and data logging functions, thereby facilitating the implementation of proactive maintenance and troubleshooting strategies.

**7. Real-Time Data Analysis and Reporting**

Advanced dew point sensors may offer features for real-time data analysis and reporting, providing valuable insights into compressed air quality trends, system performance and energy efficiency. These sensors may include built-in data logging capabilities, allowing for historical data retrieval and trend analysis. Additionally, cloud-based monitoring platforms or software solutions enable remote access to dew point data from any location, empowering users to make informed decisions and optimize system operation.



*A contaminated dew point sensor. Calibration and service of measurement instrumentation plays an important role in reliable dew point monitoring.*

# Next Level of Dew Point Measurement

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## Desiccant Dryer Monitoring

**Range:**  
-20... +50 °C Td



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Be smart. Measure it.

## Selecting the Optimal Dew Point Sensor for Compressed Air Dryers

### Training and Education Resources

It is of paramount importance to educate operators, maintenance personnel and engineers about the principles of dew point measurement and sensor technology. This is because it enables the effective use of dew point monitoring systems. Training programs, workshops and educational resources provided by sensor manufacturers, industry associations and technical institutes can assist users in

gaining a deeper understanding of dew point measurement principles, sensor selection criteria and best practices for installation, calibration and maintenance.

### Conclusion: Empowering Compressed Air Systems With Advanced Dew Point Monitoring

The selection of the most appropriate dew point sensor for compressed air dryers

necessitates a comprehensive evaluation of several factors, including the installation requirements, measuring range, signal output, calibration, environmental factors, integration capabilities and advanced features. By leveraging advanced sensor technologies and considering the specific needs of the application, users can optimize the performance, reliability and efficiency of compressed air systems while minimizing the risks associated with moisture contamination. The investment in high-quality dew point sensors, coupled with ongoing training and education, empowers organizations to proactively monitor compressed air quality, mitigate operational risks and achieve greater productivity and sustainability in their industrial processes. **BP**

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### About the Author

*Simon Gleissner has over a decade of experience in measurement technology for compressed air and gases. He is the Product Manager for in-house software developments, as well as Product Manager for compressed air quality and purity measurement tools. He is also responsible for the German operations of SUTO ITEC, acting as Managing Director since 2019.*

### About SUTO ITEC

*SUTO ITEC is one of the market leaders in measurement technology for compressed air and gases. With more than 20 years of experience in dew point meters, its research & development teams are creating outstanding products used by companies all over the world. Innovations like developing its own QCM sensor element and combing it with a polymer sensor into a single measurement device are making the difference. Its motivation is to create new products to solve common problems and satisfy customer needs. For more information, visit <https://www.suto-itec.com/>.*






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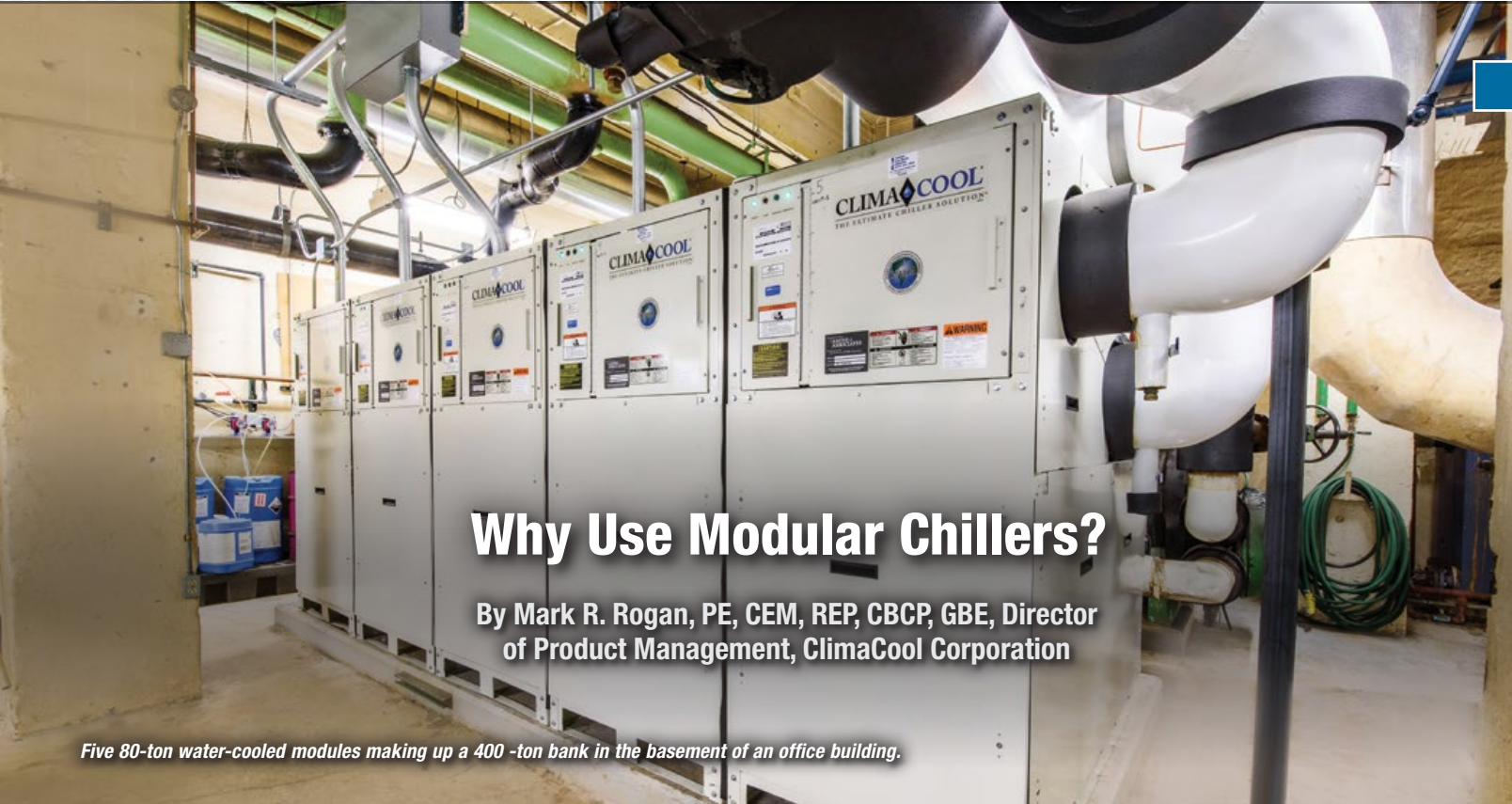
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# Why Use Modular Chillers?

By Mark R. Rogan, PE, CEM, REP, CBCP, GBE, Director of Product Management, ClimaCool Corporation

*Five 80-ton water-cooled modules making up a 400-ton bank in the basement of an office building.*

► People ask me all the time, “Why are modular chillers becoming popular in so many different applications?” to which I respond, “How much time have you got?”

The genesis of this article, in fact, was when the publisher of this magazine, Roderick Smith, asked me that same question. After I rattled off around 10 different reasons people are compelled to look at modular chillers today, he

said, “This really should be an article.” I agreed to write it, and here we are!

## It’s All About the Space

The initial reason the modular concept took hold was a frequent lack of space when it came time to replace a large chiller. Often, these chillers were installed in a confined mechanical room in the basement at the beginning of construction, and the building was then built around it. There was barely enough room to get people to the chiller for maintenance, let alone replacing the chiller itself.

“Chillers last forever, right?” seemed to be the predominant mindset during the 1970s and ’80s.

Fast forward 20 years and this starts to become a problem. A few innovative companies developed modular chillers to take, for example, a 400-ton single refrigeration compressor chiller (a typical office building

might have two of these) and replace each with a bank of five 80-ton modular chillers. Each one could be carried down a stairwell or brought down in a service elevator, then assembled in place. Typically, the large existing chiller would be cut up into smaller pieces for removal during the demolition phase of the replacement project. If the replacement chiller bank was going into the middle of the building or rooftop, immense savings in crane or helicopter lifts were also realized.



*Modular chillers are far easier to move than standard chillers.*



*Mark Rogan*

## Why Use Modular Chillers?



Modular units can be pre-banked at the factory and prewired for a single point connection. This shows five 70-ton modules making up 350 total tons being rigged into place.

At the end of the day, not only did the owner save a good bit on installation, they came away with better redundancy than they had previously. Each module has two fully independent circuits, which means going from one large circuit to 10, providing much better backup flexibility during maintenance periods or service problems. That's a tenfold increase in redundancy and a great segway into my next topic.

### Mission Critical Is a Perfect Fit

A mission critical application is anything that's pivotal to the mission of the business or agency, one essential to providing key business services or surviving. Another good litmus test from a purely economic perspective is any application or process where downtime is more costly than losing cooling. Cooling can never be lost, and so cooling systems seek to maximize redundancy and provide backups in any way they can.

With that in mind, modular chillers are a natural fit. Uses include providing cooling for air traffic control centers, hospital surgery suites, medical devices (MRI and CT scanners, for example), military and aerospace operations, industrial and manufacturing processes, power transmission systems, data centers and critical pharmaceutical laboratories to name a few.

Exact load matching is also an inherent advantage of modular chiller systems. With so many additional steps and circuits, the turndown resolution is exponentially better than with one large chiller. This improves even more with the addition of digital scrolls as well as full variable speed scrolls – either to lead circuits or to all circuits depending on budget available. For many industrial process systems, the fact that they come in small sizes while offering excellent redundancy is attractive. A great example of this is the process used by the growing number of microbreweries popping up around the country. Cooling the wort quickly after the boil and before the fermentation process begins is a critical step. You can thank modular chillers as you sip that cold one!

### Planning for the Future

The expandability of modular chillers makes them perfect for owners who like to plan capital expenditures out into the future as far as possible. It's common for an owner to build room, structural support and pumping for six modules while only initially purchasing two for current needs. Data centers are great examples of this, as future demand can be impossible to predict depending on the sector, but immediate demand is always known.

### Availability of Free Cooling

The integration of free cooling into a modular chiller bank is easy and available in two formats. Free cooling is essentially using a colder than set point ambient air temperature to pre-cool or fully cool the load water loop without the use of refrigeration compressors. The most common format is adding a free cooling module or two that includes only water coils and condenser fans. This format is also future-expandable.

If you are tight on real estate for add-on modules, then you may consider the second format. This involves a coil-on-coil setup where you take the existing bank of chillers and add water coils onto the outside of the DX condenser coils. Although this does save space, it incurs an additional and constant air pressure drop across the now wider total coil width that the condenser fans pull air through.

### Can I Get a Pump Package With That?

When designing replacement projects, mechanical engineers often look for other areas where system efficiency can be improved. The number one system targeted is pumping. The total dollars to be saved is significant since the pumping system of most commercial buildings



Three 20-ton air-cooled simultaneous heating and cooling modules conditioning an office building. No boilers or cooling towers were needed.

runs 24 hours a day. The opportunity to switch from a constant pumping system or primary/secondary system to a variable primary system is usually too lucrative to pass up in terms of energy savings.

Not all systems lend themselves to being switched over easily, but many do. The payback periods can be quick under the right circumstances. Projects that integrate the hydronic system with cooling and heating system controls will only help with overall system reliability. A bank of modular chillers can include a pumping module with controls that seamlessly integrate both systems. In the past, these systems could easily fight each other when decoupled and controlled separately, as was traditional design practice. It also helps when the pumps are in the same room or in close proximity with chillers and boilers, as this minimizes hydronic piping changes needed to fit the new system.

**Electrification of Heat**

Building decarbonization is here to stay. Whenever an owner seeks to reduce their CO<sub>2</sub> emissions and eliminate fossil fuels, they look to modular chillers. For years, modular chillers have been sold as heat pumps to either cool or heat using a reversing valve. When you bank several, you can control which modules are in cooling mode and which are in heating mode.

In recent years, advances in controls and valves have allowed modular chillers to achieve simultaneous heating and cooling within a single module. This allows for ultimate flexibility and load matching capabilities, and also provides excellent efficiency. Called heat recovery chiller/heaters, these allow buildings to take waste heat from the cooling process and send it back into the building where it's needed, rather than rejecting it through a cooling tower or air-cooled condenser. These systems

can produce hot water up to 140°F. With the addition of a plate-and-frame heat exchanger, the system can also generate potable hot water.

The environmental advantages of modular chillers go beyond reducing fossil fuel use. They have a reduced low-GWP (global warming potential) total refrigerant charge per ton when compared to larger traditional systems. This has to do with the compact nature of modular chillers and the efficient heat exchangers they use. For owners pursuing LEED Certification, this gives them one full point under the Energy and Environmental Credit section. They are also available with oil-free refrigeration compressor options, which will earn the building owners yet another full LEED point while helping the environment even further.

**Keeping Refrigerant Out of the Living Space**

With the push for lower GWP refrigerants the field has shifted to A2L refrigerant classes. These are categorized as low toxicity/slightly flammable. The industry is currently switching to these refrigerants due to regulations beginning to be enforced this year in some states, and due to be enforced in all states by January 1, 2025.

If an owner is considering a system that runs refrigerant lines through living spaces – a layout that's gained momentum in smaller tonnage buildings – they're now thinking twice about the long-term implications due to refrigerant flammability. Refrigerant monitors will be required in such spaces. If, instead, the owner can run chilled and hot water throughout

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## Why Use Modular Chillers?

living spaces with modular chillers, liability comes down and efficiency goes up – albeit with higher upfront cost. More on that below.

### Less Water Use Is Best Water Use

Thanks to recent improvements in refrigeration compressor technology and controls, modular chiller banks are now able to seamlessly integrate with other already highly efficient air-side systems. They allow for the removal of

open cooling towers or fluid coolers and the water and chemical costs associated with them.

One good example is a water source heat pump system that would typically connect to an outdoor cooling tower or fluid cooler for loop temperature control. These systems are limited to ambient design wet bulb conditions in the project's particular area. But since water source heat pumps only use that fluid

for condensing, the efficiency of the system fluctuates with the outside temperature. If a building replaces its cooling tower with a bank of air-cooled modular chillers, the overall temperature could be brought lower and kept consistent to improve the efficiency of the indoor heat pumps.

The question from this article's title doesn't have one simple answer. Although their small size was the reason modular chillers were developed, their role has grown since they excel at a plethora of applications. The initial cost of a modular chiller bank is typically 20 to 30% higher when considering the equipment alone, but the benefits, application flexibility and installation savings typically have owners coming back again and again. The only question left is, "Why not use modular chillers?" **BP**

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### About the Author

Mark Rogan, Director of Product Management at ClimaCool, has been in the industry for 30 years. A graduate of the University of Illinois as well as Tulane University, he is a published HVAC System Specialist and an expert in decarbonization strategies and the electrification of heating.

All images courtesy of ClimaCool.

### About ClimaCool Corporation

ClimaCool designs and manufactures modular chiller systems configurable to meet any of today's requirements. Its modular chillers are ideally suited for all commercial/industrial systems including heat recovery and heat pumps, free cooling, geoechange central plants and variable flow systems. ClimaCool is a division of the Climate Control Group, a NIBE Group member. For more information, visit <https://climacoolcorp.com>.

# The 2024 AICD Show Report

By Bill Smith, Compressed Air Best Practices® Magazine



The 2024 AICD Board: Michael McCulley, Rob Grizzle, Dave Nosal, Sal Calvo, Kasey Gould, Mikella Reed, Bart Frush, Joe Torchia, Bob Coppell and Jeff Brennan (left to right)

► The Association of Independent Compressor Distributors (AICD) held its annual event at the Grand Sierra Resort in Reno, Nevada, in April 2024. Participating distributor members and guests enjoyed a few days of networking events, the AICD trade show, speakers, the AICD Golf Tournament and more.

“We’ve had a great year. The AICD is continuing to grow and find new ways to add value for the members’ companies,” said Jeff Brennan, President, AICD and General Manager for Compressed Air Power in Phoenix.

“There has been a great turnout and great speakers this year. I love this show – I’ve been attending consecutively since 1999. It keeps me abreast on the industry,” said Rick Walsh, Q Air-California, a participating AICD member.

This report will tour a sampling of the trade show exhibits (by technology, A-to-Z), and recap the conference and functions.

## Lubricated Air Compressors

AYKOM Compressor unveiled its ATUS Series rotary screw direct drive air-cooled compressed air systems with models from 7.5

to 100-horsepower (hp), with plans to expand the range up to 400-hp. Each model comes with quick change air/oil cartridge filters for easier service and lower pressure drop, stainless steel tubing with O-ring fittings (no hoses), UL electronics, and ASME compliance. AYKOM has a UL Certified Panel Shop and is an ASME Certified pressure vessel builder up to 1,000 psi. On display was a 30-hp tank-mounted (200 gal.) unit with a refrigerated dryer, as well as a 50-hp unit.

BAUER Compressors’ medium-pressure BMP Series ranges from 20 to 125-hp with flow rates from 27 to 175 scfm. The two-stage design



Emre Tujumet, Aydin Dereci and Nitin Shanbhag at the AYKOM Compressors and Alkin Compressors booth (left to right).



John Mirabelli and Eric Phelps at the BAUER Compressors booth (left to right).

## The 2024 AICD Show Report

achieves final pressures up to 435 psig, while the three-stage design option reaches 1,450 psig. Features include integrated interstage safety valves, interstage condensate separators and drains, an air-cooled aftercooler and PLC control with touchscreen HMI, all on a heavy-duty skid with lift pockets and structural tie-downs.

Bobcat displayed its oil-flooded rotary screw air compressors with totally enclosed fan-cooled (TEFC) motors ranging from 10 to 400-hp (fixed speed) and 30 to 400-hp (variable speed). Its Doosan Max synthetic lubricant is

rated for 8,000-hour life. Each unit is equipped with the Bobcat Advanced System Controller, which monitors seven checkpoints, features multi-schedule operation, two pressure band operations, power loss restart, remote start/stop, remote load/unload and more.

EL-AV Compressors USA displayed the new EL+ Series PM VFD screw air compressor (15 to 100-hp). The EL+ comes standard with IP54 IE4+ PM motor, one shaft direct drive, heavy duty radiator and high-efficiency inverter fan, to achieve 49 to 530 max cfm up to 145 psig.

ELGi has a history of manufacturing its own 50 Hz motors, and now the company is manufacturing 60 Hz motors for air compressors up to 60-hp. They come standard in its EG15-45 direct drive rotary screw models. On display was the EGPM variable speed rotary screw with PM motor, Neuron 4 touchscreen controller and Intelligent Thermal Valve.

Hertz Kompressoren USA is launching 30 to 100-hp VSD models for its Impetus Series, after introducing 125 to 430-hp fixed speed (optional VSD) units last year. All units use PM motors with efficiencies varying from 96.1% on the



Patrick Jakeway, Neal Stephan, Craig Parmele (Compressed Air Advisors Online) and Kyle Schafer at the Bobcat booth with an IA50vs unit (left to right).



Amit Mizrahi and Yoel Mizrahi with EL-AV Compressors USA (left to right).



Scott Avery next to the EG Series direct drive rotary screw featuring motors built by ELGi.



Clark Beal and Mert Alpogut at the Hertz Kompressoren USA booth (left to right).

50-hp, to 98% on the 100-hp models. All units are two-stage, and Hertz is seeing a 10 to 15% improvement in efficiency vs. prior models. Other features include an improved dBa rating of 71, new cartridge style oil filters, one micron intake filter elements and more.

Sauer Compressors USA displayed a WP323LM four-cylinder, three-stage 640 psi (160 scfm) unit with the flexibility to stand alone, or remove the ambient inlet configuration to work as an air or gas booster. Its Hurricane and Orkan Series high pressure (200 to 7,000 psi) reciprocating air and gas boosters are

undergoing further development to expand the ranges, and support Sauer's rental fleet. According to Jim Riley and David Swartz, Sauer can build any high-pressure solution for purchase, while its rental fleet is equipped with complete high-pressure air and gas solutions, plus storage, treatment and distribution options for temporary needs.

SA Performance showcased its wide range of premium lubricants for positive displacement and dynamic air compressors, vacuum pumps, blowers, gas compressors and more.

The family-owned business also offers airend rebuild services.

Following the release of the SPM Series 5 and 7.5-hp rotary screw line, Sullivan-Palatek is onto its next innovation. "In the next few months, we are introducing the SP11 oil-flooded rotary screw range with 25-hp, 30-hp and 40-hp fixed and variable speed units. Equipped with TEFC motors and wye-delta starters, these models are available in open concepts with optional enclosures and are capable of meeting and exceeding isentropic efficiency standards," said Bob Groendyke,



Cara Godack, David Jens, Adam Shoemaker, Anthony Harris, Jim Riley, Sean Dempsey, and David Swartz at the Sauer Compressors USA booth (left to right).



Bob Groendyke, Larry Colley and Grant Hebert at the Sullivan-Palatek booth (left to right).



Josh Wamser and Duane McCarty next to 15-hp TVK-S at the Tamsan-USA booth (left to right).



Andrea Schulte and Tom Fermann at the ANEST IWATA Americas booth (left to right).

## The 2024 AICD Show Report

Senior Product Marketing Manager. The Sullivan-Palatek plant has also added an additional rotor grinder, doubling its capacity for its products made in America.

Tamsan-USA displayed the TVK-S Series direct drive oil-flooded rotary screw servo air compressor. The TVK-S ranges from 10 to 350-hp, equipped with VSD capability and PM motors. Reliability and ease of maintenance features include Weg motors, wye-delta starters, oversized and numbered wiring and electrical components, sheer paneled oil level

indicator windows and more. Also displayed was a direct drive piston model coming to market by year's end.

### Oil-Free Scroll, Screw and Centrifugal Air Compressors

ANEST IWATA Americas is rolling out choices for integrated refrigerated, desiccant and membrane dryer options for its tank-mounted SLT and SLTE Series oil-less scroll and piston air compressors. Its SLE Series multi-air end, oil-less scroll models are now equipped with

enhanced control options to achieve higher flows at higher pressures.

BOGE displayed the OE N Series oil-free scroll compressor (5.5 to 40-hp), offering galvanized tank-mounted configuration, IE3 motor, two-stage aftercooler, focus control 2.0, BOGE connect and more. It's designed for quiet operation in a compact design, to deliver 12 to 124 cfm at 115 or 145 psig. Their booth also had virtual reality displays of its SO-2 oil-free rotary screw air compressor, where attendees could see the interworking and assembly of all components.



Virtual Reality display at the BOGE booth.



David Sleeman, Matt McCarthy, Matt Smith and Jon Harris at the FS-Curtis/FS-Elliott booth (left to right).



Nate Haley, Brandon Dial and Chris Downs at the Kaishan Compressor USA booth (left to right).



Trey Donze, Mark Steele, Jeremy Garfield, Tyler Morrell, Garett Springer, Will De Luca and William Vowteras at the Airmatic booth (left to right).

FS-Curtis/FS-Elliott showcased the FS-Elliott Polaris oil-free centrifugal air compressor range and the FS-Curtis ECO-Turbo Series oil-free, air- or water-cooled centrifugal air compressors. The group has unique capabilities with its expertise in both single and multi-stage positive displacement and dynamic compression.

Hanwha Power Systems discussed its latest SM100 Series oil-free centrifugal air compressors. Its five models range from 1,950 to 18,800 cfm, 270 to 4,155-hp and 50 to 188 psia. At its core are a highly efficient main drive motor and a five to axis machined stainless steel impeller capable of turndown ratios of 30 to 40%. Other components include tilted pad journal bearings on pinion gears, low friction loss sleeve journal and taper landed thrust bearing on the bull gear, water-in-tube inter and aftercooler bundles, leak-free lubrication system and more.

After recently announcing the expansion of its headquarters in Loxley, Alabama, Kaishan Compressors USA is launching the KROF two-stage oil-free range (air-cooled, VSD). At its core is an IEC TEFC IE3 premium efficiency IP55 motor, and oil-free airends with integrated motor adapter, proprietary rotor profile, PTFE coating on compression chambers and integrated oil pump and distribution. Other components include a hydraulically controlled inlet valve, pulsation dampeners and more. Models from 60 to 200-hp are available, with larger and smaller horsepower models in development.

**Containerized Systems**

Airmatic Compressor Systems displayed the capabilities of its new Airmatic Containerized Solutions (ACS). The containerized units have custom capabilities for compressed air (up to 2,500 scfm), nitrogen (up to 1,700

scfm), oxygen (up to 7,000 scfh) and vacuum (up to 28 inHg) with complete air and gas treatment, storage and piping options. On display was a dual plant air and nitrogen plus booster system. The ACS is rated to withstand -40°F to 130°F weather and has 1.5" sound dampening insulation.

All Weather Air is expanding distribution in the U.S. for its mobile compressed air system enclosures, tested in -40°F to 120°F conditions to withstand different climates across the country. Standard models range from 4.6' x 8' to 32' x 8' dimensions. Each unit comes standard with automated ventilation, lockable doors and secure windows, forklift pockets, 1" sound dampening insulation and more.

GlobalVac & Air's Mobile Engineered Solutions bring the organization's medical and industrial vacuum and air expertise into custom space-saving system packages. "We're now building containerized systems for compressed air, nitrogen generation, oxygen generation, breathing air systems and more," said Bob Littman. "We're completely brand agnostic in everything we do."

**Compressed Air Treatment, N<sub>2</sub> Generation, Condensate Management and Monitoring**

Altec AIR introduced the HBS Series single tower heat regenerative desiccant air dryer, for 0°F to 50°F outlet dew points. Equipped with a low watt density heater and an industrial duty blower, the HBS is designed for single-shift operations wanting a dew point of less than 1% RH (a refrigerated dryer provides approximately 30% RH at 100°F). Designed for 8 hours full-load duty cycle, it uses a blower to regenerate the bed during idle periods. Bob McKay, Account Manager at Altec AIR, is traveling the country proctoring EPA Section 608 exams to Refrigeration Certificated Technicians.

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## The 2024 AICD Show Report

Aside from its multiple air treatment, condensate management and instrumentation technologies on display, BEKO Technologies showcased the QWIK-PURE CS oil-water separator with intelligent, flow-regulated control. The iCS line on display (four models, 401 to 3,300 scfm), is suitable for all lubricant types, and is IIoT ready with Wi-Fi, advanced Modbus, integrated alarms, cartridge life cycle status indicator and more. It's a future-proof solution due to its modular expansion design. System service technicians and owners will benefit from patented quick disconnect cartridges and lightweight filling material for simple and clean servicing.

Clean Resources has partnered with Powerflow Electronics to add an assortment of condensate drain technologies to the Clean Resources brand. On display was its electronic no-loss drain valve rated for 100% continuous duty from 90 to 6,750 scfm.

CS Instruments displayed a sampling of its extensive compressed air instrumentation. The DP 500 and 510 mobile dewpoint meters are capable of precise dew point measurement down to -112°F for inspection of dryer performance and system auditing. The handheld units now have NPT disconnect, and

an option for precise dew point readings up to 5,076 psi (725 psi standard).

HydroThrift is rolling out its Advanced Industrial Control Panel for seamless integration with process cooling and heating systems. It's equipped with rigged touchscreen HMI, calibrated flow measurement, remote monitoring, preventative maintenance capabilities and much more. HydroThrift has an in-house UL508a certified control panel shop.

JORC Industrial enhanced its KAPTIV-MD zero air loss condensate drain with a side inlet for



Ken Canella at the All Weather Air booth.



Scott Ripatrazzone and Bob Littman at the GlobalVac & Air booth (left to right).



Jim DiMaiolo, Joe Rodenbucher, Robert Ruskaup, Dan Brown and Bob McKay at the Attec AIR booth (left to right).



Brian Speed, Jason Hobbs and Russ Jones at the BEKO Technologies booth (left to right).

improved compatibility with any component. In addition, its smaller SEPREMIUM oil-water separator now has replaceable elements rather than disposable ones.

KELTEC Technolab continues to expand its product offering. It now offers a full range of purge exhaust mufflers for air compressors and desiccant dryers. KELTEC also displayed its condensate management solutions, with water separators rated for 14 to 1,294 scfm, and multiple condensate drain and valve offerings.

Mikropor is launching MNG-US-PRO Series PSA nitrogen generators with carbon molecular sieve adsorbent. Standard features include tanks, silencer, mini PLC, tank manometers, ECO mode, pressure transmitter, T filter, proportional valve, piston valves and valve control regulator. Options include pressure regulator for the N<sub>2</sub> outlet, HMI color touch screen, oil indicator, kits for dew point, flow, oxygen and a 3-way bypass valve kit. Mikropor's Mike Kinnucane can help customers find their ideal N<sub>2</sub> purity levels from 95% to 99.999%. Mikropor also unveiled its own new MWOS oil/water separators.

nano-purification solutions showed its new TMC Thermal Mass Cycling refrigerated air dryers rated for 30 to 635 scfm in 12 models, with plans to expand to 2,000 scfm next year. Stored glycol in the air-to-glycol exchanger allows for fast response time if demand increases suddenly. Refrigerants used are R-513A and R-410A.

Solberg showcased a range of innovative filtration and silencing solutions for compressors, vacuum pumps and blowers. One of the highlights on display was the new 3/4" ST/CT series, a compact and efficient solution



Chad Timmer and Bill Peters at the Clean Resources booth (left to right).



Martin Zeller and Enrico Capetanis at the CS Instruments USA booth (left to right).



Keith Beatty and Paul Heston at the HydroThrift booth (left to right).



Anthony Yacucci at the JORC Industrial booth (left to right).

## The 2024 AICD Show Report



Ed Kaiser Jr., Kevin Curle and Eddie Kaiser at the Keltec-Technolab booth (left to right).



Brad Cahoon, Mike Kinnucane, Patrick Lapalme, Jeff Crutchfield, Chris Wells, Allan Hoerner and Volkan Ayhan at the Mikropor booth (left to right).



Jane Sexton, Tony Hergert, Mark Lauterwasser, Rodrigo Vicentini and Jim Tomczyk at the nano booth.



Clint Browning, Ryan Billings, Andy Spicer and Kevin Dumont at the Solberg booth (left to right).

in the established line of particulate removal systems for vacuum pumps. This new size is engineered to offer high-performance filtration in a more accessible, space-saving format.

Walker Filtration is launching a range of hydrogen gas filters from 159 to 22,189 scfm, capable of particle removal down to 1 micron, and maximum working pressures up to 5,075 psig. Also displayed was its CondensSmart oil/water separators, condensate drains and compressed air, gas and vacuum filtration solutions.

### Compressed Air Piping

AIGNEP Infinity aluminum pipe systems require no pipe grooving, and are designed for simple push and click fitting connection to drastically reduce installation time. Its smaller size fittings use nickel-plated brass and come with a 20-year warranty. Each fitting is 100% factory tested.

AIRpipe USA now offers up to 10" diameter sizes for both aluminum and stainless-steel piping. They are also launching a new line of value-priced stainless-steel piping.

The Applied System Technologies team was present displaying its Tru-Link aluminum pipe systems.

Unipipe Solutions is launching UnipipeEZ, featuring pipe lengths with factory-formed male and female ends. Pipe lengths join, then are secured with a stainless-steel double-bite clamp ring and all-aluminum hinged coupling, then locked together with one bolt. Size and material required of the all-aluminum hinged couplings have been reduced. Joe Koenig



Ben Laiweneek, Amy Oligeri and Simon Taylor at the Walker Filtration booth (left to right).



Chad Gooding (G3 Industrial Solutions), Dan Hastings, Kolby Hamilton (G3 Industrial Solutions) and Jason Dove at the AIGNEP Infinity booth (left to right).



Chad Hills, Darren Phillips, Jon Schwartzman, Michael Buis and Carrie Heffernan at the AIRpipe USA booth (left to right).



Derrick Taylor, Joe Koenig and Lance Frederick at the Unipep Solutions booth (left to right).

has been appointed as sales manager for the Northeast USA.


**Conference**

The AICD conference format has an engaging agenda, aimed at helping senior management at air compressor sales and service companies better manage their businesses today and tomorrow.

- *Robust Growth with Stubborn Inflation: Expect No Rate Cuts in 2024* – J. Robert Gillette University of Kentucky

- *From Accepting Change to Dictating Change* – Tim Dixon
- *Social Commerce, Not Media* – Kyle Lacy
- *The Underdog Hustle to Entrepreneurial Success* – Justin Forsett

Mark your calendars for next year’s show, April 27 to 29, 2025, at the Omni Louisville in Louisville, Kentucky.

For more information, please contact Kasey Gould, AICD Administrator, email: [admin@aicd.org](mailto:admin@aicd.org), or visit <https://www.aicd.org/>. 

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# Chiller & Cooling System Technology & Industry News

## Carrier Updates AquaSnap 30MP Water-Cooled Scroll Chiller

Carrier is updating one of its most compact, indoor chillers – the AquaSnap® 30MP water-cooled scroll chiller – to be more environmentally responsible and user friendly. Carrier is a part of Carrier Global Corporation, a global leader in intelligent climate and energy solutions.

The AquaSnap 30MP will now come with refrigerant R-32, which was chosen for its lower environmentally balanced impact, high energy efficiency, wide availability and ease of use. In addition to a new refrigerant, the chiller has also been modernized with new PIC6 intelligent controls that provide an advanced, 4-inch graphic display with BACnet™ MS/TP or IP.

The 30MP indoor chiller comes in condenserless and water-cooled versions. Its compact modular design makes it ideal for easy replacement, retrofit or new construction applications, with the ability to pipe together up to eight chillers for increased capacity of up to 640 tons (2,250 kW).

Carrier is committed to providing our planet and people a better future by offering the

best refrigerant for each application, and is shifting to lower GWP refrigerants across its chiller offerings, with R-513A, R-515B and R-1234ze(E) in medium-pressure centrifugal and screw chillers; R-1233zd(E) in low-pressure centrifugal chillers; and R-32 in scroll chillers.

The use of lower GWP refrigerants supports Carrier's 2030 Environmental, Social & Governance (ESG) Goals, including helping customers avoid more than 1 gigaton of greenhouse gas emissions by 2030. The chiller is manufactured at Carrier's commercial HVAC factory in Charlotte, North Carolina.

### About Carrier

*Founded by the inventor of modern air conditioning, Carrier is a world leader in high-technology heating, air-conditioning and refrigeration solutions. Carrier experts provide sustainable solutions, integrating energy-efficient products, building controls and energy services for residential, commercial, retail, transport and food service customers. Carrier is a part of Carrier Global Corporation, global leader in intelligent climate and energy solutions that matter for people and our planet for generations to come. For more information, visit <https://www.carrier.com/commercial/en/us>.*

## Atlas Copco Acquires Delta Temp

Delta Temp, a company that provides specialty rental solutions for industrial cooling applications, has become part of Atlas Copco Group.



*Belgian specialty rental company has become part of Atlas Copco Group.*

Delta Temp is a privately owned company and has 20 employees. The company has a presence in Belgium, the Netherlands and Germany, and during 2023, revenues of approximately 100 MSEK\* (9 MEUR).

Delta Temp owns a fleet of chillers and related accessories and designs and delivers total customized rental solutions for industrial cooling applications.

“Delta Temp’s technical competence and application expertise, combined with the Specialty Rental division’s existing large industrial customer base, will enable us to accelerate the growth of our temperature control business in Europe,” said Andrew Walker, Business Area President Power Technique.

Main customer segments include general manufacturing, pharmaceutical, food and beverage, chemical and steel production among others.

The purchase price is not disclosed. The acquired business becomes part of the Atlas Copco Group’s Specialty Rental division.

\*Based on average exchange rate 2023.



Carrier is updating the AquaSnap 30MP water-cooled scroll chiller with lower GWP refrigerant and controls.

**About Atlas Copco Group**

*Atlas Copco Group enables technology that transforms the future. We innovate to develop products, services and solutions that are key to our customers' success. Our four business areas offer compressed air and vacuum solutions, energy solutions, dewatering and industrial pumps, industrial power tools and assembly and machine vision solutions. In 2023, the Group had revenues of BSEK 173, and at year end about 53,000 employees. For more information, visit <https://www.atlascopcogroup.com>.*

**Daikin Applied to Build Energy-Efficient Manufacturing Facility in Mexico**

Daikin Applied, a leading global commercial and industrial HVAC manufacturer, announced plans for the construction of a new energy-efficient manufacturing facility in Tijuana, Mexico. In partnership with its subsidiary Alliance Air Products, the San Diego-based leader in custom air-handling equipment design and manufacturing, Daikin Applied is expanding its manufacturing capabilities to support sustainable data center growth across North America.

The new 460,000 square-foot facility will expand on Daikin Applied and Alliance Air's established presence in Tijuana, Mexico. The facility is being built to manufacture custom HVAC and computer room air handler equipment and solutions specifically for data centers. It is designed for maximum efficiency to meet Daikin Applied's sustainability goals and will support the growth of air handler unit sales in North America.

This expanded facility allows the company to better serve customers in the west and southwest United States and Mexico with a single supplier for end-to-end HVAC solutions.

“This is a critical moment for the HVAC industry not just to increase capacity for data center solutions, but to help data centers increase efficiency and sustainability in their energy use and cooling situations,” said Yu Nishiwaki, Chief Operating Officer for Daikin Applied Americas. “This manufacturing expansion underscores our commitment to help our customers identify sustainability opportunities and achieve, or even surpass, their decarbonization design goals.”

The new \$121 million facility is expected to support over 1,000 production jobs and over 1,150 total new permanent jobs in the northwest region of Mexico. Construction of the facility is expected to be complete by Spring 2025 with production ramping up in June 2025.

Prioritizing high value industries and talent development, a coalition of Baja California's economic leaders traveled to Japan to meet with Daikin Industries. Baja State Governor Marina del Pilar Ávila Olmeda welcomes this investment as it aligns with her goals for the state: “Baja California emphasizes foreign investment attraction with innovation and well-paid jobs.”

Luis Plascencia, President and General Manager of Alliance Air Products said, “We've successfully operated in Tijuana for 20 years and have 986 employees who are exceptionally talented in the design and production of highly customized air handlers. We look forward to building on that success and bolstering our partnership with the Baja California government and local Tijuana leaders to make this new facility a reality.”

**About Daikin Applied Americas**

*Daikin Applied, a member of Daikin Industries, Ltd., designs and manufactures advanced commercial*

*and industrial HVAC systems for customers around the world. The company's technology and services play a vital role in creating comfortable, efficient and sustainable spaces to work and live – and in delivering quality air to workers, tenants and building owners. Daikin Applied solutions are sold through a global network of dedicated sales, service and parts offices. For more information, visit <https://www.daikinapplied.com>.*

**Johnson Controls Reports Progress Toward Sustainability Targets**

Johnson Controls, a global leader for smart, healthy and sustainable buildings, released its 2024 Sustainability Report, marking significant progress and unwavering focus on decarbonizing the built environment. Notably, the company reduced absolute Scope 1 and 2 emissions by 43.8% since 2017, putting it ahead of schedule in achieving its 2030 science-based target of a 55% reduction. The company also reported a 27.1% reduction in Scope 3 emissions derived from the use of its products, exceeding its 2030 science-based target of achieving 16% reduction in use of sold products by 2030.

“At Johnson Controls, our focus on sustainability is a force multiplier accelerating our strategy, cutting our operating costs and helping us attract and retain the best and brightest talent in the industry,” said George Oliver, Chairman and CEO. “Putting our operating technology and OpenBlue digital platform to work achieving our own ambitious decarbonization goals enables us to be a trusted partner to our customers, accelerating their climate progress and success. I am proud of the progress we have made and am excited by the many initiatives we have underway that make the promise of sustainable buildings a reality.”

## Chiller & Cooling System Technology & Industry News

Buildings are responsible for nearly 40% of global carbon emissions and buildings represent some of the fastest – if not the fastest – paths to meeting global climate targets. Throughout the report, Johnson Controls highlights key innovations and initiatives that deliver energy efficiency and decarbonization in buildings. This includes the solutions and services that form the smart building trifecta: energy-efficient equipment, clean electrification and digitalization.

These solutions are making a difference in buildings like Childrens' of Alabama medical center, where OpenBlue and heat pump technologies are delivering \$450,000 in annual savings and reducing the use of natural gas by 69%. In Norway, OpenBlue is

helping create the largest net energy-positive building in the northern hemisphere. In Dubai Silicon Oasis, Johnson Controls chillers and AI-driven solutions are reducing carbon by 30% and delivering guaranteed energy savings of 4.2 million kWh per year. In 2023, OpenBlue Enterprise Manager and OpenBlue Central Utility Plant helped our customers avoid an estimated 70,000 metric tons CO<sub>2</sub>e, more than four times the avoided emissions of 2020.

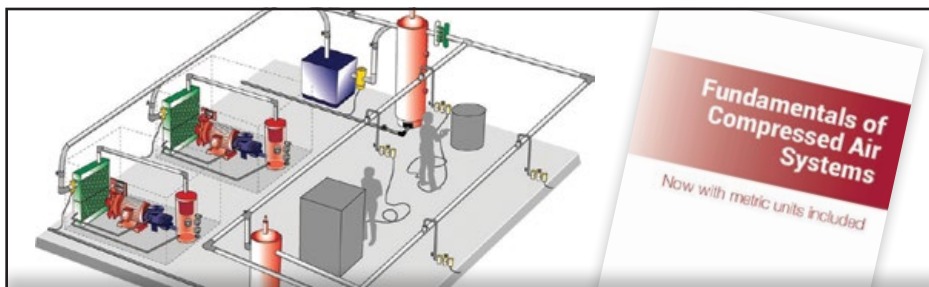
Against the backdrop of the hottest year on record, Johnson Controls remains committed to innovation, investing 90% of new product R&D into climate-related technologies. The company is also addressing hard-to-abate steel production and embodied carbon with more

than 80% of steel purchases in the United States and 50% globally produced from recycled scrap materials using low-carbon, electric arc furnace steel-making technology.

Johnson Controls is also helping customers overcome financing challenges with innovative structures like “Net Zero Buildings as a Service,” which establishes outcome-based, net zero financing. It redefines risk by guaranteeing energy savings and paying project costs out of the savings. The company also offers performance-contracting projects, with guaranteed energy and operational savings realized over time. Since January 2000, Johnson Controls performance-contracting projects have helped partners and customers avoid over 39 million metric tons of emissions and it's set to save partners over \$8.4 billion in energy and operational costs over their project terms.

### About Johnson Controls

At Johnson Controls, we transform the environments where people live, work, learn and play. As the global leader in smart, healthy and sustainable buildings, our mission is to reimagine the performance of buildings to serve people, places and the planet. Building on a proud history of nearly 140 years of innovation, we deliver the blueprint of the future for industries such as healthcare, schools, data centers, airports, stadiums, manufacturing and beyond through OpenBlue, our comprehensive digital offering. Today, with a global team of 100,000 experts in more than 150 countries, Johnson Controls offers the world's largest portfolio of building technology and software as well as service solutions from some of the most trusted names in the industry. For more information, visit <https://www.johnsoncontrols.com>.



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BEKO Technologies	Inside Back Cover	<a href="http://www.bekousa.com/">http://www.bekousa.com/</a>
Carrier	3	<a href="https://www.carrier.com/datacenters">https://www.carrier.com/datacenters</a>
Johnson Controls	5	<a href="https://www.york.com/heat-pumps">https://www.york.com/heat-pumps</a>
Quincy Compressor	8	<a href="https://www.quincycompressor.com/">https://www.quincycompressor.com/</a>
Clean Resources	9	<a href="https://www.cleanresources.com/">https://www.cleanresources.com/</a>
Sullivan-Palatek	11	<a href="https://www.sullivan-palatek.com/">https://www.sullivan-palatek.com/</a>
Sullair	13	<a href="https://america.sullair.com">https://america.sullair.com</a>
Mikropor	15	<a href="https://www.mikroporamerica.com/">https://www.mikroporamerica.com/</a>
KELTEC-Technolab	16	<a href="https://keltecinc.com/">https://keltecinc.com/</a>
Applied System Technologies	17	<a href="http://www.appliedsystemtech.com/">http://www.appliedsystemtech.com/</a>
EVAPCO	19	<a href="https://www.evapco.com/">https://www.evapco.com/</a>
HydroThrift	21	<a href="https://www.hydrothrift.com/">https://www.hydrothrift.com/</a>
SPX Cooling Tech	23	<a href="https://spxcooling.com/">https://spxcooling.com/</a>
PneuTech Nitrogen	25	<a href="https://www.pneutech.com/nitrogen">https://www.pneutech.com/nitrogen</a>
Altec AIR	30	<a href="https://www.altecair.com/">https://www.altecair.com/</a>
SUTO iTEC	31	<a href="https://www.suto-itec.com/">https://www.suto-itec.com/</a>
BAUER COMPRESSORS	32	<a href="https://www.bauercomp.com/">https://www.bauercomp.com/</a>
CTI	35	<a href="https://www.cti.org">https://www.cti.org</a>
Compressed Air and Gas Institute	36	<a href="https://www.cagi.org/training-and-certification-personnel-certification">https://www.cagi.org/training-and-certification-personnel-certification</a>
Tamturbo	41	<a href="https://www.tamturbo.com/">https://www.tamturbo.com/</a>
Compressed Air Challenge	48	<a href="https://www.compressedairchallenge.org">https://www.compressedairchallenge.org</a>

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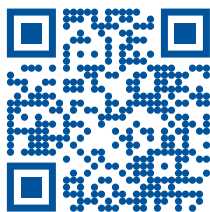


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