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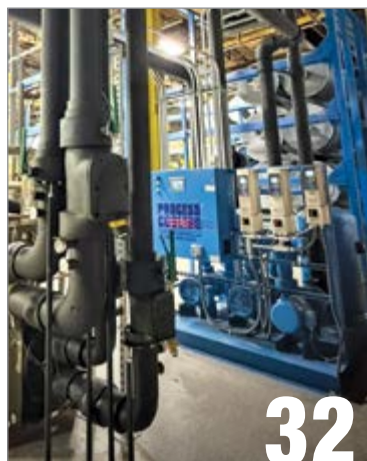
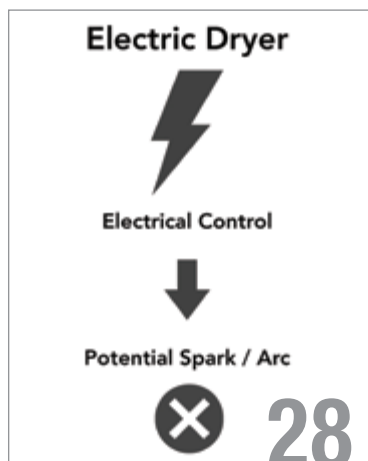
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» FROM THE EDITOR



Facility Maintenance & Safety

This month, we're excited to continue our CABP interview series with Brian Cholmondeley, Senior Vice President – Director of Power Systems, and Roger Adkins, Vice President – Air Compressor Business Manager, Ring Power. Not only is this air compressor sales and service company the Sullair distributor for its region, but it's also the CAT dealer for North and Central Florida. Our Publisher, Roderick Smith, sat down with them to discuss what they look for when hiring new employees and how they develop talent. The company's apprentice program takes 36 months and allows new hires to work in various departments while paired with seasoned technicians.

The best way to fix large problems with compressed air systems is to catch them when they're small, says Arthur Pue, President, Engineering Sales Associates. He gave us a fantastic article on the value of preventive maintenance. A routine inspection at industrial machinery manufacturer J.C. Steele & Sons revealed a crack along the top of an oil cooler that hadn't caused problems yet, but could turn into a serious issue. Quick action saved the plant from greater expenses and lost time.

Another safety article comes from Jess Elley, Product Marketing Manager, Suburban Manufacturing Group – Tsunami Compressed Air Solutions. Class I, Division 1 environments, she explains, have flammable gases, vapors or liquids present during normal conditions. In these environments, machinery needs to be specially built to never cause a spark. The article focuses on pneumatically-powered desiccant compressed air dryers.

From Haartz Corporation and Process Cooling Systems, we have a case study about an electrification project intended to reduce natural gas use. PCS installed a heat pump chiller to remove heat from the plant's process water cooling system, then use it to heat makeup air. The project reduced the load on the chilled water infrastructure, explains Matt Blanchard, Application Engineer, and saves 111 tons of carbon output each year.

Finally, we end the issue with a report from the 2026 AICD trade show in Orlando, FL. Regional Sales Manager Bill Smith spoke to exhibitors to learn about their latest products and initiatives.

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Subscribers From Around the World

We salute all Best Practices Magazine subscribers from around the world who own, operate, maintain, engineer and provide expertise for the on-site utilities (compressed air, nitrogen generation, vacuum, blowers, chillers, cooling towers and pumps) powering modern plant automation. This subscriber-driven monthly column hopes to build community and recognize all subscribers!



← This month, our sales team had the pleasure of meeting with Total Industrial Air, which has locations in Milwaukee and Green Bay, WI. This compressed air system sales and service company provides oil-free and oil-flooded rotary screw and reciprocating air compressors, as well as heat recovery systems, aluminum piping, medical air compressors and vacuum pumps. Its parent company started as a Green Bay, WI, hardware company in 1904. Shown here are Jordan Maki and Joseph Larson (left to right). Visit <https://www.totalindustrialair.com>.

→ *Tri-State Air Compressor of New Middleton, OH, started in 2014 in the backyard of Owner Greg DeBucci (shown here). Earlier this year, it completed an expansion of its headquarters, a 10,000-square-foot facility featuring three buildings and a fabrication shop. The fabrication shop will support the development of containerized compressed air system packages. The company provides service in Central and Northeast Ohio, as well as Northern West Virginia and Western Pennsylvania. Visit <https://tristateaircompressor.com>.*



← Started in 1995 and based in Cliffwood Beach, NJ, Air & Gas Technologies provides New Jersey, New York and Connecticut with compressed air and breathing air products, parts and service. It sells rotary screw and reciprocating air compressors, compressed air dryers and filters, nitrogen generators and compressed air piping, serving manufacturing, healthcare, the military and emergency services, among others. Shown here are Dave Kamienski, Vice President, and Joe Torchia, President (left to right). Visit <https://airgastech.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 with a note describing the team and company to Troy Dreier at troy@airbestpractices.com.



↑ We caught up with Ian Horne, President of the Cooling Technology Institute, at the 2026 Cooling Technology Institute Annual Conference in Houston, TX. He was pleased to share the article from our January/February 2026 issue on his appointment. He's a Senior Water Technology Specialist for Airgas, an Air Liquide company, supporting water treatment operations and technical initiatives across North America. Visit <https://www.cti.org> and <https://www.airgas.com>.

↓ Huston Generators & Compressors is a division of Huston Electric, and has locations in Kokomo, Lafayette, Westfield, Franklin and Bloomington, IN. Our Publisher stopped by for a meeting and heard how the division specializes in tailored compressed air, blower, and vacuum systems, with an emphasis on efficiency and reliability. It also offers preventive maintenance and 24/7 emergency services. Pictured here are Kelli Huston, Mark Huston and John Miller (left to right). Visit <https://hustonelectric.com/specialty-divisions/generators-and-compressors/>



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NEWS Compressed Air Industry & Technology

CAGI Launches Certified Compressed Air System Assessor Program to Strengthen Professional Competency

The Compressed Air & Gas Institute (CAGI) launched the Certified Compressed Air System Assessor (CCASA) program, a new industry credential designed to strengthen professional competency and improve the performance and energy efficiency of compressed air systems in industrial facilities.

Developed by CAGI's System Assessment Section, the CCASA certification establishes a recognized standard for individuals who evaluate, analyze and optimize compressed air systems, one of the most critical and energy-intensive utilities in manufacturing and process industries.

"Compressed air systems are essential to industrial operations, yet they often operate inefficiently," said Neil Mehlretter, System Assessment Section Chair, CAGI. "The CCASA program ensures assessors have the technical

expertise to deliver high-quality evaluations that improve reliability, reduce energy consumption and support better system decisions. Organizations working with CCASA-certified professionals can be confident their systems are being assessed using consistent, industry-recognized best practices."

To qualify for the CCASA exam, individuals must first pass CAGI's Compressed Air Systems Specialist (CCASS) exam, which verifies foundational knowledge of compressed air system components, operation and best practices. The CCASA exam then evaluates advanced proficiency in areas

including system measurement, diagnostics and data analysis; supply- and demand-side optimization and system design, maintenance and performance improvement strategies.



Industry professionals can now register for CAGI's Certified Compressed Air System Assessor exam.

Compressed air systems can account for up to 30% of a facility's electricity usage. By establishing a standardized, credible pathway for assessor qualification, CAGI aims to help organizations reduce waste, improve uptime and achieve measurable energy savings.

Compressed air professionals and energy auditors can now register to take the CCASA exam. For more information, visit <https://www.cagi.org>.

John Bouchard & Sons Named Authorized Distributor of Hanwha Centrifugal Air and Gas Compressors

John Bouchard & Sons (JBS) announced its appointment as an authorized distributor for Hanwha Power, a global leader in high-efficiency, oil-free centrifugal air and gas compression technology. This strategic partnership strengthens JBS's long-standing compressed air product offering and reinforces its commitment to delivering world-class solutions to industrial engineers, facility managers and plant maintenance professionals across the region.

JBS has been an industrial air compressor distributor since 1991, providing more than three decades of experience supplying, integrating and servicing industrial air and gas compression systems. Over that time, the company has developed deep technical expertise in centrifugal air compressor technology, including installation, commissioning, troubleshooting,

rebuilt and long-term service programs for high-volume compressed air applications.

The addition of Hanwha's centrifugal air and gas compressor lineup builds on this legacy, giving customers access to one of the world's most advanced, energy-efficient and oil-free centrifugal air compressor platforms, supported by a distributor with an established regional presence and a long history of customer-focused service.

As an authorized Hanwha distributor, JBS will support customers throughout Kentucky, Middle and East Tennessee, Southern Indiana and Southwest Virginia. Sales, service, technical support and field response will be delivered through the company's offices in Nashville, TN; Knoxville, TN; Elizabethtown, KY, and Evansville, IN, ensuring fast, local coverage and continuity of service for facilities of all sizes.

"The Hanwha relationship not only expands our product offering – it aligns perfectly with what our industrial customers have been asking for," said William Morgan, President, JBS. "We've been in the compressor business for more than 30 years, and Hanwha's centrifugal platform gives engineers and maintenance teams a best-in-class, oil-free solution for today's high-demand applications."

"We are extremely pleased to add John Bouchard & Sons as an authorized distributor for Hanwha Power America. Their history, longevity and dynamic sales force will be a very potent force multiplier to drive new equipment sales and service support throughout the region," said Mike Sicker, President, Hanwha Power America. "We look forward to growing our partnership in the years to come." For more information, visit <https://jbouchard.com>.



Carver Morgan of JBS, Shane Jennings of Hanwha Power, and Randy Scott and Bill Rose of JBS (left to right).

California Compressed Air Distributor Associated Compressor & Equipment Celebrates Partnership with Kaishan

Kaishan USA announced its recognition of distributor partner Associated Compressor & Equipment as the companies celebrate the four-year anniversary of their partnership and continued expansion across California.

As the largest independent air compressor distributor in California, Associated Compressor has built a reputation on performance, responsiveness and technical expertise. With three fully staffed locations serving Northern (Livermore), Central (Fresno) and Southern (Yorba Linda) California, the company continues to strengthen its presence across one of the most demanding industrial markets in the country.

While the anniversary marks a recent chapter of accelerated growth, Associated Compressor's roots run much deeper. Following the acquisition of Associated Compressor in August 2015 and West Coast Compressor in October 2023, owners Steve Strah and Jeff Banbury have expanded the company's reach while building on nearly six decades of established tradition, delivering compressed air solutions, service and support to manufacturers and critical industries across California.

"The commitment Associated Compressor shows to their customers is extremely impressive, but their culture is what truly sets them apart," said Brandon Dial, Director of Sales, Kaishan USA. "They've built an environment where people are genuinely invested in each other's success, which ultimately translates to better results for the manufacturers they represent. Kaishan USA is proud to stand alongside a partner that values people and integrity as much as we do."

"We've seen tremendous progress over the past four years, and Kaishan USA has been a key part of that journey," said Jeff Banbury, General Manager, Associated Compressor. "Their focus on engineering and long-term performance aligns with how we approach our customers. We're proud of what we've built together – and we're just getting started."

The partnership continues to expand as both organizations focus on delivering reliable, efficient compressed air systems backed by local expertise and national support. For more information, visit <https://kaishanusa.com> and <https://www.associatedcompressor.com>.

Henderson Engineering Mourns Passing of Company President

It is with great sadness Henderson Engineering announced the passing of its company's President, Terry Henderson.

The company rejoices and celebrates the life of Terry Henderson. Henderson was a deeply religious man who truly walked in faith. His influence in the industry has been felt worldwide. With over 60 years of service and dedication at Henderson Engineering, he worked his way through the factory into engineering and was the chief designer of multiple compressed air dryer designs, the most famous being the energy-efficient heat-of-compression design originally patented by Joe and Terry Henderson in the 1970s.



Joe Henderson, Chuck Henderson, Terry Henderson and Sean Doherty (left to right) at Henderson Engineering's 80th birthday celebration held for Terry Henderson in April 2025.

As President of Henderson Engineering for over 40 years, Henderson was instrumental in the success and expansion of the company. His loss is felt deeply by family, friends and colleagues. His legacy of compassion will be remembered forever.

Chuck Henderson has assumed the position of President and CEO, and prays the guiding principles of honesty and integrity that have been the foundation of the business will continue for generations to come. For more information, visit <https://sarahhenderson.com>.



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NEWS Compressed Air Industry & Technology

Atlas Copco Group Awards 2026 Recognize Innovation, Marketing and Operational Excellence

Atlas Copco Group's Giulio Mazzalupi Operational Excellence Award recognizes significant contributions to improving and executing processes aimed at delivering products or services to customers in the most satisfying, sustainable, cost-effective and timely manner. The award went to Victor Adriaens, Rob Hoogmartens, Stijn Bosmans and Kris Panis in the Compressor Technique Business Area. The team pioneered sand printing as casting technology for the production of oil-free elements in air compressors, leading to highly improved process efficiency and quality as well as decreased material waste and energy consumption.

The John Munck Award recognizes the best innovative technical development contribution.

The award went to Richard Salloum, Dorothy Noh, Jacob Lee, Scott Rhim and Siva Kailasam within the Vacuum Technique Business Area. The team developed a visionary extreme ultraviolet vacuum solution, which delivers enhanced pumping performance with reduced power consumption, lowered nitrogen use, a smaller footprint and improved serviceability in a seamless integration with the world's most advanced lithography systems.

The Peter Wallenberg Marketing and Sales Award recognizes excellent salesmanship as well as the development and field implementation of more advanced and customer-adapted marketing and sales methods. The award went to Abimael Alves, Pedro Roxo, Vanderson Lopes and Ricardo Matias

within the Power Technique Business Area. The team redefined offshore nitrogen from a high-risk, low-reliability supply of tanked liquid to an onsite-generated, dependable, cost-predictable and more energy-efficient alternative.

"It is notable and encouraging to see this year's awards all revolve around innovations that provide our customers with updated, upgraded and resource-efficient solutions and products," said Vagner Rego, President and CEO, Atlas Copco Group. "Looking at the breadth of these achievements, I feel a deep sense of pride. These teams have jointly shown excellent results in developing technology that transforms the future." For more information, visit <https://www.atlascopcogroup.com>.

Donaldson Introduces Heatless Desiccant Dryer for North America

Donaldson Company introduced the Ultrapac™ HL Heatless Desiccant Dryer to the North American market. The compressed air dryer, manufactured in the United States, is designed to deliver high-purity compressed air with dew points as low as -40°F (-40°C) and down to -95°F (-71°C) on select configurations. With airflow capacities ranging from 150 to 850 m³/h (90 to 500 scfm), the dryer can be configured to meet a wide range of system sizes and performance needs.



Donaldson's Ultrapac™ HL Heatless Desiccant Dryer

The desiccant compressed air dryer's heatless regeneration design eliminates the need for external heaters. Dewpoint is used as the trigger to initiate the regeneration process, delivering optimal drying performance while maximizing energy efficiency and cost savings. This technology helps manufacturers protect downstream equipment, maintain process integrity and improve overall system reliability.

"The compressed air dryer is designed to support ISO 8753-1 air quality requirements," said Marc Straub, Technical Product Specialist, Donaldson. "This launch reinforces our ability to support customers locally while leveraging Donaldson's global engineering knowledge." For more information, visit <https://www.donaldson.com>.

Generon Awarded U.S. Patent for NG Modular Bank PSA Series

Generon was awarded U.S. Patent No. 12,551,838 for its state-of-the-art pressure swing adsorption nitrogen generation system, the NG Modular Bank PSA Series.

Designed with flexibility and scalability in mind, the NG Series features 10 base models engineered specifically for indoor operation. Its compact, modular design allows for seamless expansion to meet increasing gas purity and flow rate requirements simply by adding additional tower banks. This patented technology features the company's Opti Block design. Opti Block engineering reduces piping, increasing efficiency and reducing the cost of operational ownership.

The NG Series delivers exceptional performance and adaptability, offering nitrogen purities from 95% to 99.999%, flow rates from 61 scfh to 7,389 scfh, high-quality operation across diverse applications and an Opti Block design for 4% reduction of compressed air required.

Generon believes in empowering its customers with autonomy and operational independence. On-premises nitrogen generation provides full control over pressure, purity and system placement, all with minimal maintenance requirements. Once installed, the company's systems are engineered to operate continuously with exceptional reliability and impeccable lifespan.

With more than 150 patents and over 40 years of manufacturing expertise, the company remains at the forefront of nitrogen generation and specialty gas separation technology. Proudly made in America and family-owned, the company is committed to innovation, quality and long-term partnership. For more information, visit <https://www.generon.com>.



Generon's NG Modular Bank PSA Series

Best Practices 2026 EXPO & Conference Offers CAGI's Certified Compressed Air System Specialist Exam

Compressed air professionals will have the opportunity to take the Compressed Air & Gas Institute's Certified Compressed Air System Specialist (CCASS) Exam at the Best Practices 2026 EXPO & Conference in Indianapolis, IN, Oct. 13-15. The exam will be offered at a discounted rate of \$275 and participants will receive a discount code for \$275 off a conference or expo hall pass.

CAGI's personnel certification program for compressed air system specialists provides a means of verifying the capabilities of professionals in the compressed air systems industry. The program allows customers, utilities and employers to have confidence in the skills and abilities of industry professionals who design, service, sell and install compressed air systems and equipment. The program complies with the ISO 17024 standard, Conformity Assessment – General Requirements for Bodies Operating Certification of Persons.

Participants will have a variety of time slots to choose from over the course of the event. The exam takes approximately 90 minutes to complete.

Best Practices EXPO & Conference is proud to recognize the attendees who have passed the exam at the event since 2021 and have become Certified Compressed Air System Specialists.

Ingersoll Rand Named to CDP's A List

Ingersoll Rand continues to be a leader in sustainability with a new recognition from CDP. The company has been recognized with an A List rating by CDP for its effective climate change actions and environmental leadership. The company stands out among more than 22,000 evaluated for its greenhouse gas reduction, sustainable product design and climate management strategies.

"Ingersoll Rand consistently demonstrates our purpose of making life better for the planet and we have continued to receive recognition each year as an industry leader," said Vicente Reynal, Chairman and CEO, Ingersoll Rand. "We have ambitious sustainability goals, and we are committed to raising the bar in our sustainability strategy through innovative offerings that deliver immediate customer value while improving safety, efficiency and circularity." For more information, visit <https://www.irco.com>.

Certified Compressed Air System Specialists

- Nathan Haley, Regional Sales Manager, AIRpipe USA
- David Robertson, Senior Account Executive, Arizona Pneumatic/Nevada Pneumatic
- Nish Banuri, C.E.M., Project/Applications Engineer, CASCO USA
- Ron Davis, Senior Applications Engineer, CASCO USA
- Chase Miller, Sales Engineer, CASCO USA
- Paul Miller, Sales Engineer, CASCO USA
- Philip Shaver, Engineering Manager, CASCO USA
- Joseph Auker, Compressed Air Systems Specialist, C.H. Reed
- Terry Tan, Director, COM AIR WORKS
- Ryan Connor, P.Eng, Industrial Systems Engineer, Efficiency Manitoba
- Lijah Doell, EIT, Industrial Systems Engineer, Efficiency Manitoba
- Jeremy Wall, Industrial Systems Engineer, Efficiency Manitoba
- Jeff Breckinridge, Sales Representative, Evergreen Compressed Air and Vacuum
- Trey Thomas, Sales Manager, Flow Solutions
- Tom Magee, Senior Process Utilities Engineer 1, Genesis AEC
- John R. Lasswell, P.E., Engineering Consultant, Hargrove Engineers & Constructors
- Maxwell Klein, Engineering Technical Lead, iENG Design
- Chris Jones, Compressed Air and Vacuum Product Manager, John Henry Foster
- Michael Merrion, President, Remco Equipment Company
- Abdulaziz Dulaijan, Engineering Specialist, Saudi Aramco
- Manuel Elizalde, Director General, Tunna Industrial
- Faaran Bangash, Energy Engineer, University of Illinois Chicago Energy Resources Center

To learn more about CAGI's CCASS Exam and how to register, visit <https://cabpexpo.com/us/conference/us-cagi-ccass-certification>.



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NEWS Chiller & Cooling Industry & Technology

Trane Technologies Unveils the Trane Advanced Technology Training Center for Its HVAC Technician Workforce

Trane Technologies celebrated the launch of its Trane Advanced Technology Training Center (ATTC), a state-of-the-art facility designed to shape the future of its commercial HVAC technician workforce. The 45,000-square-foot facility is located at the company's North America headquarters in Davidson, NC.

With capacity for up to 4,500 students per year and over 100,000 annual training hours, the ATTC provides immersive, hands-on experiences equipping technicians with the necessary skills to commission, maintain, repair and optimize increasingly complex climate control systems.



The Trane Advanced Technology Training Center in Davidson, NC

These systems are essential to ensuring optimal performance, delivering industry-leading levels of uptime and reliability and protecting customers' investments in sustainable buildings and mission-critical environments.

The launch of the ATTC builds on several years of strategic investments at Trane Technologies' North America headquarters. In 2024 and 2025, the company invested more than \$50 million in the ATTC as well as a state-of-the-art engineering and R&D lab for refrigerant compressor development testing and full-scale chiller performance evaluation across a wide range of operating conditions.

The company employs thousands of skilled technicians across the U.S. and around the world. It continues to expand its bench of technical talent and expects to hire more than 1,000 additional technicians over the next 18 months as demand for advanced HVAC systems continues to grow.

"The launch of the ATTC represents an important investment in the future of our industry," said Holly Paeper, President, Commercial HVAC Americas, Trane Technologies. "As building systems become more connected, efficient and sophisticated, the expertise required to service them continues to grow. This center empowers Trane's technician network – the largest and most experienced in the world – to support these next-generation systems with confidence." For more information, visit <https://www.tranetechnologies.com>.

SPX Cooling Tech Unveils the Marley® OlympusMAX™ Fluid Cooler for Mission-critical Facilities

SPX Cooling Tech launched the Marley® OlympusMAX™ Fluid Cooler, engineered to deliver unmatched performance, efficiency and design flexibility. It was designed to meet the evolving demands of industrial plants and high-density cooling applications.

The OlympusMAX Fluid Cooler is available in both adiabatic and dry configurations. The bolt-on adiabatic module can be factory or field installed – or even installed after the equipment is operational in order to provide maximum flexibility in response to changing conditions and site demands.

At the heart of the OlympusMAX adiabatic module is a patent-pending recirculating adiabatic design significantly reducing blowdown and minimizing unnecessary water discharge while improving system efficiency. Unlike traditional once-through or spray systems, the unit's recirculation technology delivers more uniform water flow across the pad, improving saturation efficiency, extending pad life and reducing mineral accumulation on critical

components. The result is more predictable energy and water consumption.

Engineered for uptime, the OlympusMAX features high-efficiency Marley Geareducer® gear drives, robust construction materials and integrated component redundancy, including mission-critical fan and VFD systems. With unit options ranging from 120 to 240 horsepower (hp), the design maximizes cooling capacity per square foot.

Installation and serviceability were key priorities in the system's development. Each unit ships with a factory-assembled electrical access platform, single-point wiring connection, VFDs and PLC controls pre-installed and full-size access doors with internal walkways.

"OlympusMAX reflects our commitment to advancing cooling technology to support

the evolving demands of mission-critical facilities," said Dustan Atkinson, Director of Product Management, SPX Cooling Tech. "By offering scalable dry and adiabatic performance, engineered flexibility and streamlined installation, we're helping facilities meet increasingly challenging demands while maintaining efficiency and long-term reliability." For more information, visit <https://spxcooling.com>.



Marley® OlympusMAX™ Fluid Cooler

Carrier Abound Crosses Milestone in Accelerating Customers' Decarbonization Journeys – Saving 7 Billion kWh

Carrier Abound, part of Carrier Global Corporation, announced it surpassed 7 billion kilowatt hours (kWh) of cumulative energy savings delivered for its customers worldwide. This is a milestone in Carrier's broader goal of helping customers reduce greenhouse gas emissions and improve the sustainability of the built environment. This progress is enabled through Carrier Abound's use of artificial intelligence and the internet of things, combined with expert remote support from a global network of Carrier Customer Command Centers.

Buildings account for approximately 30% of global energy demand. As businesses face rising energy costs, aging infrastructure and pressure to meet sustainability goals, Carrier Abound's AI and IoT-enabled solutions help customers move from reactive operations to intelligent, data-driven building ecosystems.

The savings are equivalent to an estimated avoidance of approximately 4.7 million metric tons of CO₂, underscoring how digital transformation of operations can support both business performance and sustainability goals. As regulatory requirements and sustainability commitments evolve, AI-enabled solutions emerge as a cost effective pathway for organizations to support sustainability goals.

When applied across distributed building portfolios, these capabilities deliver measurable operational and sustainability outcomes. Customers have received up to 24% energy savings over baseline performance,

maintained up to 94% temperature compliance with policy setpoints across their sites and experienced up to 82% of work orders being resolved remotely, reducing the need for on-site maintenance.

"Surpassing 7 billion kWh in energy savings demonstrates the scale of impact possible when technology, operational expertise and a relentless focus on solving customer challenges come together," said Niraj Desai, Managing Director, Carrier Abound. "It's a great example of AI-enabled building intelligence applied at scale." For more information, visit <https://abound.carrier.com>.



Carrier's global headquarters in Palm Beach Gardens, FL

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NEWS / Industrial Energy & Water Conservation

DuPont Publishes 2026 Sustainability Report, Shares 76% Reduction in Scope 1 and 2 Emissions

DuPont, an American multinational chemical manufacturer, published its 2026 sustainability report, detailing significant progress in 2025

toward its climate and sustainability ambitions and introducing nine goals with deliverables through 2035.

DuPont also expanded its sustainability commitment with the introduction of its 2035 goals focused on sustainable innovation, resilient operations and people, partners and communities. The goals set clear priorities across the company's organization, operations and value chain, and are designed to strengthen competitiveness, align with customer and market expectations and support long term value creation.

"The progress outlined in our 2026 sustainability report reflects the dedication of our teams and underscores how sustainability is embedded in DuPont's strategy that drives growth, consistent execution and long term value creation," said Scott Collick, Chief Sustainability Officer, DuPont. "The report highlights the advancements we have made in the past year to strengthen our portfolio, drive operational efficiency and deliver sustainable innovation alongside our customers. We're encouraged by the momentum we're building, and the role sustainability plays in supporting durable, profitable growth." For more information, visit <https://www.dupont.com>.



DuPont's corporate headquarters in Wilmington, DE

Throughout 2025, DuPont collaborated with customers to introduce sustainably advantaged products, made substantial progress on improving energy efficiency at its sites, reduced its climate impacts and extended sustainability expectations into its supply chain.

The company achieved a 76% reduction in Scope 1 and 2 greenhouse gas emissions from a 2019 baseline and a 66% reduction in Scope 3 emissions from a 2020 baseline. It is on track to reach net-zero emissions by 2050. Approximately 50% of electricity used across operations is renewably sourced, including 100% of manufacturing operations in Europe.

AESC Earns CDP Climate Change A- Rating, Highest Among Global Battery Manufacturers in 2025

AESC, a global leader in electric vehicle and energy storage battery technology, received an A- rating for climate change from CDP, the highest score achieved by any global lithium battery manufacturer in the 2025 reporting cycle.

CDP runs one of the world's leading environmental disclosure systems for companies. Its assessments are widely referenced by investors, regulators and customers in evaluating ESG performance and supply chain standards. Of the more than 22,100 companies assessed in CDP's 2025 Climate Change reporting cycle, only 10% achieved an A- rating or higher. AESC's A- rating reflects the company's robust and transparent carbon management framework, as well as its continued progress in battery decarbonization.

In renewable energy and decarbonization, AESC has achieved several industry milestones. In 2022, it became the world's first battery manufacturer to achieve carbon neutrality across its global operations (Scope 1 and 2), verified by the Carbon Trust, and launched the industry's first carbon-neutral EV battery in 2022 and carbon-neutral energy storage battery in 2023. Across its global manufacturing network, AESC continues to optimize operations to reduce energy use and lower carbon emissions through a wide range of on-site energy-saving upgrades, including temperature and humidity control upgrades, smart sensor installations on production lines and leftover heat and water reuse to cut energy waste. At the same time, the company works closely with key suppliers to advance emissions reduction across the value chain.

Through these efforts, AESC has developed a practical and scalable decarbonization pathway for the global lithium battery industry. The CDP A- rating further strengthens AESC's position as a sustainability leader as it works with customers and partners worldwide to support a more sustainable battery ecosystem. For more information, visit <https://aesc-group.com>.



AESC optimizes manufacturing operations to reduce energy use and lower carbon emissions.

General Mills Reports Its Impact in 2026 Global Responsibility Report

General Mills, an American multinational manufacturer of branded consumer foods, released its 2026 Global Responsibility Report, detailing progress the company made during its 2025 fiscal year, May 27, 2024, through May 25, 2025. The report marks the company's 56th year of reporting on its environmental and social impact and reinforces its commitment to transparency.



General Mills' world headquarters in Golden Valley, MN

As a global food company, General Mills places consumers at the heart of its purpose to make food the world loves, with over 100 brands across 100 countries. The company provides a variety of nourishing foods meeting a wide variety of consumer preferences and needs, all made with the highest standards of safety and quality.

General Mills depends on the health and well-being of the planet and invests in landscapes and collaborations aimed at building resilience for nature, communities and its business. In 2025, the company advanced progress on its planetary commitments and achieved zero-waste-to-landfill at its owned manufacturing facilities globally, further reducing environmental impact. Through 2025, it reduced total value chain emissions by 14% and saw a 55% reduction in Scope 1 and 2 emissions compared to its 2020 baseline.

"For 160 years, we've been making food the world loves, while standing for good," said Jeff Harmening, Chairman and CEO, General Mills. "We are proudly leading the way in strengthening communities and investing to support a healthy planet. I'm energized by our accomplishments and steadfastly committed to creating a lasting, positive future for us all." For more information, visit <https://www.generalmills.com>.

Boehringer Ingelheim's Athens Site Achieves Carbon Neutral Operations

Boehringer Ingelheim, a biopharmaceutical company active in both human and animal health, announced its Animal Health manufacturing and research and development site located in Athens, GA, along with its adjacent facility, has received Carbon Neutral Certification (Scope 1 and Scope 2).

This milestone marks significant progress toward the company's commitment of achieving carbon neutrality in its operations by 2030. With this certification, the Athens site joins other U.S. locations in Georgia, Missouri and Connecticut, as well as global sites, including Spain, Brazil and China, contributing to a worldwide total of 19 certified sites in 2025. This achievement underscores the company's commitment to environmental sustainability.

To achieve this certification, Boehringer Ingelheim followed the carbon management hierarchy: avoid, reduce, replace and only offset currently unavoidable emissions. In 2024, Boehringer's Athens site operations advanced its decarbonization through energy-efficiency upgrades, 100% renewable electricity sourcing and offsetting unavoidable emissions through credible projects. In total, the site reduced and offset more than 20,000 metric tons of greenhouse gas emissions.

"Achieving carbon neutrality in our owned manufacturing operations marks a significant milestone in Boehringer Ingelheim's decarbonization strategy," said Andy Brehm, Executive Director, U.S. Site Operations – Athens at Boehringer Ingelheim. "This achievement reflects our ongoing efforts to reduce our environmental impact and build a stronger, more resilient business for the future." For more information, visit <https://www.boehringer-ingelheim.com>.



Boehringer Ingelheim Animal Health facility in Athens, GA (Photo credit: Cory Klein of Cory Klein Photography & CKP Studio ©2024)

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The CABP Interview: Ring Power Director of Power Systems Brian Cholmondeley and Vice President Roger Adkins

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



Roderick Smith, Publisher of Compressed Air Best Practices® Magazine, sits down with Brian Cholmondeley and Roger Adkins to talk about leadership, the competitive drive and training employees to succeed.

► Ring Power of St. Augustine, FL, is a Sullair distributor with sales, rental, parts and service locations throughout the state. It's also the Caterpillar (CAT) dealer for North and Central Florida. Its association with CAT dates back to 1962. Today, the company counts 18 branch locations in Florida, as well as facilities in the Carolinas, Georgia and Texas.

In April 2026, Roderick Smith, Publisher, *Compressed Air Best Practices® Magazine*, sat down with Brian Cholmondeley, Senior Vice President – Director of Power Systems, and Roger Adkins, Vice President – Air Compressor Business Manager, to discuss their company's history, their own competitive drives and how Ring Power trains new hires and prepares them for success. This continues our series of conversations with leaders of the compressed air industry.

Smith: Could you give us a history of Ring Power, explaining the company's special position in Florida?

Above: Ring Power's headquarters in St. Augustine, FL

Cholmondeley: Ring Power was founded in 1962, but it was unique how we got into the Caterpillar business.



Brian Cholmondeley, Senior Vice President – Director of Power Systems

L. C. "Ring" Ringhaver owned Desco Marine, a shipyard in St. Augustine, Florida. Desco Marine was one of the most prolific builders of



Roger Adkins, Vice President – Air Compressor Business Manager

wooden and fiberglass shrimp trawlers. At one time, they were the world's largest shrimp boat manufacturer, delivering up to eight boats per month. He had an affinity for Caterpillar engines and started installing them in his trawlers. Caterpillar approached Ring to see if he wanted to become the CAT Marine dealer for Northeast Florida. He thought it was a great idea, as he could buy engines directly for the shrimp boats and sell engines, parts and service to customers in Northeast Florida.

That's how the Caterpillar affiliation began. He was doing so well, they came back a year-and-a-half later and asked if he'd like to become the authorized Caterpillar equipment dealer for Northeast Florida. Later, he bought the central territory from another distributor, doubling our territory and becoming the North and Central Florida dealer for Caterpillar.

Today, Ring Power is owned and operated by Randy Ringhaver, Chairman, and David Alban, President. We cover 44 counties in North and Central Florida. We have approximately 2,800 employees. We're not just a CAT dealer. Over the years, we've diversified into a lot of other business units.

Our Power Systems division is unique. I'm responsible for new engine sales, rental and used generators and our Air Compressor Group. In addition, I'm responsible for Phoenix Products, which manufactures custom generator enclosures and fuel tanks.

Smith: Besides Power Systems, what are the other divisions at Ring Power?

Cholmondeley: They include Heavy Equipment, the CAT Rental Store, Utility Truck and Crane, Lift Truck, Sitech and Surface Mining. There are so many different things we offer, until you come here and walk around, you don't realize what our capabilities are. We love getting customers to come here because they say, "Oh, I didn't know you had a machine shop. I didn't know you had a paint shop. I didn't know you guys rebuilt cylinders. I didn't know you had a hydraulic shop."

Smith: How did the Air Compressor Group get started, and where is it today?

Adkins: Air compressors were provided under the Power System Used and Rental departments. We



This customer has a variable-speed, oil-flooded, rotary screw air compressor located inside its facility to protect it from the Florida humidity, and an 800 cfm, non-cycling, refrigerated compressed air dryer under an enclosure.



These portable diesel air compressors are used in a cement plant.

did generator set rentals, air compressor rentals and temperature control out of one area. Back in the late 1980s, I was an outside rep renting air compressors and generators, and then I started selling air compressors. My boss said, "Hey, great job on the air compressor business. We think we're letting our generator business suffer. Which one do you want to do?" I chose air compressors. This is back in 1990, and I've been involved with air compressors ever since.

We're up to 11 air compressor sales representatives now. We have 53 air compressor

technicians. We have an air auditing group and a preventive maintenance group, and we also perform leak detection. We offer sales, rentals, parts and service for Sullair construction and industrial products and Atlas Copco portable air compressors.

Our group is growing through innovation. We developed a prototype portable rental industrial air compressor three years ago, the E1035. We partnered with Sullair's engineering and new business development group, and Sullair brought it to market.

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Because of that prototype, it has developed an E425H air compressor, and we're working together on a 1675 and 1835 cfm rental package.

Cholmondeley: When you think about that package and the insight and the vision of Roger and the team, bringing this to Sullair, it's incredible. It speaks to the vision and knowledge Roger and his team have. What he does with the Air Compressor Group is second-to-none.

Smith: What are your current roles, and how long have you been in those roles?

Cholmondeley: I'll have been at Ring Power for 32 years in June. I'm currently the Senior Vice President – Director of Power Systems, and I've been in that role since April 2017. I've had a variety of different roles in my career here. I started as a management trainee and became the heavy equipment rental coordinator. I was a heavy equipment sales rep for 14 years in the field and then became the Assistant Governmental Sales Manager. From there, I moved over to become a Sales Manager for the CAT Rental Store and was later promoted to the General Manager of the CAT Rental Store. In 2017, I was asked to take the role of Director of Power Systems.

Adkins: My current role is Vice President – Air Compressor Business Manager, and my responsibility is rentals, new and used sales, parts and service. I started at Ring Power in 1986 as summer help. I had just graduated from high school. My father worked here, and there was an opportunity to work through the summer. I did that for eight or nine months. The great thing about Ring Power is the opportunity for growth. I graduated from painting walls to working in our heavy equipment warehouse, becoming a heavy equipment rental coordinator, being an administrative assistant of engine sales, and helping start Ring Rent, which is now known as CAT Rentals. I moved back to power systems in the early 1990s as a sales representative, then took over the Air Compressor Group. I've been involved with air compressors ever since.

Hiring the Best Talent and Looking for the Drive to Succeed.

Smith: Both of you have developed incredible careers within the company. What did the company see in you, and what do you look for in employees?

Cholmondeley: I think what I brought was just wanting to work. I wanted an opportunity.



A company manufacturing tile and flooring installation systems relies on this oil-flooded rotary screw air compressor and heatless desiccant compressed air dryer.

In my wildest dreams, I never thought I'd be working at a Caterpillar dealership. The equipment names, the model numbers – I didn't get any of it. Over time, it became a second language. Ring Power will give you an opportunity if you want it and if you are willing to work for it. We have some of the smartest men and women working in this company, who are willing to train, teach and educate. Do the little things right, and the big things will fall into place.

Ring Power's ownership and management are ready to take a chance. They're willing to take a risk. If you come in and you prove yourself and you're disciplined enough, we will give you a chance and an opportunity. You just have to have a mindset that you can do it, and you have to have managers willing to say, "I believe you, and I'm going to give you a shot."

Smith: What are the attributes you look for as you coach and mentor younger people?

Adkins: When I interview, I really want to make sure I get the right person. Even if a resume looks great, I will take the time to have a conversation and get to know the candidates. We're always looking for candidates who are confident, invest in themselves and are likeable. I've got people I've worked with for 25 years. We keep growing our territory and adding representatives.

I say, "Here's what it's going to take. When you're in the field, you're going to have to get after the competition. They're out in the field, they're working hard. These are the things you're going to need to do to be successful: time management, territory management." We set our team up for success.

Our company has been successful in retaining employees and giving them the opportunity to advance and have a successful long-term career. The company means something to them. When we bring new employees in, we try to convey that. We want them to know this company cares about me, cares about my safety, cares about making me the best in what I do." Because we want to be the best. I think it's what we've received as leaders, and what we provide. Employees have every opportunity to learn and win.

Smith: Who influenced you both as a leader, and how did they influence you?

Cholmondeley: From my first day, Randy Ringhaver has had faith in me and given me a shot. He's one in a million. I speak fondly of him because of how he gave the 21-year-old me a chance. The opportunities he's allowed me to jump into and perform mean a lot to me on a personal level.

This company gives you the tools to go out there and take risks, take a chance. You earn it through the deals you've done and the people you've led. They give you opportunities. I try to do that with my teams, giving them a chance when they feel passionate about a project.

Adkins: Back in the day, we had a Senior Vice President named Jim Rockenbach. He instilled in me a desire to win. When I first met him, he said, "You look like you're in pretty good shape. Do you think you could beat me in a pushup contest?" I said, "I can absolutely beat you." And he beat me. I eventually beat him and we ended the competition. He instilled good leadership qualities in me, like listening to people.

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>> The CABP Interview: Ring Power Director of Power Systems Brian Cholmondeley and Vice President Roger Adkins



In-house technical training is provided to all Ring Power technicians on compressed air systems, ranging from foundational courses like Compressed Air Basics to advanced instruction on microprocessor controls and variable speed drives.

Now, I'm preparing new leadership in the compressed air group. We've just put a Sales Manager in place. He's an incredible person. He's a former Marine and has been to the Middle East. I said, "You'll never see anything in the air compressor world to match what you've seen in the real world." He's a superstar. I have also added an Assistant Air Compressor Business Manager. I want to train, inspire and provide leadership opportunities, so when I retire, the company doesn't miss a beat. I would never want to do anything to hurt the company.

Nurturing the Desire to Win in New Employees

Smith: Let's talk about the desire to win. How do you develop it? Is it innate? Is it something you coach?

Cholmondeley: I think the desire to win can come from a lot of different places. My mom got divorced when I was really young, and we were poor. I was raised by a single mom working three jobs, with three kids, not knowing what was going to be on the dinner table that night or in a lunchbox the next day. That put a drive in me; I don't ever want to go through that again. It's something inherent in me because of my life experience.

inventory? Is it training? There's no reason for us not to be winning – winning big and winning often – because of who we work for, what we have, the pride that we carry.

Smith: How do you find those people, or do you teach them?

Cholmondeley: Some of them you can teach. You can say, "This is what I would do" or "If I were in your shoes, I'd try this." For some, it's in them for whatever reason. You can teach a lot of stuff, but that discipline and desire to win, it has to be in you. You have to want to win. You have to want to work. You have to want to be disciplined. It's a challenge sometimes, but we're going to give every reason under the sun of why we're going to win and how we're going to win.

I've got employees who maybe weren't good in a certain role, and they were drowning. We've taken them out of those roles and put them in different roles. Maybe they don't manage people anymore, or they don't call on customers, but they flourish. We need to find the right opportunity and put them in the right seat to do great work.

Smith: Are some people quicker studies, and more willing to take coaching?

Ownership gives us every tool in the tool belt so we can go out there and win. As a manager, I ask what my team needs to win. Let me work through the minutia, the stuff that can bog people down. Let me handle that stuff. At the end of the day, what is it my teams need to win? Is it



A major utility runs this oil-free portable air compressor and the two older oil-free rotary screw air compressors behind it.

Adkins: If you go through the interview process at Ring Power and get hired, we don't just say, "Here's a book of how to do it. Here's the manual. Good luck." We don't operate like that. We have an extensive onboarding process that can last 45 – 90 days, depending on their background. We don't have them taking out engines or anything, but safely working in the shop, gaining knowledge of the products and service they'll be talking about.

New hires go through our sales training, self-evaluation and leadership training. All these different training aids are available to them online and in person through our in-house training department.

Motivating Air Compressor Sales Teams

Smith: What have you found are the best ways to motivate sales teams, specifically for your Air Compressor Group?

Adkins: If you get a competitive person on the front end, there's not a lot of motivation needed. We try to hire good people who are easy to develop and are competitive. Our people want to be the best.

We had a young woman who was our fleet manager, and I said, "You would make a great sales rep." She said, "I'm kind of nervous about being in front of the customer." So we hired a different person, who was a woman, and she was successful in that role. She ended up moving to another role, so then the first woman said, "If she can do it, I can do it."

If they're missing something, we'll figure out what that is. We'll work with them and make a change. Do you need additional training? Do you want to ride with another rep who's doing well? Maybe they're good at oil-flooded air compressors, but not good at oil-free. We have experts in each of those fields. Leadership gives us everything we need.

Smith: You've got a big fleet of service techs in the Air Compressor Group. Every distributor I speak with says that's the hardest thing to hire for and retain. How is Ring Power so successful in that area?

Adkins: A lot of companies will bring someone in with 10 years of experience. Sometimes when you bring those people in, they bring baggage with them. Not all the time, but

sometimes. What we've done at Ring Power, and it's a company-wide initiative, is create an apprentice program. It started as 18 months, now it's 36 months. Technicians work in various departments and go through the program. They can elect to stay with the group they're in, or they have the opportunity to move around. Growing someone fresh out of community college, fresh out of high school or trade school, for us, that's been the best move. We combine that with our mentor program, pairing apprentice technicians with seasoned technicians.

We'll hold pop-up events where we invite potential candidates to various branches. We do a lot of work with the vocational and community colleges, and sometimes we're able to pull folks

out of there, but I think the apprentice program works best for us. We're developing home-grown Ring Power technicians.

Cholmondeley: It seems like we're on a really good run right now, and that comes from leadership and culture. People want to come here. I'm not bragging, but I feel strongly about what we have to offer, and that helps generate talent.

Adkins: At our new facility, we're a level one authorized training center for Sullair. There are no others in the United States. Our primary focus is to be the best for our customers. **BP**

For more information, visit <https://www.ringpower.com>.

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Engineering Sales Associates Maintains Production with Preventive Maintenance

By Arthur Pue, President, Engineering Sales Associates

► Compressed air systems are one of the most chronically undervalued components of manufacturing operations. These systems are expected to run quietly in the background, constantly relied upon but rarely focused on, when, in fact, they are among the most important pieces of equipment in any industrial setting. Without proper preventive maintenance and repair practices, issues with compressed air systems – problems as small as clogged filters, cracked piping or inadequate cooling systems – can quickly progress from a minor inconvenience to a major complication, requiring unplanned system downtime and pauses in production, not to mention costly repairs.

Compressed air system issues often develop gradually and quietly, making them difficult to detect during normal operations until a deeper inspection is conducted. For instance, an intake filter that appears clean may still contain embedded particulates restricting airflow and gradually impacting system performance. A saturated oil separator may allow a small amount of oil carryover, which may seem insignificant initially but continues to affect system performance. Malfunctioning pressure transducers are a common problem with air compressors – typically signaled by overheating, unexpected machine shutdown

and failure to start up – and can cause an otherwise functional air compressor to go offline, forcing other units to work harder to manage the production load. Even something as small as a cracked oil cooler can leak slowly and steadily before thermal stress eventually exacerbates the damage.

Some commonly overlooked but important components include minimum pressure valves (MPVs) and condensate drains. These parts experience significant wear and tear and are not always prioritized in preventive maintenance plans. When MPVs fail, repairs can be costly and may require machine downtime. Issues with condensate drains can lead to water buildup within tanks, housings and piping.

Keeping an eye out for all of these potential issues is what makes preventive maintenance more than a task to be checked off a list; it is a strict discipline that requires looking beyond the obvious to identify and maintain the integrity of machinery and address developing risks before they impact production.

This reality becomes even more apparent in recent service work completed for J.C. Steele & Sons and a particular packaging manufacturer in North Carolina. In both instances, standard preventive maintenance practices helped discover problems before they escalated. Both companies had systems functioning properly under normal production requirements. They had not neglected

their systems. Yet, both companies had minor development issues that hadn't yet affected system performance but could have become larger problems over time. These case studies show how routine preventive maintenance helps prevent not only system breakdowns but also unintended consequences.

What Preventive Maintenance Really Means in Compressed Air Systems

In most manufacturing applications, preventive maintenance takes the form of a predictable process. For example, on rotary screw air compressors, maintenance tasks typically run as follows: Change oil, replace oil filter/separator, replace air filter, log the machine's hours and your air compressor is back up and running. These tasks are essential to maintaining air compressor efficiency and lifespan, but effective preventive maintenance also includes evaluating system performance and identifying early indicators of potential issues. The other vital part of preventive maintenance involves looking beyond routine maintenance of your system to identify potential issues before they become operational risks.

Compressed air systems are more than just simple pieces of machinery – they are entire ecosystems of their own, with each piece and part having an integral impact on one another. Techs have to take a step back and look at the big picture when evaluating a compressed air system. They must examine the system both

Above: A technician reviews the controller configuration of an oil-flooded, rotary screw air compressor, verifying system parameters and operational settings as part of a comprehensive service inspection.

when running and when shut down, searching for issues such as oil leaks, wear and any sounds that may indicate a problem. Looking at the system as a whole helps identify areas that may need to be addressed. While an intake restriction may seem to affect only the airflow rate within the air compressor, in truth, it influences much more: increasing vacuum load, elevating discharge temperature and placing stress on the oil circuit. The elevated discharge temperature affects oil viscosity, compromising lubrication within the air end of the air compressor. Eventually, bearing wear within the air compressor increases, as does oil carryover. Before long, what started as a simple air intake issue can shorten the lifespan of the most costly component of the entire compressed air system.

Upon entering the room where an air compressor is housed, ensure the machinery is the right size, the filtration is appropriate, the drains work properly and the oil/water separators are in good condition. By looking at the entire flow from initial compression to end-product use, areas for improvement can be identified.

The Most Expensive System Failures Begin Quietly

Intake Filtration: While the filter may look clean, as though it does not yet require replacement, small embedded particulates likely remain, restricting media flow and allowing contaminants and other particles to pass through the filtration system, increasing wear and tear on your air compressor and raising system temperature. Filtration issues are commonly detected through increased air temperature, flow restrictions and overall performance issues.

Oil Separators: The presence of a faint mist at discharge may be easy to dismiss initially, but this mist is actually the first sign of oil carryover from an air compressor's oil separator. Left unresolved, that small amount of mist soon becomes measurable loss, eventually leading to oil separators collapsing, sending contaminants downstream and resulting in emergency system shutdowns.

Cooling Systems: Hairline cracks or seal failures within oil cooling systems may appear minor at first glance, but can lead to major issues down the line. Leaks can rapidly cause heat to build up in your compressed air system, leading to the entire machine overheating.



A technician pressure washes the heat exchanger on an oil-flooded, rotary screw air compressor.



A technician performs an oil separator element changeout on an oil-flooded, rotary screw air compressor as part of a scheduled preventive maintenance service.

Control Systems: Even a simple failure can result in machine lockouts or mismanaged loading and unloading cycles, often shifting stress to other machines in the system.

While scheduled maintenance is important, preventive maintenance is most effective when it also includes careful inspection of system performance and trend analysis. Preventive maintenance requires trained technicians to investigate, identify patterns, recognize anomalies and correctly interpret the information a compressed air system provides.

One important consideration is the possibility of counterintuitive outcomes. For example, adding oil to an air compressor running hot without determining whether or not oil is truly the cause of the problem opens the potential for oil carryover, which can saturate separators and degrade downstream product quality. These types of reactive fixes can exacerbate the problem rather than improve it.

Environmental issues can also be the root cause of air compressor problems. Issues such as high humidity and temperature fluctuations

» Engineering Sales Associates Maintains Production with Preventive Maintenance



A technician takes an oil sample for lab analysis, a proactive diagnostic measure used to monitor lubricant condition, detect early-stage wear and extend air compressor service life.

can cause components to wear out faster, degrade system lubrication and trigger high-temperature shutdowns. Low temperatures can cause condensate to freeze in pipes and system components.

J.C. Steele & Sons: Prevention in a High-Demand System

Compressed air systems are rarely an optional luxury in manufacturing applications. The need for compressed air is integral to the manufacturer's overall success, so if air compressors aren't operating at peak efficiency, the facility as a whole is operating below ideal levels. For J.C. Steele & Sons, a readily available source of compressed air is required to maintain a reliable level of output for clients. The facility relies on several rotary screw air compressors, all operating in sequence, to meet high-demand production requirements. If one air compressor goes down, the outage impacts the entire

How Often Should an Industrial Air Compressor Be Serviced?

There is no cut-and-dried rule for how often an industrial air compressor needs to be serviced. Developing a routine maintenance plan is vital to the success of any manufacturing application, but the specific requirements of a given application depend on several variables, including:

- Hours of operation: An air compressor running 24/7 requires more frequent maintenance than one used only occasionally.
- Load profile: High demand on a compressed air system causes greater wear and tear on machines and their parts.
- Environment: External factors such as temperature, dust levels and humidity affect an air compressor's maintenance needs.
- Criticality to production: The more a process depends on an air compressor, the more frequently routine maintenance checks should be performed to keep it in tip-top shape.

General guidelines can help determine the right maintenance tasks and the frequency of service an application requires:

➤ Daily/Per Shift

- Listen for odd noises
- Observe pressure stability
- Observe cycling
- Monitor temperature
- Check oil level
- Check condensate drains
- Verify minimum pressure valve (MPV) function
- Look for obvious leaks

➤ Weekly

- Inspect filters/filter conditions (do so more frequently in dusty environments)
- Check condensate drains to ensure they're operating properly
- Check the dew point readings for the compressed air dryer
- Adjust timer drains (if needed) or verify automatic drain maintenance

➤ Monthly

- Take note of trends in discharge temperature
- Measure differential pressures across air/oil filters

- Inspect coolers for anything restricting airflow
- In multi-air compressor systems, verify unload/load sequencing

➤ Every 2,000-4,000 Operational Hours

- Change oil and replace oil filter
- Inspect belts
- Check the air compressor for vibrations
- Ensure mounting integrity

➤ Every 4,000-8,000 Operational Hours

- Replace the oil separator
- Replace the air intake filter
- Inspect/clean oil coolers

➤ Annually

- Inspect all safety valves
- Recalibrate transducers and pressure sensors
- Evaluate desiccant condition/refrigeration performance
- Review the runtime balance in multi-air compressor systems
- Review compressed air dryer sizing, tank configuration, filtration strategy and room ventilation

While these are good guidelines for your preventive maintenance schedule, remember each system and application has different requirements. Tailor your maintenance schedule to your needs.

production system, straining the remaining air compressors, increasing the potential for cascading failures within the application and accelerating wear on the still-working parts of the system.

The company was in no way neglecting its compressed air system; quite the opposite. Preventive maintenance was already part of the facility's procedures, and machines were serviced at appropriate intervals. There was no catastrophic breakdown. Instead, routine service helped expose issues as they developed, before they became notable enough to trigger alarms or cause system shutdowns.

This example illustrates the value of identifying issues while the compressed air system is still operating normally – not in response to emergencies.

Discovering a Cracked Oil Cooler During Maintenance

During a routine maintenance inspection, a crack along the top of an oil cooler was identified. The crack hadn't yet caused any problems, but could quickly develop into a

serious issue. The key factor allowing technicians to detect these issues is experience. When techs know what to look for, they can trace problems to their source, sometimes even identifying potential issues before they occur.

In a rotary screw air compressor, oil coolers are subject to harsh operating conditions. They constantly experience thermal changes as the air compressor loads and unloads. Pair those changes with consistent vibration from the air



A technician performs a scheduled preventive maintenance service on an oil-flooded, rotary screw air compressor at J.C. Steele & Sons.

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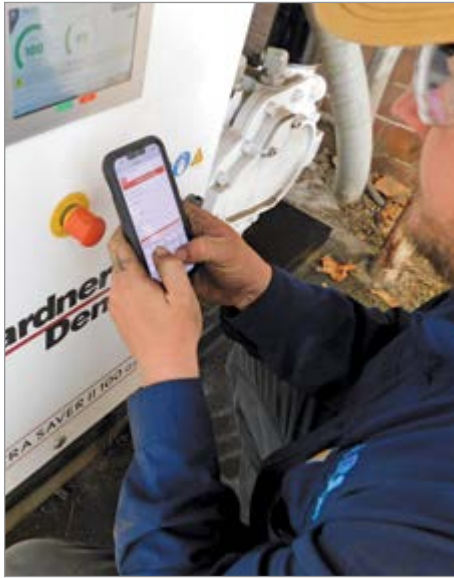
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A technician records air compressor performance data into field service management software, ensuring accurate documentation and service history tracking for the customer's equipment.

compressor frame, and small cracks can easily expand into larger issues. In this instance, inspection of the oil cooler revealed a small crack just beginning to form, compromising the air compressor's integrity.

When the issue was discovered, oil loss had not yet occurred. However, if the crack had gone undetected, the oil cooler could have failed, resulting in oil loss and potentially compromising system lubrication and heat dissipation. While some cooler damage can be addressed through localized repair or welding, in this case, the damage required the replacement of the cooler assembly.

Because the problem was identified before it could cause a larger issue, the repair could be scheduled at a time that wouldn't negatively affect the facility's production capabilities, rather than requiring a system shutdown and unscheduled downtime.

Pressure Transducer Failure and Potential Unknown Shutdown

On another service visit, technicians came upon a different type of issue, this one within an air compressor's control system. One of the air compressors in use shut down, and the failure was traced to a pressure transducer.

Pressure transducers provide real-time information on pressure levels within the compressed air system. When a transducer fails, the system controller can no longer properly interpret the system's conditions. Many systems have an auto-lock feature to lock down the air compressor as a protective measure in situations like these. From the operator's perspective, the air compressor seemed to stop without warning, even though it was still mechanically sound.

In this instance, the transducer failure caused the air compressor to go completely offline. Replacing the part became more complex due to delays in the original supplier's product availability. To minimize downtime, technicians sourced a compatible part locally and restored the air compressor to service.

The repair itself was straightforward, but the implications of the issue were clear: Without the air compressor in question operating, the other air compressors needed to work overtime to compensate for the load increase. Operating under heightened demand can increase wear on the other air compressors, raising the risk of secondary issues. By identifying and addressing the root cause of the air compressor shutdown, the problem was quickly resolved, and the risk to the rest of the compressed air system was mitigated.

Engineering Sales Associates

The story of Engineering Sales Associates (ESA) began in 1961, when founders Arthur Pue Sr. and Addison Bell were employed by McDonnell Douglas. They were disappointed by the compressed air support they received as manufacturers. When equipment encountered issues, it was up to them to figure out how to get things in working order as quickly as possible or face being held responsible for downtime. The two decided change needed to start with them: They created their own company to support manufacturers by offering industrial maintenance services.

Over 60 years later, ESA is a thriving, veteran-owned, family business providing essential services for industrial applications in the Carolinas. The company works closely with clients to provide the highest level of service possible. Technicians collaborate with customers to find solutions to best fit each scenario. Building trust with clients is one of the company's main goals. Technicians never try to upsell customers or sell parts or equipment that aren't the right fit for an application.

The company provides air compressors, air filters, compressed air dryers and air compressor parts and accessories from leading suppliers and major brands. It offers routine and emergency maintenance services. For more than six decades, ESA has remained committed to the same mission it was founded on: Supporting manufacturers with dependable service, honest solutions and lasting partnerships. For more information, visit <https://engineeringsales.com>.



Identifying Vulnerabilities at a Package Manufacturing Company

Compressed air quality and stability are top concerns for air compressor systems at a major manufacturer of flexible and specialty packaging in North Carolina. Compressed air is more integral to the printing and packaging sectors than many realize. Even small instabilities in airflow or quality can significantly affect end-of-the-line products, leading to print inconsistencies, bonding issues or web-handling problems resulting in scrap. System shutdowns, even short ones, result in significant product loss, so this packaging manufacturer's maintenance strategy focused on preserving compressed air

quality and system stability rather than reacting to visible wear. Issues such as decreases in air pressure can negatively affect a host of system components, including printers, workstations, conveyors and lasers, while impurities in the air itself can block nozzles or leave streaks or a sheen on printed surfaces.

The initial assessment of the facility showed the air compressors received regular maintenance services, though some key findings spoke to potential risks:

- Differential pressure across coalescing filters was heightened.
- The dew point reliability of their desiccant compressed air dryers was declining.
- Cooling components in the air compressors showed signs of degradation.
- Control sequences between air compressors could be optimized.

While these issues did not pose an immediate risk to the system, they could if left unaddressed.

The maintenance approach focused on evaluating the compressed air system as a whole rather than only the air compressor's internal components. Filters found to be nearing their efficiency limits were replaced, preserving compressed air purity and limiting strain on the compressed air system. To ensure dew point control, desiccant condition and purge function were evaluated, and regeneration cycles were assessed and altered to match real-world conditions. Heat exchangers were properly inspected and cleaned, and air compressor staging was investigated and adjusted to meet system requirements.

The assessment at this packaging company also took tank sizing and air handling into consideration, ensuring proper wet/dry tank configuration and that the compressed air dryers used were appropriately sized for system demand. Improving air handling and storage can reduce or even eliminate the need for larger air compressors.

The Bottom Line

The significance for this packaging company lies in the shift in perspective required for

air compressor system maintenance. Instead of being viewed as tasks to be completed at set intervals, maintenance services were seen as crucial for the integrity of the production process. Early intervention and problem-solving before issues arose allowed technicians to keep this client's application running smoothly.

Preventive maintenance is seldom newsworthy inside manufacturing facilities. By design, preventive maintenance should be a non-event. Production keeps running, shifts continue to change, trucks are reloaded and unloaded and work goes on. The experiences at J.C. Steele & Sons and this packaging manufacturer show the reliability of a compressed air system cannot always be achieved by following a schedule. Instead, it's the result of focus, attention and discipline: paying attention to variables,

detecting patterns and knowing when something seems amiss. Looking deeper into system performance turns routine maintenance into a strategic tool for improving reliability and production stability. **BP**

About the Author

Arthur Pue is the second-generation owner of Engineering Sales Associates. He grew up in the business, spending summers sweeping warehouse floors.

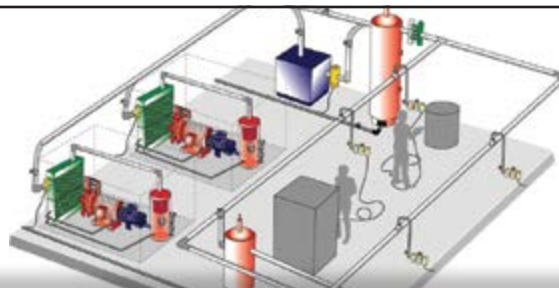
Today, he enjoys serving strategic customers in high-impact industries and essential infrastructure, helping them produce critical products for the American economy. Before running ESA, Pue served in the U.S. Army Special Operations. An avid runner, he is currently training for a rim-to-rim hike of the Grand Canyon.



To read more **Compressed Air System Assessment** articles, visit <https://www.airbestpractices.com/system-assessments>.



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Safe Compressed Air Drying Systems for Class I, Division 1 Environments

By Jess Elley, Product Marketing Manager, Suburban Manufacturing Group – Tsunami Compressed Air Solutions

► In most industrial facilities, compressed air dryers are considered standard utility equipment. Engineers typically evaluate compressed air dryers based on dew point performance, flow rates, pressure drop and maintenance requirements. In hazardous locations, however, these criteria are only part of the equation. Equipment must also be designed to prevent ignition sources capable of triggering combustion.

Some industrial environments contain flammable gases or vapors capable of forming explosive mixtures with air. When these conditions are present during normal operation, equipment must be designed to operate without creating sparks, excessive heat or other potential ignition sources.

Compressed air drying systems present a unique design challenge in these environments. While moisture removal is necessary to protect instruments and pneumatic tools, prevent corrosion and maintain reliable operation, the compressed air dryer itself cannot introduce hazards to the surrounding atmosphere.

This requirement fundamentally changes how engineers approach compressed air dryer design. Electrical control systems, mechanical contact surfaces, component materials and thermal behavior must all be evaluated through the lens of ignition risk. Rather than simply focusing on compressed air quality, engineers must design systems delivering reliable drying while ensuring the compressed air dryer can't cause an explosion. This article focuses on twin-tower regenerative desiccant compressed air dryers, which are commonly used in industrial applications requiring low dew points and reliable moisture removal.

Above: Production facilities with flammable gases or vapors, such as this pharmaceutical production facility, require equipment designed to operate without creating sparks or excessive heat.

Understanding Hazardous Location Classifications

Hazardous locations are categorized based on the type of combustible material present and the likelihood the material will exist in an ignitable amount.

Class I hazardous locations involve flammable gases, vapors or liquids that may be present in the air in large enough quantities to produce explosive mixtures. Class II hazardous locations involve combustible dust rather than gases or vapors.

Within each class, environments are further divided based on how often the hazard is present. Division 1 indicates that ignitable concentrations exist during normal operating conditions. Division 2 indicates the hazardous material may appear only under abnormal conditions, such as leaks or equipment failures. These classifications guide the design and selection of equipment capable of operating safely in the environment. CID1 environments are often found in the oil and gas, chemical manufacturing, petrochemical, grain processing, healthcare, distillery and woodworking industries.

The consequences of equipment failure in these environments can be severe. Ignition

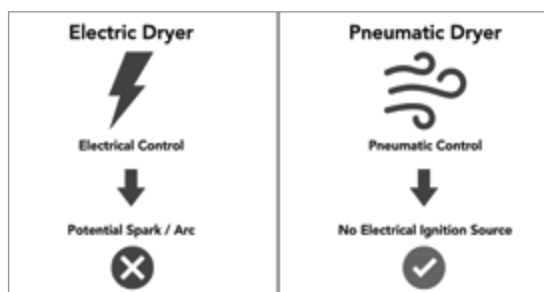
of a combustible gas or vapor can result in catastrophic events involving fire, explosion, environmental contamination, equipment damage and significant risk to people. Because of these risks, equipment installed within hazardous locations must be carefully evaluated to eliminate or mitigate potential ignition sources.

Ignition Risks in Compressed Air Systems

Compressed air equipment may introduce several potential ignition sources if not designed for hazardous environments. Electrical components are among the most common concerns. Relays, circuit boards, wiring faults and switching contacts may produce sparks or heat if failures occur. Electrical arcs generated by switching devices can ignite combustible vapors or gases under certain conditions. Mechanical parts can also create hazards. Friction between moving components, contact between dissimilar materials and localized heating caused by mechanical wear can produce ignition sources.

Conventional desiccant compressed air dryers commonly use electronic controllers to manage regeneration cycles and valve switching. While effective in standard industrial environments, these electronic control systems introduce potential ignition risks if they are installed inside hazardous areas.

For this reason, engineers often attempt to isolate electrical components using explosion-proof enclosures. While these enclosures provide protection, they add complexity and rely on proper installation and maintenance to ensure their protective capability. An alternate approach is removing electrical ignition sources from the system entirely.



A comparison of ignition risk pathways in electrically controlled versus pneumatically controlled compressed air dryer systems.

Eliminating Electrical Ignition Sources through Pneumatic Controls

One method for reducing ignition risk in twin-tower regenerative desiccant compressed air dryers is replacing electronic control systems with pneumatic control architectures. In this design approach, pneumatic timers and air valves are used to control the regeneration cycle. These components operate using compressed air pressure rather than electrical signals. By removing electronic controllers, the system eliminates potential spark-producing electrical components within the hazardous environment.

However, pneumatic operation alone does not guarantee elimination of ignition sources. Mechanical interfaces must be evaluated for friction-related heat generation or spark potential. During engineering review, potential contact points such as piston-to-base interactions and tower stud-to-spring interfaces should be evaluated to ensure they won't generate hazardous conditions during operation.

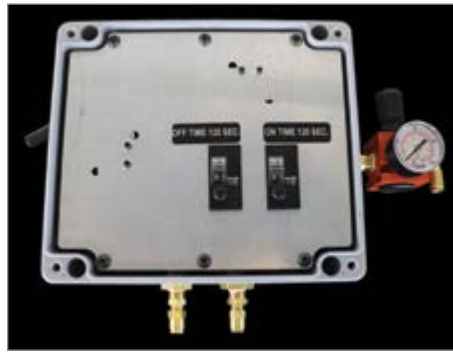
The goal of this approach is not simply replacing electronics with air-powered components. Rather, the goal is designing a system architecture that removes a major class of ignition risks while maintaining reliable compressed air dryer performance.

As one product development engineer involved in Class I Division 1 compressed air dryer design explained, "Engineers should always look at designing out the need for CID1 equipment. When not possible, engineers should always try to eliminate ignition sources through technology such as pneumatic controls."

Pneumatic Controller Operation

The twin-tower regenerative desiccant compressed air dryer discussed in this article uses pneumatic controls in place of traditional electronic control systems. The compressed air dryer regeneration cycle is controlled by a pneumatic timing circuit alternating airflow between two desiccant towers. The controller operates within a defined pressure range. Minimum controller pressure is 80 psig (5.5 barg), while maximum controller pressure is 90 psig (6.2 barg), with 90 psig (6.2 barg) recommended for optimal operation. The pneumatic controller consumes approximately 1.5 cfm at 90 psig (6.2 barg).

The regeneration sequence is controlled using two alternating timing cycles. The ON cycle operates for 120 seconds, followed by an OFF



Pneumatic control components can be used to operate a compressed air dryer.

cycle lasting 120 seconds. These cycles control a double-piloted valve directing compressed air between the two desiccant towers.

When the system is activated, compressed air flows through the valve, which directs airflow to one tower for drying. At the end of the ON cycle, the valve shifts position, redirecting airflow to the opposite tower while the first tower begins regeneration. Once the OFF cycle completes, the valve returns to its original position, and the sequence repeats. Because the timing and switching functions are controlled entirely by pneumatic components, the system operates without electronic switching devices inside the classified area.

Thermal Considerations and Surface Temperature Limits

Temperature management is a critical factor when designing equipment for hazardous environments. Surface temperatures must remain below levels capable of igniting surrounding vapors or gases.

The compressed air dryer is designed to operate within an inlet temperature range of 33°F (1°C) to 150°F (66°C). Surface temperatures of compressed air dryer components are not expected to exceed this maximum inlet temperature.

While the system we're discussing was not designed around a specific temperature classification rating, maintaining component temperatures within this range provides a safety margin in many industrial environments.

Engineers specifying compressed air dryers for hazardous locations must consider air compressor discharge temperatures, aftercooler performance and ambient operating conditions. If inlet temperatures exceed design limits, both drying performance and safety margins may be affected.

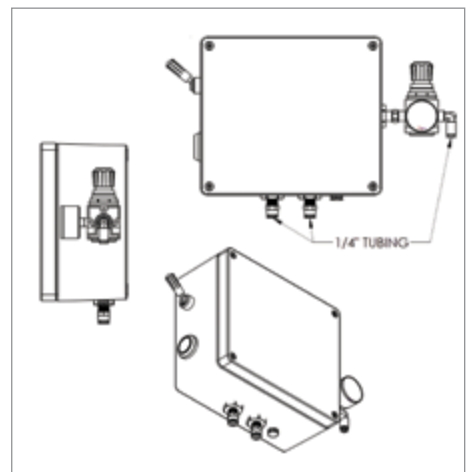
Compressed Air Dryer Performance Characteristics

In addition to safety considerations, compressed air dryers must meet performance requirements necessary to support reliable system operation. Pneumatic control architectures can be applied across a range of system sizes and configurations, from compact installations to higher capacity industrial systems.

The pneumatic-controlled twin-tower regenerative desiccant compressed air dryer discussed in this article operates within an inlet pressure range of 60 psig (4.1 barg) to 125 psig (8.6 barg). Under full load conditions, defined as a 100°F (38°C) inlet air temperature, 125 psig (8.6 barg) inlet air pressure and 70°F (21°C) ambient air temperature, with a rated dryer flow of 40 cfm, it achieves a pressure dew point between -10°F (-23°C) and 0°F (-18°C). When operating at approximately 75% of rated dryer flow, pressure dew point performance improves to between -25°F (-32°C) and -10°F (-23°C).

Higher inlet air temperatures of up to 150°F (66°C), and ambient air temperatures of 100°F (38°C) and above will impact the compressed air dryer's performance. Under these higher ambient temperature conditions, expected pressure dew point performance is approximately 0°F (-18°C) under full rated dryer flow.

These performance levels demonstrate that pneumatic control architectures can achieve performance consistent with conventional electrically controlled desiccant compressed air dryers. In hazardous environments, maintaining stable dew point performance is critical, as



This pneumatic controller assembly illustrates the air-driven control system used to operate regeneration cycles in a twin-tower desiccant compressed air dryer configuration.

>> Safe Compressed Air Drying Systems for Class I, Division 1 Environments



This compact regenerative compressed air dryer was designed for industrial compressed air applications.

moisture can lead to corrosion, freezing or malfunction of pneumatic equipment. Ensuring safety-driven design changes do not compromise drying performance is essential for reliable system operation.

Pressure Drop Testing Results

Pressure drop across compressed air treatment equipment affects system pressure and stability. In hazardous environments, maintaining sufficient pressure is critical for the reliable operation of pneumatic controls and instrumentation. Excessive pressure loss can

reduce system pressure to a point where control components may not function as intended.

Suburban Manufacturing Group conducted internal testing using a 40 cfm regenerative desiccant compressed air dryer operating at 100 psig inlet pressure. Measured pressure drop values were:

Flow Rate	Pressure Drop
10 cfm	2.2 psig (0.2 barg)
20 cfm	3.3 psig (0.2 barg)
30 cfm	4.2 psig (0.3 barg)
40 cfm	5.9 psig (0.4 barg)

These results demonstrate the increase in pressure loss as airflow approaches rated capacity. Engineers must account for this pressure drop when determining air compressor setpoints and evaluating downstream pressure requirements. Maintaining adequate and stable system pressure helps ensure the reliable operation of pneumatic components in hazardous environments.

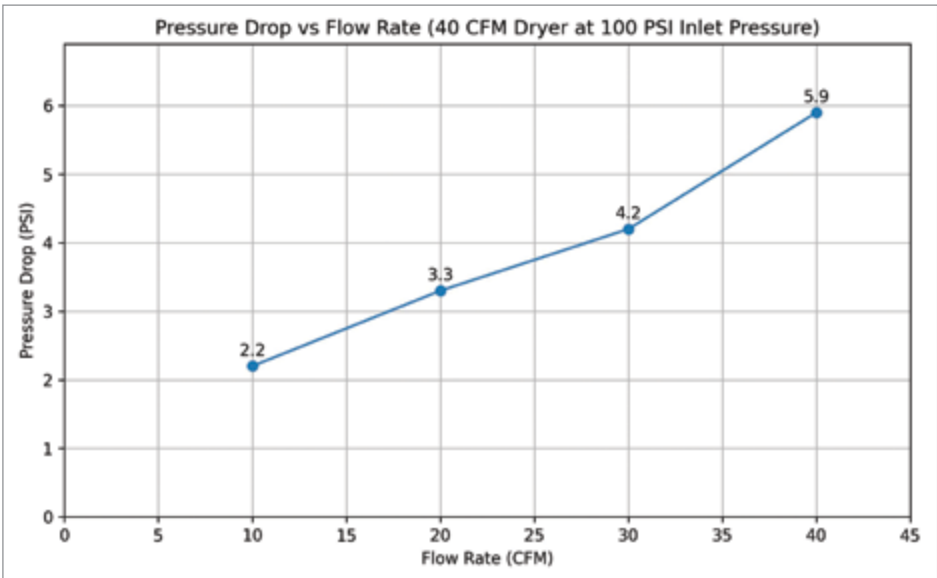
Regeneration Dryer Compressed Air Consumption

Desiccant compressed air dryers require purge air to remove moisture from the saturated desiccant bed during regeneration. Total compressed air consumption includes both the purge air used for regeneration and the air required to operate the pneumatic controller. This demand must be considered when sizing air compressors and compressed air systems. In hazardous environments, undersized systems or unexpected air demand can lead to pressure instability, which may affect the performance of pneumatic controls and instrumentation.

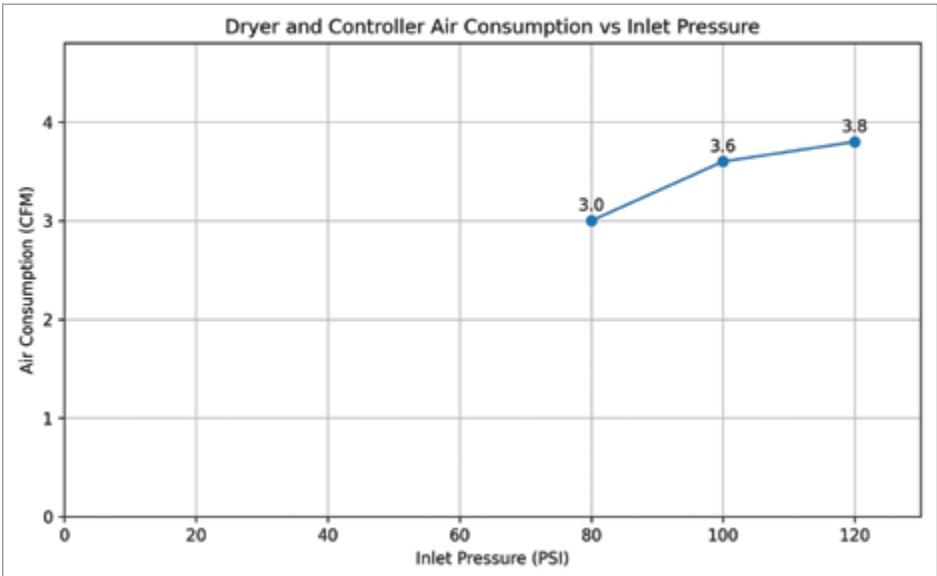
For this table, measured air consumption values were obtained using a 40 cfm CID1 regenerative desiccant compressed air dryer operating at the listed pressures with 70°F (21°C) inlet air temperature and 70°F (21°C) ambient air temperature.

Inlet Pressure	Air Consumption
80 psig (5.5 barg)	3.0 cfm
100 psig (6.9 barg)	3.6 cfm
120 psig (8.3 barg)	3.8 cfm

Unlike some regenerative desiccant compressed air dryer designs, purge consumption in



The measured pressure drop across a 40 cfm regenerative desiccant compressed air dryer at 100 psig inlet pressure.



This chart shows compressed air dryer regeneration and controller air consumption across an operating pressure range.

the pneumatic-controlled dryer evaluated in this article remains largely independent of airflow rate. Instead, purge demand varies slightly with operating pressure.

This characteristic simplifies system modeling because purge air can be treated as a relatively fixed load rather than a variable dependent on flow rate.

Compressed Air Dryer Maintenance and Reliability Considerations

Equipment installed in hazardous environments must maintain reliable operation over long service intervals. Recommended maintenance intervals include filter service every six months and compressed air dryer tower maintenance every one to three years, depending on operating conditions.

The pneumatic-controlled regenerative desiccant compressed air dryer discussed in this article was first installed in 2016 at an oil refinery in Texas, requiring compressed air equipment suitable for a Class I, Division 1 environment. While detailed operational data from the installation is limited, no failures have been reported to date.

Although the installed base remains relatively limited, the use of pneumatic controls eliminates several failure modes associated with electronic control systems, including circuit board failures, electrical contact wear and wiring degradation. Reducing the number of electrical components inside the hazardous area can therefore improve long-term reliability while reducing potential ignition risks.

Engineering Considerations for Hazardous Location Compressed Air Dryer Design

Engineers designing compressed air systems for hazardous environments should first determine whether or not the equipment can be located outside the classified boundary (the defined area around a hazard where flammable gases or vapors may be present). Each hazardous environment is assigned a proximity radius,

Why Moisture Removal Matters in Hazardous Locations

Moisture in compressed air systems can create reliability issues even in hazardous environments. Water vapor can condense within piping systems, causing corrosion, freezing and pneumatic instrumentation malfunction.

Moisture can also degrade lubricants, affect valve operation and introduce contaminants to sensitive processes. In applications where compressed air is used for control instrumentation, excessive moisture may lead to inaccurate readings or delayed valve response.

For these reasons, maintaining low-pressure dew point levels remains essential even in hazardous locations. The challenge for engineers is ensuring the equipment used to remove moisture does not introduce ignition risks to the surrounding environment.

ISO 8573-1:2010 Standards

Table 1 - Compressed Air Purity Classes for Particles				Table 2 - Compressed Air Purity Classes for Humidity & Liquid Water	Table 3 - Compressed Air Purity Classes for Oil
Class	Maximum number of particles per cubic meter as a function of particle size			Pressure Dewpoint °F	Concentration of total oil (liquid, aerosol, and vapor) mg/m ³
	0.1µm ≤ 0.5µm	0.5µm ≤ 1.0µm	1.0µm ≤ 5.0µm		
0	More stringent than class 1, as specified by equipment user or supplier			More stringent than class 1, as specified by equipment user or supplier	More stringent than class 1, as specified by equipment user or supplier
1	≤ 20,000	≤ 400	≤ 10	≤ -94	≤ .01
2	≤ 400,000	≤ 6,000	≤ 100	≤ -40	≤ .1
3	-	≤ 90,000	≤ 1,000	≤ -4	≤ 1
4	-	-	≤ 10,000	≤ +37.4	≤ 5
5	-	-	≤ 100,000	≤ +44.6	Class X in ISO standards - it is considered that oil vapor content will not significantly affect the total concentration
6	detected			≤ +50	
7	Mass Concentration measured by mg/m ³				

ISO 8573 air quality classes are used to define compressed air contamination levels, including moisture content.

determining what types of equipment and technologies are permitted within that perimeter. If hazardous-rated equipment can be eliminated through system layout changes, overall risk can be reduced.

When equipment must operate within the hazardous space, engineers should prioritize eliminating ignition sources whenever possible. Control architecture, mechanical interfaces, thermal limits, airflow performance and maintenance requirements must all be considered when selecting compressed air treatment equipment.

Proper evaluation of these factors helps ensure compressed air dryers can deliver reliable moisture removal without introducing hazards into the operating environment. **BP**

About the Author

Jess Elley is Product Marketing Manager at Suburban Manufacturing Group, where she supports the Tsunami Compressed Air Solutions product line. She works with engineering and product teams to develop technical resources for compressed air system designers and industrial users.



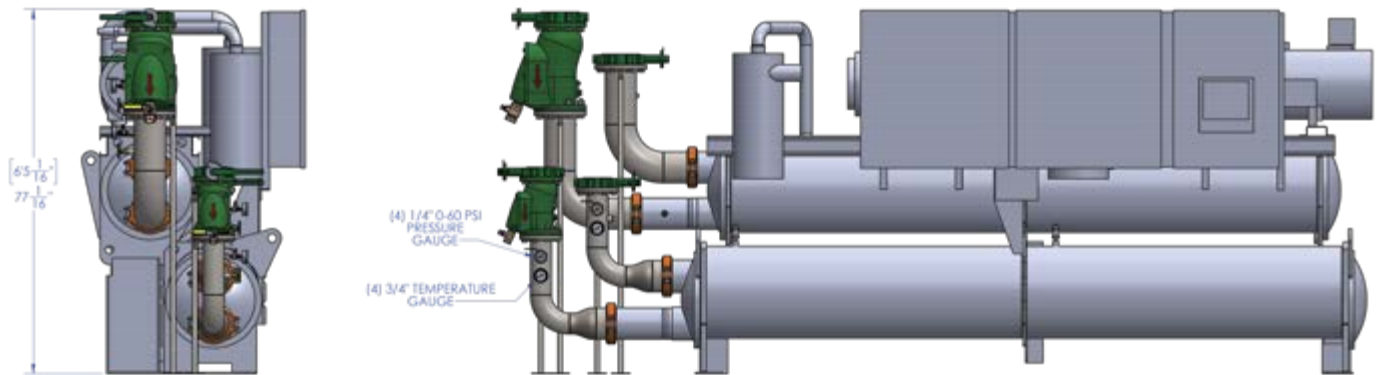
About Suburban Manufacturing Group

Suburban Manufacturing Group is a U.S. manufacturer of engineered industrial solutions. Tsunami Compressed Air Solutions provides compressed air treatment equipment designed to improve reliability and air quality in industrial systems. For more information, visit <https://www.gosuburban.com>.

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Haartz Electrifies with Water Source Heat Pump

By Troy Dreier, Senior Editor, *Compressed Air & Cooling Best Practices® Magazine*

► At its Acton, MA, plastics extrusion facility, Haartz Corporation launched a major energy initiative designed to reduce natural gas consumption by electrifying a critical heating load. What's more, the initiative simultaneously recaptured waste heat from process cooling operations. Working with Process Cooling Systems, utility consultant Leidos and National Grid, the company implemented a large-scale water source heat pump system converting process heat into usable heating energy for a high-capacity makeup air unit. The project also reduced load on the plant's central chilled water infrastructure, lowering cooling demand while supporting broader carbon reduction goals.

The installation represented an unusual convergence of industrial process cooling, heat recovery and HVAC integration. The system combined a water-cooled, rotary screw chiller operating in heat pump mode with a roof-mounted makeup air unit, a custom pump skid and a PLC-based controls package engineered specifically for the application. The project required complex piping integration, structural modifications, coordinated commissioning and extensive control tuning. By early 2026, the system had been commissioned and placed into operation, creating what participants described as one of the first industrial-scale implementations of

its kind within their organizations. The system is estimated to save 111 tons of carbon output each year.

Meeting Energy Reduction Goals

The Haartz facility manufactures automotive fabric products involving plastic coating processes. The production lines apply plastic material to fabric webs before cooling and winding the finished material for storage. Large process cooling loads throughout the plant cool production rolls and remove machine heat generated during extrusion operations.



Matt Blanchard, Application Engineer, Process Cooling Systems

Process Cooling Systems had supported Haartz for over 30 years before the project began. The company previously worked on the facility's cooling tower and chilled water process systems. This initiative didn't originate from Haartz, however. Instead, the project emerged through work being conducted by Leidos, an energy modeling and utility incentive consulting company that had been evaluating energy reduction opportunities throughout the facility.

"Leidos and Haartz were working together on a wide array of energy savings projects," explained Matt Blanchard, Application Engineer, Process Cooling Systems. "Leidos goes into facilities and identifies energy savings projects, things that may qualify for rebate-incentivized offsets and cost offsets. They were working with Haartz on several projects, some unrelated to Process Cooling's area of expertise. This one came up, and we'd previously worked with Leidos and many other customers across the Northeast, primarily Massachusetts, New Hampshire and Rhode Island."

Because the plant handled volatile vapors stemming from manufacturing operations, the building required substantial exhaust airflow and continuous makeup air replacement. That heating demand became the target load for electrification.

This project focused on reducing carbon emissions associated with combustion heating.

Above: Process Cooling Systems' rendering of the heat pump chiller installed at Haartz's facility.

The idea was to capture thermal energy already present within the manufacturing process and redirect it to plant heating loads instead of relying exclusively on natural gas combustion.

“They identified a project as a carbon offset, a gas emissions reduction project, where we would convert process heat to air heat, or heat for makeup air,” Blanchard said. “We’d take that from a production heat source within the facility, pass it through an industrial heat pump and use it to generate heat with an electrical input. In doing so, we were able to transfer waste heat and minimize natural gas consumption.”

Specifying the Best Heat Pump Chiller for the Requirements

The project formally began in late 2024. Initial engineering started in the fall, after Process Cooling Systems received the project award. The engineering scope focused first on defining the heating requirement previously handled by a gas-fired makeup air unit. The company selected both the makeup air equipment and the heat pump chiller based on those operational requirements.

“We knew we were replacing an existing gas-only makeup air unit,” Blanchard said. “We were able to select an air makeup unit and a heat pump chiller providing the same output. We completed final engineering, checking on equipment submittals, honing the sequence of operations for the primary air heating equipment, the chiller and our PLC system.”

The final system centered on a water-cooled rotary screw chiller configured for simultaneous heating and cooling operation. The unit operated as both a chiller and an industrial heat pump. The company selected the system partly because of existing service relationships and support infrastructure.

“We are not a chiller manufacturer. We’re a systems integrator,” Blanchard said. “Part of what we do is working with manufacturers that have the best network of service and support. Trane had equipment fitting the application and a service history we’ve dealt with for many years.”

The makeup air equipment selection followed a similar logic. Haartz already operated an Absolute Air makeup air unit elsewhere in the facility, making the manufacturer familiar to plant personnel. The new makeup air unit



A central heat recovery equipment circulates fluid between the house chilled water system and the recovery system.

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» Haartz Electrifies with Water Source Heat Pump



Process Heat Recovery Saves Energy and Natural Gas

The system architecture relied on recovering heat from an existing chilled water return header serving process equipment throughout the facility. The plant already operated a central chilled water system supplying multiple process loads. Rather than creating a separate heat source, the project captured energy already present in the returning process water stream.

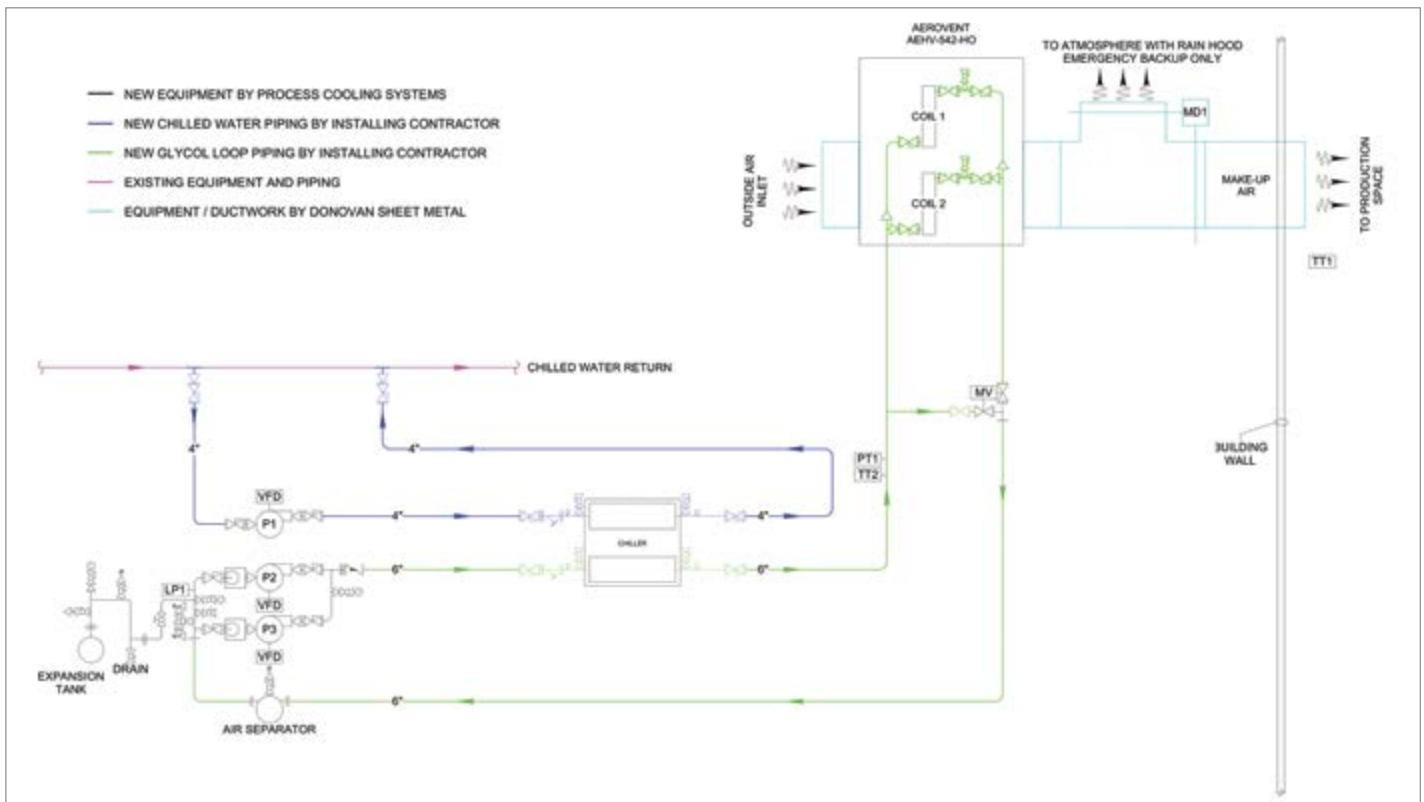
“We are drawing off of an existing chilled water return,” Blanchard explained. “We’re pulling off that return assuming we’re having an elevated water temperature. We’re passing it through the evaporator side of a water-cooled chiller, where it is getting cooled and then passed back into the chilled water return downstream of where it’s taken off.”

An exterior piping connection allows the makeup air unit coils to use the recovered energy.

was designed for approximately 25,000 cfm of airflow and incorporated a hot water heating coil supplied by the heat pump system. A secondary natural gas burner remained in place primarily as backup heating capacity and for periods when process heat recovery might be unavailable.

The heat pump itself was designed around a 180 ton water-cooled chiller platform capable of generating approximately 2,100 MBH of heating capacity while simultaneously shedding approximately 135 tons of load from the central chilled water plant. The system used R-513A refrigerant.

The system effectively created a tertiary cooling loop connected to the larger chilled water infrastructure. The process return water entered the evaporator side of the heat pump chiller at approximately 54°F (12°C) and returned to the central system at roughly 46°F (8°C). Flow through the process side operated at



This schematic diagram shows how the heat pump chiller integrates with the plant's existing systems.

approximately 230 gpm under design conditions using variable flow control.

As heat was removed from the process water, the refrigerant circuit transferred energy to the condenser side. The condenser loop then generated an approximately 130°F (54°C) glycol solution supplied to the makeup air unit heating coil. The heating loop incorporated both primary and standby pumps mounted on a custom pump skid.

“The byproduct of creating the heat is energy savings off of the main chilled water plant,” Blanchard said.

Because the recovered heat offset natural gas combustion while also reducing cooling demand on the central plant, the installation created simultaneous savings in multiple utility systems. The facility already operated a waterside economizer system associated with its chilled water infrastructure. By reducing load, the project further decreased cooling system energy demand.

Although water conservation was not the primary objective, reduced central plant cooling load also produced secondary water savings associated with reduced cooling tower operation.

Makeup Air Integration and Volatile Vapor Management

The makeup air portion of the project represented a critical operational component. The facility required large volumes of conditioned makeup air because manufacturing operations generated volatile vapors needing to be captured and removed continuously from occupied spaces. The facility used direct exhaust systems to pull vapors downward and away from operators before routing them to thermal oxidation equipment elsewhere in the process.

“This is a plant processing a lot of volatile vapors, so they have to recapture them,” Blanchard explained. “Because of that, to keep their staff safe, they need to draw as much as possible. They have a lot of direct exhaust sucking those vapors down and through the floor, away from their operators.”

The makeup air unit existed to neutralize building pressurization caused by the continuous exhaust demand. The heating load remained constant regardless of whether the need

originated from comfort conditioning or process ventilation requirements.

“The project itself was saying, ‘How can we take natural gas combustion and electrify it?’ We’ve got 25,000 cfm we need to heat from, in worst case, -5°F (-21°C) to 65°F (18°C) for the comfort of our employees,” Blanchard said.

The makeup air system was designed so the heat pump became the primary heating source while the gas burner functioned mainly as backup capacity. The installation also incorporated an emergency diversion damper requested by Haartz. That allowed the heat pump chiller to operate as supplemental cooling capacity during summer conditions, if required. In that mode, the system could bypass building heating loads and reject condenser heat outdoors while maximizing chilled water cooling to the process.

Indoor Equipment Installation with Minimal Disruption

Physical installation began in the spring of 2025. The first equipment installed inside the facility included the pump skid and the heat pump chiller. Haartz created space for the equipment by removing portions of existing

material storage racks adjacent to production areas. The installation footprint had to remain compact because the area surrounded active manufacturing operations and critical building access points.

“They eliminated basically one-and-a-third racks to fit this in,” Blanchard said. “We were able to keep this as small as possible to have the lowest impact on their existing facility.”

The indoor equipment sat adjacent to production lines while maintaining the required egress clearances for explosion-proof areas within the building. Process piping connected the heat pump skid to the existing chilled water return header serving production equipment throughout the plant. Because the new system tied directly to operating process cooling infrastructure, installation sequencing became critical. The needed production system shutdown was minimal.

“There was one small shutdown for this facility for the main process piping,” Blanchard said. “That was so we could tie off the chilled water returns, but that shutdown lasted only as long as it took to drain the header, make the connections and recharge the header.”



Coordinated rigging and crane work was essential to set and assemble the makeup air unit.

» Haartz Electrifies with Water Source Heat Pump

Discovering the Need for Roof Structural Modifications

While indoor equipment installation progressed during spring 2025, additional project requirements emerged regarding rooftop equipment support. The new makeup air unit required roof mounting, which introduced structural engineering challenges not defined in the original project scope. The company coordinated the structural analysis and steel modifications necessary to support the new equipment.

“There were some parts of the scope that were not included in our initial proposal that, over time, needed to be included,” Blanchard explained. “We had to have some structural engineering done on Haartz’s behalf to make sure we could put the outdoor unit where we wanted to.”

Additional spanning beams were installed between existing roof structures to support the new makeup air system. Those modifications occurred during the summer of 2025 before rooftop equipment placement. The rooftop installation itself became a complicated demolition and rigging operation because the existing unit could not simply be lifted vertically from its location. Large ductwork systems surrounding the original makeup air unit prevented direct crane access.

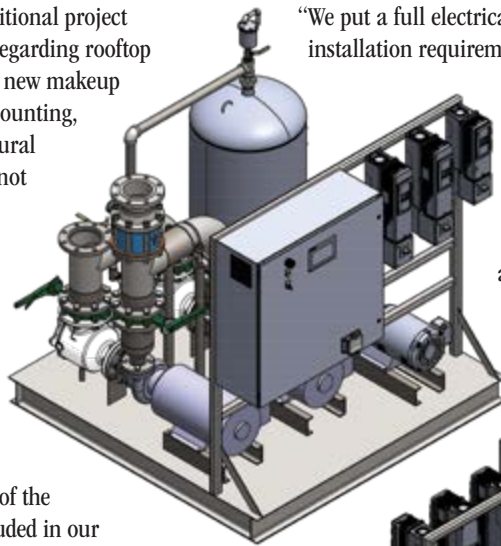
“We had to dismantle the unit in place and slide it out before we could lift it and open the building with the crane to get it out. We had to cut the unit out, cut the unit apart, slide it out, crane it up and over,” Blanchard said. The same crane then installed the new structural steel and set the replacement makeup air unit in place.

Electrical Coordination with an In-House Team

Unlike many Process Cooling Systems projects, the electrical installation for the Haartz system was performed internally by the customer. Haartz used in-house licensed electricians to complete the electrical infrastructure and power connections needed for the installation. The

company still maintained responsibility for coordination and commissioning support.

“We put a full electrical requirements and installation requirement letter together from our electrical engineering department to any site electrician that’s going to be doing the work for any of our systems,” Blanchard said.



Renderings of the skid installed at the Haartz facility.

“We work closely. We take on communication and management to make sure when our commissioning techs arrive on site, everything is installed adequately.”

Electrical work continued throughout fall 2025 as mechanical installation neared completion. Project staffing varied during the installation depending on work phase and specialty requirements.

Complex Commissioning and Makeup Air Unit Troubleshooting

The heat pump chiller startup occurred during December 2025. Startup and commissioning of the makeup air system followed in early January 2026. Commissioning required coordination between multiple manufacturers and technical specialists, including Trane startup personnel, makeup air factory representatives and Process Cooling Systems commissioning technicians. Because the system involved tightly integrated controls and multiple operating modes, startup activities extended over several weeks.

“There was a factory startup as part of the makeup air unit in addition to a factory startup from a service technician and then also our startup and commissioning,” Blanchard said. “Those processes didn’t happen concurrently. There were some time gaps in between when we were able to get all those technicians onsite to commission the project.”

“These things are so complicated when it gets to the details that it just takes that level of expertise to make sure it all works,” added Dan Rudy, Installation Department Manager.

The commissioning process revealed several unexpected controls-related issues associated with the unique configuration. The makeup air unit manufacturer hadn’t previously implemented many systems with this specific configuration. A few operational challenges required troubleshooting.

“This was our first experience with this company, and there were some controls idiosyncrasies that we’re working on. Even for the service tech who started the chiller, who we’ve dealt with on many startups in New England, this was the first of its kind that he’d seen,” Blanchard said.

Some of the troubleshooting focused on communication and voltage interaction between the makeup air controls and field-installed valves. Despite those issues, the overall system remained operational while final refinements continued.

Operational Lessons and Carbon Emission Reduction

As the system entered real-world operation, the company identified several important lessons related to heat recovery performance. The original design assumptions were based on production levels from 2024, when portions of the plant ran continuously. Subsequent production slowdowns altered chilled water return conditions in ways that impacted heat recovery availability.

“There’s been a bit of a slowdown of production in the area this header serves, and when they are

not running, they isolate valves off. What that does is basically starve the available heat we can put into the unit,” Blanchard said.

Because heat pumps depend entirely on available thermal energy transfer, reduced process load directly affected heating performance.

“Heat pumps work off of an exchange of heat. We’re moving heat from one location to the other using the electrical input and the refrigerant. If there’s no heat to move, there’s no heat that we can generate,” he added.

The system required additional operational coordination to ensure enough process flow remained available during reduced production times. Even with those operational refinements underway, the project demonstrated the viability of large-scale industrial heat recovery using water source heat pump technology. Blanchard viewed the installation as an important proof-of-concept for broader industrial applications.

“This particular project is a strong fit for customers with constant air makeup needs,

or if there’s a hot water demand we could offset boiler gas use with this type of technology. If there’s a constant process demand, this is a good example of real savings,” Blanchard said. “This isn’t smoke and mirrors. It’s real identifiable, calculable savings, and the applications could be wide and varied.”

The project’s cost was \$749,985, which includes the new chiller and makeup air unit. National Grid provided a rebate for \$562,936, funding 75% of the cost. The primary goal of the project was electrification and decarbonization, and the resulting system is estimated to reduce carbon emissions by 111 tons each year.

For the company, this customer’s installation established a new category of industrial electrification work combining process cooling,

HVAC integration and waste heat recovery into a unified system architecture.

“This type of technology is truly useful,” Blanchard said. “It’s nice to see the state’s utilities are incentivizing it, but even if they’re not, the calculable savings are real for this type of technology.” **BP**

About Process Cooling Systems

Founded in 1963, Process Cooling Systems has grown into a trusted partner for industrial manufacturers across a wide variety of sectors, including plastics, heat treatment, food and chemical processing. The company specializes in designing, installing and servicing custom process water systems combining energy efficiency, performance and long-term reliability. For more information, visit <https://www.processcooling.net>.

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The 2026 AICD Show Report

By Bill Smith, Regional Sales Manager, *Compressed Air Best Practices® Magazine*

► The Association of Independent Compressor Distributors (AICD) held its annual trade show in Orlando, FL, in April 2026. Participating distributor members and guests enjoyed the AICD trade show, guest speakers, golf tournament and networking.

“Each year, the relationships and synergies keep growing and growing. The AICD is very proud to celebrate our 40th year,” said Sal Calvo, AICD board member and Owner, Compressed AIR USA.

Above: The 2026 AICD board includes Dave Nosal, Bob Coppel, Jeff Brennan, Kasey Gould, Brent Pifer, Bart Frush (AICD President), Chad Gooding, Mikella Reed and Dan Harrison (left to right).

This report presents a sampling of the trade show exhibits (by technology, alphabetically) to share company and technology news.

Air Compressors, Vacuum Pumps, Chillers

ANEST IWATA Americas added optional integrated refrigerant, membrane or desiccant compressed air dryers to its SLE enclosed, oil-less, rotary scroll air compressors. The SLE ranges from 2-60 horsepower (hp) and 4.5-172.5 cfm, with dual pressure options of 116 psi (8.0 barg) and 145 psi (10.0 barg). Noise levels are rated for 59-72 dB with low vibration and starting torque.

Aykrom Compressor unveiled its 290 psi (20.0 barg) variable-speed, rotary screw air compressor (ATUS DHP VS) in 25-100 hp (18-75 kW) models. Designed for optimized oil separation, models feature an ASME-approved smooth perimeter separator tank design, a full-port connection from airtend to the separator tank with radiused entry and a baffled outlet design for air discharge.

BAUER COMPRESSORS launched its BLP 3 Series 125-175 psi (8.6-12.1 barg) oil-injected, rotary screw air compressors with ROTORCOMP EVO-NK+ airends in 15, 20 and 25 hp models. The system's modular design can arrange the



Bryan Ellis with ANEST IWATA Americas



Chris Gibson and Engin Tujumet (left to right) of Alkin Compressor and Aykrom Compressor

air compressor module, compressed air dryer module and horizontal tank module into a compact footprint. According to Eric Phelps, National Sales Manager, the range will extend to 40-75 hp models in the BLP 9 Series by mid-2026. Additional features include a high precision thermal valve for regulation of oil-injection temperatures above the pressure dewpoint, a B-DETECTION compressed air quality monitoring system and BAUER CONNECT IOT.

Bobcat displayed its flagship IA Series (10-200 hp) rotary screw air compressors with fixed-speed and variable-speed models. Its latest introduction is the EA Series two-stage

rotary screw, also available in fixed-speed and variable-speed models.

By the end of the year, ELGi will introduce Demand=Match technology to its EG Series of rotary screw air compressors in North America. Demand=Match technology for fixed-speed air compressors recirculates airflow inside the air compressor to ensure delivery always equals demand. "Optimal operating range is 70-100% capacity, though meaningful energy-efficiency gains continue down to 40% capacity. We also anticipate improved reliability by reducing thrust loads, fewer load/unload cycles and extended bearing and motor life," said Charlie Laughlin, Head of Sales and Channel Development.

FS-Curtis announced an updated design for its NX Series of oil-flooded, direct-drive, rotary screw air compressors. "We've seen substantial improvements to specific power and overall flow," said Ryan Jarvis, National Sales Manager. Tony Montalto, Director of Oil-Free Sales, shared the ECO-Rotary twin-screw, single-stage, water-injected air compressor ranges from 20-150 hp, and has an integrated dryer to both treat the air and supply condensate back to the airend.

Complementing FS-Elliott's range of oil-free, centrifugal air and gas compressors is a suite of global services offered to channel partners and end-customers. To help extend the life of



Eric Phelps, Jason Pruss and Chris Kim (left to right) with BAUER COMPRESSORS



Michael Mousseau, Kyle Schafer, Neal Stephan and Patrick Jakeway (left to right) with Bobcat



Charlie Laughlin and Grant Hebert (left to right) of ELGi North America with a Demand=Match airend display



Ryan Jarvis and Tony Montalto (left to right) of FS-Curtis

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equipment, FS-Elliott offers remanufactured airends, airend overhauls, airend rerates/derates and replacement airends. The company opened a Rapid Response Service Center at its North American headquarters, as well as a Rapid Response Storage Center to offer partners a secure, climate-controlled environment to store critical parts as replacements.

The latest Hankison FLEX Series cycling, refrigerant (R-513A) compressed air dryers are available in 12 air-cooled models from 75-2,000 scfm and five water-cooled models

from 800-2,000 scfm. FLEX Series compressed air dryers are designed with a stainless steel brazed-plate 4-in-1 heat exchanger with a phase-change material reservoir, an up-flow aluminum air-cooled condenser, a semi-hermetic compressor and a no-loss demand drain.

Hertz Kompressoren displayed its IMPETUS series of oil-injected, two-stage, variable-speed drive, rotary screw air compressors. Recently, fixed-speed models have been added to the IMPETUS range in 30-100 hp and 125-430 hp.

Industrial Water Chiller manufactures process water chillers up to 200 tons with up-to-date refrigerants. Sales Managers Don Joyce and Hamilton Terrell assist U.S. distributors with all sales, service and application training and installations. "Most air compressor distributors who start selling chillers never stop!" said Don Joyce. Scotty Shaw and Anna Kowalka recently joined the Industrial Water Chiller team.

Ozen displayed its Gen2 OASC oil-injected, rotary screw air compressor for 100-218 psi (6.9-15.0 barg). The OASC offering includes the OASC belt drive in 5-60 hp, OASC D Series variable-



Eduardo Toledo and Mark McCarthy (left to right) of FS-Elliott



Daniel LeViness with Hankison



Walt Pitts and Clark Beal (left to right) with Hertz Kompressoren USA



Scotty Shaw, Anna Kowalka, Don Joyce and Hamilton Terrell (left to right) with Industrial Water Chiller

frequency drive in 50-335 hp, OASC U Series direct-coupled fixed-speed in 50-225 hp and tank-mounted configurations from 5-40 hp.

Sauer Compressors displayed a cutaway of its HAUG oil-free, piston air compressor. The

HAUG line of oil-free, dry-running, hermetically gas-tight air and gas compressors can achieve final pressures up to 6,540 psi (450.9 barg), and range from 0.5-40 hp. The HAUG Cygnus, Orion and Taurus are dedicated air compressor models, while the HAUG Mercure, Neptune, Pluto,

Sirius and Sirius NanoLoc are dedicated gas compressor models.

Sullivan-Palatek is investing in its product sales training for distributors, Sullivan-Palatek Sales Academy. New and developing training modules



James Freligh, J Howard, Rob Grizzle, Chris Downs and Weston Benton (left to right) with Kaishan Compressor USA



Camilo Villalobos, Mehmet Ozen, Ibrahim Ozen, Bryan Andersen and Trey Weeks (left to right) of Ozen Air Technology

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include understanding value propositions, new distributor onboarding, product support and warranty and understanding lifecycle costs.

Vooner FloGard made its AICD debut to showcase its industrial vacuum solutions for distributor partners. Founded in Charlotte, NC, in 1983, and a member of the AERZEN Group since 2002, Vooner FloGard's vacuum pump portfolio includes liquid ring, monoblock, wet rotary vane, dry claw, dry screw, booster and diaphragm technologies. Its engineering and manufacturing facility is in Greeneville, TN.

Compressed Air Purification, Piping and Instrumentation

AIRpipe USA rebranded its AquaPipe line to AP Stainless due to its flexibility with a wide range of chemicals, fluids and gases. In addition, AIRpipe is launching carbon steel fittings for schedule 40/80 off-the-shelf pipe, and economical stainless steel fittings in Summer 2026 for the U.S. market.

Altec AIR displayed its HBS series single-tower, heat regenerative compressed air dryer. The company's desiccant compressed air dryer offerings now include heatless dryers up to 5,000 scfm, low

dew point heatless compressed air dryers, heat regenerative compressed air dryers and single-tower external blower purge compressed air dryers up to 6,000 scfm, as well as point-of-use compressed air dryers ranging from 0.4-50 scfm.

BEKO Technologies shared a few updates. First, BEKO is investing in additional personnel for its OEM accounts team. Next, BEKO refrigerant compressed air dryers are updated with R-513A. Also, the company's CALMS acquisition brought a new level of expertise and auditing capability in-house. Lastly, new membrane fiber



Chuck Westhofen, David Swartz, Skip Coleman and Jeff Swearingen (left to right) with Sauer Compressors



Bob Groendyke and Bruce McFee (left to right) of Sullivan-Palatek



Roland Winterland and Allan Stitzer (left to right) with Vooner FloGard and AERZEN USA



Michael Buis, Nate Haley, Chad Hills, Carrie Heffernan, Harold Lowe, Darren Phillips and Cody Jordan (left to right) of AIRpipe USA

technology is launching this year for membrane compressed air dryers.

Clean Resources Super-Pak oil-water separators for 200-2,000 hp systems were redeveloped with a redundant auxiliary sump pump, audible and visual alarms and increased drum size. Chad Timmer, VP of Sales, reminded attendees that oil carryover does not equal oil-to-air ratio in condensate, and the EPA mandates condensate oil content should not exceed 50 ppm before draining.

CS INSTRUMENTS USA displayed an array of air and gas measurement solutions, including

a Compressor Master Meter for air compressor validation and air-over-the-fence, in-line dew point sensors, portable dew point sensors for dryer validations and multiple measurement points, wet and dry flow meters, an IAC 500 air compressor room monitor and leak detectors.

Donaldson's latest Ultrapac HL heatless, twin tower, desiccant compressed air dryers are available in five models from 90-500 cfm. Built at the company's Anderson, IN, facility, the HL Series comes with a pre-/after-filter and zero-loss drain, Superplus ultraeconomy dewpoint control and optional dew point sensor.

Great Lakes Air Products is developing a G2N2 version of its GN2 Series PSA nitrogen generators, launching in Q3 2026. A new concept design and molecular sieves will nearly double N2 output, while reducing feed air, thus reducing costs. Great Lakes N2 generators are available in XPO packages with stand-alone generators, XP1 packages with two air tanks, XP2 packages with air treatment and booster packages.

"Lately, Keltec is improving the foundations of what we do well already – getting product out the door quickly, on time and at a good price," said Eddie Kaiser, Sales Manager. Keltec recently



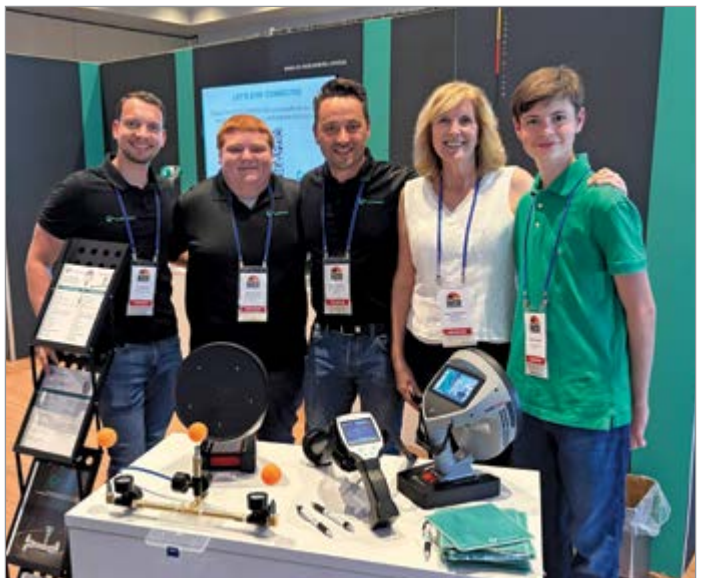
Jim DiMaiolo of Altec AIR



Jason Hobbs, Brian Speed, Russ Jones and Adrian Fernandez (left to right) of BEKO Technologies



Chad Timmer, Scott Scheuerlein, Bill Peters and Molly Powers (left to right) with Clean Resources



Jahn Berger, RJ Bennett, Martin Zeller, Janet Goodwin and Emilio Zeller (left to right) of CS INSTRUMENTS USA

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consolidated manufacturing, shipping and office buildings into one facility, launched an ERP for order streamlining and added seven oil-water separator sizes to its offerings.

KSI Technologies is growing its team and distribution in North America for compressed air filtration, air treatment and monitoring solutions. Courtland Privateer was recently appointed as Sales Manager.

Mikropor is rolling out its MVSD Series refrigerant (R-513A) compressed air dryer with DC Inverter+ in North America. According to Jeff Crutchfield, Area Manager, its DC inverter

allows high-efficiency cycling and non-cycling operation, plus more reliable performance in undesirable ambient environments compared to an AC inverter. MVSD compressed air dryers will be priced between MKE non-cycling compressed air dryers and MCY thermal mass cycling compressed air dryers.

Parker is localizing production of its Nitrosource modular PSA nitrogen generators to improve lead times, as well as preparing to launch the next-generation Nitrosource design with industry-leading air-to-nitrogen ratios, according to Gabe McLeod, Sales Manager.

At the Solberg booth, Clint Browning, VP of Sales, shared its silencers for PSA equipment are designed to minimize back pressure while attenuating discharge noise to prevent failures and improve compressed air dryer performance. Solberg recently launched RQS/RQL Series multi-chambered silencers for positive displacement blower inlet and discharge in 2-6-inch connection sizes.

Trident is expanding its TH heatless, twin tower, desiccant compressed air dryer range up to 1,000 cfm, with externally heated and blower purge options in development. Trident's compact Dryspell Plus desiccant compressed



Seth Bostaph and Marc Straub (left to right) with Donaldson



Chad Henline and Eddie Kaiser (left to right) with Keltec-Technolab



Mirko Krebs, Courtland Privateer and Lukas Moes (left to right) of KSI Technologies



Jeff Crutchfield, Matt Smith and Allan Hoerner (left to right) of Mikropor

air dryers are available in 13 models from 3-375 scfm.

Unipe Solutions was proud to announce a merger with its supplier, ECOFLUIDS, and a 65% increase in inventory. “We’re now the manufacturer,” said Derrick Taylor, General Manager.

AICD Conference

The AICD conference’s engaging agenda was aimed at helping independent air compressor sales and service companies grow their businesses. Presentations and speakers included:

- How to Build an Engaged, High-Retention Culture by Danny Goldberg

- Innovation Leadership and AI by Steve Lerch
- Celebrity guest Richard Rawlings, star of the TV Show “Fast N’ Loud” and owner of Gas Monkey Garage

“AICD is continuing to grow. We’ve had the most participants we’ve ever had this year, and I’m so grateful for our members and vendors

that support the AICD,” said Kasey Gould, AICD Administrator.

Mark your calendars for next year’s show, April 25-27, 2027, at the Hyatt Regency in Denver, CO. [BP](#)

For more information, contact Kasey Gould, AICD Administrator, at admin@aicd.org or visit <https://www.aicd.org>.

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Gabe McLeod and Mike Bielek (left to right) with Parker Industrial Gas Filtration & Generation



Clint Browning, Andy Spicer and Gunnar Solberg (left to right) with Solberg Filtration



Raffay Ibrahim, Kelly Canipe and Ryan Dorant (left to right) with Trident



Derrick Taylor, Aiden Taylor and Joe Burke (left to right) of Unipe

FACILITY MAINTENANCE

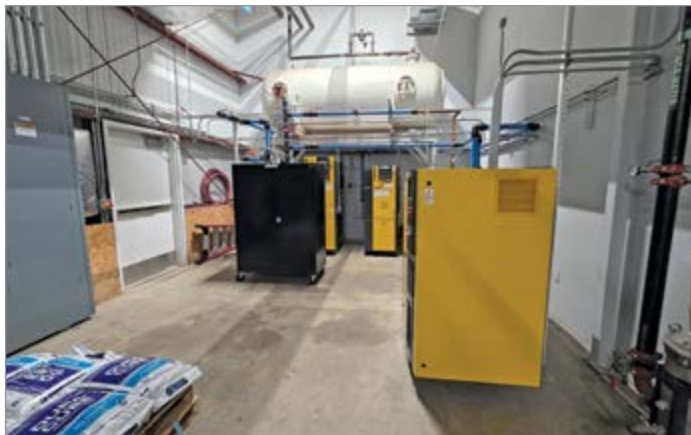
Safety in the Air Compressor Room

By John Bilsky, Facilities Specialist, Gentex Corporation



▶ Ensuring safety in the air compressor room can seem like a minor detail. After all, most facility maintenance time is either spent keeping the compressed air system in good working order or on other duties. However, having a clean and safe environment helps maintenance get things done faster. I've found troubleshooting the compressed air system is easier when the air compressor room is clean and well-organized. Repair technicians also seem to take more pride in their work when they're in a clean, well-organized space.

For Gentex Corporation, air compressor room safety has three parts, all of which are continuously monitored: safety equipment, organization and cleanliness.



A clean, well-organized air compressor room. Fire extinguisher not shown.

Safety equipment. Safety glasses with side shields should always be worn. A hard hat should be worn, as well, especially if there are low-hanging pipes and valves, and a high-visibility safety vest or shirt is recommended.

Each air compressor room should include an appropriately rated and sized fiberglass ladder to reach critical compressed air valves for those times when an unexpected failure occurs. For example, a valve might need to be closed immediately to control the energy the compressed air system produces. When that happens – and people are rushing around in NASCAR mode – having a ladder in the same room saves valuable time.

When production is running, the compressed air system is energized. Having gauges on the compressed air system is important because the energy in a compressed air system can be dangerous. We have a minimum of three gauges on the wet side (before the compressed air dryer) and three gauges on

the dry side (after the compressed air dryer), indicating the presence of compressed air energy. Releasing that stored energy is loud! Compressed air mufflers are a necessity on wet and dry tanks for times when compressed air needs to be released.

Another essential piece of safety equipment, which I hope I never need to use, is a fire extinguisher. Mount a fire extinguisher in plain view inside the air compressor room. Train everyone with authorized access to the air compressor room on the proper use of the fire extinguisher. I also recommend placing a small first aid kit in the air compressor room storage cabinet. After all, many air compressor rooms are isolated from main production areas, and reaching them can be a 10-minute walk or more.

Organization. All too often, the air compressor room becomes a storage area for other departments. Many air compressor rooms are small, so proper organization is key for safety. Our air compressor rooms are locked, and only approved personnel have access. Every air compressor room includes a storage cabinet for spare parts and other supplies. For smaller air compressor rooms, this cabinet has wheels so we can move it if we need more space to complete air compressor maintenance.

Cleanliness. We start by sweeping the floor. When that's done, we wipe down all air compressor equipment. Every air compressor room is stocked with cleaning materials, including towels, spray cleaning solutions, brooms and trash containers with bags.

Having the right safety equipment and a clean, organized environment saves time and money. Service technicians can concentrate fully on the problem at hand, since they aren't zigzagging through storage boxes and old equipment just to reach the air compressors! **BP**

About the Author

John Bilsky is the Facilities Specialist for compressed air, nitrogen and purified water at Gentex Corporation. He's experienced in engineering design, engineering improvements and maintenance for compressed air, nitrogen and water purification systems supporting production, R&D and lab services. For more information, visit <https://www.linkedin.com/in/john-bilsky-24715b10/>.

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SALES ENGINEERING SKILLS

The Limiting Beliefs Holding Back Compressed Air Salespeople

By Mark Allen Roberts, CEO, OTB Solutions



► You've sent your team to product training. They can recite the specs on every air compressor in your lineup, walk through dryer sizing in their sleep and understand the energy savings story cold. So why are sales deals stalling? Why is follow-up inconsistent? Why do they discount before the customer even asks? The answer probably isn't what you think.

Most compressed air distributors assume underperformance comes down to skills, discipline or having the wrong person in the role. Sometimes that's true, but in a technical environment like compressed air – where long sales cycles, complex applications and sophisticated procurement teams are the norm – the more common culprit is something rarely discussed: limiting beliefs.

Limiting beliefs are internal assumptions causing salespeople to hesitate, avoid or pull back at the wrong moment. These beliefs don't feel like fear; they feel like facts.

Here's what they sound like (do any sound familiar?):

- "Customers in this market only care about price."
- "That plant manager never returns calls."
- "They're not going to move until the old unit breaks down."

They sound reasonable. They also sound like reasons to avoid the selling behavior that drives results.

What's Actually Happening in the Brain

Sales is uncomfortable. Rejection, ghosting, pricing pressure, difficult technical conversations and buying committees that stall decisions – your salespeople face these repeatedly. Over time, the brain starts building protective patterns around those uncomfortable moments.

As a result, salespeople unconsciously avoid the very behaviors that create pipelines and close deals. They stay busy with order management and customer service. They send a quote and wait. They make two calls, hear nothing and assume the prospect isn't interested. They talk themselves out of pushing for a decision because they don't want to risk the relationship.

Technical knowledge and selling confidence are two different things. A salesperson can walk a customer through a complete compressed

air audit, explain the full ROI on a variable-speed drive air compressor and still hesitate to ask for the order. They can know the right follow-up sequence and still not execute it. They can understand objection-handling conceptually and still discount the moment a purchasing agent pushes back.



Mark Allen Roberts will lead a Sales Engineering Workshop at the Best Practices 2026 EXPO & Conference in Indianapolis, IN. Visit <https://cabpexpo.com> to register.

Positive Actions to Change Behavior

Sales managers, pay attention to the language your team uses. Limiting beliefs show up in what people say. Watch for phrases like:

- "I'm still waiting to hear back."
(Translation: I stopped following up.)
- "They're comparing us on price."
(Translation: I didn't build enough value.)
- "They need more time."
(Translation: I didn't create urgency.)

These aren't operational updates. They're belief systems dressed up as status reports.

Identifying the belief is step one. Challenge these phrases with commercial truth, not motivational speeches.

"Cold outreach doesn't work" becomes "Irrelevant outreach doesn't work. A call that addresses a real uptime or energy problem creates a conversation." Then, role-play the avoided behavior until the brain builds new patterns through repeated successful experience.

Your compressed air salespeople aren't underperforming because they don't know the product. They're underperforming because invisible internal beliefs are making key selling behaviors feel risky. Fix the belief and the behavior follows. **BP**

About the Author

Mark Allen Roberts is the CEO of OTB Solutions, which provides professional training and coaching. Visit <https://www.nosmokeandmirrors.com>.

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