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Food Production



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Cover Image: A fish farm using a recirculating aquaculture system (RAS). Image courtesy of PR Aqua.

NEWS / Blower & Vacuum Industry & Technology

FS-Curtis Launches BWV Series Oil-Free Rotary Screw Blowers, Offering up to 35% Energy Savings

FS-Curtis launched the BWV Series oil-free rotary screw blowers. Engineered for industries



FS-Curtis's BWV Series oil-free rotary screw blower

requiring clean, efficient and dependable air solutions, the BWV Series delivers exceptional performance with energy savings of up to 35% at higher pressures.

The BWV Series is designed with a focus on quiet operation, energy efficiency and ease of use. Its innovative inlet duct design ensures stable, fluctuation-free performance. Direct-coupled permanent magnet motors, combined with advanced variable-speed drive technology, deliver significant energy savings. The intuitive iCommand-Touch+ controller offers real-time monitoring, advanced diagnostics and touchscreen simplicity. PTFE-coated rotors enhance corrosion resistance and extend service life while providing clean,

oil-free air. The series requires simple, economical maintenance with fewer wear parts and has a compact footprint.

The BWV Series is made to meet the rigorous demands of industries such as wastewater treatment, pulp and paper, automotive, cement, petroleum refining, glass, mining, aquaculture and pharmaceuticals.

“FS-Curtis has a proud history of delivering rugged, dependable air solutions. The BWV Series continues this legacy, offering customers advanced technology that reduces operating costs while maintaining the reliability FS-Curtis is known for,” said Russell Warner, Vice President of Sales, FS-Curtis. For more information, visit <https://us.fscurtis.com>.

AERZEN Expands the Delta Hybrid Series of Rotary Screw Blowers with D23S and D31S

AERZEN introduced two additional sizes for the Delta Hybrid with direct drive, thereby consistently pursuing its course toward an even more efficient and sustainable compressed air supply. The rotary screw blowers are digitally ready and impress with optimum energy efficiency, minimum footprint, maximum user-friendliness and absolute process reliability.

The centerpiece of the Delta Hybrid Series is the direct drive with gear wheels, which ensures greater efficiency. This is complemented by optimized rotor profiles, which further reduce energy consumption and improve the acoustic properties at the same time.

The IE5 motors are a particular highlight – the innovative synchronous reluctance permanent magnet motors significantly exceed the efficiency of IE4 motors and set new standards in energy savings, even in the partial load range. This underlines AERZEN’s role in compressed air technology and indicates how high performance and sustainability can be successfully combined.

Both new sizes convey 100% oil-, absorbent- and PFAS-free process and compressed air (oil-free operation according to ISO 8573-1, class 0) and offer a turndown ratio of 1:5. One VFD is already integrated and ensures precise and stepless adjustment of the volume flow to the current demand. The packages are designed for maximum reliability and durability, guaranteeing absolute process safety thanks to bearings with a theoretical service life of more than 60,000 operating hours, pressure lubrication of the anti-friction bearings, extended oil change intervals of up to 16,000 operating hours and the use of an oil level switch to actively monitor the oil level. The drive components are completely maintenance-free.

Delta Hybrid packages are fully pre-assembled and pre-programmed, and are immediately ready for connection and operation. Their compact type of construction with a footprint of 1.68 m² allows for a space-saving installation, and even a side-by-side installation of several machines can be easily implemented.

Operation and maintenance are performed exclusively from the front and rear. They have a maximum sound pressure level of 73 dB(A). Delta Hybrid rotary screw blowers can be used globally, even in zones with extreme ambient temperatures of up to 122°F (50°C). For more information, visit <https://www.aerzen.com>.



AERZEN expanded the Delta Hybrid Series with the D23S and D31S models.

NEWS / Blower & Vacuum Industry & Technology

Busch Vacuum Solutions USA Celebrates 50 Years with Grand Reopening of Virginia Beach Headquarters

Busch Vacuum Solutions USA celebrated a major milestone – 50 years of business in the United States – with a grand reopening at its Virginia Beach headquarters. The event brought together employees, customers, community partners and dignitaries to commemorate a half-century of innovation, growth and partnership.

The celebration marked the completion of a multi-phase, multi-million-dollar renovation project, transforming the 200,000-square-foot U.S. headquarters into a modern hub for manufacturing, assembly, service and collaboration. The updated facility underscores the company's continued investment in its people, customers and the local community.

Turgay Ozan, President and CEO, Busch Group USA, opened the ceremony by welcoming guests and expressing gratitude to the employees and partners who helped make the company's success possible: "Today is not just about the past 50 years – it is about the future we are building together," Ozan said. "This renovation is a symbol of our ongoing commitment to innovation, quality and collaboration. Busch Group USA is proud to call Virginia Beach home, and we look forward to the next 50 years of advancing technology and serving our customers with excellence."

"From the very beginning, our goal was to make vacuum technology accessible and useful for industries around the world," said Ayhan Busch, Co-Founder, the Busch Group. "We wanted to build not just a company, but a family, one where innovation, respect and dedication guide everything we do. It is wonderful to see that spirit alive and thriving here today." For more information, visit <https://www.buschvacuum.com>.



The Busch family and company leaders led a ribbon-cutting to officially reopen the renovated headquarters. (Source: Busch Vacuum Solutions USA)

Baker Hughes to Acquire Chart Industries, Accelerating Energy and Industrial Technology Strategy

Baker Hughes and Chart Industries entered into a definitive agreement under which Baker Hughes will acquire all outstanding shares of Chart's common stock.

Chart is a global leader in the design, engineering and manufacturing of process technologies and equipment for gas and liquid molecule handling across a broad range of industrial and energy end markets. Chart's highly differentiated products and solutions are used in every phase of the liquid gas supply chain, from engineering and design to installation, preventative maintenance to repair and service, as well as ongoing digital monitoring.

Chart and Baker Hughes together bring a highly differentiated set of capabilities to solve complex energy challenges and support customers' sustainability goals, positioning

the combined company as a leader in a lower-carbon, more resource-efficient future. Chart's offering is well positioned to deepen Baker Hughes's exposure to attractive high-growth markets, including data centers, space and New Energy. The acquisition also broadens Baker Hughes's exposure to more durable industrial sectors including industrial gas, metals and mining and food and beverage, significantly increasing Baker Hughes's addressable market and through-cycle growth potential.

Each company has distinctive products and solutions that together improve the customer value proposition. Baker Hughes's core competencies in rotating equipment, flow control and digital technology pair well with Chart's competencies in heat transfer, air and gas handling and process technologies. The combined company will have a large installed

base, creating opportunities to drive growth in high-value aftermarket products and services, as well as digital services using Chart's Uptime digital platform. Baker Hughes's expansive service footprint is expected to increase service rates for Chart's installed base, driving more profitable, recurring revenue across the combined portfolio.

"The Baker Hughes team shares our engineering-focused culture and commitment to operational excellence. Our complementary solutions fit seamlessly with Baker Hughes's Industrial & Energy Technology segment, and together we can help our customers solve the most critical energy access and sustainability needs. Our board is proud to deliver this outcome to our shareholders," said Jill Evanko, President and CEO, Chart Industries. For more information, visit <https://www.bakerhughes.com> and <https://www.chartindustries.com>.

Elmo Rietschle Launches Enhanced VCS 301 Rotary Vane Vacuum Pump, Replacing the VCS 300 Model

Elmo Rietschle announced the release of the enhanced VCS 301 rotary vane vacuum pump, a next-generation solution designed to meet the rigorous demands of modern industrial environments. The VCS 301 is a replacement for the original VCS 300 and, building on the success of the original model, this upgraded model achieves deeper vacuum levels, with an ultimate pressure of 0.09 mbar under ideal laboratory conditions.

The VCS 301 has a lower operating temperature, ensuring improved thermal stability and extended equipment lifespan. It offers significant energy savings, delivering up to a 32% reduction in energy consumption (1.5 kW), contributing to lower operational costs and enhanced sustainability. The VCS 301 maintains usable volume flow even at low vacuum levels, with ultimate pressure in the 0.1 mbar range, ideal for precision-driven applications.

The entire VCS product range provides advanced rotary vane vacuum pump technology that empowers businesses to optimize their processes while reducing their carbon footprint. The VCS range is engineered for industries where reliability, efficiency and environmental responsibility are paramount. It's suitable across a wide range of industries, including packaging, plastics, electronics or other high-performance sectors. The new 301 model is also available for heavy duty applications as a dedicated VCX variant.

Elmo Rietschle also unveiled the VCS 301+. This model features the larger of the two available motors (7.5 kW), delivering a 10% increase in volume flow without altering the unit's footprint or design.

Engineered for high-demand environments, the VCS 301+ is ideal for applications where cycle time is critical, offering up to a 10% reduction in vacuum pump downtime. Whether optimizing throughput or streamlining operations, this enhanced variant delivers measurable performance gains with zero compromise on compatibility. With identical dimensions to the standard VCS 301, the 301+ integrates effortlessly into existing systems, making it a smart and scalable upgrade. For more information, visit <https://www.elmorietschle.com>.



Elmo Rietschle's enhanced VCS 301 rotary vane vacuum pump



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Aeration Blowers in the Food Industry

By Bob Kisler, Regional Sales Manager, Hoffman & Lamson,
and Doreen Tresca, Marketing Manager, SSI Aeration

► Aeration is far more than a technical detail; it is a critical process underpinning food safety, product quality and environmental compliance across the entire food supply chain. From wastewater treatment in processing plants to grain storage and aquaculture systems, aeration ensures biological stability, prevents spoilage and supports sustainable operations. At the heart of these systems are industrial blowers and diffuser technologies, which deliver and distribute air efficiently to meet process-specific needs. Reliable aeration blowers provide the airflow required for mixing and oxygen transfer, while fine-bubble diffuser systems maximize oxygen dissolution in water, improving treatment performance and energy efficiency. The economic and environmental stakes

are high: Well-designed aeration systems help facilities avoid costly downtime, reduce energy consumption and meet increasingly stringent discharge regulations, all while minimizing the industry's environmental footprint. As global food demand grows and sustainability pressures intensify, selecting the right combination of aeration blowers, diffusers and controls has become essential for operational resilience and long-term success.

How Aeration Supports Food Processing Wastewater Treatment

The wastewater produced by food and beverage manufacturers is often much stronger than municipal influent. It contains a wide range of organics, nutrients and suspended solids, and the specific load varies

with the products being handled. Potato operations introduce starch that becomes sticky and coats equipment. Meat production adds fats, oils, grease and proteins able to seal diffuser slits. Tomato and fruit processing creates acidic waste streams with pulp and fibers, and beverage facilities contribute sugars, acids, colorants and surfactants promoting foaming and rapid biological growth. Many plants also generate elevated nitrogen and phosphorus levels, along with salts such as sodium chloride, which complicate biological treatment.

These materials are biodegradable, but they create significant oxygen demand and require a stable, well-designed aeration system. Fine bubble diffused aeration is commonly chosen for biological treatment because it releases large numbers of small bubbles, increasing the total surface area

Above: A retrievable diffuser grid in a food processing lagoon.

for oxygen transfer. These fine bubbles rise more slowly than coarse bubbles, which gives oxygen more time to dissolve into the water. When the diffusers, blowers and control systems are properly matched to the process needs, plants can achieve high treatment efficiency and reduce overall energy consumption.

The type of biological process used can vary, but many food processors rely on activated sludge or sequencing batch reactors (SBRs). SBRs treat wastewater in timed cycles within a single tank, which makes uniform aeration especially important. If air delivery is inconsistent or does not reach the full depth of the basin, both SBRs and conventional activated sludge systems can experience settling issues, odor episodes and reduced treatment performance. Meeting regulatory discharge limits depends heavily on maintaining proper dissolved oxygen levels throughout the cycle.

Membrane Selection and Regulatory Requirements

Membrane selection is also critical. EPDM is widely used in municipal wastewater treatment, but the harsher conditions found in many food-processing plants – including fats, acids, starches, sugars, surfactants and salts – can accelerate fouling and shorten membrane life. Advanced materials such as PEEK provide better resistance to chemical attack and biological buildup, helping maintain airflow and oxygen transfer over longer periods and reducing unplanned maintenance.

These operational factors matter because food processors face strict regulatory requirements. Facilities with full onsite treatment must meet effluent limits for BOD, TSS, nitrogen, phosphorus and other parameters before discharging. Plants only pretreating wastewater before sending it to a municipal system must still meet local limits to avoid surcharges, violations or forced shutdowns. If membranes foul or aeration blowers are forced to operate against increasing backpressure, aeration becomes less effective, and plants risk falling out of compliance.

Wastewater treatment may not be a daily focus for food-processing operators, but interruptions carry real financial consequences. Poor aeration performance can lead to production slowdowns, higher energy costs, additional surcharges from municipalities or even temporary shutdowns. A well-designed aeration system, including the right membrane materials, blower capacity and automated controls helps reduce these risks and keeps treatment reliable.

Beyond conventional treatment systems, many food processors rely on lagoons for their simplicity and cost-effectiveness. Here, aeration remains just as vital for maintaining biological stability and preventing sludge buildup.

How Aeration Enhances Lagoon Performance

Lagoon systems remain a widely used treatment method in the food industry because they have fewer mechanical components, are cost-effective and can handle large and variable flows. Many food processors choose lagoons specifically for

their long retention times and ability to buffer seasonal or production-related fluctuations that would strain more complex treatment systems. For facilities with adequate space and high hydraulic loads, lagoons offer a practical and reliable approach to managing industrial wastewater.

To perform effectively, however, lagoons depend on a healthy biological community requiring consistent oxygen and mixing. Food-processing wastewater often carries fats, proteins, starches, sugars and salts settling or accumulating more rapidly than municipal waste. Without proper mixing or aeration, solids can accumulate on the bottom, forming sludge layers reducing treatment capacity and creating anaerobic zones. Research on lagoon performance has shown these low-oxygen areas can slow the natural breakdown of pollutants and interfere with pathogen reduction, underscoring the importance of maintaining oxygen throughout the entire lagoon.

Dissolved oxygen is at the core of lagoon treatment, and this is where upgraded



A fine bubble aeration basin at startup.

» Aeration Blowers in the Food Industry

aeration systems make a meaningful difference. Fine bubble diffusers can be installed to improve oxygen transfer efficiency across the lagoon, supporting both organic removal and pathogen reduction. Their small, slow-rising bubbles increase contact time and encourage deeper oxygen penetration, which enhances aerobic digestion. When paired with properly sized aeration blowers, fine bubble systems deliver this oxygen efficiently, even in large basins. Modern controls can further optimize performance by adjusting airflow based on loading conditions or dissolved-oxygen demand.

Designing Aeration Blower Systems for Varying Conditions

Sludge accumulation is another operational consideration. Excess solids can obstruct diffuser performance and increase backpressure, forcing aeration blowers to work harder. This raises energy use and can shorten aeration blower life if left unaddressed. Selecting diffuser membranes

that resist fouling and designing aeration blower systems with appropriate capacity and turndown helps maintain consistent airflow as conditions change. Automated controls allow plants to monitor dissolved oxygen, pressure and energy consumption so they can address issues early, before they affect treatment performance.

Regulatory compliance is also a key driver. Whether a lagoon provides full onsite treatment or acts as a pretreatment step before sending flow to a municipal system, the effluent must meet specific permit limits for parameters such as BOD, TSS, nutrients and, in some cases, pathogens or fats and oils. Reliable aeration plays a central role in maintaining these levels. When aeration performance declines, facilities may face surcharges, odor complaints or production slowdowns while the lagoon recovers.

When lagoons are equipped with the right aeration and control strategy, they become a

dependable and economical way to manage food-processing wastewater. Fine bubble diffusers, properly selected blower systems and responsive controls can significantly improve oxygen transfer, biological stability and overall reliability. This allows food processors to retain the operational simplicity and cost advantages of lagoon treatment while meeting modern regulatory and performance expectations.

Aeration in Grain Storage and the Role of Blowers

Aeration isn't limited to water-based processes. In grain storage, controlled airflow plays a different but equally important role, preserving crop quality and preventing spoilage during long-term storage.

Grain storage facilities rely on aeration systems to preserve the quality of corn, wheat, soybeans and other crops. Unlike wastewater treatment, the purpose of aeration in this environment is not oxygen transfer but temperature and moisture control. When grain is stored in large bins or silos, natural respiration and external heat can create warm, humid pockets encouraging mold growth, insect activity and spoilage. Aeration systems prevent these conditions by moving controlled amounts of air through the grain mass.

Before aeration technology was widely available, operators often had to manage grain quality by manually turning or moving the grain within the storage structure. This introduced fresh air and helped reduce hot spots, but required significant labor, created wear on equipment and still did not guarantee uniform cooling. Modern aeration systems replaced this practice by delivering consistent airflow throughout the bin, reducing manual intervention and improving overall product protection.

Most grain aeration systems rely on industrial blowers to push or pull air through perforated floors, ducts or vertical aeration tubes within the bin. Because grain is a dense, tightly



An aeration blower system used by a food processor.

packed material, the blower must provide enough static pressure to move air evenly through the entire structure and prevent dead zones where spoilage can occur. Proper airflow maintains uniform temperatures, limits moisture migration and helps keep mold and insects under control.

Temperature Changes in Grain Storage

Aeration blower performance is especially important in climates with large seasonal temperature swings or in facilities storing grain for extended periods. The right aeration blower system allows operators to cool the grain during harvest, maintain stable conditions through winter and manage gradual warming in spring and summer. Automated controls are increasingly common and help optimize airflow based on inside-bin temperatures, ambient conditions and moisture trends.

Although the equipment used in grain aeration differs from the diffused aeration systems applied in wastewater treatment, the engineering principles are similar. Reliable, steady airflow is essential to prevent quality loss, protect stored product and reduce the financial risks associated with spoilage. For facilities handling large storage volumes or multiple bin sites, selecting the appropriate aeration blower size and control strategy plays a major role in maintaining consistent grain quality.

Aeration in Aquaculture: Supporting RAS Performance

Finally, aeration extends to aquaculture, where oxygen delivery supports fish health and biofilter performance in recirculating systems, and even creates protective barriers in open-water farms.

Aquaculture (fish farming) continues to grow as a major contributor to the global food supply, and aeration plays an important role in both land-based and open-water production systems. In recirculating aquaculture systems (RAS), water is continuously filtered and reused, which allows farms to maintain higher stocking



This aeration basin has coated membranes for a longer lifespan and reduced maintenance.

densities and more controlled growing environments. To support fish health and the biological processes cleaning the water, these systems depend on a reliable and steady supply of oxygen.

Fine bubble diffusers are often used in RAS because their small, slow-rising bubbles improve oxygen transfer and help maintain stable oxygen levels in the tanks. Adequate oxygen is essential not only for the fish but also for the nitrifying bacteria inside the biofilter, which in many installations is designed as a moving bed biofilm reactor (MBBR). An MBBR uses suspended plastic media to provide a large surface area where beneficial bacteria can grow and break down the ammonia produced by fish and uneaten feed. These bacteria transform ammonia into safer forms, and they rely on continuous oxygen to carry out this work. The performance of the biofilter depends on stable dissolved oxygen levels and selecting media well-suited to the system's flow and loading conditions.

The Biofilter and Reliable Air Delivery

Because the biofilter is central to water quality, the aeration system and aeration blower capacity must support both fish respiration and biological treatment. Reliable air delivery keeps the media in motion, maintains active biofilm and helps the biofilter respond to changes in biomass or feeding activity. Modern controls allow operators to adjust airflow as conditions change, which helps maintain consistent performance while reducing energy use.

Aeration is also important in marine aquaculture, although it is used differently. Open-water farms, especially salmon operations, increasingly rely on bubble curtains to protect fish from harmful algal blooms, jellyfish and other biological threats carried by tidal currents. Bubble curtains use high-volume aeration blowers to release streams of rising bubbles around the perimeter of net pens. The upward movement of the bubbles helps deflect or dilute incoming

» Aeration Blowers in the Food Industry

water before it reaches the fish. Long-term installations have shown these systems can improve farm resilience and help reduce losses during contamination events.

Whether the goal is maintaining oxygen levels in a recirculating system or creating protective barriers in coastal waters, aeration remains a versatile tool in modern aquaculture. Effective system design brings together the right aeration blower capacity, diffuser or bubble-line configuration and automated controls. These elements work together to ensure reliable, continuous performance, which is essential in an industry where even brief interruptions can affect fish health and overall production.

Conclusion

Across these diverse applications, the common thread is clear: Reliable aeration systems, powered by industrial aeration blowers and diffuser technologies, are essential for efficiency, compliance and sustainability.

Aeration touches nearly every part of the modern food supply chain, from treating high-strength wastewater in processing plants to preserving stored grain and supporting fish health in aquaculture systems. While each application has its own requirements, the foundation remains the same. Successful aeration depends on delivering air reliably, distributing it effectively and designing systems matching the unique characteristics of the process.

In wastewater treatment, fine bubble diffusers, properly selected membranes and well-sized aeration blowers help facilities manage complex waste streams, maintain compliance and avoid costly disruptions. In lagoons, aeration supports a stable biological community and enhances performance in systems many food processors rely on for their simplicity and flexibility. Grain storage facilities depend on steady airflow to protect crop quality, and aquaculture operations use aeration both to maintain controlled environments in recirculating systems and shield open-water farms from external threats.

Across all these environments, the integration of aeration blowers, diffusers, controls and process-specific design is what enables aeration systems to perform consistently. As production demands grow and regulatory expectations rise, selecting the right aeration approach becomes even more important. Thoughtfully engineered aeration solutions give food processors, farmers and aquaculture operators confidence their systems will remain reliable, efficient and capable of supporting long-term operational goals. **BP**



This medium-flow, multistage centrifugal blower is meant for water, wastewater and industrial air applications.

About the Authors

Bob Kisler has over 35 years in the aeration blower industry, concentrating on procedures and process improvement. He focuses on variable frequency drives, PLC controls and programming to reach maximum energy savings and process improvement for aeration blower applications. He provides consultations to develop technical solutions, as well as assistance on energy savings with centrifugal blower technologies.



Doreen Tresca is a strategic marketing leader with over 15 years of experience driving growth for B2B brands in the water and wastewater industry. She currently leads global marketing and communications at SSI Aeration, supporting international sales and operations across the municipal and industrial sectors.



About Hoffman & Lamson

Hoffman and Lamson are trusted leaders in centrifugal blower and exhauster technology, with over a century of engineering excellence serving water, wastewater and industrial markets worldwide. As part of Gardner Denver's Nash Division, it offers a broad range of high-efficiency blower systems – customizable, energy-saving and built for durability across demanding air and gas applications. For more information, visit <https://www.hoffmanandlamson.com>.

About SSI Aeration

With nearly 30 years of experience, SSI Aeration is a global leader in wastewater treatment technologies, specializing in energy-efficient fine bubble diffusers and MBBR systems. Backed by engineering expertise and worldwide support, SSI delivers reliable, innovative solutions that help facilities operate cleaner and smarter. For more information, visit <https://www.ssiaeration.com>.

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GlobalVac & Air Upgrades the Dalton Cardiovascular Research Center

By Troy Dreier, Senior Editor, Blower & Vacuum Best Practices Magazine



The University of Missouri Dalton Cardiovascular Research Center needed an upgraded vacuum pump system in a small space.

▶ GlobalVac & Air specializes in engineered vacuum and compressed air systems, as well as mobile engineered solutions for medical, industrial and laboratory environments. Recently, Elizabeth Fleming, Air & Vacuum Systems Sales Engineer, worked with the University of Missouri Dalton Cardiovascular Research Center and Brabazon Pump, Compressor & Vacuum to replace a rotary claw vacuum system. The job involved a special challenge: maneuvering an upgraded duplex vacuum pump system through a small space in the research center's basement.

Above: Elizabeth Fleming, Air & Vacuum Systems Sales Engineer, GlobalVac & Air, with Grant Ballard, Machinist Specialist; Codie Haynes, Pipefitter, and Michael Burks, Machinist (left to right), from the University of Missouri Dalton Cardiovascular Research Center.

» GlobalVac & Air Upgrades the Dalton Cardiovascular Research Center

About GlobalVac & Air

“GlobalVac & Air has been around for 35 years,” Fleming said. “We’re headquartered in Brockton, MA. We’re a supplier of air and vacuum systems used in applications found in hospitals, labs, universities and industrial plants. We have a team of engineers and product managers who have been in the industry for many years and enjoy excellent relationships with engineering firms, resellers and end users in the Northeast.

“We’re looking to expand our footprint, expand our products and go national. I was hired to develop relationships with resellers, end users and engineering firms nationally. I’m not limited to the Midwest, so I get out there and get our name out there. We’re doing that by attending trade shows and doing lots of outreach with our marketing team. We host lunch-and-learns, shake hands and get in front of people. We’re growing!”

The Unique Vacuum Needs of Medical Research Centers

In research labs, vacuum pump systems are crucial for aspiration (removing liquids or debris), filtration (separating solids from liquids, especially fine particles), evaporation and drying (lowering boiling points to remove solvents), degassing (removing dissolved gases from liquids to prevent bubbles) and sample preparation (concentrating solutions and removing impurities).

The research center allows people from a variety of fields – including engineering, biomedical science, veterinary medicine, general medicine and physiology – to conduct research on the heart, blood and blood vessels. Experiments could involve hormone regulation, the effects of exercise or cardiovascular disease. It already had a vacuum pump system, but the 15-year-old system could no longer maintain 23”Hg and was short-cycling. Additionally, the research center had added more lab stations, putting greater demand on its vacuum system. The research center needed a replacement and an upgrade. It wanted to change its single vacuum pump system to a duplex vacuum pump system.

Selecting the Right Oil-Free, Rotary Claw Vacuum Pump

Brabazon Pump, Compressor & Vacuum is GlobalVac & Air’s largest Midwestern distributor. It already had a relationship with the university, having completed many projects for it in the past. The distributor brought in the opportunity to replace the older rotary claw vacuum system for the university, which the company quoted. Fleming credits winning the job to the distributor’s trusted relationship with the university.

“The job began in February 2025,” Fleming said. “I got an email from Keith Hartoebben, the Pump Manager at Brabazon. He said, ‘I’ve got an opportunity for a lab vac system needed ASAP.’ It needed to be mounted on a skid and include redundancy or a backup, which means that one pump is running and one



Elizabeth Fleming demonstrated the narrow passage for the duplex vacuum pump system’s installation.

pump is not running. He requested a duplex vacuum system with a control panel mounted on a skid.”

The university previously had an oil-free rotary claw vacuum pump system and was happy with the technology. The company sized the vacuum system to match the previous system, but added a second pump to keep up with increased demand. One pump is the lead and the other is the lag, with both pumps working together when needed. A control panel attached to the system automatically alternates which vacuum pump is leading and which is lagging based on pump runtime. The company offered the university several configurations so it could select the best one for its needs and space. The skid also included a storage tank.

The selected 10.8 horsepower (hp) vacuum pump system included two 5.4 hp rotary claw vacuum pumps. It also included an automated inlet purge system to ensure condensed gases don't contaminate rotors. Lab research often involves ingesting harsh chemicals during experiments. An inlet purge system is important for lab applications and helps extend the vacuum pump's life. When the vacuum pumps revert to the lag position, the automated system isolates them and allows ambient air to flow through them for a fixed period of time before they go into standby. The pump components are purged of ingested chemicals, which then exhaust outside the building.

The previous vacuum pump system supplied 103 acfm, meaning it pulled 103 cubic feet of air per minute. The new vacuum pump is virtually the same at 106 acfm, but it includes a second vacuum pump for periods of strong demand. The old system supplied 23"Hg, while the new system is capable of 28"Hg.

Fitting an Upgraded Vacuum Pump System into a Small Footprint

The challenge for this installation was getting the duplex vacuum pump system into a small space in the research center's basement. Because of large pipes blocking the entry, the skid needed to move through a narrow



The duplex vacuum pump system was bolted together onsite.

About Brabazon Pump, Compressor & Vacuum

Founded in 1978, Brabazon began as a small distributor with a focus on dependable compressed air and vacuum systems. Over the years, its expertise and customer-first approach helped it expand throughout the Midwest. The company operates multiple service centers across Wisconsin, Minnesota, Illinois, Iowa and Missouri, giving customers access to support, fast response times and local expertise when and where it's needed most.

The company's mission is to provide compressed air systems, pumps and vacuum solutions to enhance efficiency and support the long-term success of its customers. It built its reputation on technical precision, trust and delivering measurable results.

» GlobalVac & Air Upgrades the Dalton Cardiovascular Research Center



The duplex vacuum system's control panel offers a touchscreen interface.

or the connections. They want to make sure the vacuum system reached its required vacuum level.”

Onsite Vacuum Pump System Testing

GlobalVac & Air tests all the systems it sells before they leave its facility, but conducts additional testing on site once the system is installed. It tests for leaks, makes sure the vacuum level is on target and sees that the entire system is operating smoothly. On-site testing took two to three hours.

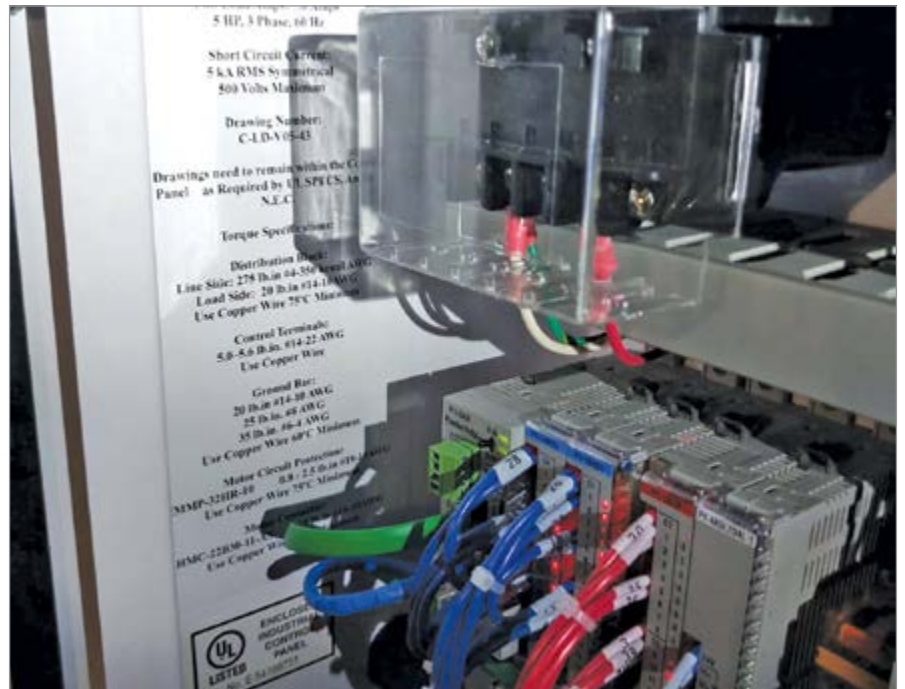
“Testing went really smoothly. The facilities team asked a few questions about long-term maintenance and the oil that should be used,” Fleming said. “One of the first things the facilities manager asked me was how long he could expect this system to be in place, because the previous technology had been there for about 15 years. I said, ‘If you maintain the system, change the oil, change the filters, I would say you’re good for another 10 to 15 years with this system.’ Brabazon will be the distributor they use to service the unit.”

opening before it was installed. The company usually ships its skid system bolted together, but this one had to ship in pieces so it could fit into the space and be assembled on site.

“It was a tight space and a hot room,” Fleming said. “It’s the basement of a large old building, so there were tons of pipes of all different sizes, and lots of hissing and steam. I had to duck underneath a pipe to get into the space. That’s actually where our equipment usually lives – mechanical rooms in the basements of hospitals and labs. When I got there, the old vacuum system had been removed. We put the new system right where the old one was.”

“Brabazon Pump, Compressor & Vacuum has trained technicians. Its service techs are trained and certified to do startups like this out in the field. I was there for the installation, as was the sales rep from the distributor, its service tech, several people from the university, the facilities manager and the manager of the research center,” Fleming said. “The distributor had to take the vacuum system apart to get it into the

space. Once it was in the four-by-four space, it was time to check and make sure there were no air leaks or problems with the piping



Wiring connecting the control panel with the rest of the vacuum pump system.

After the system arrived on site, the installers saw 230V power was required, rather than the originally specified 460V. The company was able to accommodate the change by shipping a new overload sized for the higher current. This adjustment ensured the system operates safely and as intended.

To test the vacuum pump, the distributor's service tech turned the equipment on and studied the control panel, ensuring the readings were where they were supposed to be. The service tech saw how much vacuum the system supplied and was able to gauge the readings' accuracy. No on-site adjustments were needed, since the system had been programmed ahead of time.

“On site, the distributor checked the pump, pipes, valves, seals and controls were installed correctly,” Fleming said. “They do performance testing to be sure it can reach its specified ultimate vacuum. Pressure levels are measured and compared to design expectations. The service tech checks for noise, vibration, temperature and stability. The control system was calibrated and it was confirmed it was responding correctly. A GVA manual was placed in a pocket sleeve next to the control panel. Any and all questions are answered during the startup. I recall a question coming up about system maintenance from the facilities manager. We recommend changing the inlet filter every 1,000 hours and changing the gear oil every six months or 2,000 hours. Once the service tech runs through all the necessary tests, he signs off on it.

“There are times when we need to make a call to the product manager and adjust something, change a setting, something doesn't look programmed right, but in this case, we pretty much had it already set.”

Vacuum Pump System Aftercare and New Installations

Since the installation, Fleming has been in touch with the research center several times to go over maintenance information and learn how things are going. The research center

is happy with the vacuum pump system's performance, she said.

The installation could lead to other installations at the university. There are other air compressors and vacuum pump systems on the campus, and it has other research centers. After this successful installation, Fleming thinks her company will be a supplier for future projects. **BP**

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