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August 2024

Vacuum for Aerospace

AERATION BLOWER SYSTEMS

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14 Inovair Aeration Blowers Pass
the Test at Colorado WWTP

INDUSTRIAL VACUUM & BLOWER SYSTEMS

20 pdblowers Soars in Aerospace
Vacuum System Installation

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* Based on November 2023 EPA RFI: <https://www.regulations.gov/document/EPA-HQ-OW-2023-0396-0001/comment>

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20 **pdblowers Soars in Aerospace Vacuum System Installation**

By Nellie Fonner



AERATION BLOWER SYSTEMS

14 **Inovair Aeration Blowers Pass the Test at Colorado WWTP**

By Troy Dreier, Blower & Vacuum Best Practices Magazine

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Jobs and Technology**



From the Editor



Industrial Vacuum & Blower Systems

We'd like to thank President Jim Hene of pdblwers for taking time to describe the multi-stage vacuum system his company provided an aerospace firm. The application required a dry (zero water) vacuum system that could be fully assembled before shipment for a factory acceptance test (FAT). This 20,000 cfm at 2 psia (0.14 bar) project was not one you run into every day. Hene said, "A primary goal was to implement a dry system with no water to reduce the environmental impact and its associated regulatory burden."

Aeration Blower Systems

The wastewater treatment plant for the City of Lafayette, Colorado, is a Class B biosolids facility and treats an average of 2.4 million gallons per day. Peak flow is 4 MGD and minimum flow is 1 MGD. It was looking to modernize its aeration blower system to one able to respond rapidly and efficiently to changes in demand. Having tried a new technology unsuccessfully, it sought a blower system it could first test. Our Senior Editor, Troy Dreier, interviewed its water reclamation team along with leaders from Inovair, a Kansas City-based geared centrifugal blower manufacturer, to learn how that test led to a five-blower system providing efficiency and redundancy.

Thank you for investing your time and efforts into *Blower & Vacuum Best Practices*.

RODERICK M. SMITH
Editor
tel: 412-980-9901
rod@airbestpractices.com



Upcoming Webinars and Recent Webinar Recordings in the Archive

Receive 1.0 PDH credit by attending our Expert Webinars or visit our Webinar Archives if you can't attend live. Complimentary registration at <https://www.blowervacuumbestpractices.com/magazine/webinars>

- **July 25, 2024:** Instrumentation and Monitoring for Vacuum Systems – Presenters Emma Larrabee, Marketing Manager and Todd Dunn, VP Sales & Marketing, Zorn Compressor & Equipment
Sponsored by Quincy Compressor
- **September 12, 2024:** Aeration Blower Sizing and Selection – Presenter Tom Jenkins, P.E., President, JenTech Inc.
Sponsored by Kaeser Compressors
- **November 21, 2024:** Power Consumption Curves for Vacuum Pumps: Fixed-Speed vs. Variable-Speed – Presenter Andy Smitneek, President, Growth Solutions Consultants
Sponsored by Rogers Machinery

2024 MEDIA PARTNERS



Blower & Vacuum Industry News

Aerzen USA Appoints Kristen Grunza Company President

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

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

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

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

Ms. Grunza's appointment is pivotal for Aerzen USA as the company continues to innovate



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

and expand its offerings to meet the growing demands of the industry that Aerzen serves.

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

About Kristen Grunza

Kristen is a senior executive with 25 years of experience driving business results in energy and industrial markets. She has broad experience leading global matrix organizations and has demonstrated expertise in business strategy and planning, executive management, sales and commercial leadership, business transformation, client relationships and contract structuring and negotiation.

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

Prior to joining Johnson Controls in 2021, Kristen spent two decades in various leadership roles with Xylem, Honeywell, Global Power and General Electric. In her previous leadership roles, she was responsible for sales, engineering, marketing, commercial operations, risk, quality and field execution. She began her career as a manufacturing engineer.

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

About Aerzen USA

Aerzen USA is a wholly owned division of the German manufacturer Aerezener Maschinenfabrik GmbH, which is a global company delivering reliable, high-performing and energy-efficient blowers and screw compressors since 1868. Aerzen USA is based in Coatesville, PA, and has offices, service and rental centers throughout the country. The company also owns and manages members of the Aerzen group: Aerzen Rental USA LLC, Vooner FloGard LLC, Aquarius Technologies Inc. and Specialty Treatment Solutions. For more information, visit <https://www.aerzen.com/us>.

Blower & Vacuum Industry News

Atlas Copco to Acquire Vacuum Distributor in Mexico

Atlas Copco Group will be acquiring the vacuum related assets and the brand of Mexican Montajes Electromecánicos e Ingeniería, S.A. de C.V. (“MEISA”). The company provides vacuum pumps and related services to industrial customers in Mexico.

MEISA is a privately-owned company founded in 1985 and located in Queretaro and Monterrey, Mexico. Approximately 45 employees will join Atlas Copco Group as part of this acquisition.



Vacuum distributor in Mexico to become part of Atlas Copco Group.

“MEISA has been successfully serving the vacuum market in Mexico for a long time and has held the distributorship for the Leybold brand since 1986,” said Geert Follens, Business Area President Vacuum Technique. “Through this acquisition we now create the opportunity to directly serve our customers and further strengthen our market presence in the country.”

The purchase price is not disclosed. The acquisition is expected to close during the second quarter of 2024, and the acquired business will become part of the service division within the Vacuum Technique business area.

About Atlas Copco Group

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

Becker Pumps Corp Acquires Air-Vac Systems

Becker Pumps Corp is pleased to announce the acquisition of Air-Vac Systems Inc., a vacuum pump and air compressor sales and service provider located in El Cajon, California. The acquisition of Air-Vac is a significant step in the expansion of Becker's repair and service network across the U.S. and Canada. This acquisition will bolster its local presence, increase efficiency, expand reach and ultimately elevate customer satisfaction. Together, they are poised to unlock new opportunities, drive growth and set new standards of excellence in the industry.

Investing in the expansion of the company's service and repair capabilities not only enhances Becker's competitive edge but also reinforces its commitment to delivering



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exceptional value to customers. By broadening the skills and knowledge base of employees, and leveraging the resources and expertise gained through acquisitions, Becker is better equipped to respond to the changing demands of customers more effectively and provide customized solutions that meet their unique needs.

Through strategic acquisitions like this, Becker is better positioned for sustainable growth and success in the dynamic industrial equipment service and repair market, ensuring the company remains at the forefront of innovation and service excellence. This strategic

acquisition deepens Becker's geographical footprint and enables it to provide unparalleled assistance to customers across the U.S. and Canada.

"We are thrilled about the prospects following our acquisition in the service and repair market. This strategic move not only enhances our capabilities but also strengthens our position to provide unparalleled services to our customers. The future is bright, and we are excited to embark on this journey of success and advancement with the knowledgeable team from Air-Vac," said Jason Rathbun, Managing Director at Becker Pumps Corp.



Becker Pumps Corp completes strategic acquisition of West Coast service provider, Air-Vac Systems, Inc.

"As a company recently acquired in the service and repair market, we are incredibly optimistic about the future ahead. This acquisition marks a significant milestone in our journey, one that promises an array of benefits and opportunities for both our team and our valued customers. By joining forces with Becker, we gain access to enhanced resources, expertise and a broader network,

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enabling us to elevate our service offerings and deliver even greater value to our clientele. We believe that this partnership will catalyze innovation, foster growth and solidify our position as a leader in the industry. Together, with Becker, we are better positioned to address evolving customer needs, explore new markets and set new benchmarks for excellence. Our commitment to quality, integrity and customer satisfaction remains unwavering, and we are excited to embark on this journey of collective success. The future holds immense promise, and we are enthusiastic about the possibilities that lie ahead as we merge our strengths and strive toward greater achievements together,” said Scott Miller, Operations Manager at Air-Vac Systems Inc.

About Air-Vac Systems Inc.

Air-Vac Systems opened its doors in September of 1991. The company currently has over 100 years of combined experience in air compressor

and vacuum pump repair. Serving the greater San Diego County area, it has hundreds of satisfied customers. For more information, visit <https://airvacinc.com>.

About Becker Pumps Corp

Becker Pumps Corporation, a subsidiary of Gebr. Becker GmbH, is a leader in the design and manufacturing of vacuum and pneumatic equipment. Becker specializes in developing high-quality vacuum pumps, compressors and blowers that serve a wide range of applications across various industries including printing, packaging, woodworking, plastics, medical and more. Becker's U.S. headquarters was founded in 1975 in Cuyahoga Falls, Ohio, and remains part of the global Becker family-owned company with over 800 employees globally in 18 subsidiaries. For more information, visit <https://beckerpumps.com>.

WOMEN IN COMPRESSED AIR / VACUUM / COOLING

Join the Women in Compressed Air, Vacuum & Cooling (WCVC) Networking Group
We look forward to meeting you soon!



The Women of the WCVC Networking Group at their inaugural networking luncheon, Best Practices EXPO & Conference, Chicago 2023.

Are you a woman in the compressed air, vacuum or cooling industry? Do you want to connect with other women who share your passion and challenges?

The WCVC Networking Group is a group of women who provide each other with **support, mentorship, and networking opportunities**. We offer:

- Quarterly virtual meetings with guest speakers and Q&A sessions
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- Industry insight and resources to help you grow your career and skills

WCVC is more than just a group. It's a community of women who empower and celebrate each other.

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Best Practices 2024 EXPO & Conference Announces New Technology EXPO Classroom Schedule

The Best Practices 2024 EXPO & Conference will be returning to the Cobb Galleria Centre in Atlanta Oct. 29-31, along with the popular New Technology EXPO Classroom located directly on the EXPO floor.

The New Technology EXPO Classroom provides insights on new technologies from around the world. While the Best Practices Conference program upholds brand neutrality guidelines, this separate classroom on the EXPO Floor is reserved for exhibitors to present their latest technologies for compressed air, pneumatics, vacuum, chiller and cooling tower systems.

This year's presentations will include information on cutting-edge compressed air and gas instrumentation technology, advancements in centrifugal controls, system auditing, hydrogen filtration technology, sizing compressed air piping, gas compressor applications and much more.

New Technology EXPO Classroom schedule:

Tuesday, October 29

- 1 to 1:25 p.m. – **Understanding the Air-to-Nitrogen Ratio to Maximize Savings – Mikropor MNG PRO Series Introduction**, *Mike Kinnucane, Nitrogen Business Development Manager, Mikropor*
- 1:30 to 1:55 p.m. – **Simple Integration of Open-Source Sensors and Wireless Platforms for Data-Driven Compressed Air Optimization**, *Nathan Eisel, New Product Development Manager, SMC*
- 2 to 2:25 p.m. – **The Physics of Success**, *Tilo Fruth, President, BEKO Technologies*
- 2:30 to 2:55 p.m. – **Cutting-Edge Compressed Air & Gas Instrumentation Technology**, *Martin Zeller, General Manager, CS INSTRUMENTS USA*
- 3 to 3:25 p.m. – **Inmatec N₂, O₂ Generators**, *Raul Castaneda, Area Sales Manager, BOGE America*

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- 3:30 to 3:55 p.m. – **Advancements in Centrifugal Controls – The Fourth Utility**, *David Sleeman, Aftermarket Sales Manager, FS-Elliott*
- 4 to 4:25 p.m. – **System Auditing from the Air Compressor**, *Josh Wamser, Owner, Tamsan-USA*

Wednesday, October 30

- 1 to 1:25 p.m. – **Hydrogen Filtration Technology**, *Simon Taylor, General Manager, Walker Filtration*
- 1:30 to 1:55 p.m. – **Vortex Flow Meter – How it Works, Advantages and**

Limitations, *Ray Fang, International Sales Manager, Comate Intelligent Sensor*

- 2 to 2:25 p.m. – **Oversized Pipe is Not a Storage Solution! Sizing Compressed Air Piping for Larger Plants**, *Derrick Taylor, General Manager, Unipipe Solutions*

- 2:30 to 2:55 p.m. – **Gas Compressor Applications**, *Sean Dempsey, Southeast Regional Sales Manager, Sauer Compressors USA*

- 3 to 3:25 p.m. – **Department of Energy 2025 Regulation of Rotary Air**

Compressor Isentropic Efficiency, *Bruce McFee, President, Sullivan-Palatek*

The Best Practices EXPO Floor will be open from noon to 6 p.m. on Oct. 29 and 30. There will be nearly 100 exhibitors in attendance and access to the latest technologies as well as product introductions.

In addition to the Full Conference pass, there is an EXPO Hall Pass available for just \$50 during Early Bird Rates. This includes access to all EXPO hours, opening and plenary sessions, a networking event at Renaissance Waverly Atrium, New Technology EXPO Classroom presentations, eligibility to enter the daily

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Raul Castaneda
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David Sleeman
Aftermarket Sales
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Josh Wamser
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Simon Taylor
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Ray Fang
International Sales
Manager, Comate
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Sean Dempsey
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Bruce McFee
President,
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\$1,000 Energy Treasure Hunt Raffle and the Women in Compressed Air, Vacuum & Cooling Networking Breakfast. Visit <https://cabpexpo.com/registration/atlanta-2024/> to secure Super Early Bird Rates now.

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

About Best Practices EXPO & Conference

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

Piab USA Relocates Headquarters to Canton, MA

Piab USA, a leader in industrial automation solutions has announced the relocation of its headquarters to a new, state-of-the-art office facility in Canton, Massachusetts. This move is part of Piab's strategic initiative to accommodate rapid growth and expand its capabilities in providing innovative automation technologies.

The new office, located at 100 Energy Drive, will serve as the central hub for Piab USA's operations, housing its management, sales, support, R&D and distribution center.

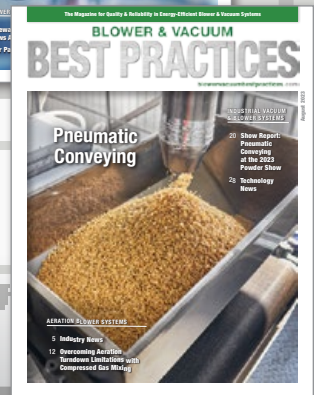
The new Canton office is designed to foster innovation and collaboration among Piab's teams. Equipped with modern amenities, advanced technological tools and spacious conference areas, the facility will enhance the company's ability to develop and deliver high-quality automation solutions. The office layout encourages open communication and



Piab USA is relocating its headquarters to a new, state-of-the-art office facility in Canton, Massachusetts.

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teamwork, which are key to Piab's agile and responsive business approach.

"We are thrilled about the move to our new office in Canton, which marks a significant milestone in our journey," said Ed McGovern, Vice President of Piab USA. "This new facility not only supports our growth ambitions but also reflects our commitment to providing our employees with a great working environment and our customers with exceptional service. We look forward to becoming an integral part of the Canton community and continuing to drive innovation in industrial automation."

About Piab

Piab is evolving automation through progressive gripping, lifting and moving solutions. Since 1951, Piab has been serving industries like e-commerce logistics, food, pharma, automotive and more, improving energy-efficiency, productivity and work environments. With a presence in more than 100 countries, Piab is a global organization dedicated to developing automation solutions that enhance the efficiency and quality of production processes. For more information, visit <https://www.piab.com/en-us>.

Schenck Process Rebrands as Qlar

The German-headquartered Schenck Process is taking the lead in climate-neutral material transformation processes. Guided by its aspiration, "the future is cirQlar," Schenck Process has rebranded to Qlar, extending its focus on digitally enabled and sustainable solutions. The company will continue to serve all existing target industries, including chemicals, high-performance materials, cement, steel, infrastructure, transport and energy. The Schenck Process brand, with its



Dr. Jörg Ulrich, CEO of Schenck Process, discusses rebranding to Qlar.

existing portfolio, will remain as a product brand under the roof of Qlar that will drive future innovative solutions in the green and circular economy.

Following Schenck Process' refocus on its core expertise in weighing, feeding, conveying, milling and grinding in 2023, the company is taking its next step: "With the rebranding to Qlar, we at Schenck Process are opening a new chapter for a circular future. With the new branding, we are linking ourselves to the circular economy, and focusing our attention even more on future challenges in digitalization and green transformation," said Dr. Jörg Ulrich, CEO of Schenck Process.

The company, which has more than 1,100 employees across Europe, UK, China, India, Japan and Indonesia, will continue to strengthen its established and valued products,

with an even greater focus on precise, sustainable process technologies and digital solutions in line with its Qlar mission.

"Schenck Process, with its clear focus on material transformation, is already on a highly promising journey to shape a sustainable future by driving smarter material processing in the circular economy. We are contributing to the 'zero waste' goal of our global customers and effectively supporting them in reducing their carbon footprint, and our rebrand to Qlar reinforces our commitment to the goal of sustainable transformation. We are emphasizing that we will be a driving factor in emerging sectors such as batteries, green steel, green cement and recycling in the future," said Ulrich. "With our new branding we feel even more energized to serve all our customers in existing as well as new green and circular applications with well-known Schenck Process and Qlar solutions."

This rebrand does not apply to Schenck Process Food and Performance Materials in the USA, which is owned by Coperion.

About Schenck Process

Schenck Process is a global provider of sustainable products, integrated solutions and services in mission-critical applications for bulk materials. Headquartered in Darmstadt, Germany, the group has more than 1,100 employees with a presence in over 12 countries focused on markets alongside chemicals and performance materials, and infrastructure and energy as well as alternative fuels. Schenck Process has been renamed to Qlar. For more information, visit <https://www.qlar.com>.

PROUDLY PRESENTING THE 2024 EXPERT WEBINAR SERIES



Tim Dugan, P.E.
President and Principal
Engineer, Compression
Engineering Corp.



Phil Johnston, P.E.
Technical Manager,
Woodard & Curran



Julie Gass
Lead Mechanical
Process Engineer,
Black & Veatch



Mike Lenti
Senior Auditor,
Compressed Air
Consultants



Mike Womack
Thermal Certification
Administrator, Cooling
Technology Institute



Andrew Smith, P.E.
Co-Founder,
SMARTCAir



Hiran de Mel
Senior Project Manager
and Principal
Technologist, Jacobs

JAN 11 **How to Boost the Energy Efficiency of Rotary Screw Air Compressors**
Presenter Andrew Smith, P.E., Co-Founder, SMARTCAir –
Sponsored by FS-Curtis/FS-Elliott
Thursday, January 11, 2024 – 2:00PM EST

JAN 25 **ASME PTC13 in Action: Practical Approach to Blower System Performance Testing**
Presenter Julie Gass, Lead Mechanical Process Engineer, Black & Veatch and Hiran de Mel, Senior Project Manager and Principal Technologist, Jacobs – Sponsored by Inovair
Thursday, Jan 25, 2024 – 2:00PM EST

FEB 08 **Centrifugal vs Rotary Screw Air Compressor Performance: Full Load and Part Load Efficiency**
Presenter Mike Lenti, Senior Auditor, Compressed Air Consultants – Sponsored by Rogers Machinery
Thursday, February 8, 2024 – 2:00PM EST

FEB 22 **Storage Tank and Pipe Sizing for Large Plants: How to Meet CFM Needs**
Presenter Ron Marshall, Chief Auditor, Marshall Compressed Air Consulting – Sponsored by Unipipe
Thursday, February 22, 2024 – 2:00PM EST

MAR 07 **Sizing Vacuum Pumps and Piping for Various Applications**
Presenter Andy Smiltneek, President, Growth Solutions Consultants – Sponsored by Busch Vacuum Solutions
Thursday, March 7, 2024 – 2:00PM EST

MAR 21 **Control of Distributed Systems with Multiple Air Compressor Rooms**
Presenter Tim Dugan, P.E., President, Compression Engineering Corporation – Sponsored by CALMS Air and Comate Intelligent Sensor
Thursday, March 21, 2024 – 2:00PM EST

APR 04 **Refrigerated vs. Desiccant Dryers – Choosing the Right One**
Presenter Don Van Ormer, Auditor, APEnergy – Sponsored by Trace Analytics and BEKO Technologies
Thursday, April 4, 2024 – 2:00PM EST

APR 18 **CTI STD-201RS Thermal Certification for Cooling System Heat Rejection Equipment Part 2**
Presenter Mike Womack, Thermal Certification Administrator, Cooling Technology Institute – Sponsored by American Cooling Tower
Thursday, April 18, 2024 – 2:00PM EST

MAY 09 **How to Identify and Eliminate Artificial Demands**
Presenter Tom Taranto, Owner, Data Power Services – Sponsored by Kaishan
Thursday, May 9, 2024 – 2:00PM EST

MAY 23 **Sensors for Compressed Air Systems: Data Management and Analysis**
Presenter Andrew Smith, P.E., Co-Founder, SMARTCAir – Sponsored by VPInstruments and Kaeser Compressors
Thursday, May 23, 2024 – 2:00PM EST

JUN 06 **Optimize your Compressed Air System with Proper Maintenance**
Presenter Ron Marshall, Chief Auditor, Marshall Compressed Air Consulting – Sponsored by Kaishan
Thursday, June 6, 2024 – 2:00PM EST

JUN 13 **Advanced Aeration Control for Blowers**
Presenter Tom Jenkins P.E., President, JenTech Inc. – Sponsored by APG-Neuros
Thursday, June 13, 2024 – 2:00PM EST

JUN 20 **Simultaneous Cooling & Heating System Design**
Presenter Phil Johnston, P.E. Technical Manager, Woodard & Curran
Thursday, June 20, 2024 – 2:00PM EST

JUL 18 **How to Determine the Optimal Size of a Nitrogen Generator**
Presenter Mike Flowe, President, Flowe Nitrogen Systems – Sponsored by Pneutech
Thursday, July 18, 2024 – 2:00PM EST

JUL 25 **Instrumentation and Monitoring for Vacuum Systems**
Presenters Emma Larrabee, Marketing Manager and Todd Dunn, Vice President Sales & Marketing, Zorn Compressor & Equipment – Sponsored by Quincy Compressor
Thursday, July 25, 2024 – 2:00PM EST

AUG 08 **How to Diagnose and Fix Common Issues in Rotary Screw Air Compressors**
Presenter Tom Taranto, Owner, Data Power Services – Sponsored by FS-Curtis/FS-Elliott
Thursday, August 8, 2024 – 2:00PM EST

AUG 22 **Thermal Performance of Evaporative and Dry Cooling Systems**
Presenter Clayton Penhallegon, Jr., PE, Integrated Services Group – Sponsored by EVAPCO
Thursday, August 22, 2024 – 2:00PM EST

SEP 12 **Aeration Blower Sizing and Selection**
Presenter Tom Jenkins P.E., President, JenTech Inc. – Sponsored by Kaeser Compressors
Thursday, September 12, 2024 – 2:00PM EST

OCT 03 **Selecting PSA vs. Membrane Nitrogen Generation Systems**
Presenter Mike Flowe, President, Flowe Nitrogen Systems – Sponsored by Pneumatech
Thursday, October 3, 2024 – 2:00PM EST

OCT 10 **How to Interpret Audit Data and Improve Your Compressed Air System**
Presenter Mauricio Uribe, Auditor, Compressed Air Consultants – Sponsored by Rogers Machinery and BEKO Technologies
Thursday, October 10, 2024 – 2:00PM EST

OCT 17 **Heat Recovery from Compressed Air Systems**
Presenter Don Van Ormer, Auditor, APEnergy – Sponsored by Kaishan
Thursday, October 17, 2024 – 2:00PM EST

NOV 21 **Power Consumption Curves for Vacuum Pumps: Fixed-Speed vs Variable-Speed**
Presenter Andy Smiltneek, President, Growth Solutions Consultants – Sponsored by Rogers Machinery
Thursday, November 21, 2024 – 2:00PM EST

DEC 12 **Compressed Air Leak Detection: Techniques, Methods, Tips, and Tools**
Presenter Ron Marshall, Chief Auditor, Marshall Compressed Air Consulting – Sponsored by Rogers Machinery and Teledyne FLIR
Thursday, December 12, 2024 – 2:00PM EST

DEC 19 **Selection Criteria for Oil-Free Air Compressors**
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Inovair Aeration Blowers Pass the Test at Colorado WWTP

A long-term geared centrifugal blower test at the City of Lafayette leads to better efficiency and ease of maintenance

By Troy Dreier, Blower & Vacuum Best Practices Magazine

► The wastewater treatment plant (WWTP) for the City of Lafayette, Colorado, is a Class B biosolids facility. It meets grid regulations for volatiles reduction with at least a 38% reduction, and has a solids retention time (SRT) of at least 15 days at 95°F (35°C). Class B biosolids can be used as fertilizer for livestock feed and other applications that don't directly lead to food for human consumption. The plant is a Class A facility overall, meaning it's run by a certified class A operator.

The plant averages 2.4 millions of gallons per day (MGD), with a peak flow of 4 MGD in the middle of the day and just under 1

"We've been really happy with these Inovair blowers. They've been great to work with so far." — Robert Hansen, Water Reclamation Manager

MGD in the middle of the night. The City of Lafayette has 30,000 residents. The plant uses UV disinfection.

A dissolved oxygen (DO) control system adjusts blower air flow rate to match process demand. VFD control is the most energy efficient

method for modulating dynamic blowers. The Lafayette plant's system is equipped with oxygen probes that tell valves to open and close. When more aeration is needed, they open, and when less is needed, they close. The blowers, however, run off header pressure: They try to maintain an

Above: Installed at the City of Lafayette, Colorado WWTP is a VFD integrally geared centrifugal blower.

8 psi (0.6 bar) header no matter what position the valves are in.

If a wastewater treatment plant doesn't have enough air (in the form of dissolved oxygen) the system can't reduce ammonia (NH₃). The goal is to use oxygen to turn NH₃ into nitrate. Organisms in the anoxic zone convert the nitrate to nitrogen gas, which vents to the atmosphere and is harmless. The full system is called an aeration train, often shorted to "train." The basic system consists of a primary clarifier, an aeration basin, a secondary clarifier and disinfection. The Lafayette plant supplies a level of 2 DO in its first aeration

basin, then steps it down at the end of the basin so that it isn't sending oxygen to the anoxic zone.

Searching for Aeration Efficiency at Partial Loads

In 2020, the Lafayette WWTP had a problem with limited turndown from its multistage centrifugal aeration blowers. The plant ran three 150-horsepower (hp) multistage centrifugal blowers which didn't turndown well at partial load, wasting electricity. They frequently went into surge during the lower demand evening periods. They also had limited self-service options, so the plant operators

needed to call in a service appointment for most maintenance tasks.

The solution, the plant's leaders decided, was to find aeration blowers that performed efficiently at partial loads. They'd tried this once before, but their previous attempt was with a first-generation high-speed centrifugal blower that had significant issues related to its bearings.

Having a good impression of Inovair VFD geared aeration blowers, they contacted the company. But this time, rather than making





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Inovair Aeration Blowers Pass the Test at Colorado WWTP

a purchase outright, they wanted to start an on-premises trial.

“Inovair’s compatibility with various blower technologies and all wastewater processes allows treatment plants to upgrade their blowers incrementally or all at once,” says Inovair CEO Ken Jones. “Our ability to integrate seamlessly, typically using existing pads and electrical with minimal piping modifications, ensures that upgrade construction costs remain low.”

“They liked our design – that it’s highly efficient but serviceable at the plant level using industry standard components – but after feeling like they had gotten burned on their other high efficiency purchase, they wanted to

test drive,” says David Sperber, Inovair’s Vice President of Sales. “It’s a little unusual for that to happen these days. You saw that more when we were a newer name in the market, but we’re glad to prove ourselves.”

Leading the Lafayette trial were Blaine Kinkel, Water Reclamation Lead Operator, and Robert Hansen, Water Reclamation Manager. In May 2020, they took possession of a single-stage, 100-hp, oil-lubricated, VFD integrally geared centrifugal IM-30 blower. Their impressions were positive from the start.

“We had a lot more control during low flow hours,” Kinkel says. “We weren’t surging out our blowers in the middle of the night like we would previously. It also kept up with demand



Blaine Kinkel, Water Reclamation Lead Operator, and Robert Hansen, Water Reclamation Manager, for Lafayette, Colorado.

a little bit better and reacted quicker. During the day, when we have peak flows, our older blowers would struggle to keep up. Then, once they finally ramped themselves all the way up, they were blowing far too high and needed to turn themselves back down. All that was happening too slowly causing big swings in our DO.

“We’ve really flattened those excesses out. One of our issues was that we had a huge ammonia load coming into the aeration basin coming off our centrifugals. It was so bad we actually had to aerate our anoxic zone when we were running our centrifugals because we blow too much ammonia through the aeration basin. Once we got the Inovair blower we had fewer problems with that.”

A Five-Blower System With Efficiency and Redundancy

The WWTP trial lasted for over a year. When it was done, the city was ready to make a larger purchase.

“When we went into this next expansion, we were ready to go ahead and purchase four more 100-hp Inovair IM-30 VFD integrally geared centrifugal blowers in double-stack formation,” Kinkel says. “That’s another nice thing about Inovair is you can get small footprints out of those blowers because you can stack them on top of each other. We have a double-stack on one end servicing one train, we have a double-stack on the other end to service our new train that we’re about to put online and we’ve got a swing blower in the

Three Aeration Blower Design Improvements for the Maintenance Crew

Lower power consumption and 50% turndown aren’t the only reasons the City of Lafayette ordered four additional Inovair VFD integrally geared centrifugal IM-30 blowers after its one-year trial was over. Here are three reasons why the team at the city’s wastewater treatment plant knows they made the right decision.

1. Ease of Access. Internal filters for oil and the heat sink are easily accessible, so operators don’t need to step inside the cabinet to reach them.

“The way they have this designed is you open your cabinet doors and they actually have hoses reconnected to the areas that need oil,” says Blaine Kinkel.

“All you have to do is pull those hoses out, get your bucket underneath, cap it, let it drain, get the other side, fill it up, bump it in. Easy,” Kinkel says. “You don’t have to contort yourself. They thought about operators when they designed the machine.”

2. Sturdy. Fast pressure changes can damage blowers. Here, sensors and onboard intelligence detect pressure changes immediately and dump the load before any damage is done. “Even if you slam the discharge valve close by hand, that thing will react in a split-second by reading that over pressure and shutting itself down before it damages itself,” Kinkel says.

3. No Grease Needed. None of the parts need grease applied, which Kinkel thinks is fantastic. For someone tasked with maintenance, that’s one less thing to worry about.

middle. That’s the original Inovair that can service both sides if necessary.”

That means the plant has 500-hp in total, giving it plenty of redundancy. While the Inovair centrifugal blowers include onboard

VFDs with internal DO sensors, the plant opted to use its own external sensors instead.

“We don’t typically do this, but the plant requested we target a pressure and discharge instead of having the control system triggered

Inovair Aeration Blowers Pass the Test at Colorado WWTP



The Lafayette Wastewater Treatment Plant is now home to five Inovair IM-30 centrifugal blowers: four in double-stack configurations and one operating as a swing blower in the middle.

by the DO level. So because we do all the programming and all the control system work in-house, we were able to accommodate their request on that and it works well,” Jones says.

“We’ve been really happy with these Inovair blowers,” Hansen adds. “They’ve been great to work with so far. We’ve had very few problems and the problems we’ve had have been minor.”

Geared Centrifugal Blowers Made in the U.S.A.

“The response from Inovair has been fantastic,” Kinkel adds. “I haven’t had to wait to get ahold of somebody. That can be a huge problem, just from a customer service standpoint. Inovair has been responsive, not to mention helping in troubleshooting. We

had a 24-volt power supply go down and had a service tech on the phone trying to figure it out. He said, ‘Hey, are you down there? Go ahead and just take a picture on your phone. I bet I can figure it out from there.’ Sure enough, looking at the lights, he saw what was bad and shipped us a new one. We had it in a couple days.”

As Sperber likes to point out, the fact that Inovair’s VFD integrally geared centrifugal blowers are made in the United States – the

company currently offers the only high-efficiency blower for the wastewater industry made entirely in America – give it other advantages, as well.

If somebody mis-sizes the aero stage, it’s easy for Inovair to make a change, Sperber says. “For other blower manufacturers, especially with a centrifugal blower, you’re talking about shipping it back to the factory in Asia and that’s a huge turnaround time.” But Inovair can change an aero stage in a matter of days at its plant.

For the City of Lafayette Wastewater Treatment Plant, it all adds up to a successful partnership.

“I personally have never run across a blower that I feel is as bulletproof and as easy to maintain as this one is,” Kinkel says. **BP**

About Inovair

Inovair is the industrial products division of Accessible Technologies, Inc. The company was founded in 1994 to expand the application of high efficiency geared centrifugal blower technology within forced induction, aerospace, municipal and industrial applications. All Inovair activities, including engineering, manufacturing and service, are performed in the USA. For more information, visit <https://inovairblowers.com>.

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pdblwers Soars in Aerospace Vacuum System Installation

The right industrial vacuum system can significantly improve a facility's energy efficiency – in some cases, reducing use by up to half

By Nellie Fonner



▶ A customer came to Georgia-based pdblwers seeking one of its designs for a west coast facility. The customer, the aerospace division of a large industrial manufacturer, uses a large altitude simulation chamber to test aircraft parts at different atmospheric conditions.

It was based on this application, said pdblwers President Jim Hene, that his team created what the facility needed: a multi-stage vacuum system that could manage varying mass flows at different vacuum levels.

“Variable speed vacuum systems can significantly enhance energy efficiency and operational flexibility,” Hene said. “Our work with this customer is a practical example in which we employed best practices from start to finish.”

Zero Water Is an Essential Requirement

The aerospace project involved the replacement of a two-stage, water-injected system that had turned into a one-stage vacuum system

after one stage went out of service. The existing system always operated at full flow and horsepower.

pdblwers needed to work within two specific constraints: the customer's requirement for a dry system with no water, which was largely due to strict regulatory requirements, and its need for a turnkey solution that could be fully assembled at the manufacturer's facility for a factory acceptance test (FAT).

Above: Assembling the turnkey vacuum system for the client's required factory acceptance test (FAT) at the pdblwers facility required construction of a test pad, as well as rental of two one-megawatt generators and a step-up transformer to generate the required 4,160 voltage.



Jim Hene, president of pdblowers

The customer first took its scenario to Roots Blower, the largest manufacturer of positive displacement vacuum pumps and the inventor of rotary lobe blowers. Roots was acquired by Ingersoll Rand in 2023. A partner of pdblowers, Roots brought the opportunity to Hene as the on-site FAT was a hinderance to its own production – whereas pdblowers had the capacity and capability to accommodate the request.

The partnership between pdblowers and Roots is a long one; the companies share significant expertise in vacuum and pressure solutions. pdblowers has been a Roots agent since 1998 and is consistently its top distributor.

A Large System With Large Requirements

With a requirement that the system could specify mass flow and vacuum levels at multiple points, pdblowers went to work, noting that it also needed to handle flows of over 20,000 cfm and vacuum levels greater than 2 psia (.14 bar).

Since the upgrade would be a dry system, no water could be introduced into the process air. “High vacuum systems typically use water-injection to cool the equipment allowing it to reach the necessary vacuum levels,” Hene said. “The old system being replaced was a water-injection system. Having water in the system leads to many regulatory requirements around the handling of the wastewater. A primary goal of this project was to implement a dry system with no water to reduce the environmental impact and its associated regulatory burden.”

The new system would certainly be large, and with a large power requirement, pdblowers noted that the culmination of the project, the FAT, could be quite burdensome to achieve.

The solution, said Hene, was a two-stage configuration, specifically a two-stage positive displacement vacuum system with independently controlled stages. The first stage would have a higher mass flow at its core along with a lower vacuum level, while the second stage would run opposite with lower mass flow and higher vacuum level.

“We designed the system so both stages could run simultaneously, or each stage could be used alone if the client only needed the mass flow

or vacuum capabilities of that particular stage, leading to significant energy savings,” Hene said. “For instance, if the client needs a higher mass flow but not as much vacuum, the first stage will run independently, using valves and piping to bypass the second stage.”

pdblowers also implemented variable speed drives (VSDs) into its design to realize the variable speed needed. Use of a variable frequency drive (VFD) is key to real-time adjustments of vacuum levels. The customer control system, meanwhile, provides an



Installed at a large aerospace manufacturing facility, the multi-stage vacuum system is used in conjunction with an altitude simulation chamber to test aircraft parts at different atmospheric conditions.

pdblowers Soars in Aerospace Vacuum System Installation



Behind the scenes, the VFD control system performs complex calculations to determine each machine's speed and compression ratio, while the operator is presented with a simple user-friendly HMI to input conditions and monitor the system.

operator the ability to input mass flow and vacuum level. With the information entered, the system can convert those metrics to speed and volumetric flow, then identify whether one or both stages are needed to achieve a result.

Selecting the Right Blowers for the Job

As pdblowers entered the planning phase for the customer's project, it first wanted to determine the vacuum pump (or blower) combination needed to hit the required, and varied, mass flows and vacuum levels. The first crucial factors to this were minimum allowable operating speeds and maximum allowable temperature rise.

"In general, blowers are more or less limited to a 2:1 compression ratio, unless you have a unit specifically designed for dry vacuum," Hene said. "A Roots dry vacuum jetted [DVJ] unit can hit a higher compression ratio. As the vacuum level goes up, there is a port that pulls in atmospheric air into a pre-discharge chamber. That atmospheric air mixes in and cools the unit down, allowing it to operate at higher vacuum levels without exceeding the maximum allowable temperature rise.

"This comes at a cost of efficiency; this is where we pay the price for not having water in the system," he added.

To meet the customer's target conditions, pdblowers selected two Roots rotary lobe blowers. It chose a Roots gas blower for the first stage that could provide 20,000-plus cfm at a vacuum level up to 16-in Hg(g). For the second stage, the company selected a Roots DVJ blower supported by an intercooler that could provide 12,000 cfm at up to 24-in Hg(g).

The support equipment pdblowers selected included VSDs and motors. For the former, pdblowers made its choice because the characteristics of positive displacement blowers required a constant torque VSD capability.

"Variable torque is applicable to centrifugal blowers and fans where constant torque is applicable to positive displacement equipment," Hene said. "When the torque requirement is the same regardless of speed and power, you may have to consider a larger VSD to maintain your safety factor."

Additionally, he noted, any VSD system must be cognizant of restrictions on the minimum allowable speed of the blower and motor and temperature rise. As speed at constant vacuum levels are decreased, the temperature will go up, so pdblowers wanted to ensure the VSDs were adequately sized.

When examining the motors element of the system, it selected two 800-horsepower (hp) units for the customer's target performance, one for each stage.

"Both blowers would be operating at or below 1,000 rpm and after completing our torque

calculations, we determined that rather than using expensive low rpm motors, we would be able to use more cost-efficient 1,800 rpm motors and limit their rpm to the desired output with a parallel shaft gearbox,” Hene said. “In this case, since the gear for the blower was larger than the gear for the motor, it gave us adequate torque.” He added that the client’s power requirement was 4,160 volts, as the amperage is lower when the voltage is higher; thus, it selected 4,160v for the motors and VFDs.

Next on pdblowers’ task sheet was the control system. It sought to coordinate the two machines so they would always be in step with the limits on each machine.

“Thanks to the constant flow provided by a positive displacement blower, it’s possible to use the blower as a meter. Through our software, we used the speed of the blower and various operating conditions (inlet vac, temp,

etc.), to calculate the volumetric throughput (+/-5%),” he said.

The system is designed to calculate the speed needed and compression ratio for each machine to operate optimally, then adjust as needed.

For example, when more mass flow is needed, the first stage maintains the same compression ratio while the second stage makes minor speed changes to increase its compression ratio to meet the overall vacuum need.

Blower Best Practices

Use VSDs for energy efficiency. VSDs allow machines to run at optimal speeds, significantly reducing energy usage.

Perform torque calculations. Torque calculations are critical for both motor and VSD selection. The VSD must be adequately sized to produce the torque that is required at the blower. When pdblowers uses VFDs and they are not at the synchronous speed of the motor, it always performs torque calculations.

Factor power requirements into initial costs. “As you go up to medium voltage, the components get a lot more expensive, but the conductor sizes [and therefore the amount of conduit] may be much smaller. For facilities with big equipment the cost savings in running less conduit may outweigh the increased cost of the medium voltage components. If your voltage specifications are not set in stone consider doing a cost analysis,” Hene said.

Be aware of required standards. Whether writing an RFQ or responding to one, it’s crucial to know which standards apply. ISO, ASME, API, ANSI, NFPA are just a few examples of the many standards that could impact a variable speed vacuum system.

Account for costs and logistics of Factory Acceptance Testing. If a FAT will be provided at your location, make sure to consider all

of the resources needed to do the necessary demonstration. Look for efficiencies where possible, such as mounting components into a shipping container that can be used during testing and then later transported as-is.



The first stage of the system provides higher mass flow and lower vacuum, while the second offers lower mass flow and higher vacuum. Using a VFD control system, the new system provides significant energy savings by operating the stages independently or in tandem as needed to achieve the desired performance.

pdblwers Soars in Aerospace Vacuum System Installation



The 50,000-square-foot facility at pdblwers' campus in Gainesville, Georgia

“Our custom control system would feature an operator-friendly Human Machine Interface [HMI] to easily input the required mass flow and vacuum level, and monitor how the system is performing,” Hene said of the control’s capabilities. “The client’s long-term plans include tying our control system into their existing test software.”

Finally, the needed structural components in the design were considered, and pdblwers

noted there were many puzzle pieces in that the system needed many structural components to support the vacuum pumps, silencers and other equipment.

It subsequently retained a pair of structural engineering firms, one to design the foundation and the other to create the piping design. Both selected firms were local to the customer’s facility and also skilled in both the regulatory and geological variances of the region. All of

the structural elements were custom fabricated by pdblwers.

Demonstrating the System With a FAT

As a factory acceptance test, or FAT, was a major requirement for the client, the demonstration was planned at pdblwers’ campus in Gainesville, Georgia.

“The system was so large it could not be assembled inside our 50,000-square-foot facility,” Hene said, noting that a new 12-inch-thick concrete pad needed to be poured and outdoor electrical panels added to properly support the system. pdblwers also rented two one-megawatt generators and a step-up transformer to take the generators’ output from 480 to 4,160 volt. Finally, the VFDs, control panels and all other electrical gear were mounted in a 40-foot container – a makeshift mobile command center for the FAT – that was shipped directly to the final installation site after the demonstration was complete.

“A client representative was on-site for a demonstration of the system’s operation, fully functional at all flow points and vacuum levels,” Hene said. With the FAT complete, the entire project was ready to make the trip to its final destination.

VSDs for Flexibility

Eight individual trucks were loaded to get the entire system where it would be installed, and a customer-appointed contractor met Hene’s team in California to help assemble it. A pdblwers engineer arrived post-install to assist with the system’s start-up.

Looking at the lessons learned from this project, Hene urged the use of variable speed systems to others in similar situations. Experts like pdblowers can tailor a solution and make the entire project easier and more fluid. “By providing a dry multi-stage system controlled by VSDs, the client immediately realized much more flexibility in their testing, sizable energy savings by using only the exact amount of energy needed and cost savings by removing all regulatory burdens of wastewater treatment,” he added. **BP**

About the Author

Nellie Fonner is a freelance writer who specializes in highly technical industrial operations. She’s worked in editorial communications for over 20 years and served as an editor or correspondent for multiple magazines.

About pdblowers

pdblowers specializes in blower and vacuum pump technologies. From system integration to

ground-up fabrication, it provides blower and vacuum pump solutions across a wide range of industries. At its 50,000-square-foot production facility and headquarters in Gainesville, Georgia, it builds specialty equipment enclosures, positive displacement blower packages, multi-stage vacuum systems, soil remediation equipment, certified UL control panels and more. For more information, visit <https://www.pdblowers.com>.

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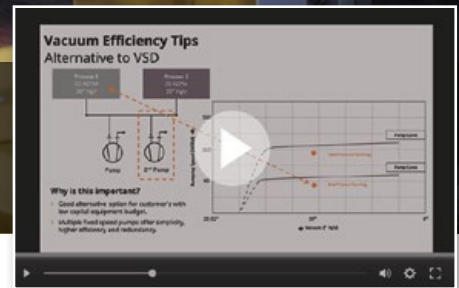
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Blower & Vacuum Technology News

AERZEN Expands Turbo Blower Series

AERZEN has been building turbo blowers since 1911 and has continued to push these packages to the peak of technology over many decades. Today, the Aerzen G5^{Plus} turbo blower series is one of the most compact and efficient turbos of its class. Compared to conventional turbos of its class. Compared to conventional turbo technology, the energy efficiency is up to 10% higher, and compared to displacement machines, such as positive displacement blowers, savings of up to 30% can even be achieved. With the new AT250 G5^{Plus}, AERZEN is extending the series upwards, making the advantages of efficient turbo technology accessible to an even wider range of uses and applications.

The new Aerzen Turbo AT250 G5^{Plus} is rated for a volume flow of 155 m³/min, a maximum differential pressure of 900 mbar and speeds of up to 26,000 rpm and has a very large turndown of 1:4. A powerful and energy-saving permanent magnet synchronous motor, which meets the future requirements of the IE5 classification (ultra-premium efficiency), as well as the particularly aerodynamic design of the turbo impeller and spiral casing ensure a consistently high overall efficiency. Even in partial load operation, the AT250 G5^{Plus} delivers exceptional performance and high power density.

The modern multilevel VFD technology reduces the power loss in the motor by up to 90%, giving it a clear advantage over conventional inverter technology. Further

advantages are greater insensitivity to pressure fluctuations and better control behavior. This means that the turbo packages can be operated in a much more stable manner across the total turbo characteristic diagram. The innovative AERZEN air foil bearing with double coating ensures an increased service life of >80,000 operating hours and maximum reliability. The packages are sound-optimized and guarantee quiet operation of 72-73 db(A). In addition, the powerful turbo blowers are 100% oil-free, incredibly robust and child's play to operate. The maintenance requirement is negligible.

AERZEN manufactures and develops all of its products via in-house production. Only in this way can all the components be perfectly coordinated with each other and ideally

adapted to the operating process. This means maximum reliability, operational reliability and cost-effectiveness. The AT250 G5^{Plus} is already completely configured and assembled ready for connection when it is delivered on site. Thanks to the compact design, the machine footprint is extremely low. For example, a turbo machine requires only a third or a quarter of the footprint of a positive displacement blower with comparable performance. As a result, the machine room can be a lot smaller.

With the smallest footprints on the market and maximum energy efficiency, the Aerzen Turbo AT250 G5^{Plus} offers compact power that is indispensable for numerous processes – be it oxygen input in wastewater technology fermentation in yeast production or cooling and combustion air for e.g. lime and cement production. Thanks to their high power density and reliability, the new packages keep life-cycle costs low and enable significant cost reductions.

About AERZEN

The AERZEN product portfolio includes rotary lobe compressors, positive displacement blowers, turbo blowers and screw compressors and, in addition to standard products, also offers customized special solutions. Digital services can be used to increase efficiency, availability and productivity in a sustainable and future-oriented manner. In addition, AERZEN After Sales Service offers the full range of services – from full maintenance contracts to repairs and modernizations of existing plants. For more information, visit <https://www.aerzen.com>.



The Aerzen Turbo AT250 G5^{Plus} is a compact plug-and-play package and enables significant energy savings.

Sulzer Launches HST Turbocompressors

Aeration in both municipal and industrial wastewater treatment is crucial to removing organic contaminants. Found at the heart of this process, noisy blowers have traditionally been the source of significant operational costs. With the launch of the HST 10, smaller sewage plants processing less than 10,000 m³/day (40,000 population equivalent) can take advantage of the benefits of Sulzer's HST turbocompressors, which have provided thousands of customers with significant cuts in running costs for facilities and a huge boost in reliability.

The HST 10 is designed to set the standard for turbocompressors of its size used in aeration processes. The best-in-class energy efficiency is achieved by using cutting-edge turbo technology and a permanent magnet motor designed specifically for its duty. Furthermore, the use of magnetic bearings and air cooling ensures the HST 10 has the lowest maintenance costs in the industry.

The design of the HST 10 means there are no gears, mechanical bearings, pumps or separate cabinet cooling fans. The absence of these failure-prone components will contribute to excellent reliability. Combined, the lower energy costs and running expenses offered by these machines will quickly realize considerable savings in operational expenditure, which relates to a remarkable return on investment.



Sulzer's range of HST turbocompressors offers best-in-class energy efficiency and reliability.

With the HST 10, sustainability starts at the core. The reduced energy consumption is of course the major driver for the minimized CO₂ footprint. The lightweight design and the minimal need for consumables and spares means CO₂ encapsulated in manufacturing is on a level of its own.

A huge contribution to the reduced environmental footprint comes from the long service life, as proven by the installed base of HST machines. With this technology, where no two rotating components are in contact with each other, the machine efficiency is maintained at a high level. At the end of service, all mechanical parts are intact and can be re-used or recycled with no worn-off material dispersed in used lubricants or the surroundings.

Replacing redundant or out of service equipment first, the initial HST unit can be easily integrated with the existing control infrastructure and bought online. The compact footprint of the HST 10 ensures additional space is available once the first legacy compressor is removed. A staged replacement of

the remaining compressors completes the installation and the warning signs for hearing protection can be removed.

From this point on, the custom-designed motor will deliver best-in-class electrical efficiency and the in-built variable speed drive enables flow to match demand at the best efficiency point. Working together, the installed HSTs ensure optimum air delivery according to the process parameters.

About Sulzer

Sulzer is a global leader in fluid engineering and chemical processing applications. It specializes in energy-efficient pumping, agitation, mixing, separation, purification, crystallization and polymerization technologies for fluids of all types. The company's customers benefit from its commitment to innovation, performance and quality through its responsive network of 160 world-class manufacturing facilities and service centers across the globe. For more information, visit <https://www.sulzer.com>.

Blower & Vacuum Technology News

Kice Industries Launches New Air Power Unit

Kice Industries has designed a new air power unit featuring enhanced noise control and a smaller footprint. The updated APU has been branded CompQ, a name inspired by its compact design and quiet performance.

Taking up less floor space than Kice's standard APU, the CompQ fits inside an enclosure that reduces noise output by 20 decibels.

"Noise control is an issue for many of the types of manufacturers we serve," said Drew Kice, President and CEO. "With the CompQ, we saw an opportunity to make a great product even greater and more conducive to workplace safety. We continually innovate to deliver the best operational experience around."

According to the Occupational Safety and Health Administration, hearing loss affects thousands of workers annually. In 2021, OSHA developed enforcement strategies to address noise hazards in manufacturing and processing



Kice Industries unveils newer, quieter blower package for processing plants.

facilities, including those that handle minerals, plastics and wood products. Kice Air Systems, a division of Kice Industries, specializes in pneumatic conveying equipment that uses air to move dry bulk materials. The CompQ is the latest addition to the air systems product line.

"On top of the noise-control feature, the CompQ delivers industry-leading efficiency, durability and quality," said Kice. "It's like our previous design in that regard, but in a quieter, smaller package."

The CompQ features Kice's heavy-duty positive displacement blowers, which are made to perform in extreme dry-running conditions.

Developed more than 25 years ago, the positive displacement blowers have been proven in thousands of applications worldwide.

Kice plans to introduce more options for the CompQ, including a built-in 4-inch automation display and an external oil level indicator.

About Kice Industries

Family-owned since 1946, Kice Industries is a leading global provider of air systems, automation and engineering for the processing of grain, food, plastics and other bulk material. The company is based in Park City, Kansas, with a team of approximately 300 employees including regional sales managers throughout North America and Mexico. The people of Kice form a strong work culture founded on the cornerstones of safety, customer service, integrity, continual improvement, and faith and family. For more information, visit <https://www.kice.com>.

Norway Relies on Atlas Copco Vacuum Pumps for Fish Packaging

Norway has a long tradition of catching and processing fish. The country ranks second in the world for exports behind China. To ensure the high quality of their freshly caught products, Norwegians pay particular attention to an unbroken cold chain. One company that contributes to a high level of food safety is Atlantic Styro. The manufacturer, based on the Atlantic island of Lovund, just outside the Arctic Circle, produces containers made from expanded polystyrene (EPS). The polystyrene boxes keep fish and seafood fresh during transport and storage.

In addition to high quality, efficient production is more important than ever. In order to produce as sustainably as possible, the box manufacturer relies on a modern vacuum supply. The vacuum is used to extract the process vapor that is produced when the foam expands.

"Atlantic Styro achieves this very effectively thanks to our modern vacuum solution," said Roy Mikalsen, the Responsible Sales Manager at Atlas Copco. "Three liquid ring vacuum pumps from the LRP VSD+ series are used on Lovund, which are very well integrated into the overall process."

In addition to the high, stable vacuum performance, the liquid ring pumps are energy efficient and ensure low operating and maintenance costs. Equipped with two variable speed drives, the vacuum system saves energy

and water. The first of the VSD twins maintains the required vacuum level by precisely controlling the operating speed of the pump, which ultimately reduces power consumption. The second drive controls the water circulation pump and thus optimizes the water flow in the pump.

“The closed water circuit means that leaking seal water is collected in a tank and recirculated,” said Mikalsen. This recovery secures the water supply. An additional energy recovery also reduces production costs. To achieve this, the LRP VSD+ series is equipped with the powerful, user-friendly Elektronikon™



Three liquid ring vacuum pumps from the LRP VSD+ series from Atlas Copco are used on Lovund.

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Blower & Vacuum Technology News

vacuum controller from Atlas Copco, among other things. This enabled Atlantic Styro to integrate the vacuum solution into its system and control the entire system.

With its compact design, the LRP VSD+ installation saves space. A soundproof bonnet insulates the background noise in the immediate working environment to a pleasant level of 65 dB(a). The ease of operation rounds off the ergonomic advantages: inlet, outlet and power cable connections are located on the top of the pump for easy installation. These easily accessible features make the solution as a whole an uncomplicated plug-and-play product.

For Atlantic Styro, the LRP VSD+ pumps combine high functionality with significant savings: Overall, the Norwegian company can calculate with 50% less energy consumption. Its user friendliness and centralization options make the vacuum solution from Atlas Copco the ideal system for the production of EPS boxes. This allows the full range of benefits of the raw material to be realized: a lightweight, cost-effective material that is perfect for packaging, insulating and transporting frozen fish and seafood. This means that seafood and fish retain their temperature and consistency over a long period of time and develop their full flavor when eaten later.

About Atlas Copco Vacuum Technique

Atlas Copco Industrial Vacuum has revolutionized vacuum technology. Its state-of-the-art vacuum pumps and systems exemplify today's connected and digitalized industry. Its teams of exceptional and passionate people engineer customer-centric vacuum solutions that offer better energy efficiency, consumer safety, improved productivity and a sustainable future. For more information, visit <https://www.atlascopco.com>.

Leybold Announces Claw Vacuum Pump

Vacuum specialist Leybold has added a new model to its proven CLAWVAC dry claw vacuum pump series – the CLAWVAC CP B. This innovative rough vacuum pump, designed for robust processes including food processing, materials handling and environmental industries, is powerful, energy efficient and easy to clean.

The CLAWVAC B's product features allow for precise and trouble-free operation even under harsh conditions and especially for processes involving particles, vapors and contaminated gases. The easy and intuitive handling of the CLAWVAC B is mainly due to its functional design, which features a pair of claws that rotate in the cylinder with no contact or wear. Additionally, the pump stands out from conventional models through the use of stainless steel claws, and the coated and corrosion-resistant vacuum chamber is easy to clean.

“We’ve designed this pump with a separate gearbox to prevent oil contamination of the processes. The cooling of the CLAWVAC also contributes to extended operating times,” said Tanvi Hulawale, Product Manager for rough vacuum at Leybold, Cologne. “Thanks to its modular design, end customers can quickly dismantle and clean the scoop chamber and silencer themselves with no outside help. It’s also easy to remove layers and flush the inside of the pump.”

CLAWVAC's design ensures that individual parts can be replaced quickly when necessary, since users have easy access to all surfaces that come into contact with the media. The housing and claws, for example, can be disassembled with no need to readjust the gear control afterwards. The silencer not only reduces the noise level but also ensures that the condensate is drained off through the drain opening. All of these benefits



Leybold announced the CLAWVAC CP B, a claw vacuum pump for robust industrial applications.

have a positive effect on dirty processes, where the vacuum pump could previously only be cleaned and serviced by the manufacturer. Overall, the CLAWVAC B ensures short downtimes and long service intervals – 20,000 hours between oil changes and up to 48,000 hours between general overhauls.

CLAWVAC B can be equipped with accessories like flushing kits, liquid separators and inlet filters. Flushing kits, when attached to the pump, clean the pump with external flushing agents. A liquid separator is the best choice for applications with high water content. Inlet filters are an important accessory in all applications to prevent pump damage from unexpected debris and dust. The inlet filter kits come as an “all in one” solution for customers to directly assemble the filters on the pump.

About Leybold

Since 1850, Leybold has been developing and supplying vacuum pumps, systems, standardized and customized vacuum solutions and services for various industries worldwide. For more information, visit <https://www.leybold.com>.

MD-Kinney Expands KVC Dry Claw Series of Vacuum Pumps

Kinney Vacuum Pumps by MD-Kinney in Springfield, Missouri, has been manufacturing blowers and vacuum pumps for over 120 years. Used in applications around the world, Kinney products stand up to the demands of harsh processes with proven vacuum technology.

Kinney Vacuum Company was founded in 1907 by J. Royal Kinney in Jamaica Plain, Massachusetts, and is best known for the design of the first rotary piston vacuum pump in 1909. This technology was first used in food, chemical and other process industries. In 1927, Kinney published the first compilation of technical data that would be the industry standard for vacuum pump sizing. In 1950, Kinney merged a positive displacement blower with vacuum pumps, making the first booster pump combo. In 1972, Kinney introduced a full line of liquid ring vacuum pumps in the U.S. market with both single and two stage pumps.



MD-Kinney has expanded the KVC Dry Claw series of vacuum pumps with the addition of the KVC62 and KVC122 Extreme Duty (XD) models.

MD-Kinney proudly extends the KVC Dry Claw series of vacuum pumps with the addition of the KVC62 and KVC122 Extreme Duty (XD) models. The KVC Series is a contact free dry claw vacuum pump that operates efficiently and economically. Contactless operation means minimal wearing parts and maintenance needed with oil-free compression. The KVC Dry Claw Pumps offer a compact footprint requiring a minimal amount of floor space and are very easy to install. The KVC62 and KVC122 XD models will further offer low noise operation with coated internals and flush ports to maintain smooth operation in demanding applications.

About MD-Kinney

The MD-Kinney company name was derived to place a focus on the company's well-known and reputable legacy brands once again: M-D Pneumatics® blowers and Kinney® vacuum pumps and boosters. While the name on its building may have changed, the people, products and service remain the same, allowing MD-Kinney to continue as a leader in the design and manufacturing of high performance, reliable positive displacement blowers, mechanical vacuum pumps, vacuum boosters and engineered systems. For more information, visit <https://www.md-kinney.com>.

Blower & Vacuum Technology News

Guardair Corporation Unveils PowerQUAD

Guardair Corporation, a leading innovator in industrial pneumatic vacuums, announced the launch of PowerQUAD™, the latest advancement in pneumatic vacuum technology, setting a new standard in performance, safety and efficiency.

PowerQUAD represents the most significant leap in pneumatic vacuum technology in over 75 years. Featuring a patent-pending, dual-stage vacuum, multi-venturi generating engine, PowerQUAD is engineered to deliver superior vacuum performance while maximizing energy savings. With customer-configurable nozzles

and color-coded injector nozzle sets, users can effortlessly optimize vacuum performance to match their specific compressed air supply.

“This product embodies our commitment to innovation, efficiency and safety, providing our customers with unparalleled performance and reliability,” said Mark Yorns, Director of Engineering at Guardair Corporation.

PowerQUAD vacuums offer up to 35% higher vacuum head and up to 67% more vacuum flow compared to traditional systems. This exceptional performance is complemented by significant compressed air savings of up to 71%,

providing lower total cost of ownership and backed by the Guardair FOREVER WARRANTY.

Powered by compressed air, PowerQUAD vacuums are safe and reliable. The absence of electric cords and electric motors eliminates the risks of electrical shocks, sparking, burnout or overheating, making PowerQUAD vacuums inherently safe for hazardous locations or wet environments. In addition, all PowerQUAD vacuums feature a liquid shutoff device making them wet/dry compatible. And finally, PowerQUAD is the quietest pneumatic vacuum on the market, operating at less than 88 dBA.



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Designed for heavy-duty industrial and commercial applications, PowerQUAD vacuums are available in the following models to meet diverse cleaning needs:

- **PowerQUAD Standard Vacuums:** Ideal for vacuuming chips, dust, debris, liquids or sludge.
- **PowerQUAD NED Vacuums:** For applications where nuisance static electricity is a concern.
- **PowerQUAD ATEX-Certified Vacuums:** Suitable for hazardous locations.
- **PowerQUAD PulseAir™ Vacuums:** Perfect for high dust environments. Feature button-activated filter cleaning technology, complying with OSHA Silica Dust Regulation 29 CFR 1926.1153.
- **PowerQUAD PulseAir™ Dust Extractors:** Ideal for use with source-capture tools. Feature button-activated filter cleaning technology.

PowerQUAD vacuums are backwards compatible with all existing Guardair vacuum accessories and attachments, ensuring seamless integration and enhanced versatility.

About Guardair Corporation

With a rich history dating back to 1942, Guardair Corporation is a leading manufacturer of best-in-class pneumatic tools and gasket cutters. Headquartered in Chicopee, Massachusetts, the company features three distinct brands: Guardair, AirSpade and Allpax. For more information, visit <https://guardair.com>.

COVAL Launches Multi-stage Mini Vacuum Pumps

The CMS M series, the latest addition to COVAL's range of multi-stage vacuum pumps, has been designed and developed with two guiding objectives: compactness and performance. It offers an optimum solution for industrial applications that require high suction flow rates.

CMS M multi-stage mini vacuum pumps are the product of COVAL's advanced research, seeking to provide a powerful, durable solution for handling porous parts, emptying tanks or random gripping in harsh industrial environments. Thanks to their ultra-compact design and optimized multi-stage Venturi system, these pumps guarantee powerful suction flows of up to 19.42 scfm, while reducing compressed air consumption in a compact footprint.

An outstanding feature of the CMS M series is its modularity, making it easy to adapt to a variety of applications and simple to maintain. Available in two suction capacities (10.59 scfm to 19.42 scfm) and with or without vacuum and blow-off control, these mini pumps also offer two exhaust configurations to perfectly match each specific need.

COVAL's multi-stage technology maximizes the energy input of compressed air by cascading several stages of Venturi profiles and combining their respective suction flows. Intermediate valves progressively isolate each



COVAL launches the new generation of multi-stage mini vacuum pumps: the CMS M Series.

stage to achieve maximum vacuum level. This technology makes it possible to generate high suction flow at low vacuum levels.

This innovation reflects COVAL's commitment to providing efficient, energy-saving solutions for industry.

About COVAL

Established in the south of France, COVAL SAS designs, produces and markets high-performance vacuum components and systems throughout the entire world for industrial applications in all lines of business. COVAL is an ISO 9001 V2015 certified company that innovates on a global scale in the area of vacuum handling using optimized components with integrated, intelligent and reliable features. COVAL's clients are present in all major industrial fields in which vacuum handling is critical for efficiency and productivity. For more information, visit <https://www.coval-inc.com>.

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