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Thousands of people waited for the 2022 AHR Expo to officially open the morning of January 31. The three-day event took over the Las Vegas Convention Center as people discovered the HVAC&R industry's latest innovations, networked and learned from other professionals.



AHR Expo Wrap-Up

Innovation Returns With The 2022 AHR Expo

BY MARY KATE MCGOWAN, MANAGING EDITOR

LAS VEGAS—As the minutes ticked down to 10 a.m. on January 31, the scene outside the 2022 AHR Expo's exhibition halls looked like in years past: thousands of people, just this time they were wearing masks.

The 2022 AHR Expo—the HVAC&R industry's largest gathering since the onset of the COVID-19 pandemic—took over the Las Vegas Convention Center from January 31–February 2. The show boasted nearly 1,600 exhibitors,

covering 443,769 ft² (41,247 m²) of exhibit space. Of those exhibitors, 329 were international—not including Canada—and 171 were first-timers. More than 30,670 people attended the 2022 Show, according to show management.

While the 2022 Show was smaller than in previous years, the event showcased how far the HVAC&R industry has come—from new designs to different ways of

thinking—in the past two years, said AHR Expo Show Manager Mark Stevens.

“After nearly two years apart, I think everyone is ready to get back to business and bring the full industry back to AHR Expo. We now have new challenges to tackle and a new external audience who is invested in the success of HVAC&R,” he said. “It’s time to get back to business. The industry needs a strong, knowledgeable and

interconnected workforce to achieve the goals required for efficiency, sustainability, health and well-being and growth.”

From building decarbonization to indoor air quality (IAQ) to regulation shifts, the HVAC&R industry is poised to push forward with innovations. “Internally, there is much focus on growing the workforce and attracting new professionals as they pivot careers in the great resignation. The industry is thinking about ways to move forward and meet demands placed on our manufacturers and workforce,” said Stevens.

Meeting Customer Demand For IAQ Technologies

The HVAC&R industry was pushed into the spotlight as a mitigation strategy against COVID-19, said Stevens. “Inside the industry, we’ve known the effectiveness of clean air in our indoor environments for some time, and now we have the world’s attention to show them just what our industry can provide. Now more than ever we need to share ideas and make connections that will spark the innovations needed for the future.”

IAQ companies exhibited their latest products and innovations in full force at the Expo. In addition other companies with broader offerings were also taking into consideration customer concerns and demands for products that help promote healthier indoor environments.

Bobby DiFulgentiz, vice president of product management and marketing at Lennox International, said people now have a heightened sense of what filtration and ventilation are due to the pandemic.



Joey Henderson (left) shows attendees the ins and outs of a product offering.

“They’ve always been important, but they are very important now to every part of our business ecosystem. We sold more high-efficiency filters than we ever had. The installation of UV-C lights is higher than ever,” he said.

He said he’s seeing the industry shift to thinking about regulations, such as codes, and seeing what organizations, such as the International Well Building Institute, are doing in this sector.

Decarbonizing the Built Environment

The industry trend of building decarbonization was also pervasive throughout the Show. Two years ago at the 2020 AHR Expo in Orlando—the last time the Show was held—few people were discussing this topic. Now, companies are addressing this trend head-on.

“There’s just incredible innovation being brought to bear to decarbonize the economy,” said Katie McGinty, vice president and chief sustainability and external relations officer for Johnson Controls, during an executive panel hosted by Johnson Controls. “We have to

decarbonize buildings, and it’s about two things. It’s about electrification. And then as you electrify buildings, you’ve got to digitalize.”

In addition to thought leadership on the topic, several manufacturers displayed technologies, such as heat pumps that operate in freezing temperatures, that could aid the transition while keeping occupants safe and comfortable.

Educating on the Evolution Of Refrigerants

The transition to lower global warming potential (GWP) refrigerants has been a long journey for the HVAC&R industry, and the evolution is far from over. “I think everyone in industry wants regulatory certainty,” said Charles Allgood, Ph.D., technical fellow at The Chemours Company.

That regulatory certainty appears to be on its way. In late September, the U.S. Environmental Protection Agency issued a final rule establishing a comprehensive program to cap and phase down the production and consumption of climate-damaging hydrofluorocarbons (HFCs)—potent

greenhouse gases commonly used in refrigeration and air conditioning equipment. The details have yet to be revealed, but the industry appears ready to get started.

Mike Schwartz, CEO of Daikin Applied Americas Inc., said Daikin is focusing on new products that meet the refrigerant regulatory standards in 2024 and 2025, as laid out in the final rule. But Daikin is also figuring out how to “push back” regarding misunderstandings and misinformation about A2L refrigerants. Schwartz said Daikin recently sponsored a hands-on lab demonstration for California firefighters to show them the level of flammability A2Ls have in real time. The

demonstration shared what to do in the event of a fire.

“They said, ‘This is totally different than what we expected,’” said Schwartz, adding the firefighters said they had heard stories that [using A2Ls] is like throwing gas on a fire. “We’ve got to get that communicated and educated throughout the industry.”

Education is central to a successful industry transition to lower GWP refrigerants, said Allgood and Andrew Pansulla, a technical service engineer at Chemours.

“One of the things that we constantly have conversations about—especially if you’re an end user that has a large refrigerant portfolio—is

really trying to develop a refrigerant management plan,” said Pansulla.

These plans help end users know what refrigerants they are currently using to help decide what to do with equipment, especially those that use HFCs. From the contractors’ perspective, Pansulla said they need to be educated on the regulations to help them make quality recommendations based on the future of what refrigerants will be available.

“Prepare to be continually educated,” said Allgood.

After a year of continual learning and innovation, the HVAC&R industry is set to meet up again at the 2023 AHR Expo, scheduled for Feb. 6-8, 2023, in Atlanta. ■

What’s New From AHR Expo

LAS VEGAS—Here’s a sampling of new products shown at the 2022 AHR Expo:

From **Climalife Galco** comes Greenway® Neo N, a renewable plant-based coolant formulated to protect against freezing and the formation of deposits in the system. It is registered in the HTI category on the official NSF list and can be used as a heat transfer medium in circuits presenting a risk of accidental contact with food.

Dorin USA introduces CD6 901-99 B, a new compressor platform packed with automotive engineering solutions. Many design principles used in passenger vehicle combustion engines have been implemented to cope with the very challenging operating conditions imposed by CO₂ industrial refrigeration systems.



At the 2022 AHR Expo, attendees were able to explore the HVAC&R industry’s innovations and new products in person.

The Copeland™ Horizontal Variable Speed Scroll Compressor for Refrigeration by **Emerson** provides a more sustainable compression technology within the commercial refrigeration sector. This low-profile, variable-speed solution delivers an ideal

combination of energy efficiency, low global warming potential refrigerant options, reliability and design flexibility.

The new PX G1300 energy recovery device by **Energy Recovery, Inc.** can reduce the energy consumption and operating

costs of CO₂ systems, making the switch to CO₂ refrigeration systems financially attractive by recycling otherwise wasted pressure energy and returning it to the CO₂ system.

Flo-Tite and Max-Seal Valves from **Flo-Tite Valves and Controls, Inc.** have newly enhanced design features, which increase the performance and reliability of its products. Some of these features, such as triple stem packing and locking handles, come standard.

Full Gauge Controls, Ltd. introduces the VX-1025E plus (EEV) that offers a complete configurable solution for controlling various models of electronic expansion valve (EEV), in addition to superheating, room temperature, defrost, pressure, ventilation, lighting and alarms control. In other words, it replaces the thermostat in the installation.

The Circlemiser series from **Geoclima USA, Inc.** is characterized by an increase in EER up to +15%. The technological innovation of Circlemiser is in the design and development of special cylindrical microchannel condensers and the installation of cascade flooded evaporators.

Equipped with an integrated brushless dc motor, with voltage ranges of 12–24, 36 and 48 volts, these seal-less, magnetically driven centrifugal pumps by **GRI Pumps** offer a safe and efficient solution to moving fluid in high-tech equipment.

The line voltage evaporative cooler thermostat from **Hessaire Products, Inc.** offers Wi-Fi and is compatible with all residential coolers. This product mounts to a single gang switch box



for ease of installation and features a large digital display, background light and auto-dim. It is also 115/230V compatible and has two-speed motor control, along with a humidity sensing readout.

Leak Lock 2.0 Advanced by **Highside Chemicals, Inc.** is thread sealant for mini-split systems and for all flare fittings and compression fittings. Threaded connections coated with Leak Lock 2.0 will form a chemical hydraulic seal to prevent high-pressure leaks.

The LineGate Cover System from **Inaba Denko America** for ductless mini-splits provides aesthetically pleasing lineset entry point protection, while adding a sleek finishing touch to any HVAC project.

Indus International FZC offers 5, 6.35, and 7 mm (0.20, 0.25, and 0.28 in.) all-aluminum tube-fin coils and copper tube-fin coils with compact geometry that are applicable for low-GWP refrigerants, such as R-290, R-32, R-449A, R-1234ze and R-1234yf.

iO HVAC Controls/Specified Controls introduces the UT-SWM Smart Wire Module. This module is a 2-to-5 wire adapter that allows

a contractor to add up to five additional outputs over a single pair of wires between two locations, such as a thermostat and HVAC system.

KeepRite Refrigeration/National Refrigeration and Air Conditioning Canada Corp. upgraded their Quiet Condensing Unit. The KQ2 is a new and improved unit, which is still quiet, compact and efficient, but now offers enhanced communication and control. Designed with two-way communication capabilities in mind and an upgraded electronic system, the KQ2 is stronger, quieter, and smarter than ever before.

The **Koldwave Div. of Mestek** has added two new industrial portable air conditioners to their line. Units are easy to install for both temporary and spot cooling installations. Integral controls, high static blowers and camlock electrical connectors are just a few of the standard features. All products are ETL Certified and available for indoor and outdoor applications.

The ultrahigh efficiency Model L packaged rooftop units by **Lennox**

Danfoss Wins Product of the Year

LAS VEGAS—Danfoss is victorious. At the 2022 AHR Expo, Danfoss' new Turbocor VTCA400 compressor was named the 2022 AHR Expo Product of the Year, edging out nine other Innovation Awards category winners.

The compressor is the world's first oil-free, variable-speed, magnetic bearing centrifugal compressor using a hybrid compression design that is optimized for use with low global warming potential (GWP) refrigerant R-1233zd in water-cooled chiller applications. The VTCA400's patent-pending hybrid compression design uses a combination of mixed flow and radial impellers, enabling both high-performance and a compact footprint. Its hybrid compression design allows for a compressor footprint that is half the physical size and weight of a conventional radial-only design while maintaining high efficiency levels.

The annual AHR Expo Innovation Awards honor the most inventive and original products created by the HVAC&R industry. Innovation Awards winners are named in 10 industry categories: building automation, cooling, heating, indoor air quality, plumbing, refrigeration, software, sustainable solutions, tools and instruments and ventilation. Those 10 winners then compete head-to-head to be awarded the coveted AHR Expo Product of the Year award.

Meet the 2022 AHR Expo Innovation Awards Winners:

Building Automation | iSMA CONTROLLI S.p.A's iSMA-B-MAC36NL Hybrid IoT Controller powered by Niagara Framework

Cooling | Danfoss' Danfoss Turbocor® VTCA400 Compressor

Heating | Carrier's Infinity® 24 Heat Pump with Greenspeed® Intelligence



From left, Ron Duncan, chairman of AHRI; Eddie Rodriguez, strategic marketing manager, Danfoss Turbocor Compressors; Ray Good, global oil-free application engineering manager, Danfoss Turbocor Compressors; Frank Ford, director of product management, Danfoss Turbocor Compressors; ASHRAE President Mick Schwedler, P.E., Fellow ASHRAE; and Mark Stevens, AHR Expo show manager, celebrate Danfoss winning the 2022 AHR Expo Product of the Year Award for its new Turbocor VTCA400 compressor at the 2022 AHR Expo in Las Vegas.

Indoor Air Quality | Antrum's AntrumX™ IAQ Facilities Monitoring System

Plumbing | Franklin Electric/Little Giant's Inline SpecPAK, Multi-Pump Pressure Boosting System

Refrigeration | ebm-papst Inc.'s AxiEco 630-910 Axial Fan

Software | Bluon, Inc.'s Bluon Support Platform

Sustainable Solutions (formerly Green Building) | Enginuity Power Systems Inc.'s E|ONE Home Power System

Tools & Instruments | Fluke Corporation's Fluke 378 FC Non-Contact Voltage True-rms ac/dc Clamp Meter with iFlex

Ventilation | Aldes' InspirAIR® Fresh

For more information, visit ahrexpo.com/awards ■

International, Inc. have ratings up to 22.5 SEER, 23.3 IEER and 15 EER and feature gas/electric and electric/electric units with nominal cooling capacities from 3–25 tons (11–88 kW).

The enhanced E.xxx series motor start capacitors by **LM Caps** is

newly designed to answer more industrial applications at extreme temperatures. It is a completely new design with the most recent internal components.

Rapid Locking System's XL line from **M&M Manufacturing Company** offers an industry

exclusive size range for refrigerant press fittings. The XL annealed soft copper fittings come in sizes 1.625 and 2.125 in. (41.28 and 53.98 mm). This enlarged size offering will allow press to be used in industrial and commercial refrigeration spaces.

FinKote2 from **Metal Processing International L.P.** is now NSF 51/61 certified. Food processing facilities, medical labs and chemical refineries are all areas where there is a requirement for NSF 61 approval. Water and wastewater markets need NSF 51 & 61 certified solutions as well.

Metraflex Co. introduces the new Variable Refrigerant Flow (VRF) Metraloop. Rated for 700 psi (4827 kPa) at 300°F (149°C), the VRF Metraloop has been specifically designed by Metraflex to handle the demanding conditions of a VRF system.

HardGard coil guards from Linea Screens by **ModWerks** are all aluminum, corrosion-resistant accessories, easy to field install onto almost any equipment. Primarily for variable refrigerant flow (VRF) units (even mini-splits), HardGard can custom build guards for small commercial rooftop units, as well as cooling units.

EdgeCool by **DENSO** from **MovinCool/DENSO Products and Services Americas, Inc.** transforms your server rack into a portable, energy-saving server room. The revolutionary, patented solution is the only split system designed for self-contained operation. The powerful evaporator and condenser units require no additional floor space and work with any new or existing server rack.

Designed as a match for the Universal® Condenser from **MRCOOL, LLC**, the Universal® A-Coil can be paired with an existing furnace or modular blower already in your home. Make it a complete system by pairing with the Signature Series Modular



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Blower or Signature Series 95% AFUE Gas Furnace for maximized efficiency.

The new HP41 Series hermetically sealed, regenerative turbine pump from **MTH Pumps** is designed to pump freons and other nonconductive, noncorrosive fluids to capacities of 45 gpm (2.8 L/s) at as high as 450 ft of head (100 kPa).

The new IREF LITE low-cost, high-performance NDIR sensor from **N.E.T. Srl** adds new A2L gases to its detection range. Now available in LFL range: 0%–14.4% vol R-32, 0%–6.3% vol R-454A, 0%–7.7% vol R-454B, 0%–6.2% vol R-454C, 0%–6.2% vol R-1234YF and 0%–6.5% vol 1234ZE.

The iX-Box from **Onda USA, LLC** is a liquid-suction vapor internal heat exchanger that will boost a chiller's performance in a range of 10%–30%, reduce refrigerant volumes and improve dry expansion evaporator technology, making it competitive with other technologies, such as flooded evaporators.

Polar Air Intelligent Fan Coils by **Polar Global Asia HVAC Systems**

are a new fan coil generation conceived as an individual intelligent point of control, designed to manage airflow and water flow parameters to ensure optimum unit performance and maximize comfort needs.

Kuul Control PowerTech™ from **Portacool** is an evaporative cooling technology intended for use in direct and indirect cooling systems where space and energy consumption are the driving factors for design. The compact evaporative media is for gas turbine, HVAC and data center industries.

The Puroflux PF-64 centrifugal separator from **Puroflux Corporation** is designed specifically to remove dirt, sand, silt, precipitates and suspended solids from process fluids. The PF-64 package is user-friendly with low maintenance and will remove unwanted contaminants, resulting in better system efficiency and decreased operating costs.

The APR Control from **Rawal Devices, Inc.** is an external compressor unloading device,

providing continuous capacity modulation for any standard DX system. It solves many issues that come with commonly oversized systems.

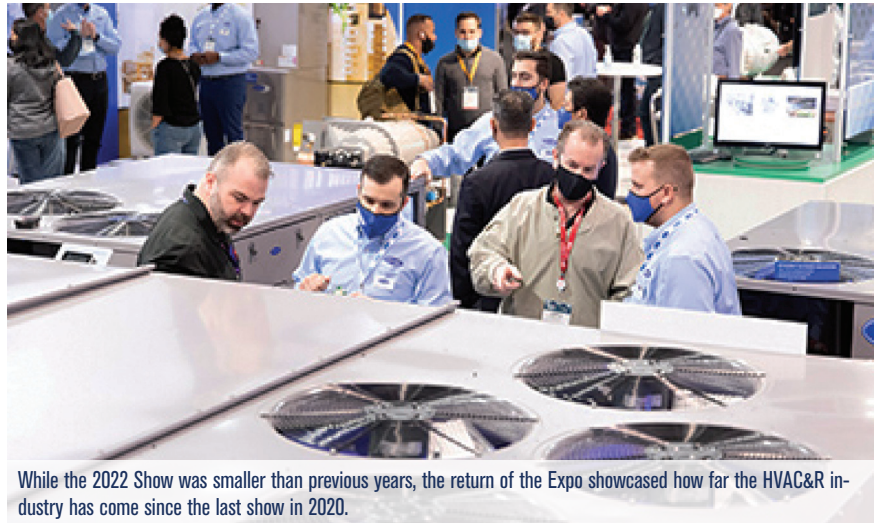
The Renaissance™ 15–25 ton (53–88 kW) cabinet from **Rheem Manufacturing Company** is a new, compact, cost-effective design with a convertible footprint that directly replaces other manufacturer's units. Renaissance includes convertible airflow capabilities, making it suitable for both horizontal and downflow applications.

The CW3 from **Seeley International Americas** offers hyper-efficient indirect-direct evaporative cooling with a cutting-edge Micro-Core™ heat exchanger. Its cooling performance increases when the heat load is low. As the fan decelerates, it provides an increased EER up to 68 with input power of 300 W, improving IAQ while supplying 100% fresh, outdoor air.

Spacepak—A Mestek Co.'s Solstice Split System Inverter Air-to-Water Heat Pumps (SIS) incorporate ultra-high efficiency inverter technology. SIS heat pumps use EVI inverter compressors for optimum performance at temperatures down to –20°F (–29°C).

The Marley® BasinGard™ Filter from **SPX Cooling Technologies/Marley** is a patent-pending filtration system to factory-assembled crossflow cooling towers with or without nozzle cups. The filter contains antimicrobial properties and is held in place by a 304 stainless-steel grid.

Designed for use for up to 3 tons (11 kW) of cooling, the AHW wall unit from **Summit Residential**



While the 2022 Show was smaller than previous years, the return of the Expo showcased how far the HVAC&R industry has come since the last show in 2020.

Coils is heat pump ready with optional electric heat available up to 10 kW (3412 Btu). Optional hot water heating is also available.

Custom-built test benches from **Tescor**, a Link Group Company, provide precision measurement of fan performance and airside enthalpy in heat exchangers. With the ability to provide solutions, ranging from small and basic to large and complex, Tescor's airflow test stands can be built to your specifications and are available with fully automatic data acquisition and control systems.

Tower Tech announces a new closed circuit cooling tower that will feature the same benefits as the current line of open-circuit fiberglass cooling towers, making them the most sustainably efficient cooling towers available.

The Susta vibration damper by **Vecamco US Corp** has lower and upper support in reinforced thermoplastic material, deformable relief surfaces for correct positioning, central spring in harmonic steel with silicon and carbon with protective cataphoresis treatment. It is resistant to

weathering, UV rays, and temperatures from –50°C to –120°C (–58°F to 248°F).

The Refri-Shield™ RDP-01 Differential Pressure Monitor from **Westermeyer Industries, Inc.** is used to visually and electronically monitor when the filter element of a coalescing oil separator is contaminated and needs replacing.

The Closetline® Packaged Water Source Heat Pump with hot gas reheat from **The Whalen Company** uses a compact cabinet, making the heat pump system the perfect solution for commercial retrofit or new construction applications. Hot gas reheat is used for humidity control and for occupant comfort.

Xiamen Meihuashun Imp. & Exp. Co., Ltd. introduces its 2H/2C auto changeover thermostat for high-efficiency, multiple-stage and/or commercial multiple compressor systems. ■

Future Show Dates

2023 Atlanta, Feb. 6–8

2024 Chicago, Jan. 22–24

2025 Orlando, Feb. 10–12