

2019 AHR Expo Elevates Industry's Innovations

BY MARY KATE MCGOWAN, ASSOCIATE EDITOR, NEWS

ATLANTA—The AHR Expo's show floor showcases the HVAC&R industry's latest innovations to address real-world challenges as well as highlight the most pioneering technologies.

The 2019 Show attracted more than 45,000 people, including booth staff from 1,824 exhibitors, from Jan. 14 to 16 at the Georgia World Congress Center in Atlanta.

Mark Stevens, show manager AHR Expo, said despite challenges such as Atlanta's hectic traffic and being next to the site of this year's Super Bowl the Show had a great turnout.

"The industry is also attracting a lot more attention from horizontal markets outside of traditional HVAC&R with the introduction of

the IoT and other technologies," he said.

At this year's Show, 1,824 exhibitors filled 493,000 net ft² (45 801 m²) of net exhibit space, according to Stevens. He said this year's Show had 116 new exhibitors—65 of which had an international base.

"This shows the expansion of our market and the truly global reach this Show has," Stevens said. "Collaboration at a global level is so important to the growth of this industry, and these numbers back up the success happening in this area."

The 2019 Show marked the first year IEC verified how many people physically visited the Show. Verified attendance uses radio-frequency identification (RFID) technology to track attendees as they entered and exited the Show floor. The 2019

Show's total verified attendance was 45,078 people, including exhibitors, attendees and press.

"We want our attendees networking, capturing leads, learning, interacting and focused on their day rather than waiting at the gate to be scanned in," Stevens said.

Industry Trend: Low-GWP Refrigerants

This year, one major industry trend, the transition to low-global warming potential (GWP) refrigerants, was the subject of many conversations on the Show floor and the nearby ASHRAE Winter Conference. But products do not reflect the trend just yet.

This transition is "absolutely the biggest product redesign effort that our industry will have undertaken in the last 50 years in my opinion,"

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said Mike Schwartz, CEO of Daikin Applied Americas.

Schwartz said the industry's transition to low-GWP refrigerant solutions for HVAC systems is driving the development of new equipment compatible with alternative refrigerants.

To phase down the use of hydrofluorocarbons (HFCs), the industry is tasked with developing solutions—some of which could be flammable. Schwartz said there is no clear “drop-in” refrigerant replacement like when the industry transitioned from R-22 to R-410A.

“I think a lot of new designs have yet to be introduced because everyone is in middle of redesign efforts to be able to support and accommodate those new refrigerants. But it's clearly in the front of center with most of the major OEM manufacturers,” he said.

Al Fullerton, Member ASHRAE, a district manager for Trane, said there are four potential refrigerants, including mildly flammable refrigerants, which could replace R-410A.

“If the industry moves to slightly flammable refrigerants, building codes will have to change. A lot of service practices and safety will have to be addressed,” he said.

Fullerton said he was expecting to see more progress in the transition during the Show, while Schwartz said he expects to see new product introductions in 2021 and 2022.

“In the next few months, you'll see many manufacturers say, ‘This is the refrigerant we're going to use,’” Fullerton said.

More Industry Trends

The 2019 Show filled more than two exhibit halls with new products and needed solutions that address



Steve Secord (right) shows REFCO Manufacturing refrigerant charging scales to Alvaro Anaya, Steven Raynes, and Andrew Brudevold.

industry challenges and customer demands.

Becky Andrzejak, an exhibit and events program manager for Johnson Controls International, said people throughout the Show were interested in the Internet of Things (IoT) and how data is influencing the industry. The second-floor of JCI's 6,200 ft² (576 m²) booth focused on IoT and data, Andrzejak said.

“You see all of these parts and components and equipment but how does it all come together and what difference does that make for the building owner or operator or mechanical contractor to really offer added value to their customer as well,” Andrzejak said.

The JCI booth was the biggest booth ever at an AHR Expo, said Stevens.

The focus to achieve more performance in a smaller footprint continues for some companies, including LG. LG showcased some

of its smaller products that achieve higher performance such as the 20 ton (70 kW), single frame Multi V™ 5 now with LGRED° heat technology, which can go down to -22°F (-30°C), and the compact, single phase Multi V S 5 ton (18 kW) heat recovery system, said Lorie Quillin-Bell, director of marketing for LG Air Conditioning Technologies.

Connectivity continues to be a major trend as customers want to easily integrate systems whether within a building management system or within a connected home, said Quillin-Bell. From Wi-Fi availability to easier integration of third-party solutions, interoperability and integration continue to be focuses for controls, she said.

For heating and cooling solutions and building loads, electrification is another industry trend spurring innovation. Schwartz said as the industry looks to lower greenhouse

Daikin Shows Industry Opportunities To the Future of the HVAC Industry

ATLANTA—As 1,824 exhibitors showcased the future technology of the HVAC&R industry at the AHR Expo, one exhibitor used the event to recruit students to become the future of the industry.

Daikin focused on showing engineering and technical trade students the opportunities within the HVAC&R industry amid the industry's labor shortages during the first day of the Show, said Mike Schwartz, CEO, Daikin Applied Americas.

During the "Future of HVAC" event, students learned about Daikin's career opportunities and technological innovations.

The students toured Daikin's booth and learned about the company's innovations in variable refrigerant volume technology, chillers, intelligent equipment and ECM fans. Daikin product managers explained their roles in developing technology and equipment and showed the latest innovations on the show floor.

The students heard from Daikin leadership and met with human resource representatives to present resumes and hear about career opportunities.

Schwartz said some students are looking for careers at companies such as Google and Apple, but they do not understand or are not aware of opportunities in the HVAC&R industry. He said the event's goal was to expose the students to the industry's various opportunities in technical design, product design, product marketing, technical services and field service solutions.

"We need to make them aware of the career opportunities," he said. "Paint the picture, and we believe they'll come."

Students trained in automation, engineering, data and analysis have opportunities to contribute to next-generation products and technologies, especially as the industry trends of cloud-based controls and HVAC tools that enable data-driven decision-making grow.

One of the participating students, Karl Heine, Student Member ASHRAE, said attending the Expo exposed him to the innovative research and development happening in the industry.

"It's a broader and bigger industry than you necessarily might think," said Heine, a second-year Ph.D. student at Colorado School of Mines. "It's not as static as might be assumed. There's lots of cool technologies being developed right now and more to be developed in the future. It's promising."

Daikin employees, including recent graduates, acted as guides and mentors for the students during the event. One of those guides, Midori Drake, who works on compressor design for Daikin Applied, said the event was a great networking opportunity for the students.

"When I was looking for jobs coming into this industry, I had no idea about anything HVAC. Having a sort of sneak peek into what an engineer does and what kind of jobs are available inside the industry would have been so valuable," she said. ■

gas emissions and get away from burning fossil fuels through conventional heating, the industry could focus on electric heat or heat pump applications.

Schwartz said there likely will be multiple solutions for how the industry responsibly lowers greenhouse gases while also having efficient heating and air-conditioning products.

As part of the Building Automation & Control Showcase, Rocky Moore, Midwest regional sales manager for Automated Logic Corporation, said he noticed several industry trends in that section: visualization, dashboarding, integration and convergence.

Moore said a lot of building owners want to merge disparate systems together to create "a single pane of

glass" front-end interface that allows engineers to have deep, insightful visualizations into their systems. He said the converged interface would help them quickly look at how much energy the building uses and perform maintenance requests, fault detection and diagnostics.

Several factors are driving these trends such as the goal of increasing energy savings and

Innovation Awards Winners

Every year, the Show floor is filled with innovative technology and systems that push the HVAC&R industry forward. More than 1,800 exhibitors filled 493,000 net square feet (45 801 net square meters) of exhibit space at the Georgia World Congress Center this year.

But a panel of third-party ASHRAE member judges deemed 10 products as the most innovative. Those products are named Innovation Awards Winners and compete to be named the Product of the Year (Page 12).

Winners are named in the following categories: building automation, cooling, green building, heating, indoor air quality, plumbing, refrigeration, software,

tools and instruments and ventilation.

This year's companies with winning products were:

- Automated Logic Corporation (Building Automation);
- Johnson Controls, Inc. (Cooling);
- enVerid Systems (Green Building);
- Regal (Heating);
- CPS Products, Inc. (Indoor Air Quality);
- Anvil International (Plumbing);
- Emerson (Refrigeration);
- Taco Comfort Solutions (Software);
- Dwyer Instruments, Inc. (Tools & Instruments); and
- Energy Wall, LLC (Ventilation). ■

the development of smart grids, he said. Occupant engagement is another driver. Moore said the converged networks and “single pane of glass” interfaces help occupants track their energy use and indoor air quality levels.

“If you have employees in a space, you want to keep them happy and healthy,” he said. “When you do it right, you actually get happier employees, more productive employees.”

Another exhibitor in the Building Automation & Control Showcase said air quality concerns continue to be a focus at the Show.

Scott Reed with Tasseron Sensors said more people want to know about their buildings' CO₂ and particulate matter levels.

“People just want to have more efficient buildings. They want to save energy. They want to provide buildings where people can be in and not get sick,” he said. “Fresh air is much more important to us these days.”

AHR Expo 2020

The 2020 AHR Expo will

showcase the upcoming year's industry progress and innovation in Orlando, Fla. Stevens said the exhibitor space is nearly sold out for next year's Show, scheduled for Feb. 3 to 5.

“At this year's Show, you could feel the buzz of excitement for the industry and all the possibilities we have at our fingertips now that maybe weren't there before,” he said.

“These collaborations and innovations will continue to come alive throughout 2019, and I think we can look forward to seeing some very advanced technologies on the Show floor next year.”

The AHR Expo showcases innovation and provides an opportunity and platform for exhibitors and attendees to have meaningful conversations about industry solutions and products, he said.

“We always enjoy the camaraderie of getting to connect with our key partners and customers as well as getting the chance to build new relationships at our booth during the show and at our events throughout the week,” said LG's Quillin-Bell. ■

AHR Expo Innovation Awards Donation

WESTPORT, CONN.—The AHR Expo gave back to the Atlanta community with a donation of \$20,500 from its Innovation Awards program to the Atlanta Police Athletic League (PAL).

Each year, the AHR Expo donates the entry fees from the Innovation Awards competition to a charitable organization within the region where the Show is being held.

For 2019, the AHR Expo chose to donate the funds to the Atlanta Police Athletic League, a non-profit public benefit corporation working under the mission of providing a safe environment for Atlanta area youth to reach their full potential through a partnership with local police and the surrounding community.

“We are thrilled to have been named the recipient of the AHR Expo's generous donation for 2019,” said Sergeant Vincent Sims, Atlanta Police Athletic League. “We are deeply appreciative of the support given to our program and what we are doing here in Atlanta.” ■

enVerid Systems' Indoor Air Scrubber 2019 Product of the Year

ATLANTA—An indoor air scrubber was the most innovative HVAC technology at this year's AHR Expo.

enVerid Systems' HVAC Load Reduction® (HLR) module 1000E-M was named the 2019 Product of the Year during the Show's Innovation Awards ceremony.

Udi Meirav, CEO and Founder of enVerid Systems, said he cannot overstate the significance of being named Product of the Year.

"We are trying to bring something very new that is different, and acquiring the confidence and the support of the industry is the Number 1 issue for us. That's really the most important thing to happen for us to really get this innovation out there to the world," he said.

The indoor air scrubber module is designed to lower energy wastage from HVAC systems. It reduces the amount of outdoor air needed for ventilation by 60% to 80%, resulting in increased energy efficiency and annual energy savings of 20% to 30% with peak capacity reductions of 10 to 20 tons (35 to 70 kW) per HLR® 1000E-M module.

The product fully complies with the Indoor Air Quality Procedure (IAQP) of ANSI/ASHRAE Standard 62.1, *Ventilation for Acceptable Indoor Air Quality*, and the International Mechanical Code (IMC).

The first-of-its-kind solution safely removes all molecular contaminants, including carbon dioxide (CO₂), formaldehyde and a full range of volatile organic compounds (VOCs) from indoor air.

Meirav said the product is more than air cooling



From left, AHRI Chairman Bill Steel; ASHRAE President Sheila Hayter; Udi Meirav, president of enVerid Systems; and AHR Expo Show Manager Mark Stevens pose during the Innovation Awards ceremony.

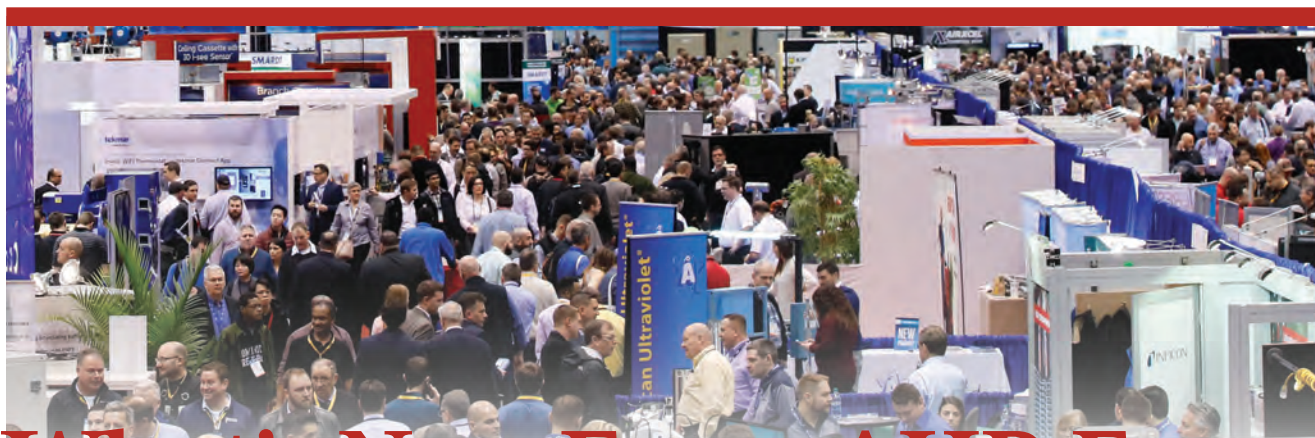
technology. He said it represents an idea that buildings can be managed as self-sustaining closed systems that do not rely on outdoor air for its air quality.

"That unleashes a whole set of benefits including energy and money savings but also better air quality," he said. "These things have not been available to anybody. If you're in a polluted city, there's no way to provide good air quality to the occupants of your building if you're relying on outside air to flush out indoor contaminants. This is a really fundamental shift."

Meirav said enVerid's next step is to develop more variations of this product to increase the number of settings and types of buildings where it can be used, while continuing to improve the product's mechanical design. ■

2019 AHR Expo by the Numbers

Total Attendance (Including Exhibitors)	Total Visitor Attendance	Exhibiting Companies	International Exhibitors	Exhibit Space
45,078	27,047	1,824	497	493,000 ft²



What's New From AHR Expo

ATLANTA—Here's a sampling of new products shown at the 2019 AHR Expo.

LG Electronics unveiled its upgraded Multi V 5 that is now standard with LGRED° heat technology. Available in a range of capacities including a 20 ton (70 kW) single frame, the upgraded system boasts an expanded operating range to work in ambient conditions down to -22°F (-30°C).

Emerson's Sensi™ Predict allows contractors to take command of the homeowner's system, connects the contractor to ongoing home performance and ensures the probability of higher revenue per truck roll. The proactive sensor system reduces the number of callbacks, boosts close rates on new equipment and more.

Delta Electronics showcased a portfolio of IoT-enabled energy-saving solutions that enhance operating cost efficiency and occupant comfort. The portfolio includes the UNO® Indoor Environmental Quality Solution, a platform that facilitates seamless and strategic control to ensure the optimal balance between indoor air quality, energy efficiency and comfort.

ABB launched a series of variable frequency drives that will enhance smart buildings' performances and enable users to meet more stringent energy-efficiency regulations. ACH580 VFDs are easily integrated with ABB Ability™ monitoring services—ABB's unified, cross-industry, digital offering, which provides real-time data about drive status and performance from any location.

Vertiv introduced the Vertiv™ VRC rack cooling system, which is designed to fit easily into racks in small server rooms, network closets and similar edge computing environments. The system delivers 3.5 kW (of IT cooling, uniquely deploying load-matching, variable-capacity compressors and fans, and it comes in three heat rejection options.

MarketAir presented EasyCollar cassette collars for mini-split/VRF systems. The collars are suitable for stores, restaurants, offices, hotels and supermarkets that have shallow ceiling voids or exposed cassettes. They enhance the appearance of the cassette to provide a professional finish.

RectorSeal's Multi Frame Big Foot Systems offers endless VRF mounting solutions. The product has a modular design, includes all hardware, and there's no need to penetrate the roof. The frame is extendable from any side with extension kits.

The Mini UV DST from **Fresh-Aire UV** is a UV light LED system for mini-splits and similar limited-space applications. The LED light strip in the product is designed to sterilize surfaces while having no impact on plastic materials.

The RevolvAir air curtain system for revolving doors from **Berner International** creates a separating air barrier at the building's conditioned interior by blocking unwanted exterior air trapped within the moving door sections.

RevolutionAire Inc., introduces the Slimline Series, variable refrigerant flow (VRF) and energy recovery ventilation (ERV) technology combined in a unit ventilator system configuration. The Slimline is designed for new construction and unit ventilator retrofits of schools, hospitals, hotels and other commercial facilities.



After visitors stood in long lines to register, they took advantage of all that AHR Expo has to offer.

Nortek Global HVAC has added the R7DA, a combination DOAS and conventional space conditioning RTU to the Reznor® and Mammoth® branded R7 Platform product lines. It is the industry's only direct expansion package DOAS/RTU offering a drop-in replacement that fits many existing RTU brands' roof curbs.

Johnson Controls announced the release of Metasys 10.0, designed to deliver more unified building management. This latest release provides facility personnel with smarter building automation, faster responses to critical alarms and new integrations with fire detection, security and lighting systems—all with visibility from a single common interface.

The **Ruskin ADC105** addressable damper controller meets NFPA 80 and 105 life safety remote damper testing requirements. The ADC105 works directly with SIMPLEX ES fire

alarm panels required by building codes. Adding this simple addressable damper controller to a new facility or retrofitted building will reduce maintenance costs to test and maintain life safety dampers.

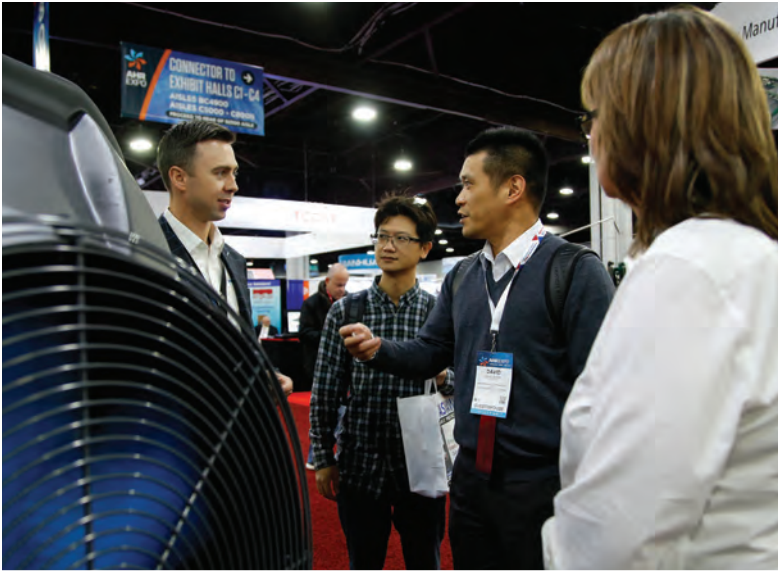
At the heart of the new **Daikin One** ecosystem is the new Daikin One smart thermostat, engineered to communicate seamlessly with all Daikin One ecosystem components, including the new Daikin *Fit™* condensing units, Daikin One air cleaners, and communicating furnaces and evaporator coils. The smart thermostat is the first to offer full two-way communications and serves as a cloud-connected hub and controller for sophisticated, communicating HVAC systems.

SPX Cooling Technologies displayed a Marley DT fluid cooler, an induced-draft counterflow product, which offers higher dry operation capacity in cool weather than fill/coil

hybrid coolers, delivers lower fan energy costs compared to forced-draft coolers, and reduces system components compared to combination open tower and plate heat exchanger (PHE) systems.

Cambridge Engineering's new E-Series and ESC-Series lines help facilities efficiently meet indoor air quality and comfort standards without refrigerants. The E-Series provides direct evaporative cooling using up to 70% less energy than conventional mechanical cooling systems, while the semi-custom fabricated ESC-Series air handler uses 30%-40% of the energy of mechanical systems through direct, indirect or a combination of both evaporative cooling techniques.

Resideo announced its new **Honeywell Home T10 Pro Smart Thermostat**, which features wireless RedLINK sensors with a range of up to 200 ft (61 m), helping provide



Thomas Morrison (left) and Sherie Dundon (right) of Portacool explain features of the company's portable Portacool cooling systems.



Amanda Grissom and Richard Hanson examine the Genius domestic water booster from QuantumFlo.

whole-home comfort. The thermostat will be available to professional contractors in North America this spring. At launch, the thermostats will integrate with Amazon Alexa and Google Home, IFTTT and Samsung SmartThings.

Rheem's Professional Prestige Combination Boiler is suited for smaller homes or multifamily applications to free up valuable space without sacrificing optimal performance. The ENERGY STAR certified Combi Boiler is a modern and efficient solution for homeowners' hydronic heating and hot water needs.

Mitsubishi Electric Trane HVAC US introduced CITY MULTI® N-Generation outdoor units, which deliver better energy efficiency and personalized comfort control to commercial building applications. The N-Generation features a footprint up to 30% smaller than previous models and offers more design flexibility due to improvements in vertical piping limits.

Trane is now offering Agility™, a new water-cooled centrifugal chiller product line, for customers retrofitting existing space-limited commercial buildings for efficiency and sustainability. Agility is a completely redesigned chiller in the 175-425 ton (615-1495 kW) range with a new compressor and heat exchanger.

NAVAC debuted its new NRDD Recovery Unit, whose twin-cylinder compressor and over-sized condenser with two rows of micro-channel coils offer exceptionally efficient vapor recovery. The unit features a brushless dc motor that allows it to provide substantial power in a compact size and weight of just 25 lb (11 kg). This dc technology also provides better starting performance under low voltage conditions.

Nidec Control Techniques' HVAC Drive H300 HMI Electronic Bypass package is based on years of experience designing field-proven variable frequency AC drives. These fan and pump controller packages

feature a two-contactor bypass control, full-color LCD touchscreen that provides an easy to use interface for Hand/Off/Automatic controls, setup wizard, visual diagnostics, and more.

The **Harris Products Group** introduced the Perfect Flame®. This engineered system, which delivers consistent results for repetitive, high volume handheld brazing applications, includes torches, tips, flow control devices and software that work together to improve brazing quality and increase productivity. This process results in better flame control, which leads to overall better brazing quality; fewer leaks and rejects; and reductions in operational costs related to labor, oxygen and fuel gas.

AERCO's Benchmark Platinum, a brand of **Watts Water Technologies**, is a "smart boiler" delivering maximum efficiency and precise combustion through its patented AERtrim O₂ Trim technology, Dual Returns and onAER predictive maintenance.



Doug Dailey (left) explains the features of the Aria Brands Inc., Lifebreath Metro Series indoor air quality system for condominiums, townhomes, and row houses.



Sara Porosky and Yufei Liu examine specifications of various models of thermal imaging tools from RIDGID/Emerson.

Viagra introduced MegaPress® Stainless XL® fittings for 2½ in., 3 in. and 4 in. (63.5 mm, 76 mm, and 102 mm) pipe. The new fittings join current MegaPress Stainless offerings to create a comprehensive lineup for a broad variety of applications, including maintenance and repair.

The **WaterFurnace** line of commercial variable capacity water source and geothermal systems offers efficiency while meeting small cabinet needs. The 10- and 15 ton (35 to 53 kW) commercial variable capacity units feature Aurora Advanced Controls with true energy, refrigeration, and optional performance monitoring as well as the optional Aurora UPC DDC Controls to integrate into building automation systems.

ASCO, an Emerson brand, showcased a variety of solenoid and electrohydraulic fuel gas safety shutoff valves. These products are ideal for boilers, ovens, furnaces, gas generators and heating equipment in commercial and industrial applications. Featured products include the two-way, normally closed ASCO™ Series 8214 (200) and V710(B), which offer a high flow rate, low pressure

drop and watertight design for applications involving low gas supply pressure.

TORAD Engineering is working on the next generation spool compressor optimized for “future-proof” refrigerant Solstice® ze (HFO-1234ze). TORAD’s spool compressor with Solstice® ze has achieved EERs within 2.5% of a similarly operating R-410A scroll. TORAD’s Solstice® ze spool compressor is expected to surpass the EER of similar R-410A scroll compressors.

Uponor ProPEX copper press adapters provide fast, consistent, reliable connections for ASTM F1960 ProPEX expansion systems-to-copper press systems for plumbing and hydronic piping applications.

Samsung’s Fresh Access™ packaged DOAS unit can provide up to 100% outside air to meet ASHRAE Standard 62.1 and ASHRAE Standard 90.1 requirements for fresh air and energy efficiency. Up to 20,000 cfm (8439 L/s), systems range from 3 to 70 tons (11 to 246 kW), have multiple heat source options, and integrate with Samsung central controls for simplified operation.

Trimble’s Weld enables MEP estimators and BIM detailers to integrate their workflows, aiding in collaboration and efficiency on construction projects. Weld leverages data and information created during the life cycle of the construction project and allows sharing information further downstream.

Titus offers VR training for chilled beams and underfloor modules. Engineers verify that products function as specified, architects visualize how the equipment interacts with the overall design and contractors preview how to efficiently install the equipment.

Carrier introduced the all-new Toshiba Carrier variable refrigerant flow (VRF) Rooftop, a rooftop unit-style fan coil for the Toshiba Carrier VRF system. It will allow multiple rooftop units to be connected to one condensing unit and additional VRF fan coil units to help optimize energy efficiency and comfort with a rooftop HVAC solution. It is the first rooftop product line specifically designed using VRF technology.

Friedrich announced its Kühl, WallMaster, Chill and UniFit customers will be able to choose

from Wi-Fi-enabled room AC unit options in a wide range of Btus starting this year. The simple-to-use wireless platform interface enables customers to control their AC units easily via their smart devices and also is designed to be compatible with Amazon Echo and Google Home.

Armstrong Fluid Technology announced Active Performance Management™, patented onboard software that learns, predicts, adjusts automatically and makes optimization recommendations in real-time. Applied in conjunction with equipment upgrades and consulting services, Active Performance Management has been shown to improve energy efficiency in HVAC systems by over 40%.

Panasonic showcased the U.S. debut of its nanoe™X solution, which provides a cleaner, fresher indoor environment by identifying harmful pollutants such as allergens, bacteria and odors, and neutralizing them with air purification technology. As an additional benefit, nanoe™X has been shown to help retain skin moisture to reduce dryness issues. It is designed for residential and commercial applications.

The SLX high output ultraviolet fixture from **UV Resources** disinfects HVAC&R airstreams, cooling coils and drain pans to keep them free of infection-causing and efficiency-robbing microorganisms and organic matter. The SLX fixture, which stands for Single Lamp eXterior-mounted fixture, offers facility managers and building owners an option to disinfect air and surfaces that are typically inaccessible from inside the air handler.



Visitors mob the Johnson Controls booth to listen to one of the many seminars presented.

Caleffi North America announced the 7504 Series CONTECA™, a direct heat meter that measures, calculates and records thermal energy and has auxiliary inputs to monitor water, gas or electrical meters. It complies with ASTM E3137 *Standard Specification for Heat Metering Instrumentation*.

Tecumseh showcased Tecumseh ARGUS, a next generation of air-cooled, low- and medium-temperature condensing unit platform focusing on ½ to 6 hp (373 to 4474 W) capacities. Its performance is optimized around HFO-blend refrigerants and exceeds DOE's AWEF requirements by up to 15% in this capacity range. It is first in exceeding the AWEF requirement for hermetic reciprocating compressor condensing units for 1.25 hp (932 W) or less.

Milwaukee unveiled the industry's first cordless pipe threader. The M18 FUEL™ Pipe Threader w/ ONE-KEY™ delivers unprecedented control for the user. It senses severe kickback and automatically shuts the tool off; a dedicated support

arm holds the tool stationary during threading, and an integrated die head lock enables side-grip thread starts.

Embraco's new generation of future proof solutions for food service are compatible with natural refrigerant (R-290) and deliver the same robustness and reliability as the previous generation. The NEX, NTX and NJX solutions are available for a diverse set of applications such as reach-ins and freezers, bar coolers, ice makers, prep tables and under counter applications.

The **Bosch** Inverter Ducted Split 2.0 is the company's premium air-source heat pump. With up to 20.5 SEER, this heat pump offers a full Energy Star-compliant product range. With 10.5 heating seasonal performance factor (HSPF) and heating operation down to four degrees below zero, this heat pump offers highly efficient operation, even in cold-climate applications.

The Streamlabs® control valve from **Reliance Worldwide** features patented ultrasonic technology for

real-time water monitoring, smart leak detection, and automatic shut-off to stop leaks in their tracks. Just one Streamlabs® control will protect homes from costly water damage and provide complete control from anywhere through a free app.

Weil-McLain now offers an advanced line of water heaters with composite construction tanks built to handle even the harshest water conditions. The new Aqua Pro™ indirect-fired water heaters feature a non-metallic, corrosion resistant design that delivers superior first hour ratings and recovery. The units are available in four sizes making them flexible for a broad range of applications.

Victaulic showcased its HVAC system solutions, including the QuickVic™ SD Installation-Ready™ System, an efficient and economical way to join small diameter carbon steel pipe.

Metraflex displayed their LPD-M Y-Strainer featuring neodymium rare-earth magnet installed into the collection vortex of the strainer. These magnets attract iron oxide particles and contain them until removal via blowdown. This process can be done while the strainer is in service.

Bell & Gossett unveiled the e-HSC double suction centrifugal pump. Suitable for commercial buildings like hospitals, malls and resorts, the pump features a smaller footprint than competitive equipment as well as lower life-cycle costs. The pump uses either single or dual volute designs based on the hydraulic constraints and is equipped with mechanical seals that support a variety of incoming pressure values.

Rehau offers its PEXa plumbing system for use in radiant cooling



Pratik Sharma, Rohit Mohindra, Andrew Maddock, Michael Moxon, and Matthew Maddock learn about the DE4200H pump from Armstrong Fluid Technology.

and heating systems in new construction. The system features UV shield crosslinked polyethylene pipe and polymer and lead-free brass compression-sleeve fittings. Sleeve-fittings use a proprietary two-step expansion and compression process for connections ready for pressure testing upon installation.

DunAn introduced the MO series of pressure transducers for use in harsh media applications. The design of the transducer eliminates the need for an O-ring, reducing the chance of failure and leakage. The over-molded plastic package reduces weight and improves vibration immunity while reducing manufacturing costs. It is available in pressure ranges from 0-15 to 0-750 psi (0-103 to 0-5171 kPa) in both absolute and sealed gage.

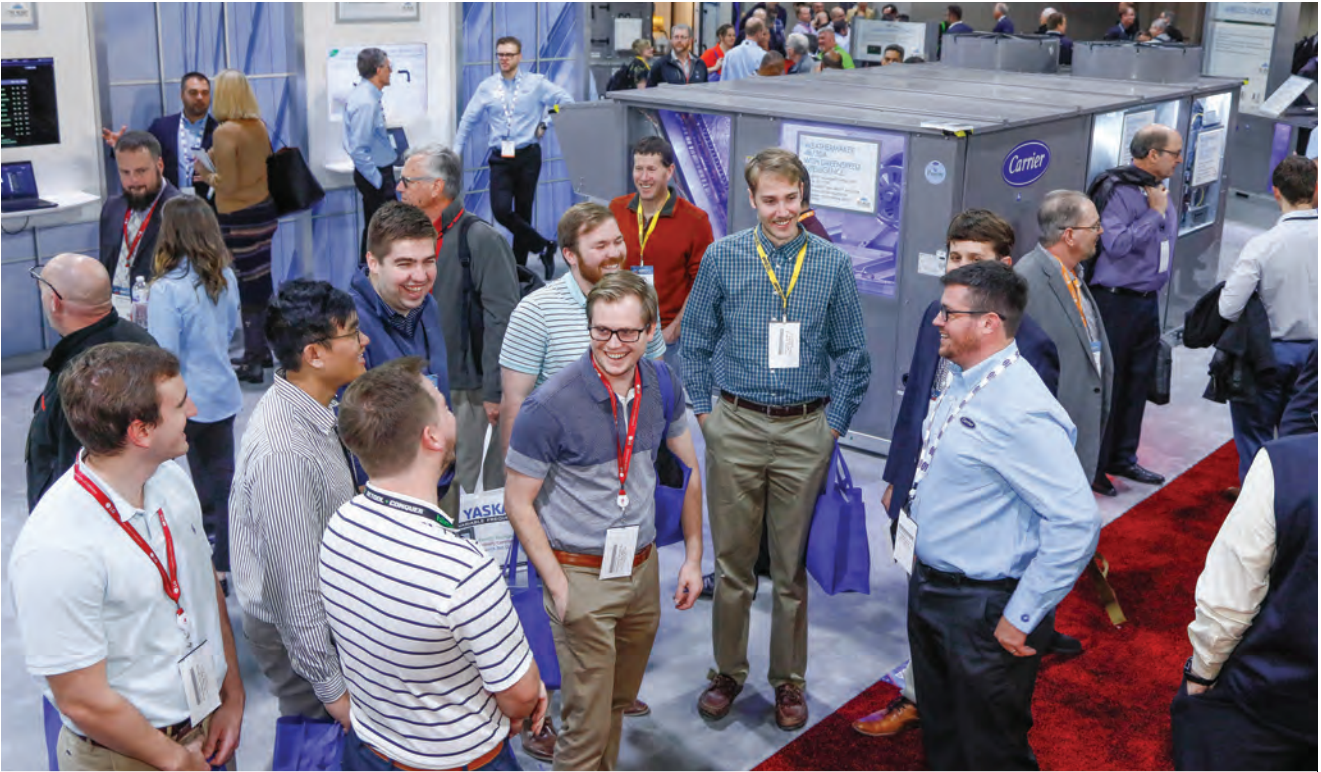
NOARK Electric announced the release of a new design accessory for its line of manual motor protectors. The Ex9S32 series of manual starters now has a NEMA 4/4X rotary handle enclosure for its lineup of manual starters. The total motor circuit protection package can be used

in a wide variety of applications, as a switch and for motor protection, disconnect and control.

Automated Logic Corporation introduced its new OptiPoint™ BACnet thermostats. These thermostats offer control of a building's HVAC system from inside a facility, or from any BACnet-compliant building management system (BMS), including ALC's WebCTRL® building automation system.

Ventacity's VS-CM Series helps building owners and HVAC contractors working on multilevel building projects reduce heating and cooling installation and operating costs while improving energy efficiency, health and comfort. The VS-CM Series operates at much higher energy efficiency (up to 93%), which saves much more energy and significantly lowers operating costs.

Rinnai is launching its new I-Series Boiler for the residential market. The I-Series Boiler has a unique advantage to homeowners with the ability for simultaneous use of home heating and domestic hot water production. The new I-Series Boiler



Tens of thousands of visitors attended this year's AHR Expo to see the latest and greatest products in HVAC&R.

will be available for ordering in the spring of 2019.

Cleaver-Brooks announced the launch of a Boiler Monitor for its ClearFire® line of boilers that use the Falcon control platform. Now, customers can check the operating status and performance of their boiler system, or multiple boiler systems simultaneously in real time via a mobile app or online customizable dashboard.

SWEP has just released SSP G8, the latest version of the SSP (SWEP Software Package) selection software with a new user interface. One of the updated features—apart from the brand-new design—is the home menu, which also serves as an information portal that can help enhance the user experience by giving instant access to important data.

HEEZ, **CAREL's** solution for the control and management of beverage coolers, provides high energy

efficiency and performance while reducing the environmental impact. HEEZ encompasses the use of Carel's technologies such as a variable capacity rotary compressor, BLDC inverter, electronic expansion valves, and variable speed evaporator and condenser fans.

Hurst Boiler announced it has begun manufacturing Engineered Packaged Watertube boilers. This product line extension complements its Firetube, Biomass, and Hybrid boiler manufacturing capabilities.

POLOPLAST America is entering the North American market with its German-made polypropylene (PP-R/PP-RCT) pipes and fittings. They provide superior strength and durability to steel pipes without being subject to tariffs or unpredictable price fluctuations.

The **Bard Manufacturing Company** introduced its MEGA-TEC™ Wall-Mount Air Conditioner, a

multi-stage, high-capacity sensible cooling SPVU (single package vertical unit) system with exceptional efficiency for industrial-grade cooling.

Airflow Sciences Corporation announced the most recent release of Azore® CFD Software with improved GUI interface and streamline tracking. Azore CFD Software has been used since 2007 to solve industrial flow problems. The CFD solver can be used to analyze internal/external flows, gases or liquids, thermal mixing, and much more.

Intellihot announced that an exclusive commercial license with NASA will allow Intellihot to deploy NASA's novel combustion burner technology into its entire product line. Intellihot's tankless systems provide endless hot water only when needed, eliminate waste and environmental impact and cut down greenhouse emissions by over 40%. ■