

HAPPY HOLIDAYS!

Emerson Sells Climate Technologies for \$14B

Sale to Blackstone includes Copeland compressor business and entire HVAC portfolio of products.

Emerson announced a definitive agreement under which it will sell a majority stake in its Climate Technologies business to private equity funds managed by Blackstone in a transaction valuing Climate Technologies at \$14.0 billion. Emerson will receive upfront, pre-tax cash proceeds of approximately \$9.5 billion while retaining a non-controlling ownership interest in a new stand-alone joint venture.

The standalone Climate Technologies business includes the Copeland compressor business and the entire portfolio of products and services across all HVAC and refrigeration end-markets, representing approximately \$5.0 billion of fiscal 2022 sales.

“The announcement is a definitive step in the portfolio journey we embarked on when I became CEO in early 2021,” said Lal Karsanbhai, president and chief executive officer of Emerson.



“Over the past 18 months, the Emerson team has accelerated our portfolio transformation, divesting non-core businesses including InSinkErator and Therm-O-Disc, while investing in organic growth opportunities and important transactions including AspenTech. Our journey has been with clear purpose – to drive growth and significant value creation for our shareholders by creating a leading global automation company. Our differentiated capabilities in intelligent devices and software, and the focus, cohesiveness and operating agility of a pure-play company, will allow Emerson to bring our comprehensive automation products and solutions to a diverse set of end markets.”

“Blackstone has a long and suc-

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Inside

Industry News

2023 AHR Innovation Award Winners Announced

Winners and finalists announced across 10 categories.

The AHR Expo (International Air-Conditioning, Heating, Refrigerating Exposition) announced the winners of the 2023 AHR Expo Innovation Awards. Each year, winners are chosen in ten industry categories to represent the most innovative products and technologies set to hit the market in the year ahead.

“The awards program experiences growth year on year,” said Show Manager Mark Stevens. “This is a direct correlation to just how fast our industry is growing through innovation. The awards are a key indicator of how HVACR is being called upon to solve worldwide issues at a rapid pace. We aim to highlight this innovation trajectory and honor those that are pushing the bar to create real solutions to difficult problems.”

The Innovation Awards



CHEMOURS' OPTeon XL41 REFRIGERANT WON THE COOLING CATEGORY AT THE AHR EXPO INNOVATION AWARDS.

draw hundreds of manufacturers who are designing new and never before seen solutions or improvements upon existing products and technologies launching into the marketplace in the coming year. They encourage exhibitors to submit new products and technologies for recognition via review and selection by a panel of



third-party judges comprised of distinguished ASHRAE members. Entrants are evaluated based on overall innovative design, creativity of the product or service offered, product or technology real-world application, as well as overall potential market impact.

“We are thrilled to celebrate this year’s winners as well as to continue to champion innovation among our industry professionals,” continued Stevens. “In the last few years, HVACR has taken on a wider audience outside of our direct industry stakeholders. It is refreshing to welcome an understanding of the value HVACR brings

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for more information.



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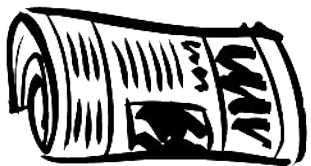
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Industry News



CALIFORNIA



CSLB Warns of PACE Program Misconduct

Sacramento, Calif. – The Contractors State License Board (CSLB) is warning consumers to be aware of home improvement loan scams after three people were arrested on related charges in Los Angeles County.

CSLB investigators worked with the Los Angeles County District Attorney's Office to charge three people in a scam that cost lenders \$3.4 million. The suspects, Norbertas Sinica of Thousand Oaks, Selena Garcia of Riverside, and Kelliams S. Chavistad of Long Beach, face dozens of felony charges for residential burglary, financial elder abuse, identity theft, grand theft, and more.

CSLB investigators say Sinica owned and operated Eco Technology, whose license has been revoked by CSLB, while Garcia and Chavistad worked to solicit customers. Eco Technology advertised tankless water heaters and other energy-efficient

products.

Consumers were allegedly told the company would provide energy efficient upgrades that would cost them nothing. Eco Technology would allegedly collect the customers' information and use it to apply for loans through the Property Assessed Clean Energy (PACE) program for Eco Technology's benefit. PACE allows property owners to finance energy improvement projects as a tax assessment on their property tax bills. Later, the customers would receive tax bills that had increased.

In a separate case, the California Department of Justice and the Federal Trade Commission recently announced a settlement with Ygrene, a clean energy financing company, resolving allegations of misconduct relating to its administration of the PACE program. The investigation found that Ygrene and many of its contractors failed to secure consumers' express informed consent to use their homes as collateral to secure PACE financing, instead impersonating consumers on calls or forms. Ygrene and its contractors are also alleged to have rushed property owners through Ygrene's contract and made misrepresentations about consumers' ability to refinance or sell their home before fully paying off their PACE loan.

"Consumers considering installing a residential solar energy system

should review important information on the CSLB Solar Smart page," said CSLB Registrar David Fogt. "Homeowners should also use the CSLB's website to secure three bids and check the license of the contractor before agreeing to any home improvement project."

The investigation into Eco Technology case remains ongoing. The Los Angeles County District Attorney's Office says many of the victims in the scam were elderly and did not speak English. If you or someone you know believes they were victims of the scheme, please call CSLB at (916) 255-4161.

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CEC Adopts Standards for Peak Times Usage

Sacramento, Calif. – The California Energy Commission (CEC) has adopted updates to the state's load management standards that will give consumers more timely and accurate information on electricity costs, to help them manage energy use – especially around times when demand is high.

As the state's primary energy policy and planning agency, the CEC has statutory authority to adopt standards to help shift energy use. Load management offers

California another tool to support grid reliability particularly in late afternoon and evening when demand increases as the sun goes down. The action is expected to produce \$243 million in net benefits over 15 years and could reduce annual peak hour electricity use by 120 gigawatt hours, equivalent to powering 20,000 average California homes for a year.

The updates will help customers take better advantage of utilities' lower time-dependent rates so smart appliances can be used and buildings can automatically respond to more frequent rate changes that reflect electricity grid conditions. This will save consumers money by shifting usage to times of cheaper or abundant electricity. In addition, a better-balanced grid slows the rise of electricity costs, strengthens the grid, reduces the need for more fossil fuel plants, and avoids electricity transmission and distribution congestion.

"This update is a huge leap into the 21st century, using digital approaches to unlock benefits for consumers by enabling them to automate their electricity use around cheaper rates and changing grid conditions," said Commissioner Andrew McAllister. "Automated load management reduces energy bills, makes better

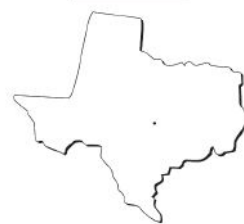
use of abundant renewable energy resources available during the day, and strengthens grid reliability."

Under the updated standards, which will take effect April 1, 2023, Pacific Gas and Electric Company, Southern California Edison Company, Sacramento Municipal Utility District, San Diego Gas & Electric, Los Angeles Water and Power, and large community choice aggregators will be required to make the following improvements:

- Develop retail electricity rates that change at least hourly to reflect grid costs and greenhouse gas emissions and are approved by their governing board.
- Maintain up-to-date rates in a database called the Market Informed Demand Automation Server (MIDAS), which will provide a central repository for all rate information.
- Educate customers about time-dependent rates and automation technologies to encourage their use.

The changes help advance energy equity by introducing fairer compensation mechanisms, creating bill savings for customers with flat loads in disadvantaged communities or who are able to shift usage to when electricity is cheaper, and lowering energy costs for all customers by reducing peak electricity demand.

TEXAS



Lennox Installs HVAC Units for 2022 Feel The Love Program

Richardson, Texas – As part of its 13th annual Feel The Love program, Lennox Industries partnered with 180 HVAC dealers across 37 U.S. states and Canadian provinces to award deserving community heroes with new heating or cooling equipment and installation at no charge. The 210 equipment installations took place October 8–15, 2022 during the Lennox Installation Week event.

Feel The Love was born from people doing great things for the right reasons with a passion to serve others. Selected Feel The

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Note: Winners cannot win more than once in 12 months.



Love recipients were nominated by family members, friends, neighbors, co-workers, and local organizations for their transformative impact on their community and those around them, coupled with their need for a new HVAC unit to breathe cleaner, safer air and feel ultimate comfort in their home. The new high-efficiency heating and cooling equipment donated through Feel The Love reduces recipients' energy usage by approximately 30% to 40%.

"Feel The Love is about thanking and giving hope to people who give to their community and, as homeowners continue to prioritize indoor air quality, Lennox is proud to provide deserving homeowners with consistently clean, perfect air throughout their home," said Quan Nguyen, VP and general manager at Lennox Industries. "The Feel The Love program is a collaborative labor of love and one that is made possible through ongoing partnership with and the generosity of our dealer partners across North America."

Through Feel The Love, Lennox continues to advocate for the importance of indoor air quality and the accessibility of clean, comfortable air for all. Since the inaugural Feel The Love program in 2009, Lennox and its dealers have completed over 1,800 installations at no charge, with 210 installations occurring in 2022 alone. To ensure recipients' peace of mind, all donated units come complete with an extended warranty of their choice: either a five-year parts only extension or a three-year labor and two-year parts extension via Warranty Your Way, which is exclusive to Lennox.

"Now in my second year as a Lennox Feel The Love dealer partner, I feel grateful to be part of a great organization that gives back to families in need," said Beryl Rawlings, managing partner of Tokay Heating & Air in Lodi, California. "Our Feel The Love recipient is overwhelmed with gratitude for being selected and for the amount of equipment Lennox is donating nationally. His emotion and joy are infectious – I cannot thank Lennox enough for establishing the Feel The Love program."

For more information about the Feel The Love program and its impact on communities across the U.S. and Canada, visit FeelTheLove.com.

Interplay Learning, The Michaels Organization form Partnership

Austin, Texas – Interplay Learning, a provider of online and VR training for the essential skilled trades, announced its partnership with The Michaels Organization, a provider of residential real estate services. Initiated in October 2021, Interplay Learning is providing over 2,300 maintenance technicians with on-demand, simulation-based training courses in the areas of HVAC, plumbing, electrical, appliance repair, and safety, preparing entry-level technicians to be job-ready in 18 weeks.

A growing skilled talent short-

age and high turnover among onsite maintenance staff have property management companies across the country struggling to fill open maintenance positions.

"Training is a critical focus for attracting and retaining entry-level skilled talent into accessible maintenance roles across Michaels' properties," said Lea Ann Bowers, director of talent development at Michaels. "Interplay's foundational courses and realistic simulation training on field equipment and appliances are crucial for expanding a shrinking talent pool, offering opportunities to build the skills of new hires with little to no experience in the industry."

With a long-standing commitment to innovation and employee training, Michaels said it is pleased with the addition of Interplay's

trade catalogs into its maintenance training program. Since the initial rollout, Interplay has enabled them to fill essential maintenance roles faster, rapidly grow a confident workforce, and prepare employees for career-building certifications like EPA 608.

"With Interplay, we can now hire people with no experience and train them for maintenance," said Jim Loughery, national vice president of facilities for The Michaels Organization. "Within the first two months, Interplay Learning's detailed, interactive training process has provided much-needed instructions to enable our maintenance teammates to safely troubleshoot and repair basic maintenance issues. After completing the Technician I pathway in 18 weeks, maintenance teammates are prepared to tackle

most maintenance issues."

Additionally, the partnership is helping Michaels retain its workforce by offering advanced courses to move up in their careers.

"Our existing maintenance teammates can increase their knowledge and become more valuable by completing Tech II and Tech III pathways," Loughery said. "These courses give them the knowledge and confidence to identify and repair countless defects that help retain employees by empowering them to obtain more knowledge."

"We're proud to partner with The Michaels Organization to deliver accessible and innovative maintenance training to its maintenance teams and new hires,"

Continued on Page 6



ARE YOU #2023READY?

Here's What's Changing

The Department of Energy (DOE) is increasing the minimum efficiencies for central air conditioners and heat pumps. The testing procedures for determining those efficiencies are changing as well.

What you need to know

Are you ready for the new Department of Energy Changes?



Dealers and contractors who install non-compliant equipment will be required to replace the equipment and face fines of up to \$503 per unit, per day.



Train your technicians now on the new compliance standards.



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Split System Air Conditioner
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Split System Heat Pump
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Small Packaged Product
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Happy Holidays!

Continued from Page 5

Doug Donovan, founder and CEO of Interplay Learning, commented. “As a national residential real estate leader, The Michaels Organization is setting an example for other multi-family organizations struggling with the skills shortage to leverage innovative training technologies to expand their labor pool and upskill essential employees.”

Cochrane Supply Buys Tech Supply

Dallas, Texas – Cochrane Supply, a Smart Building Controls Distributor from Michigan, has acquired Control Tech Supply in Dallas, Texas. The move to acquire

Control Tech Supply started at the 2022 Niagara Summit, where joint interest and common goals quickly led to an agreement. This process took six months to complete. As of November 1, 2022, Cochrane Supply has taken over all operations of Control Tech Supply and plans to offer the same services Control Tech’s customers are used to receiving, in addition to the 55 years of Smart Building Controls experience offered by Cochrane Supply. “Control Tech Supply significantly strengthens our reach and deepens the experience we offer to clients,” said Scott Cochrane, president of Cochrane Supply. “We are so fortunate to add such a great crew to our awesome team.” The acquisition of Control Tech Supply will broaden Cochrane Supply’s national footprint and start

a new chapter in Smart Building Controls products and services to customers in Texas, Oklahoma, Louisiana, and Arkansas.



American Standard Announces Award Winners for 2022

Davidson, N.C. – American Standard Heating & Air Conditioning, a provider of HVAC equipment, announced its fifth annual Building

a Higher Standard award winners – an honor that distinguishes the brand’s outstanding independent dealers from across the nation. The four 2022 winners were notable selections from a highly deserving group of nominees and are being awarded for exhibiting a high level of integrity, community stewardship, dedicated teamwork, and focus on continuous improvement in the pursuit of excellence. The 2022 winners include: • Garrison and Garrison Inc. in Huntsville, Alabama • Stanfield Air Systems in Athens, Georgia • Shockley’s Heat & Air in Oklahoma City, Oklahoma • Tim Ferguson Plumbing Air & Electric in Jackson, Tennessee From establishing trusted relationships with customers, to

investing in the growth and development of skilled technicians, these winning dealers go to great lengths to bring outstanding service to their communities. “We are honored to continue the tradition of recognizing and celebrating our dealers’ dedication to delivering remarkable acts of service for our customers. This year’s honorees of the Building a Higher Standard Award are no exception, exuding exceptional community stewardship,” said Kathryn Wildrick, brand manager for American Standard. “At American Standard, the value and trust of our customers is our number one priority, which is why we hold not only ourselves, but our dealers to an unparalleled standard of care and trusted service that can be depended on for quality, efficiency, and overall satisfaction.” The 2022 Building a Higher Standard winners were carefully selected through a blind panel and are being distinguished for delivering outstanding work and service, supporting their communities, and living the brand values.

DiversiTech Buys Three Companies

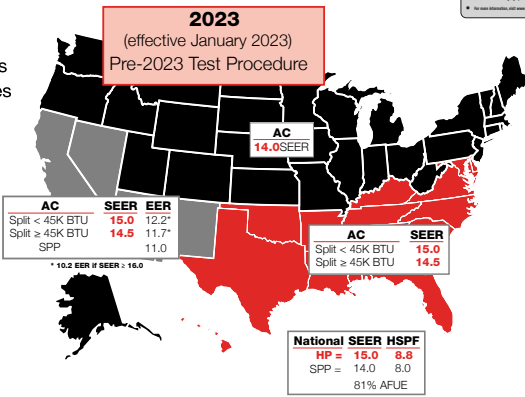
Duluth, Ga. – DiversiTech Corp., North America’s leading manufacturer and supplier of components and related products for heating, ventilation, air conditioning and refrigeration (HVAC/R), announced the formation of DiversiTech Europe, via a merger with ArtiPlastic® of Milan, Castel Engineering® of Belgium, and Rodigas® of Padua, Italy along with the existing DiversiTech/ Pump House business in the United Kingdom. These four companies combined will be the leading European manufacturer and supplier of parts and accessories to the HVAC/R industry. The leaders of ArtiPlastic, Castel, Rodigas will continue to run the business. “Having these three great companies join DiversiTech is significant not only for the launch of the DiversiTech platform in Europe, but also for the additional products and services they will provide to our customers in North America,” said Andy Bergdoll, CEO of DiversiTech. “We look forward to welcoming the ArtiPlastic,



is ready for the NEW 2023 Efficiency Standards... are YOU?

Why the Change Every six years the Department of Energy (DOE) reanalyzes the effects of energy usage, sets minimum efficiency requirements and manages the testing standards by which those efficiencies are measured. For 2023, the DOE is increasing the minimum efficiencies for central air conditioners and heat pumps.

A New Normal is Coming for 2023 – SEER2, EER2 and HSPF2 In 2023, there will be new metrics and nomenclature – SEER2, EER2, and HSPF2. For now, we will continue to use the current terminology – SEER, EER and HSPF – to make ratings comparisons more apparent.



Air Conditioner Ratings Air conditioner minimum efficiencies will increase by 1.0 SEER in the North and South Regions with the new test procedure.

Split System Air Conditioners – 2023 Regional Standards						
System Type	North Region		Southeast Region		Southwest Region	
	New SEER	New SEER2	New SEER	New SEER2	New SEER	New SEER2
Split System ACs (AC < 45K Btu/h)	14.0 SEER	13.4 SEER2	15.0 SEER	14.3 SEER2	15.0 SEER and 12.2 EER*	14.3 SEER2 and 11.7 EER2**
Split System ACs (AC ≥ 45K Btu/h)	14.0 SEER	13.4 SEER2	14.5 SEER	13.8 SEER2	14.5 SEER and 11.7 EER*	13.8 SEER2 and 11.2 EER2**

* 10.2 EER if SEER ≥ 16.0 SEER ** 9.8 EER2 if SEER2 ≥ 15.2 SEER2

Heat Pump Ratings Heat pump minimum efficiencies will increase by 1.0 SEER and will require an 8.8 HSPF with the new test procedure.

Split System Heat Pump – 2023 National Standards		
System Type	National Efficiency Standard	
	New SEER and HSPF	New SEER2 and HSPF2
Split System HPs	15.0 SEER and 8.8 HSPF	14.3 SEER2 and 7.5 HSPF2

SEER, EER, and HSPF values shown are based on the current test procedure and are for reference only. Beginning January 2023, products must comply with the SEER2, EER2 and HSPF2 values developed using the 2023 test procedure.

Small Packaged Product Ratings Small Packaged Products will not increase in minimum efficiency from 14.0 SEER and 8.0 HSPF, but will be required to comply with the new test procedure.

Packaged Systems – 2023 National Standards		
System Type	National Efficiency Standard	
	New SEER and HSPF	New SEER2 and HSPF2
Packaged ACs, Heat Pumps, Gas Electric and Dual-Fuel HPs	14.0 SEER and 8.0 HSPF	13.4 SEER2 and 6.7 HSPF2

NOTE: For the North Region, any 13.0 SEER AC built before January 1, 2023, can still be installed on or after January 1, 2023. For the Southeast and Southwest Regions, any AC that does not meet the above requirements cannot be installed on or after January 1, 2023.

NOTE: Any 14.0 SEER heat pump built before January 1, 2023, can still be installed on or after January 1, 2023.



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Castel and Rodigas teams to the DiversiTech family.”

Artiplastic, Castel, Rodigas and DiversiTech have been working together for over 15 years. The companies share a common heritage of being founded as family businesses with a strong long-term commitment to customers, employees, and local manufacturing. The combined company will have eight manufacturing plants in the US and Europe.

“This further step marks the definitive consolidation of our company and confirms that quality and innovation win”, said Davide Spinola, CEO of Artiplastic. “The commitment to this new challenge

is total, and I count on the continuous support of our teams that made it happen”.

“Merging the European companies with DiversiTech to become the global leading manufacturer of HVAC installation materials is a dream come true. We are very excited to continue to grow together with DiversiTech and simplify the work of our customers all over the world. The family Castelein will remain on board and continue to operate with the same familial and passionate entrepreneurial spirit.” Jean Claude Castelein, CEO of Castel Engineering.

“This further step marks the final consolidation of our company and confirms how the values of

quality and innovation are winning,” said Francesco Roverato, CEO of Rodigas. “The commitment in the face of this new challenge will be great, but I am confident that I can count on the support of the people whose work every day contributes to the growth of our company.”

DiversiTech, with existing presence in the United States, Canada, and the United Kingdom, looks forward to expanding its global product portfolio and application expertise with mini-split systems & heat pumps in commercial and residential markets, as well as providing a differentiated service model in Europe to better serve its customers and continued growth globally.

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METUS Wins Award in CEE Integrated Home Competition

Suwanee, Ga. – Mitsubishi Electric Trane HVAC US LLC (METUS), a leading supplier of all-climate Ductless and Ducted Mini-split and Variable Refrigerant Flow (VRF) heat-pump and air-conditioning systems, announces it is the recipient of an Honorable Mention Award in the 2022 CEE Integrated Home Competition in the Connected Heating and Cooling Equipment category for the Deluxe Wall-mounted System with H2i plus® and kumo touch™ wireless controller.

The Integrated Home Competition presented by the Consortium for Energy Efficiency (CEE) identifies and supports newly available products designed for comfortable, convenient, connected homes. 2022 marks the first year METUS entered the competition. Judges honored 16 innovative connected home devices demonstrating the four tenets of the CEE Integrated Home Initiative: energy savings, demand flexibility, consumer amenity, and security.

“Thanks to CEE for selecting one of our variable-capacity heat pump systems to be included amongst this year’s honorees,” says Chris North, senior specialist, residential product marketing, Mitsubishi Electric Trane HVAC US. “CEE is a true change agent accelerating the development and availability of energy-efficient products. Our systems help homes in all climates maximize their potential for energy efficiency, decarbonization and comfort without fossil fuels, so we appreciate CEE as a fellow traveler with a complementary mission.”

The honored product, Deluxe



DANA FISCHER, DIRECTOR, REGULATORY STRATEGY, ACCEPTS THE INTEGRATED HOME COMPETITION 2022 HONORABLE MENTION AWARD.

Wall-mounted Heat Pump System with Hyper-Heating INVERTER® (H2i plus®) technology, uses an enhanced compressor system to deliver 100% of rated heating capacity at outdoor temperatures as low as -5° F and continued operation down to -13° F without supplemental heat. According to the U.S. Office of Energy Efficiency & Renewable Energy, cold-climate air-source heat pumps can reduce household energy consumption by up to 40%, with homeowners currently using electric resistance (e.g., baseboard heat) or fuel oil heating systems likely to see the most cost savings. Homeowners can use the kumo touch controller, a wall-mounted wireless controller with touchscreen operation, for remote control of personal comfort.

To learn more about the Deluxe Wall-mounted System with H2i plus and kumo touch wireless controller, visit MitsubishiComfort.com. To view the complete details and list of winners, visit www.integratedhome.org.

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Danfoss Named Innovative Star of Energy Efficiency

Baltimore, Md. – The Alliance to Save Energy presented Danfoss with the prestigious Innovative Star of Energy Efficiency Award for the company’s efforts to create solutions that decarbonize through energy efficiency. Alliance President, Paula Glover, presented the award to Rick Sporrer, president of Danfoss North America, at the 30th annual Stars of Energy Efficiency Awards Gala at the International Spy Museum in Washington, D.C.

The event brought together energy efficiency leaders from industry, government and academia to celebrate the best and

brightest in energy efficiency with U.S. Secretary of Energy, Jennifer Granholm, providing the opening remarks.

“Danfoss is proud to be a leader in developing solutions that will help us meet our climate goals. We simply won’t reach the Paris Agreement goals if we don’t prioritize energy efficiency because the greenest, cheapest and most secure energy is the energy we don’t use,” said Sporrer.

“Everything we do at Danfoss drives productivity in machines and systems, reduces emissions, lowers energy consumption and enables electrification, with the goal to be the preferred partner for customers who want to decarbonize. I accept this award on behalf of our 40,000 employees worldwide who are working hard every day to make Danfoss an industry leader in decarbonization and sustainable engineering solutions.”

As part of Danfoss’ ESG (Environment, Social, Governance) ambition, Danfoss has pledged to be carbon-neutral in global operations by 2030, setting ambitious science-based targets to increase energy efficiency while reducing carbon emissions. Danfoss announced in March 2022 that it had reached its 2030 target of doubling the energy productivity in its factories globally – nine years ahead of time.

Since 2007, when the initiative began, the company has reduced energy intensity by 51% and CO2 intensity by 42%. In 2021, energy productivity went up from 80% in 2020 to 104% improvement from the baseline year 2007. Also in 2021, 25% of its global electricity consumption was carbon-neutral and 45% of its direct energy consumption was from renewable sources.

Central to Danfoss’ goals is helping customers reduce their own emissions and energy consumption. The company is developing energy-efficient heating and cooling technologies such as oil-free and variable-speed compressors, which allow for efficient operation and reduced emissions; hybrid fuel systems that allow electric heat sources to work with an existing boiler system to generate heat with lower emissions; and heat recovery technologies.

These technologies are scalable across the built environment and provide a path to a more efficient and sustainable future. With buildings responsible for 40% of U.S. energy consumption and with only 2% of the U.S. commercial building stock turning over each year, increasing energy efficiency and

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DVM Chiller

The DVM Chiller provides a chilled water solution for replacement and new design solutions, while maintaining the DVM S benefit. It connects to multiple third-party fan coil units via water piping to provide cooling and heating to individual zones. Like VRF outdoor units, the DVM Chiller can modulate its capacity depending on the requirements of the various zones, which saves energy and improves occupant comfort.



- Heat Pump models
- 208-230V / 60 Hz / 3 Ø and 460V / 60Hz / 3 Ø
- 10 and 15 ton single modules
- Connect up to 16 units for system capacities up to 240 tons
- Outdoor unit static pressure up to 0.32" WC allows ducting of discharge air for installation in enclosed spaces
- Water temperature ranges
 - Cooling: 41-77F (5-25C) as standard, 14-77F (-10-25C)*
 - Heating: 77-131F (25-55C)**
- IPLV as high as 20.5

Features:

Application

Apartment/condo complex, office buildings, data centers, hospitality, educational facilities, institutional, and process cooling

Modular Design and Compact Size

Easy to combine and fit multiple units even when space is limited. Its compact size reduces the time, cost, and effort to transport, move and install a system.

- Dimensions: 71"L x 30"W x 67"H per module
- Weight: 959 lbs. per module

Great for Retrofit Projects

Provides superior manageability when combined with our optional Fan Coil Unit (FCU) Control Kit and Fan Coil Interface Module to control and integrate third-party fan coil units to Samsung central and local controls.

Wide Temperature Range

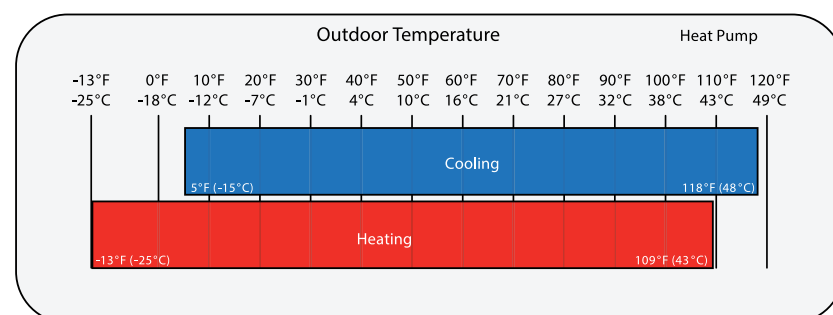
- Cooling operation outdoor temperature range from 5-118°F (-15-48°C)
- Heating operation outdoor temperature range from -13-108°F (-25-43°C)

Flash Injection Technology

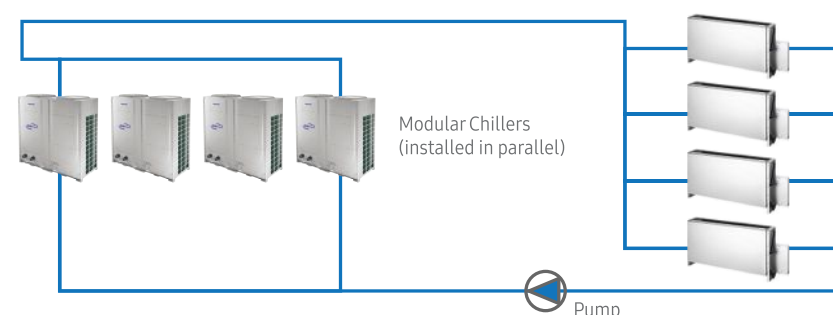
Features flash injection compressor technology that increases heating performance with a two-phase refrigerant that is activated during heating mode in low ambient conditions.

Operation Patterns

Features three operational patterns for fine-tune system operation for various applications: standard, rotation, and efficiency.



Please refer to the Technical Data Book and installation manual for full details of operating ranges. Optional settings to automatically adjust leaving water temperature based on outdoor ambient temperature or indoor ambient temperature.



*When using brine solutions. Please see technical data book or installation manual. **Optional settings to automatically adjust leaving water temperature based on outdoor ambient temperature or indoor ambient temperature. DVM-Pro software is required to properly design DVM S systems. DVM-Pro design software is available for download on SamsungHVAC.com. © 2021 Samsung. HVAC CHLFL 06.2021-V1

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Continued from Page 8

lowering carbon emissions means retrofitting existing buildings with proven solutions that can be implemented financially and logistically.

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Heatcraft Expands In-Person Customer Training Courses

Stone Mountain, Ga. – Heatcraft Refrigeration Products, a manufacturer of commercial refrigeration equipment and systems as part of Lennox International, has expanded its industry-leading training capabilities and is offering a variety of classes this fall.

With eight additional technical

trainers in place throughout North America, Heatcraft provides more access than ever to industry-leading product and refrigeration training, including certification, to increase proficiency in specifying, installing and maintaining Heatcraft equipment and system solutions.

Through Heatcraft training, contractors, technicians and distributors can increase their knowledge of refrigeration fundamentals, strengthen practical skills used in the field and reduce product performance issues on the job.

Remaining in-class courses offered this fall at the Heatcraft Training Center in Stone Mountain include:

- Refrigeration and Installation Basics. Dec. 15. Designed for individuals new to the technical aspects of the refrigeration process and the

components that make heat transfer possible. This class can be helpful for HVAC technicians seeking to branch out into refrigeration installation and service.

- Hot Gas Defrost – Mohave™ 101. Dec. 13. Designed for the seasoned refrigeration professional interested in Heatcraft's proprietary hot gas defrost refrigeration system.

- CO2 Transcritical Technology 101. Dec. 14. For the seasoned refrigeration professional interested in improving their understanding of the basic science connected to medium and low temperature CO2 transcritical technology. Basic components of this type of system will be discussed as they relate to cold storage.

For additional information about Heatcraft training opportunities, visit www.heatcrafttrpd.com/training.

Johnson Controls Announces HVAC Relief Rebates

Milwaukee, Wisc. – Johnson Controls, the global leader for smart, healthy and sustainable buildings, announces new emergency relief rebates that HVAC contractors can offer eligible homeowners who live in and work in areas affected by Hurricane Ian. Contractors can provide rebates on qualifying YORK®, Luxaire®, Coleman®, Champion® and Fraser-Johnston® brand equipment installed between October 1 and December 31, 2022, to those who live and work in Florida, South Carolina and North Carolina counties within the defined Federal Emergency Management Agency

(FEMA) Disaster Area (DR-4673-FL, DR-4675, EM-3584-FL, EM-3585-SC and EM-3586-NC).

"The level of destruction Hurricane Ian has caused is unparalleled, and our thoughts are with everyone touched by this disaster," said Doug Schuster, vice president and general manager of Global Ducted Systems at Johnson Controls. "Through new emergency relief rebates offered by Johnson Controls, contractors can begin to help homeowners rebuild."

Contractors can apply for rebates online at <https://ductedsystemsincents.com> using the Personal Use Rebate Program. The program assigns rebates according to equipment efficiency, with more efficient products earning larger rebates.

- Air conditioners/heat pumps
 - o 20 SEER: \$275
 - o 19 SEER: \$250
 - o 17 SEER: \$225
 - o 16 SEER: \$225
 - o 14 SEER: \$100
- Furnaces
 - o 90% AFUE models: \$150
 - o 80% AFUE models: \$75
- Air handlers: \$50
- Residential packaged units: \$125
 - o Ductless mini-splits and Mini-VRF
 - o Premium and Mini-VRF: \$60
 - o Standard: \$50

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Carrier to Begin Field Trials of Prototype for DOE Challenge

Indianapolis, Ind. – Carrier is ready for phase two of the Department of Energy's Cold Climate Heat Pump Challenge, which is field testing its prototype heat pump in a harsh climate. This milestone comes on the heels of the Inflation Reduction Act, which provides Americans access to \$370 billion for clean energy investments in the form of tax credits, incentives and rebates to improve energy efficiency. The DOE's challenge aims to accelerate commercialization of heat pumps that meet comfort needs in cold climate regions of North America – thereby expanding energy-efficient and incentive-eligible heating and cooling options for consumers.

"We're pleased with the lab

Continued on Page 19



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DECEMBER 2022

System Diagnostics Module (Four-Night Class)

Instructor: Mitch Bailey
Wed., Dec. 7 – Part 1
Thurs., Dec. 8 – Part 2
Wed., Dec. 14 – Part 3
Thurs., Dec. 15 – Part 4

2023 Class Calendar
will be posted in January

All classes are currently scheduled as Webinars held 6:00 pm to 8:00 pm. Webinars are **FREE** of charge and online registration is required.

You can register online by visiting: pge.com/hvactraining. Attendees must register for each night separately and registration is on a first-come, first-served basis. "PG&E" refers to Pacific Gas and Electric Company, a subsidiary of PG&E Corporation. ©2022 Pacific Gas and Electric Company. All rights reserved. These offerings are funded by California utility customers and administered by PG&E under the auspices of the California Public Utilities Commission.



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& CA - Northern CA, Sacramento, LA County,
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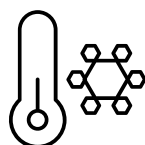
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Introducing the New intelli-HEAT™ Product Line

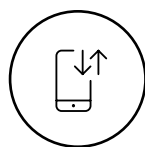
Mitsubishi Electric has launched a new product series - intelli-HEAT™. The intelli-HEAT Dual Fuel System provides cost-effective, efficient, and environmentally friendly cooling and heating all year round. intelli-HEAT mounts in-line with an existing thermostatically controlled furnace* and ductwork. During periods of extreme cold, intelli-HEAT switches to the current gas furnace based on capacity and economic balance points, creating a true dual fuel system.



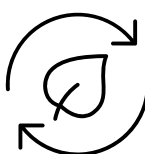
Cold Climate heat pump with furnace integration



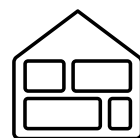
Superior efficiency AC replacement solution



Intelligent comfort control manages operation between heat pump and furnace



Reduces fossil fuel consumption and emissions to align with greenhouse gas reduction goals



Compatible with single or multi-zone systems which provides a true zoning solution



Blending of technologies for comfort, cost effectiveness and environmental benefit

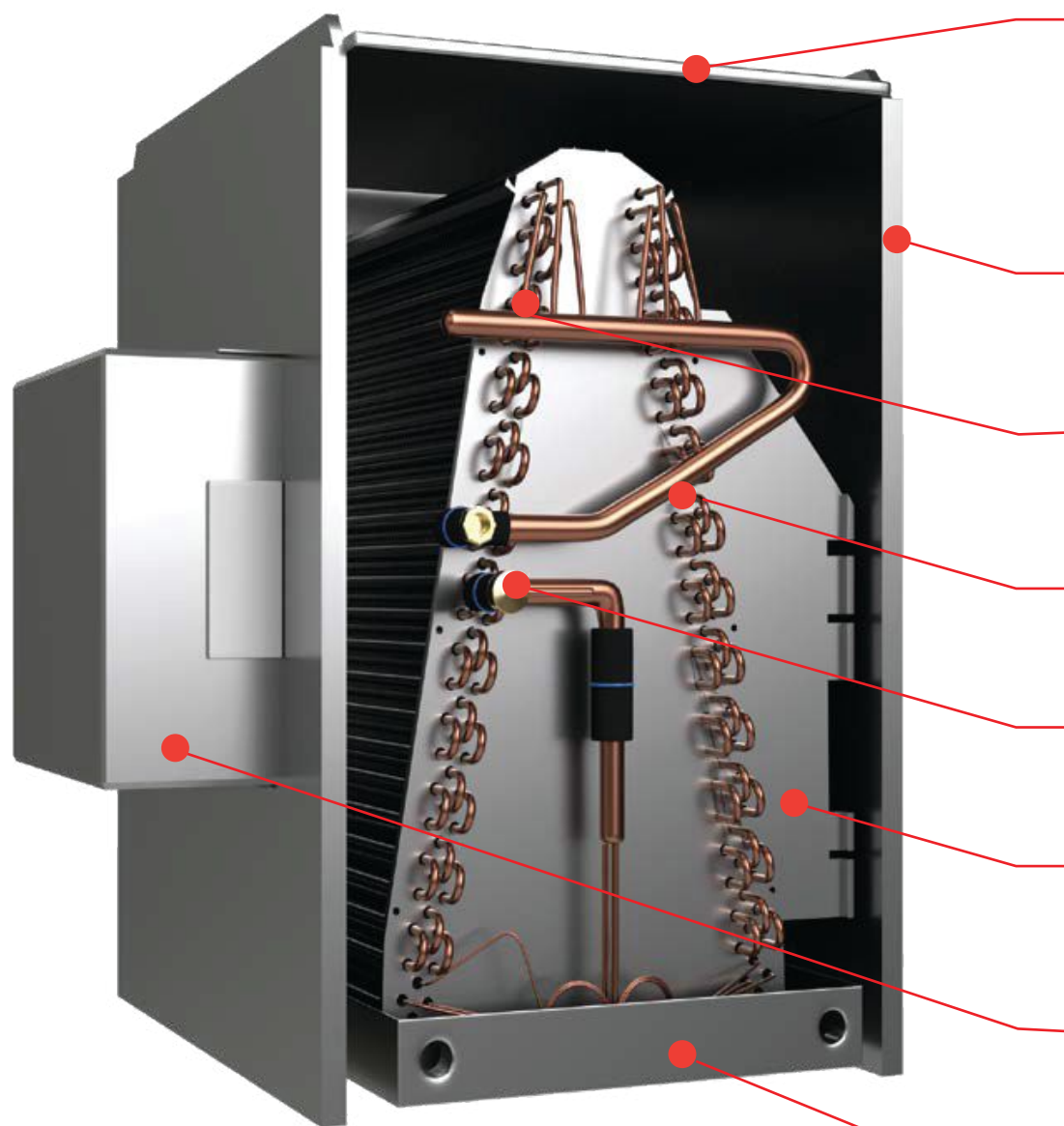


Compatible with thermostatically controlled furnaces*

*Mitsubishi Electric air conditioner and heat pump systems should only be connected with ANSI-Z21.47/CSA2.3 certified furnaces

intelli-HEAT

Key Benefits and Features



Available in multiple sizes and capacities:

- 18, 24, 30 kBtu/h | 14.5", 17.5" wide | 26.4" height
- 36, 42 kBtu/h | 17.5", 21" wide | 31" height

Single-zone: PUY, PUZ, and PUZ H2i

Multi-zone: MXZ, MXZ H2i, MXZ-SM, and MXZ-SM H2i

Flexible Installation:

- Vertical, downflow and horizontal left/right
- Control box can be mounted anywhere

Oxygen-free copper coils provide up to six times the longevity of standard copper coils

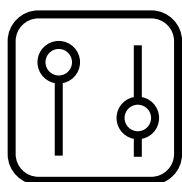
Smaller tube diameters with grooved design technology provide a higher heat transfer efficiency

Flare piping connections for quick, clean, and simple installations with no need for brazing

Best in industry condensation management

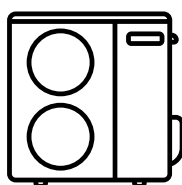
Intelligent comfort control system automatically switches between heat pump and furnace operation to ensure comfort and maintain efficiency

High quality drain pan material with low moisture absorption and high heat capability



Optimum Switchover Control

Economic and capacity balance points ensure homeowner comfort by automatically switching between heat pump and furnace operations as needed.



Single and Multi-Zone Options

New and unique whole-home solution when combined with single or multi-zone heat pumps.



Hyper-Heating Options

intelli-HEAT™ is the only dual fuel system available capable of maintaining 100% of heat pump heating capacity down to 5°F with hyper-heating heat pumps.

2023 AHR Innovation Award Winners Announced Across 10 Categories

Continued from Page 1

to the world in essentially every factor of daily life. Manufacturers on the AHR Expo show floor are challenged to continuously innovate and adapt as the built environment around us changes, and you'll see them meeting this charge head-on in Atlanta."

The Innovation Awards program serves as an annual metric for year-to-year industry development and growth, as well as a forecast of the marketplace in the upcoming year. While the Awards officially recognize only a select few, the show floor is a robust example of how manufacturers are growing the industry in exciting way

"AHR Expo would like to formally congratulate each of our 2023 AHR Expo Innovation Award winners, as well as our finalists and all our entrants, for their continued leadership and contribution to HVACR," said Stevens. "We look forward to seeing each of you on the show floor in Atlanta, as well as where you'll lead us in the future!"

The 2023 AHR Expo Innovation Award Winners and finalists were selected in ten industry categories, including building automation, cooling, heating, indoor air quality, plumbing, refrigeration, software, sustainable solutions, tools and instruments, and ventilation.

Heating

Copeland Compressors and Condensing Units: Copeland ZPSK7 scroll compressor

The Copeland ZPSK7 scroll compressor is a product line of 1.5 – 5-ton two-stage compressors ideally suited for residential and light

commercial HVAC applications. When a partial load is needed, bypass ports inside the compression chamber open which partially unload the compressor. This allows the compressor to achieve 65% capacity, thereby consuming less energy at light loads and avoiding costly stops and starts which use more energy. When demand increases, the modulation control valve is activated, sealing the bypass, and shifting capacity to 100%. The ZPSK7 two-stage compressor can run at lower capacity without stopping, ensuring air continues flowing over the coil and the filter.

Finalists: Dorin USA, Mikrofill by Stuart Turner.

Cooling

Chemours: Opteon XL41 Refrigerant

Opteon XL41 is a non-ozone depleting, low global warming potential refrigerant replacement for R-410A in residential and light commercial air conditioning, and scroll chiller applications. This innovative product maximizes the benefits of the transition to HFO refrigerants while minimizing the impact of the transition. Opteon XL41 provides a 78% reduction in GWP from R-410A, while remaining compatible with all R-410A residential and commercial applications and lubricants. This greatly reduces the re-design effort for OEMs, and reduces the learning curve for the technicians in the field.

Finalists: Copeland Compressors and Condensing Units/Emerson, Fujitsu General American Inc.



THE SMARTD CLEAN POWER VFD WON THE VENTILATION CATEGORY.

Refrigeration

Retail Solutions/Emerson: Copeland ZFW variable speed scroll solution for low-temperature refrigeration applications

The Copeland ZFW variable speed scroll solution includes brushless permanent magnet (BPM) motor-based scrolls and variable frequency drives (VFDs) targeted for low-temperature, stationary refrigeration applications. The variable speed scroll provides better efficiency, precision, flexibility and reliability, while Copeland variable frequency drives, EVM/EVH Series complement Emerson compressors and controls. It has double the capacity of a fixed-speed compressor of the same size while providing a 20–30% efficiency improvement. With vapor injection technology and a speed range of 1,000–7,000 rpm, it offers unparalleled levels of control, while reducing cycling rates and greatly improving reliability. Optimized for use with new Copeland EVM variable frequency drives, the combination offers cutting-edge levels of performance.

Finalists: Danfoss, MATELEX.

Ventilation

SmartD Technologies: SmartD Clean Power VFD

SmartD's Clean Power Variable Frequency Drive changes the motor control landscape. By delivering a clean, sinusoidal signal it reduces motor system losses by up to 40% and extends motor lifetime in a compact footprint that can be deployed without ancillary filters. The SmartD VFD integrates wide-bandgap (WBG) semiconductors into its multi-level inverter architecture and combines them with patented modulation algorithms to produce a pure-sine wave electrical signal without the need for external filters. WBG semiconductors have intrinsic characteristics that make them more efficient: on-state losses are 10–80% lower and switching losses are 9

to 30 times lower than standard IGBTs.

Finalists: ECM PCB Stator Technology, Lennox International Inc.

Plumbing

Caleffi Hydronic Solutions: Caleffi 536 Series PresCal HP Piston-type Pressure Reducing Valve

The only direct-acting pressure regulating valve in North America with true piston operation, the PresCal HP family ensures stable, high-precision water pressure control while withstanding severe inlet pressure or punishing downstream water hammer. It's perfect for staged pressure control or demanding applications that are fraught with extreme pressure fluctuations. Instead of using a flexible, rubber diaphragm separating the high-pressure and low-pressure chambers inside the PRV, the PresCal HP uses a durable piston design. The high-range model serves as a first-stage PRV in a two-stage application. The low-range model serves as a second stage, or as a stand-alone PRV for punishing pressure spikes.

Finalists: EasyFit Isolator, Viega LLC.

Indoor Air Quality

BELIMO Americas: Room Sensor

Belimo room sensors accurately measure temperature, humidity, dew point, and CO2 with or without an ePaper touch display. Integrated Near Field Communication (NFC) provides easy field adjustability, commissioning, remote display capabilities, and troubleshooting even without power. These sensors are maintenance-free and provide long-term reliability for a comfortable room environment. Non-powered configuration allows customers to set these room sensors up before being installed in the field, eliminating technician frustration as the sensors can arrive on site fully configured and ready to communicate. Select models offer BACnet, Modbus, or MP-Bus, which enhances communication and reduces installation, cables, and terminal connections.

Finalists: AirGreen, Particles Plus Inc.

Sustainable Solutions

Taco Comfort Solutions: System M
The ultra-efficient System M consists of a sleek, whisper-quiet, inverter-driven outdoor heat pump that can be up to 4x more efficient than a gas furnace. The outdoor heat pump seamlessly integrates with Taco's exclusive indoor HydroBox to provide a complete

system with just six pipe connections needed. System M is a radically innovative air-to-water heat pump system that provides comfortable, efficient heating, cooling, and plenty of domestic hot water. A true plug-n-play appliance, its packaged design makes installation less intrusive; no refrigerant or gas lines are needed. System M seamlessly integrates with almost any high-efficiency heating and cooling system and is perfect for both new construction and existing HVAC systems.

Finalists: Mitsubishi Electric Trane HVAC US, Trane.

Tools & Instruments

NAVAC Inc.: BREAKFREE POWER FLARING TOOL

NAVAC NEF6LM BreakFree Power Flaring Tool yields accurate, hassle-free tubing flares in a fraction of time compared to traditional flaring methods. Designed to perform reliably in harsh environments, NEF6LM also allows one-button, one-hand operation. The tool is equipped with a high-performance rechargeable battery that makes over 100 flares per charge. NAVAC BreakFree Power Flaring Tool NEF6LM delivers a fully automatic flaring operation and provides the ultimate quality of flares that an excellent experienced technician could achieve in years to be delivered simply by pressing a button. This greatly improves the efficiency and accuracy of tubing works and greatly reduces the refrigerant leaks in HVAC systems.

Finalists: Airthings, Onset - HOBO Data Loggers.

Building Automation

Cielo WiGLE Inc.: Cielo Breez Max

Cielo Breez Max (Max) is the industry's first true smart thermostat for mini-split, window and portable air conditioners. It is loaded with an AI-based engine to auto-detect AC type and model number. Backed with AWS cloud, Max is universally compatible with any brand or type of ductless air conditioner. It works with a 5V adapter or can be hard-wired through 12/18/24 volts AC. It can also be powered with 12/18/24 Volt DC.

All Cielo Breez Max are secured with TLS1.2 to authenticate and encrypt data securely

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Heating Products and Tools & Test Instruments

Bosch Thermotechnology
IDS Premium Connected



Bosch Thermotechnology announced the newest and most advanced addition to its Inverter Ducted Split (IDS) family, IDS Premium Connected. This Air Source Heat Pump system provides maximum comfort with minimum energy usage and adds an interactive, connected platform for contractors and homeowners.

IDS Premium Connected features wireless connectivity to the Bosch EasyAir App, allowing contractors to easily access the information they need to conduct on-site installation, troubleshooting, and warranty registration. Homeowners can use the Bosch EasyAir app to monitor their energy usage and receive critical alerts, as well as contact their contractors for maintenance and repairs.

The IDS Premium Connected provides a premium 20-plus SEER energy efficiency, whisper quiet sound levels as low as 56 dBA and easy installation in a small, compact physical footprint. The fully modulating inverter compressor offers 36 percent to 130 percent capacity with modulation in 1 percent increments. In practice, this capability allows the IDS Premium Connected to precisely match the heating and cooling load while achieving maximum efficiency. This system also has a heating seasonal performance rating of 10.5 and can provide heating even when outdoor temperatures drop as low as -4° F (-20°C). The accompanying air handler includes a two-stage x13 electronically commutated motor blower for enhanced humidity control and an all-aluminum coil for superior corrosion resistance.

More information: www.boschheatingandcooling.com.

Daikin AURORA

-13°F ambient temperature. With up to 12.7 HSPE, 21.7 SEER and 13 EER performance, Daikin AURORA multi-zone is available in 1.5-3 tons with max heating capacity up to 54,500 BTU/h. Daikin AURORA single zone is available in 0.75-2 tons with max heating capacity up to 32,000 BTU/h.

Ultra-efficient Daikin AURORA operates very quietly, as low as 19dB(A) indoors and 49 dB(A) outdoors, helping create enjoyable spaces.

Program Dry mode allows humidity level reduction. Hot Start diminishes cold drafts. Comfort Airflow mode adjusts direction and airflow rate for draft-free comfort. Daikin AURORA wall- and floor-mounted units use a sophisticated titanium apatite photocatalytic air purifying filter. Anti-corrosion treatment on the heat exchanger adds long-life performance.

Daikin AURORA's compact size and light weight makes installation and servicing easy.

More information: www.northAmerica-Daikin.com.



Facilities Resource Group
TTS Synergy Series

Facilities Resource Group, LLC (FRG), a leading provider of single-source, turnkey commercial domestic hot water solutions, recently unveiled the TTS Synergy Series to help engineers, contractors and commercial facility owner-managers streamline and accelerate the process of changing out a centralized water heating system.

The result is a powerful, high-performance, tankless rack solution with a turndown ratio of 66:1 that will provide more than 1,600 gallons of hot water per hour, yet is compact enough to fit through a standard mechanical room doorway. Most importantly, TTS systems are pre-engineered and prefabricated to install quickly and without complications, minimizing costly downtime for commercial operators.

The most compelling aspect of this total tankless solution is its dynamic, One Point of Connection feature. TTS multi-unit



assemblies are designed and built at FRG's Michigan facilities, and then shipped to the job site fully assembled.

The standard package consists of an aluminum frame rack holding from two to six Noritz NCC199CDV Commercial Condensing Water Heaters with maximum inputs of 199,900 Btu/hour and maximum flow rates of 11.1 gallons per minute. Also included are the system controller, water and gas manifolds, expansion tank, breaker box with circuit breakers, digital pump controller with timer, surge protector, building recirculation pump and isolation valves – all pre-installed and pre-piped to the attached water heaters.

In addition, the TTS is designed to be common vented, further reducing job site materials and wall and roof penetrations, as well as the labor needed to complete the combustion-air and exhaust systems.

More information: <https://webfrg.com>.

Fieldpiece Instruments
Wireless Refrigerant Scale

Fieldpiece Instruments announced the launch of an upgraded Wireless Refrigerant Scale, model SR47, for HVACR contractors and technicians. The latest model will replace the industry workhorse, Fieldpiece's SRS3. The newly upgraded wireless refrigerant scale is yet another gamechanger to make HVACR industry tools more efficient and effective with the ultimate performance and durability in a compact, portable design. Industry-leading battery life, wireless range and accuracy offer unmatched reliability and convenience.

HVACR industry technicians rely on refrigerant scales for AC



system installation and maintenance to accurately measure the weight of refrigerant – critical for the refrigeration industry. Scale accuracy is especially important when considering that no two system refrigerant requirements are the same. The new Fieldpiece Wireless Refrigerant Scale, SR47 is designed to meet those needs, and is ideal for residential or commercial HVACR technicians that need to charge and recover refrigerant quickly and move on to the next job.

The SR47's 252-pound maximum load capacity accommodates any charge or recovery requirement, while its oversized 13-inch platform design with unique integrated bumpers is engineered to fit any refrigerant tank. It also features the best platform battery life in the industry with a long life of up to 200 hours, which maximize jobsite uptime by removing the need to change or recharge batteries.

The SR47 offers industry-leading wireless 1000-foot range with the Job Link® System App, allowing technicians to easily capture data and send reports or invoices, and it integrates with other tool measurements such as SMAN digital manifolds. Its wireless remote can be easily stored in a handy niche located under the scale and it boasts an improved rubber gasket grip design, shorter length, slightly larger display and a redesigned magnet, plus a hefty 80-hour battery life.

Technicians need tools that are lightweight yet durable enough to withstand wear and tear in field conditions. The Wireless Refrigerant Scale, SR47 meets both requirements. Its compact size and lightweight seven-pound portability make it easy to carry up a ladder while its rubberized corners offer robust impact protection. Wet weather is no barrier to performance – the SR47 is weather resistant with an IP64 rating for the remote and an IP54 rating for the platform so techs can work in the rain if they need to.

This new "heavyweight champion" from Fieldpiece also comes with a protective case that's easy to carry over the shoulder between jobs from residential sites to commercial rooftop units and includes protective padding to withstand truck or van transport and storage. A raised power button at the base of the scale improves usability and ergonomic design. As with any Fieldpiece tool, technicians can take advantage of the exceptional Fieldpiece live technical product

support for one-on-one product guidance.

More information: <https://www.fieldpiece.com/product/sr47-refrigerant-scale-250-lb-capacity-wireless/>.

Marley Engineered Products
Unit Heaters



Marley Engineered Products is now offering its QMark® MUH unit heater and Berko® HUHAA unit heater in ready-to-install PRO Series bundles that include the most commonly-ordered safety, installation and control components to make heating any space effortless.

The MUH-Pro+ and HUHAA Pro+ Series bundles, which include the SmartSeries® Plus thermostat and B10 mounting bracket, allow for easy mounting and flexibility in controls and integration. The SmartSeries® Plus thermostat provides connection to BACnet MS/TP building management systems for easy control and monitoring. The bundles also include a 24VAC transformer for immediate connection to a low voltage thermostat or for future integration flexibility.

Ideal for new or replacement applications in factories, warehouses, garages, power stations and mechanical rooms, the MUH and HUHAA Pro+ Series heaters feature an advanced pull-through air flow design that draws air across the heating element for even air distribution and cooler element operation. Its output capacity is so powerful that it is even a suitable option for heating loading docks or other indoor/outdoor transition space.

"By bundling the MUH and HUHAA units with popular accessories, we not only help contractors save time and money, but we also reinforce our commitment to creating simplified solutions that deliver best-in-class performance to make heating a space effortless," said Andrew Martin, manager of Product Management with Marley Engineered Products. "Simply wire it up and you're ready to go! Best of all, the MUH-Pro+ is in stock and ready for delivery... just in time for heating season!"

More information: www.marleyemp.com.

Heating Products and Tools & Test Instruments

Shurtape Technologies
AF 099



Shurtape Technologies, LLC, a leading manufacturer and marketer of pressure-sensitive tapes, expanded its HVAC product portfolio with Shurtape® brand AF 099 UL 181A-P/B-FX Listed/Printed Aluminum Foil Tape. Leveraging the same technology as the brand's trusted AF 100 UL 181A-P/B-FX Listed Foil Tape, AF 099 provides another durable, high-performing tape solution for busy HVAC contractors around the country.

AF 099 is an aluminum foil HVAC tape that is ideal for joining and sealing joints, connections and seams on rigid fiberglass ductboard and flexible air duct. It can also be used in place of mechanical fasteners on rigid ductboard. UL 181A-P/B-FX Listed and printed, AF 099 delivers full system closure – a system free of air leaks – by forming airtight bonds on joints and seams in temperatures ranging from -20 F to 260 F and in humid conditions.

Other applications for Shurtape's AF 099 foil HVAC tape include repairing metal or sheet metal and temporary fixes for outdoor electrical boxes.

More information: www.Shurtape.com

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Ritchie Engineering
Deluxe Mini-Split Tool Kit

Ritchie Engineering Company, Inc., a leader in service tools for HVAC/R professionals and manufacturer of YELLOW JACKET® products, is proud to introduce the Deluxe Mini-Split Tool Kit. Designed for all mini-split refrigerants (R22/404A/410A), the Deluxe Mini-Split Tool Kit takes the guesswork out of finding the right tool for the job. This premium kit includes the YELLOW JACKET® Digital Adjustable Torque Wrench with a second wrench head for tube fittings up to 41mm hex size. The kit also includes a premium TITAN® 4-valve manifold and compact ball valve hoses, a dedicated heavy duty evacuation hose, a complete set of



imperial and metric hex keys, a 10 pack of replacement Schrader cores, a telescoping inspection mirror, and additional service fittings.

More information: www.yellow-jacket.com.

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Tekmar Controls
Smart Boiler Control 294

The Tekmar Controls Smart Boiler Control 294 offers remote, real-time management of up to 16 boilers in multiple buildings through the Watts OnSite web and mobile app. Smart Boiler Control 294 can



be retroactively fit to any brand of boiler, old or new, and will send system alerts via text, email, and push notifications to help maintain boiler

efficiency, operability, and performance. The control, which features a 5-inch color touchscreen with setup wizard, is a single solution for new construction and retrofits. The 294 gives property managers an affordable alternative to connect their older boilers without the expense of upgrading them to brand-new connected versions.

More information: www.tekmarcontrols.com.



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Part 4, 2022 California Mechanical Code
Part 5, 2022 California Plumbing Code
Part 6, 2022 California Energy Code
Part 9, 2022 California Fire Code
Part 10, 2022 California Existing Building Code (includes Part 8 Historical Building Code and Part 12 Referenced Standards Code)
Part 11, 2022 California Green Building Standards Code (CALGreen)
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We want to take this opportunity to express our thanks and appreciation to our dedicated members, advertisers, exhibitors, and ICN readership who continue to support IHACI and the trades, and give selflessly with their time and effort.
May your holiday season be filled with joy!



INSTITUTE OF HEATING AND AIR CONDITIONING

2023 TRAINING

CALIFORNIA QUALITY INSTALLATION, QUALITY MAINTENANCE AND QUALITY SERVICE

SOCALGAS, DOWNEY

JANUARY

NATE HVAC/R Support Training (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Jan. 4 – Part 1

Thurs., Jan. 5 – Part 2

Wed., Jan. 11 – Part 3

Thurs., Jan. 12 – Part 4

FEBRUARY

Gas Heating Module

(Two-Night Class) Instructor: Mike Griffin

Wed., Feb. 1 – Part 1

Thurs., Feb. 2 – Part 2

MARCH

Electrical Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., March 1 – Part 1

Thurs., March 2 – Part 2

APRIL

Electrical Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., April 5 – Part 1

Thurs., April 6 – Part 2

MAY

AC/HP Refrigeration Module

(Four-Night Class) Instructor: John Dalton

Wed., May 3 – Part 1

Thurs., May 4 – Part 2

Wed., May 24 – Part 3

Thurs., May 25 – Part 4

JUNE

Air Distribution Module

(Four-Night Class) Instructors: Mike Griffin / Jayme Carden

Wed., June 21 – Part 1

Thurs., June 22 – Part 2

Wed., June 28 – Part 3

Thurs., June 29 – Part 4

JULY

System Performance Module

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., July 26 – Part 1

Thurs., July 27 – Part 2

AUGUST

System Performance Module

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Aug. 2 – Part 1

Thurs., Aug. 3 – Part 2

SEPTEMBER

NATE CORE & Gas Heating Training (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Sept. 6 – Part 1

Thurs., Sept. 7 – Part 2

Wed., Sept. 13 – Part 3

Thurs., Sept. 14 – Part 4

OCTOBER

NATE AC/HP Refrigeration & Air Distribution Training (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Oct. 4 – Part 1

Thurs., Oct. 5 – Part 2

Wed., Oct. 25 – Part 3

Thurs., Oct. 26 – Part 4

Sat., Oct. 28 - NATE Exam, 7:30 a.m.

SOUTHERN CALIFORNIA EDISON, IRVINDALE

JANUARY

Gas Heating Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Jan. 18 – Part 1

Thurs., Jan. 19 – Part 2

2022 Title 24 Standards Training (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Jan. 25 – Part 1

Thurs., Jan. 26 – Part 2

FEBRUARY

Electrical Module

(Four-Night Class) Instructor: John Dalton

Wed., Feb. 8 – Part 1

Thurs., Feb. 9 – Part 2

Wed., Feb. 15 – Part 3

Thurs., Feb. 16 – Part 4

MARCH

Air Distribution Module

(Four-Night Class) Instructors: Mike Griffin / Jayme Carden

Wed., March 8 – Part 1

Thurs., March 9 – Part 2

Wed., March 15 – Part 3

Thurs., March 16 – Part 4

APRIL

AC/HP Refrigeration

(Four-Night Class) Instructor: John Dalton

Wed., April 12 – Part 1

Thurs., April 13 – Part 2

Wed., April 19 – Part 3

Thurs., April 20 – Part 4

MAY

NATE CORE & Gas Heating Training

(Four-Night Class) Instructor: Mike Griffin

Wed., May 10 – Part 1

Thurs., May 11 – Part 2

Wed., May 17 – Part 3

Thurs., May 18 – Part 4

JUNE

NATE AC/HP & Air Distribution Training

(Four-Night Class) Instructor: John Dalton

Wed., May 31 – Part 1

Thurs., June 1 – Part 2

Wed., June 7 – Part 3

Thurs., June 8 – Part 4

Sat., June 10 - NATE Exam, 7:30 a.m.

SEPTEMBER

System Diagnostics

(Four-Night Class) Instructor: John Dalton

Wed., Sept. 20 – Part 1

Thurs., Sept. 21 – Part 2

Wed., Sept. 27 – Part 3

Thurs., Sept. 28 – Part 4

OCTOBER

Non-Res ATE Acceptance

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Oct. 11 – Part 1

Thurs., Oct. 12 – Part 2

Non-Res ATT Acceptance

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Oct. 18 – Part 1

Thurs., Oct. 19 – Part 2

NOVEMBER

System Performance Module

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Nov. 1 – Part 1

Thurs., Nov. 2 – Part 2

Wed., Nov. 8 – Part 3

Thurs., Nov. 9 – Part 4

SOUTHERN CALIFORNIA EDISON, TULARE

JANUARY

Electrical Module (Webinar)

(Four-Night Class) Instructors: Mitch Bailey / TBA

Wed., Jan. 11 – Part 1

Thurs., Jan. 12 – Part 2

Wed., Jan. 18 – Part 3

Thurs., Jan. 19 – Part 4

FEBRUARY

Gas Heating Module

(Two-Night Class) Instructors: Mitch Bailey / TBA

Tues., Feb. 7 – Part 1

Wed., Feb. 8 – Part 2

2022 Title 24 Standards Training

(Two-Night Class) Instructors: Mike Griffin / Jayme Carden

Wed., Feb. 22 – Part 1

Thurs., Feb. 23 – Part 2

MARCH

Boiler Module

(Two-Night Class) Instructor: John Dalton

Wed., March 8 – Part 1

Thurs., March 9 – Part 2

Chiller Module

(Two-Night Class) Instructor: John Dalton

Wed., March 22 – Part 1

Thurs., March 23 – Part 2

APRIL

Air Distribution Module

(Four-Night Class) Instructors: Mike Griffin / Mitch Bailey

Wed., April 12 – Part 1

Thurs., April 13 – Part 2

Wed., April 19 – Part 3

Thurs., April 20 – Part 4

MAY

System Performance Module

(Four-Night Class) Instructors: Mitch Bailey / TBA

Wed., May 10 – Part 1

Thurs., May 11 – Part 2

Wed., May 17 – Part 3

Thurs., May 18 – Part 4

JUNE

AC/HP Refrigeration Module

(Four-Night Class) Instructors: Mitch Bailey / TBA

Tues., June 6 – Part 1

Wed., June 7 – Part 2

Tues., June 13 – Part 3

Wed., June 14 – Part 4

Note: When registering for a training class please make sure you honor that commitment and show up on time and prepared. If you cannot attend, please call (818) 551-1555 and cancel in ample time. Thank you.

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CLASS SCHEDULE

SERVICE (CAQI/QM/QS) & NORTH AMERICAN TECHNICIAN EXCELLENCE (NATE)

SEPTEMBER

System Diagnostics Module

(Four-Night Class) Instructors: Mitch Bailey / TBA

Wed., Sept. 20 – Part 1

Thurs., Sept. 21 – Part 2

Wed., Sept. 27 – Part 3

Thurs., Sept. 28 – Part 4

OCTOBER

NATE CORE Training

(Two-Night Class) Instructors: Mitch Bailey / TBA

Wed., Oct. 11 – Part 1

Thurs., Oct. 12 – Part 2

NATE Gas Heating Training

(Two-Night Class) Instructors: Mitch Bailey / TBA

Wed., Oct. 18 – Part 1

Thurs., Oct. 19 – Part 2

NOVEMBER

NATE AC/HP Refrigeration Training

(Two-Night Class) Instructors: Mitch Bailey / TBA

Wed., Nov. 1 – Part 1

Thurs., Nov. 2 – Part 2

NATE Air Distribution Training

(Two-Night Class) Instructors: Mitch Bailey / TBA

Wed., Nov. 15 – Part 1

Thurs., Nov. 16 – Part 2

Sat., Nov. 18 - NATE Exam, 7:30 a.m.

SAN DIEGO GAS & ELECTRIC

FEBRUARY

Gas Heating Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Feb. 6 – Part 1

Tues., Feb. 7 – Part 2

2022 Title 24 Standards Training (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Feb. 27 – Part 1

Tues., Feb. 28 – Part 2

MARCH

NATE HVAC/R New Hire Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., March 6 – Part 1

Tues., March 7 – Part 2

Mon., March 13 – Part 3

Tues., March 14 – Part 4

NATE HVAC/R Support Training Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., March 20 – Part 1

Tues., March 21 – Part 2

Mon., March 27 – Part 3

Tues., March 28 – Part 4

APRIL

Electrical Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., April 3 – Part 1

Tues., April 4 – Part 2

Mon., April 10 – Part 3

Tues., April 11 – Part 4

AC/HP Refrigeration Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., April 17 – Part 1

Tues., April 18 – Part 2

Mon., April 24 – Part 3

Tues., April 25 – Part 4

MAY

System Diagnostics Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., May 8 – Part 1

Thurs., May 9 – Part 2

Mon., May 15 – Part 3

Thurs., May 16 – Part 4

JUNE

Air Distribution Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., June 5 – Part 1

Tues., June 6 – Part 2

Mon., June 12 – Part 3

Tues., June 13 – Part 4

System Performance Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., June 19 – Part 1

Tues., June 20 – Part 2

Mon., June 26 – Part 3

Tues., June 27 – Part 4

JULY

Non-Res ATE Training (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., July 5 – Part 1

Thurs., July 6 – Part 2

Non-Res MATT Training (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., July 12 – Part 1

Thurs., July 13 – Part 2

Chiller Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., July 19 – Part 1

Thurs., July 20 – Part 2

AUGUST

Commercial Cooling Tower Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Aug. 9 – Part 1

Thurs., Aug. 10 – Part 2

Boiler Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Aug. 16 – Part 1

Thurs., Aug. 17 – Part 2

Commercial Refrigeration Module (Webinar)

(Two-Night Class) Instructors: Mike Griffin / John Dalton

Wed., Aug. 23 – Part 1

Thurs., Aug. 24 – Part 2

SEPTEMBER

Electrical Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Sept. 11 – Part 1

Tues., Sept. 12 – Part 2

Mon., Sept. 18 – Part 3

Tues., Sept. 19 – Part 4

OCTOBER

System Diagnostics Module (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Oct. 16 – Part 1

Tues., Oct. 17 – Part 2

Mon., Oct. 23 – Part 3

Tues., Oct. 24 – Part 4

NOVEMBER

NATE Core & Gas Heating Training (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Nov. 13 – Part 1

Tues., Nov. 14 – Part 2

Mon., Nov. 20 – Part 3

Tues., Nov. 21 – Part 4

DECEMBER

NATE AC/HP Refrigeration & Air Distribution Training (Webinar)

(Four-Night Class) Instructors: Mike Griffin / John Dalton

Mon., Dec. 4 – Part 1

Tues., Dec. 5 – Part 2

Mon., Dec. 11 – Part 3

Tues., Dec. 12 – Part 4

PACIFIC GAS AND ELECTRIC COMPANY, STOCKTON

SCHEDULE TBA

Schedule will be announced in the January issue of ICN



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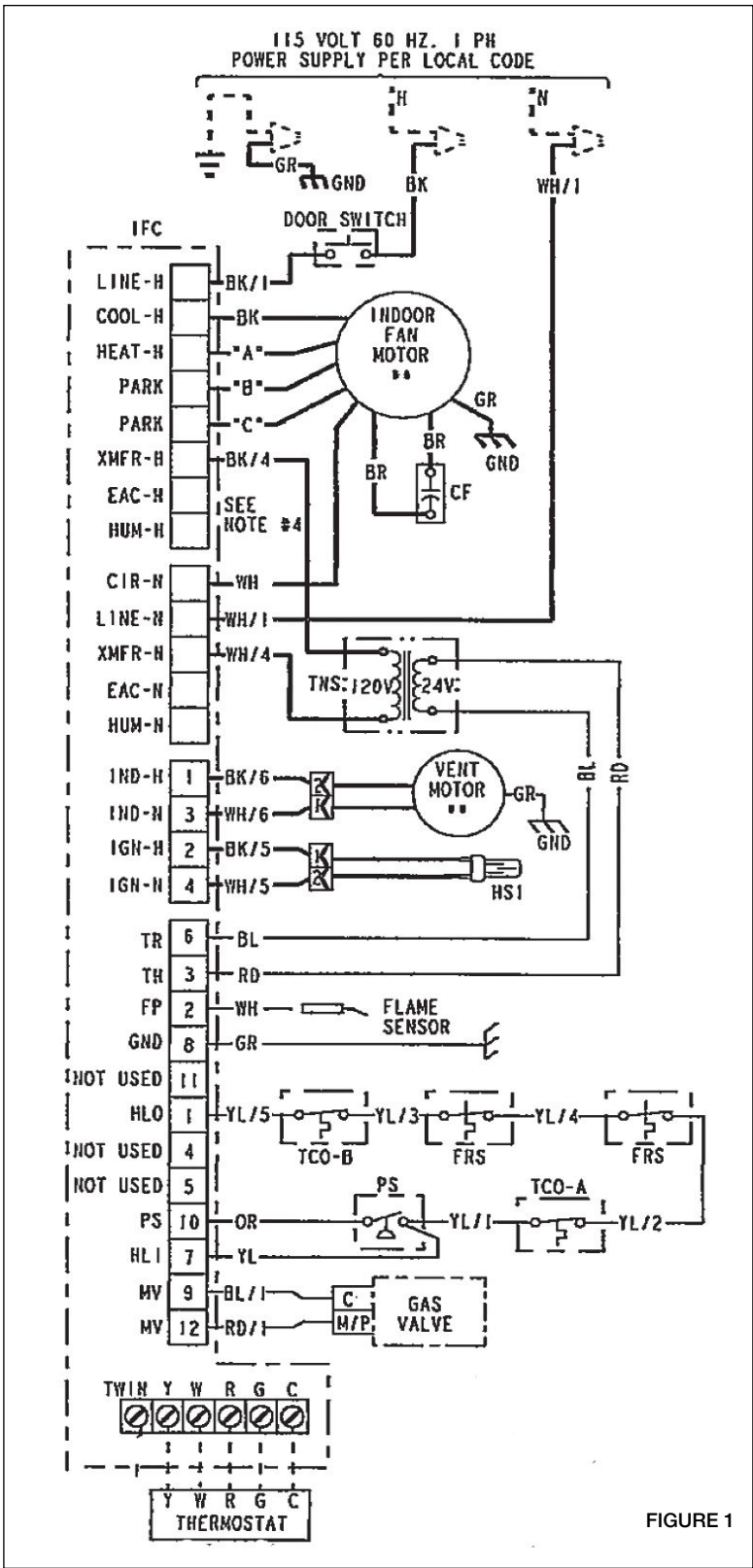


FIGURE 1

An Induced Draft Gas Furnace That Won't Fire

By Jim Johnson
Contributing Editor

In this month's troubleshooting problem, the customer has called with a "no heat" complaint. The equipment is an 80% induced draft gas furnace that employs an IFC (Integrated Furnace Control) and an HSI (Hot Surface Igniter). The schematic diagram in **Figure One** illustrates the electrical system.

When you arrive, you find that turning the thermostat to the HEAT mode prompts a heating cycle to begin and the induced draft motor to operate. You also note that the Hot Surface Igniter is energized as the next step in the operation sequence.

After an extended delay you note that the burners don't ignite. After disconnecting the power supply and removing the appro-

priate quick connection, you again initiate a call for heat, and note that after the induced draft motor is again operable, you measure 120-VAC at the HSI connections.

As Your next step, you disconnect the power supply and check the resistance of the igniter, and your meter shows 101.5 ohms.

Your troubleshooting question: *What is the next step you need to take in servicing this equipment.*

If you believe you have the correct answer to one of Jim Johnson's Troubleshooting Problems, please submit it by email to Jim Johnson at icntroubleshooting@techtrain-assoc.com or by U.S. Mail to: Technical Training Associates, PO Box 2259, Green Valley, AZ 85622-2259.

In your email subject line please include "Troubleshooting Answer" and indicate which month the question you are responding to

was published. Correct answers will be entered into a drawing and will be eligible to receive a copy of Jim Johnson's video "Evaluating Refrigeration Systems: Troubleshooting & Identifying Problems."

Answer to Last Month's Problem

Our voltage tests determined that no voltage was applied to the Gas Valve, and that the Gas Valve Relay, which is integrated into the control board, was not closing. Solving this problem requires the replacement of the furnace control.

The winner of last month's troubleshooting is: **Anthony Di Caterino**
Phoenix, Ariz.

Climate Tech Sale

Continued from Page 1

successful track record of large-scale corporate partnerships, a key pillar of our investment strategy," Joe Baratta, global head of Blackstone Private Equity, commented. "This is a marquee transaction for our private equity business and a testament to our ability to deliver solutions to our partners even in difficult economic and market environments.

"We are proud to be partnered with Emerson to help drive the next stage of growth for this great business," he continued. "Copeland is the market leader in supplying critical components for residential, commercial, and refrigeration climate control systems. The business is poised for accelerated growth as it leads the way in helping consumers and businesses shift to more energy-efficient heating and cooling products as part of their carbon reduction efforts. We are thrilled to back the business' dedicated team as they continue to innovate and deliver energy-efficient solutions to their customers."

"This transaction enables Emerson to partially monetize our Climate Technologies business at an attractive valuation and provides significant upfront cash proceeds to invest in growth, while at the same time enabling Emerson to participate in Climate Technologies' upside potential upon exit of our non-controlling position," added

Karsanbhai. "We are excited to partner with Blackstone given its successful history of value creation in collaboration with corporate partners. We look forward to working closely with Blackstone to ensure a smooth transition for Climate Technologies' employees and customers."

Climate Technologies had fiscal 2022 net sales of \$5.0 billion, pre-tax earnings of \$1.0 billion and EBITDA, including standalone costs, of \$1.1 billion. The transaction values Climate Technologies at \$14.0 billion, representing a multiple of 12.7x fiscal 2022 EBITDA, including standalone costs.

Emerson will receive upfront, pre-tax cash proceeds of approximately \$9.5 billion and a note of \$2.25 billion at close and retain 45% common equity ownership of the standalone Climate Technologies business, which will be structured as a joint venture between Emerson and Blackstone, until its potential sale or IPO.

The cash consideration will be funded by \$5.5 billion of fully committed debt financing (\$6.2 billion inclusive of an unfunded ABL facility) and \$4.4 billion of equity contribution from Blackstone. A wholly owned subsidiary of the Abu Dhabi Investment Authority (ADIA) and GIC will invest alongside Blackstone as part of the transaction.

The transaction has been unanimously approved by Emerson's Board of Directors and is expected to close in the first half of the calendar year 2023, subject to regulatory approvals and cus-

tomary closing conditions. Operating results for Climate Technologies, and previously announced divestitures, InSinkErat, which closed on October 31, and Therm-O-Disc, will be reported in discontinued operations in the first fiscal quarter of 2023. Included in Emerson's continuing operations will be Automation Solutions, Safety & Productivity, and AspenTech.

As part of the transaction, Emerson will be right sizing its corporate and platform cost structure and will sell ownership of its St. Louis, Missouri campus to the joint venture. Emerson will enter a three-year lease on the headquarters with an option to extend a further two years. During that time, Emerson will undertake a comprehensive assessment of potential headquarters locations.

Centerview Partners LLC and Goldman Sachs & Co. LLC are serving as financial advisors to Emerson, and Davis Polk & Wardwell LLP is serving as legal counsel. Barclays served as lead financial advisor to Blackstone. Guggenheim Securities LLC and Evercore also provided financial advisory services to Blackstone. The ABL revolver and TLA portion of the debt financing related to the transaction is led by RBC Capital Markets LLC, Wells Fargo, and SMBC.

Additional financing is provided in the form of a private Term Loan by a consortium of lenders. Simpson Thacher & Bartlett LLP is acting as legal counsel to Blackstone.

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Innovation Awards

Continued from Page 14


when transferred over a network. Max is compatible with Amazon Alexa, Google Home, SmartThings, IFFTT and Siri shortcuts. Finalists: Falkonair Inc., Automated Logic Corporation.

Software
cove.tool: loadmodeling.tool Built for mechanical engineers, the loadmodeling.tool quickly and automatically establishes peak cooling and heating loads to design and right-size the mechanical system using the EnergyPlus engine. This web-based tool supports cove.tool's goal of providing the solutions needed for the AEC industry to unlock productivity and solve the climate crisis. One of the most revolutionary aspects of the loadmodeling.tool is that it is web-based, which presents a new opportunity for mechanical

engineers as the majority of their tools are only available via desktop platforms that haven't evolved much in the last few decades. Being web-based, the tool can be accessed anywhere, including results, which means large files aren't having to be transferred or shared manually. Finalists: HVAC Solution Inc., Rep Order Management (AccuQuote). Funds raised from the entry fees of the Innovation Awards competition will be donated to the Atlanta College and Career Academy (ACCA), an Atlanta-based technical high school. More information to follow on AHR Expo's work with ACCA and our investment into the future workforce of HVACR. Registration for the 2023 AHR Expo is free through February, 4, 2023 and can be completed on ahrexpo.com.

GOLD KEY
Contest Winner

The winner of last month's ICN Gold Key contest is:



Alyssa Pliler
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Pliler is the winner of a \$50 Amazon gift card, courtesy of ICN. Congrats!

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