



Introducing IIR's new leader: first major interview!
The most important news and insights of the industry.

Introducing the magazine “Refrigeration Industry”



Welcome to the second issue of our magazine!

In today's fast-paced world, staying abreast of the latest developments in the refrigeration industry can be challenging. Our mission is to streamline this process by bringing you the most critical news and insights from the past quarter. This issue features the top news items from our website, along with essential materials, interviews, and research published on refindustry.com.

We greatly value your feedback and suggestions. Please feel free to [email](#) us or reach out to me directly on [LinkedIn](#).

Warm regards, Editor-in-chief

Sergei Mukminov.

The concept of the new magazine:

1. Our magazine is exclusively published in a digital format. Our magazine pages are in landscape orientation, making them easier to read on screen.
2. The magazine is interactive - you can follow internal links in the content, as well as external links to read articles on the site and advertisements.
3. You can find any news from the magazine on our website by title.
4. The magazine is published once a quarter.

The magazine issue plan

- N 2024 / 3 — July
- N 2024 / 4 — October
- N 2025 / 1 — January

[Learn more](#) about the opportunities for refrigeration equipment suppliers in this magazine and on refindustry.com.



IIR's New Leader, Dr Yosr Allouche, on Transitioning the Refrigeration Industry



Nidec/Embraco: Transforming the Market with Solutions Beyond Technology



The phase-down for fluorinated refrigerants becomes a phase-out: BITZER recommendations for future-proof systems



Enex Integral Unit – Poland

Transgourmet Polska has remodeled a hypermarket in Warsaw with all the refrigeration and AC /HP with natural refrigerant CO2

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We recommend reading in a PDF viewer's full-screen mode.
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News Products

Carrier introduced a new line of chillers for data centers



Carrier has launched a new range of high performance chillers for data centres, designed to reduce energy use and carbon emissions while cutting running costs for operators. Available in capacities from 486.4 kW to 1464 kW, the units are based on proven Carrier screw compressors, ensuring efficient, reliable operation and long working life.

Carrier's new AquaForce 30XF air-cooled screw chillers, with an integrated hydronic free-cooling system and variable-speed inverter drives, deliver energy savings of up to 50% during total free-cooling operation.

The chillers offer excellent resilience with an ultra-fast recovery system that, in the event of a power cut, can resume 100% of

cooling output within two minutes of power being restored. This ensures cooling is maintained for critical servers and data protected.

The chiller can operate in a wide range of ambient conditions, from -20 to 46 C, making it suitable for use in cold, temperate, and hot climates, while Carrier's smart monitoring system ensures high efficiency and performance at all times. Variable-speed fans further increase energy efficiency and support quiet operation at part-load.

Copeland introduces new Vilter transcritical CO2 compressor



Copeland announced that the company's first industrial transcritical CO2 compressor unit is now in production. Purpose-built for the rigors of high-pressure industrial CO2 refrigeration, the new Vilter transcritical CO2 compressor was developed in response to increasing industry demands for

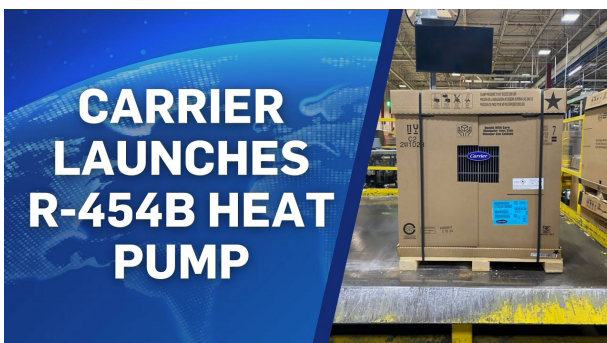
sustainable, safe and reliable CO2 refrigeration technologies. It will complement the Vilter subcritical CO2 compressor, to comprise a full transcritical CO2 compression solution. Both the Vilter industrial transcritical and subcritical CO2 compressors are now available in the North America market.

Large-capacity transcritical CO2 compressors reduce the complexity of industrial refrigeration operations by reducing the number of components required for larger systems. The Vilter transcritical CO2 compressor offers one of the most rugged compression solutions for sustainable industrial refrigeration needs. Built around the durable Vilter single-screw compressor model, the CO2 systems enable designers, builders and operators of cold storage, food and beverage, recreation, utility and power, pharmaceutical, chemical, petrochemical and industrial processing to meet their sustainability goals with a simple design and cost-effective system.

Search for news on our website by title.

Subscribe to our newsletter to stay updated with important industry news.

Carrier Launches R-454B Heat Pump



Carrier's latest single-stage heat pump launch marks the first heat pumps available to the field that are R-454B compatible well in advance of the 2025 regulatory shift. R-454B, known commercially as Puron Advance, is Carrier's refrigerant of choice for all ducted and ductless residential and light commercial applications. Additionally, Carrier was the first to announce its refrigerant of choice in 2018 and the first to publish AHRI ratings for R-454B equipment.

With a GWP of 466 – a 75% reduction from R-410A – and non-ozone depleting potential, Puron Advance refrigerant was selected as the best solution to minimize environmental impact and provide longevity based on the United Nations Montreal Protocol Kigali Agreement phasedown plan. Carrier worked closely with regulators and

research groups to develop standards, codes and regulations that will help ensure the safe use of R-454B. The recent designation of its Collierville, Tennessee facility as its Center of Excellence for heat pump production further underscores Carrier's commitment to sustainability.

Copeland Introduces Oil-Free Centrifugal Compressor Featuring Innovative Aero-lift Bearing Technology



Copeland announced the release of its new oil-free centrifugal compressor with frictionless Aero-lift bearing technology. Engineered to be a worry-free alternative to existing magnetic levitation bearing and refrigerant-lubricated ceramic compression technology, the Copeland oil-free centrifugal compressor delivers high-lift performance, reliability, and efficiency enhancements in demanding chiller applications.

Groundbreaking Aero-lift bearing technology

enables the compressor shaft to self-levitate and operate independently - without friction or reliance on electromagnetics, complex controls, or proximity sensors, which are required in today's oil-free magnetic levitation bearing compressors. It delivers performance improvements during power interruptions, enabling the compressor to coast smoothly, shut down and restart rapidly to minimize application disruptions. This streamlined technological approach also eliminates the need for backup auxiliary bearings and maintains redundancy in these scenarios.

This new oil-free centrifugal compressor platform is being developed for the 50- to 200-ton capacity range and is optimized for use with the next generation of lower-GWP A2L and A1 refrigerants such as R-1234ze, R-515B and R-513A. This helps address the upcoming GWP limits mandated by the Environmental Protection Agency's Technology Transitions rule under the authority of the American Innovation and Manufacturing (AIM) Act.

Daikin presented new range of water to water heat pumps

Daikin has announced the release of a new range of water to water heat pumps:

The Frascold logo, featuring the brand name in a stylized blue font with a small circular icon to the right.

in @ f x y www.frascold.it

MAKE HEAT PUMPS EASIER

with Frascold's
ATEX HT Series



Meet the **ATEX HT Series**,
designed for use in **air-to-water heat pumps** with **R290**,
featuring hot water production **up to 80°C**.

S

32.8 - 56 m³/h
@50 Hz

V

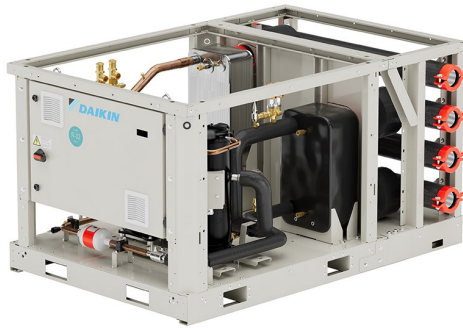
58.8 - 102.9 m³/h
@50 Hz

Z

106.2 - 139.7 m³/h
@50 Hz

W

141.5 - 205.8 m³/h
@50 Hz



EW*T-Q-X-A1 range with Daikin design scroll compressors. Available from April 2024, the new EW*T-Q-X-A1 features a new modular approach to system design, which introduces additional flexibility in configuration. Breaking away from the more traditional 'package' solution, the modular approach allows the required capacity to be reached by combining smaller units piped together and controlled as a single one. Modular construction offers significant benefits in siting and installation, making units easier to transport, handle and position up to a fully plug & play solution by including the Daikin Manifold Kit and Pump module.

The new water sourced EW*T-Q-X-A1 heat pumps can ensure heating or cooling operation under many different conditions. Hot water can be produced up to +60°C; whilst chilled water is supplied in the range from -15°C (water-glycol mixture) to +30 °C evaporator leaving water temperature.

Composed of three base modules offering 100, 125 and 160kW capacities, the range features Daikin scroll compressors and is available in two sound versions including a reduced sound variant which is suitable for outdoor installation and noise sensitive applications as condominiums, hotels and hospitals.

Danfoss launches new high-efficiency filter driers for CO2

Danfoss launches a new range of ELIMINATOR DCR semi-hermetic filter driers for CO2. With their efficient flow rate and unique design, the DCR filter driers for CO2 support highly reliable system functioning, easy handling, and service.

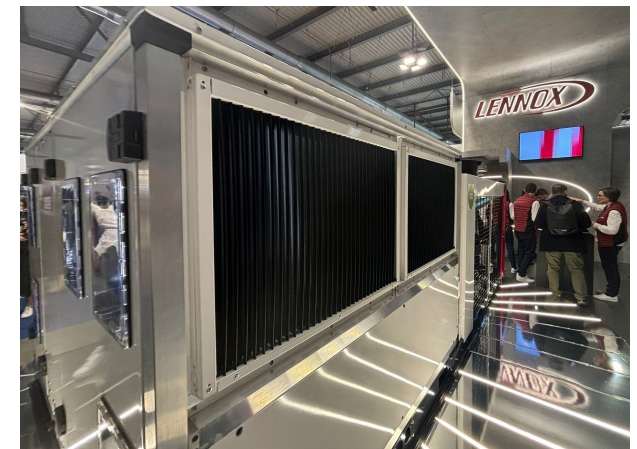


The new semi-hermetic filter drier range for CO2 is designed for use in liquid and suction lines in transcritical and sub-critical refrigeration systems for racks; and they support up to 90 bar working pressure.

Several aspects of the filter drier design are noteworthy and even unique. To enable high serviceability the DCR filter driers for CO2 include a unique cartridge design not seen before in the market. Moreover, their lightweight design enables easy handling and installation.

In addition to providing high system reliability due to no welded parts, the filter driers are also designed to offer a high-performing flow rate. All the variants come with a drain plug to evacuate the trapped liquid.

Lennox launched the latest generation of air-cooled rooftop units Evio



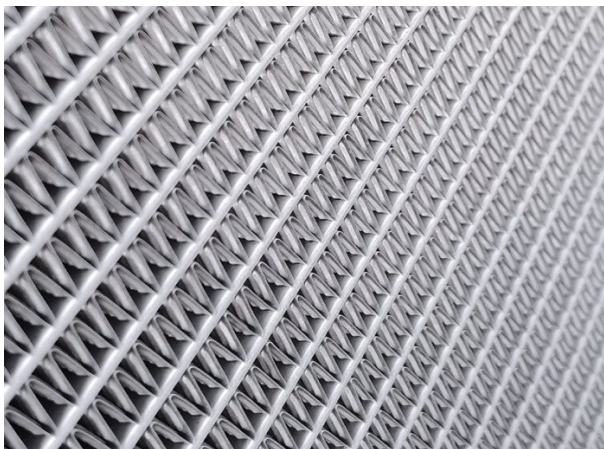
Lennox announces the launch of Evio, the

latest generation of air-cooled rooftop units at Mostra Convegno in Milan. Excellent flexibility, high seasonal efficiency, low CO2 footprint and intuitive control, means that managers of commercial buildings will enjoy notable gains in their climate control projects with the new Lennox Evio rooftop platform.

Central to the advantages of this modular product is its great flexibility between air-flow range and power capacity, providing the optimal solution for a wide range of building types and applications. All the air flow configuration a customer could want - regarding supply, return, exhaust and fresh air - is available. In fact, the new Lennox Evio offers improved supply air flow up to 49,500 m3/h. Further improvements include wider outdoor operating limits from -19°C to +48°C, and better thermal and acoustic insulation via a 50 mm thick double-skin panel of injected PU foam.

Kaltra deploys new aluminum alloy for microchannel heat exchangers

Kaltra completed the pilot study for a new, highly corrosion-resistant aluminium alloy, AA3F05, temper H112, to be used in its microchannel heat exchangers. SWAAT (Sea



Water Acetic Acid Test as per ASTM G85 Annex A3) tests performed during the deployment phase demonstrated that AA3F05's lifespan is more than double that of the currently used HA9153 alloy.

Manganese-riched AA3F05 with a protective zinc top layer ensures up to 6000 hours of exposure to synthetic sea salt and humidity at high temperatures, making possible long service life for heat exchangers in the harshest air conditions.

Alloy AA3F05 is available for multiport tubes with widths from 12 to 36mm and pressure rates of 32 and 45 bar, covering the full range of coil nomenclature and suitable refrigerants.

Panasonic to Release Commercial Air-to-water Heat Pumps Using Natural Refrigerants for Europe



Panasonic Corporation announced that its Heating & Ventilation A/C Company (HVAC) will release three new models of commercial air-to-water (A2W) heat pumps using environmentally friendly natural refrigerants for multidwelling units, stores, offices, and other light commercial properties in September 2024. They employ compact designs that are at the highest level of the industry and join our lineup of models for stand-alone homes to serve a wider range of customer needs.

A2W is a heating system that captures heat from the air to create hot water for use in buildings. It minimizes environmental impact with less CO2 emissions compared to fossil fuel-using heaters, driving demand in Europe.

Up to now the R32 HFC refrigerant has been the mainstream for A2W in mul-

tidwell units and light commercial properties, but Panasonic has become the first Japanese manufacturer to adopt R290, a natural refrigerant with an extremely low greenhouse effect. Panasonic plans to further broaden its lineup in the future.

Danfoss Introduces New A2L Sensor Series



Danfoss is supporting the transition to low GWP refrigerants with its new DST G series of A2L refrigerant detection sensors, which feature a revolutionary patented inverted design.

The sensors' Automated Self Calibration (ASC) adjusts the measurement over time to remove minor drifts and delivers ~0% Lower Flammability Limit (LFL) level in clean air signal.

Another key feature of the DST G series is the unique inverted design. This design

protects the sensors in harsh environments, shielding them from dust, oil and water spray, and during pressurized cleaning and maintenance in commercial refrigeration units. All exposed materials are also UV-protected, meaning coils can be cleaned with UV light without damaging the sensor, and resulting in better indoor air quality for HVAC units.

The sensors support five different A2L refrigerants and are designed for both HVAC applications (the DST G54B for R454B and DST GR32 for R32 refrigerants), and commercial refrigeration applications (the DST G54A for R454A, the DST G54C for R454C and the DST G55A for R455A refrigerant). Additional refrigerants are also available upon request.

Copeland Expands Offering of R-290 Scroll Compressors

Copeland has recently launched a new R-290 variable-speed scroll compressor for commercial heating applications – the Copeland YHV119 variable-speed scroll compressor. This launch expands Copeland's R-290-compatible product portfolio of compressors for heat pumps and reversible chillers.

The new Copeland YHV119 variable-speed

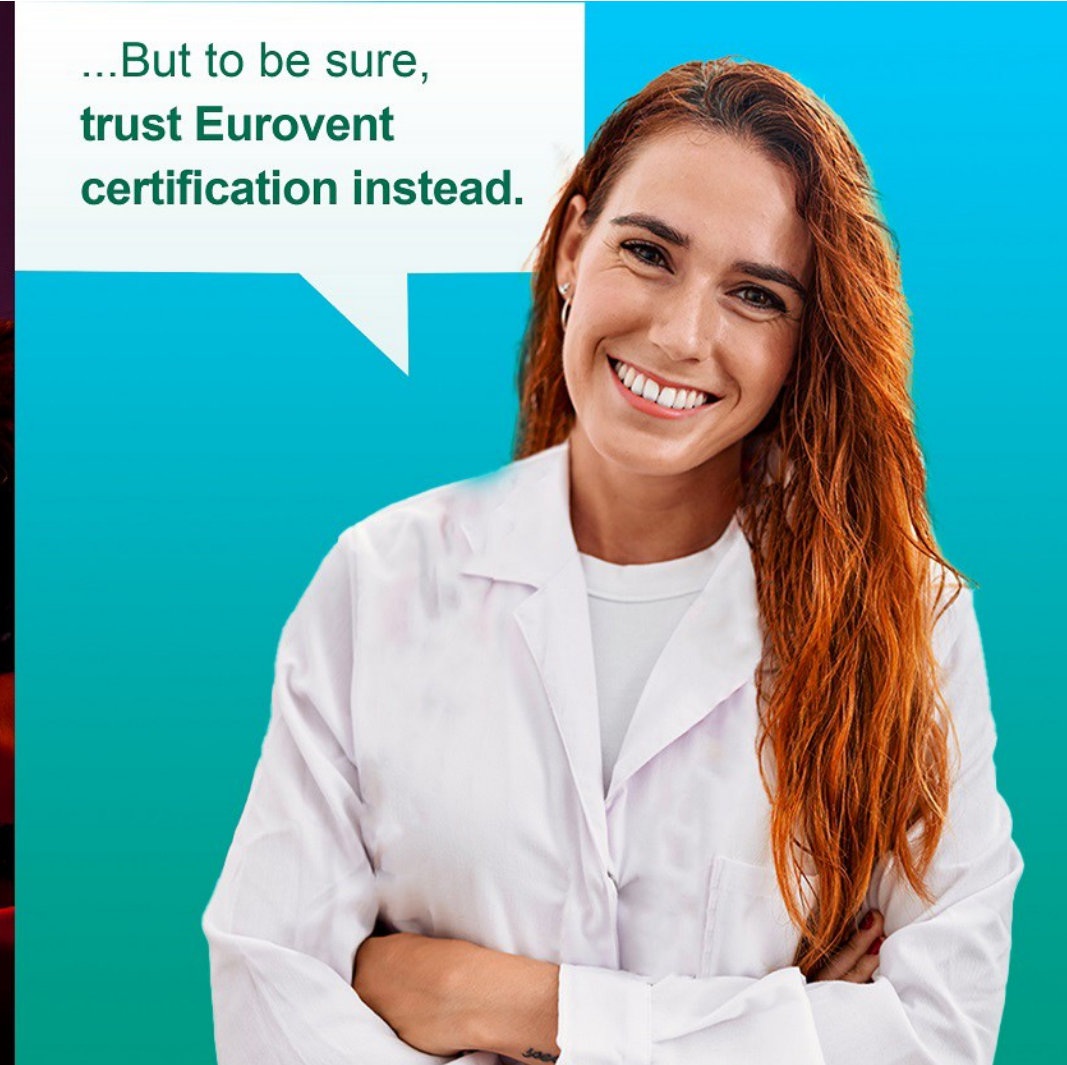


scroll compressor has a heating capacity up to 42kW at maximal speed. Its design is not only compact with a reduced footprint and weight easing system's design, installation, and maintenance but it is R-290 optimized enabling a low superheat capability of <5K. With its unique scroll axial and radial compliance for increased reliability and efficiency, this compressor perfectly fits commercial heat pumps and is particularly advantageous in transient conditions with reversible systems. The YHV119 variable-speed scroll compressor is the first model in a future series that will be expanded to a larger capacity to serve the various application requirements of the commercial heating sector.



When it comes to
product performance,
**you can ask
a clairvoyant...**

...But to be sure,
**trust Eurovent
certification instead.**



We build trust



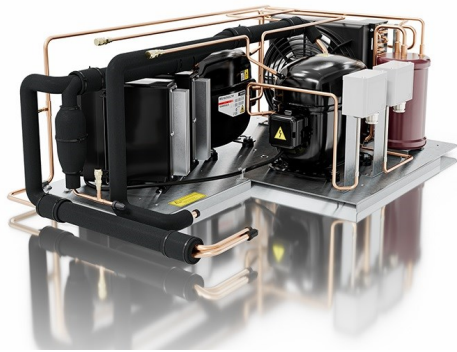
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Product Showcase

The partner's materials

Secop launches new ultra-low temperature medical compressors and condensing units with green technology



The new MN13UVULTM and MS18UVULTM variable speed compressors are driven by the latest electronic controls and have been designed and approved for ultra-low-temperature applications. The combination of low GWP hydrocarbon refrigerants and innovative modular multi-voltage controllers provide highly efficient, eco-friendly cooling solutions for a new generation of freezers for the medical cold chain. These new solutions ensure stable temperatures for a wide range of electrical voltages and significantly reduce energy consumption with high reliability from a proven platform

design. The fire-proof IP54 housing, PCB coating, isolated I/Os, and SW safety layers further improve the reliability of the cooling systems.

Secop has also designed a ULT cascade condensing unit solution by adopting two MS18UVULTM medical-grade compressors for low stage (R170) and high stage (R290) refrigerants. The cooling solution uses the premium performance of the new generation of compressors with a proprietary electronic control to improve the performances of the ULT cascade systems and also features optimized minimal energy consumption. This is ideal for a temperature range from -60°C to -90°C.

[Read more](#)

Frascold unveils the CO₂-based TK HD series



Frascold readies to launch the brand-new range of transcritical CO₂ compressors, designed to deliver high performance, 24/7.

The new CO₂-based TK HD series with anti-friction treatments and new surface finish are able to reduce wear and extend the service life of compressors for superior performance constant over time. Reliability, resistance and duration also confirmed by the field test, ongoing externally for a year now. Furthermore, the option of fitting an inverter confers greater flexibility to the compressors, hence making them ideal to meet all the needs of the HVAC&R industry.

The optimisation of the internal components and the painstaking mechanical balancing has contributed to significantly reduce the noise level, with a sound pressure range at a distance of 1 metre comprised between 64.5 and 76 dB(A), equivalent to the volume of smaller models.

[Read more](#)

The bonus for our Platinum and Gold partners includes the free publication of press releases, subject to space availability in the Product Showcase section.

[Learn more](#) about opportunities for our partners.

Market News

Daikin acquires BKF Klima in Denmark



Daikin announces acquiring BKF Klima, a Danish Heating, Ventilation and Air Conditioning (HVAC) distributor, and previously part of Beijer REF. At Daikin's new offices in Brøndby, Denmark, the company will also open two new facilities, including a Daikin Training Center for installers and Daikin Experience Center for consumers. This strategic acquisition will further enable Daikin to leverage its extensive R&D expertise in low carbon HVAC solutions for the region.

Daikin's acquisition of BKF Klima marks a significant step in the company's expansion strategy in Scandinavia, which began

with Daikin Sweden (2008), Daikin Norway (2018), and a Daikin office in Finland (2018). Daikin holds a leading position in Europe, the Middle East, and Africa (EMEA), and with the acquisition of BKF Klima, the company now strengthens its position in Denmark as well.

As a distributor of HVAC technology, BKF Klima has acted as a distributor for Daikin Europe in the Danish market since 1985. BKF Klima was previously owned by Beijer Ref, a world-leading wholesaler of cooling technology and HVAC.

New president and board elected for European Heat Pump Association



The European Heat Pump Association's members voted in a new board of direc-

tors, which then elected Patrick Crombez, General Manager Heating and Renewables – Daikin Europe, as its president. He takes over from Martin Forsén from NIBE. The new board and president have a two year mandate.

Patrick Crombez said: "I'm honoured to succeed Martin Forsén as president of the European Heat Pump Association. Nearly 25 years ago, research institutes, manufacturers, universities, testing labs and energy agencies united around a shared goal to increase the adoption of low-carbon heat pump technologies. Their importance has only grown since the EHPA was established: as a central part of a renewable, sustainable and smart energy system, heat pumps are the number one heating and cooling choice for residential and professional use.

Copeland Announces Its Verdant Energy Management Solutions Expanding into Europe

Copeland announced that its Verdant energy management solutions are now available in the European market. This expansion is kicking off with an official partnership with the Energy & Environment Alliance (EEA), a coalition of hospitality inves-



KAR YER | HEAT EXCHANGERS

**TODAY'S HEAT
EXCHANGE
SOLUTIONS**

**TOMORROW'S
COMFORT**



CO₂, R600A, R290
COMPATIBLE PRODUCTS



30 FIN GEOMETRY
ALTERNATIVES



100.000 PCS/MONTH
2.000 MODELS/MONTH



TURKEY'S HEAT
EXCHANGER-COIL
EXPORT CHAMPION





tors, developers, asset managers and operators working to transition the industry to Net Zero Emissions. With an installed base of more than 7,000 hospitality and multi-family properties across North America, Copeland's Verdant offering is a proven solution for substantial energy savings.

"I was impressed by the Verdant product offering, energy savings and fast ROI that Copeland is already providing to hotels across North America," said Ufi Ibrahim, chief executive officer, EEA. "I believe they bring a unique solution that can immediately help our coalition with its sustainability goals."

Copeland has recently installed Verdant in several retrofit applications in hotels across Spain, Portugal and the U.K. that are now delivering substantial savings data. The company also recently attended the EEA Sustainability Symposium, participat-

ing in panel discussions and sharing product demos with some of the top hotel groups across Europe.

Carrier Reports Strong First Quarter 2024 Results



Carrier Global Corporation reported strong financial results for the first quarter of 2024 and reaffirmed its full year earnings guidance despite the expected earlier timing of business exits compared to guidance provided in February.

Carrier's first quarter sales of \$6.2 billion were up 17% compared to the prior year including 2% organic growth and approximately 16% contribution from the acquisition of Viessmann Climate Solutions offset by about 1% from divestitures. Organic sales in the HVAC segment were up 2%.

HVAC sales in the Americas were up mid-single-digits driven by continued strength in commercial and light commercial HVAC both of which were up approximately 20%, partially offset by residential HVAC which was down low-single-digits. HVAC organic sales in EMEA were down 10% with commercial HVAC up around 10% which was more than offset by a significant decline in EMEA residential and light commercial. These organic figures exclude the contribution of Viessmann Climate Solutions which was down 12% year-over-year in the quarter, more than half of which was driven by lower solar PV sales. HVAC sales in Asia Pacific were flat with strong growth in China offset by lower sales in Japan as we continue to improve our mix in that country. Refrigeration sales were down 2% organically driven by North America truck and trailer and commercial refrigeration, mostly offset by over 50% growth in container.

Epta Central North Europe Announces Rebranding

Epta Central North Europe - a leading commercial refrigeration solutions company joint venture between Epta S.p.A. and Viessmann Refrigeration Solutions - unveils its strategic rebranding. As part of the joint



venture initiative, the Company will operate under the Epta brand in all Central and Northern European markets, in Germany, Poland, the Czech Republic, Slovakia, Denmark, Finland, Sweden, Norway, Estonia, Latvia and Lithuania.

The rebranding unites the Companies' wide product and service portfolio under a unique cohesive brand as a one reliable partner. The repositioning will be carried out in all countries by the end of April 2024.

"We are thrilled to embark on the next step of our joint venture journey as we rebrand and introduce ourselves as a one stop shop provider with shared identity," says William Pagani, CEO of Epta Central North Europe "This strategic phase not only epitomizes our commitment to sustainable innovation but also underscores our relent-

less pursuit of excellence in serving our customers."

HOSHIZAKI strengthens its position in Southeast Asia with acquisitions



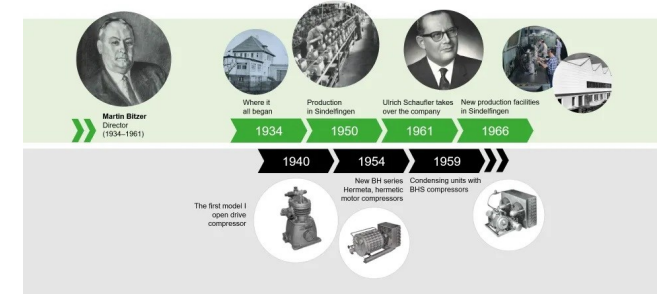
HOSHIZAKI CORPORATION announces that at its meeting of the Board of Directors held on April 11, 2024, the Company has resolved to acquire all shares of TECHNOLOGICAL EQUIPMENT AND SUPPLY CORPORATION and a controlling interest in HKR EQUIPMENT CORPORATION, an importer and distributor of food service equipment in the Republic of the Philippines through HOSHIZAKI SOUTHEAST ASIA HOLDINGS PTE. LTD., a subsidiary of the Company, which makes TECHNOLOGICAL and HKR a subsidiary of HOSHIZAKI.

HOSHIZAKI, in an effort to increase its sales and presence overseas, key markets for the company's future business growth, is concentrating on expanding its business in the Southeast Asia region, including the Philippines, where markets have high growth potential.

BITZER Celebrates 90 Years of Pioneering Refrigeration Technology

HISTORY FROM 1934

The beginnings. From a one-man operation to assembly line production.



BITZER, a leading innovator and global player in the refrigeration, air conditioning, and heat pump technology sector, proudly celebrates its 90th anniversary this year. Founded in 1934 by the visionary Swabian inventor Martin Bitzer, the company has evolved from a small workshop making thermostatic expansion valves to a premium manufacturer with a presence in 40 countries and over 4,000 employees.

Initially focusing on the production of steel thermostatic expansion valves, BITZER quickly expanded its operations to include compressors, which soon became the core business. Today, BITZER is renowned for setting international standards in its industry, with 75 locations worldwide, demon-

strating a remarkable journey of growth and technological advancement.

Thanks to THE SCHAUFLEF FOUNDATION, BITZER maintains its independence and continues to champion innovation while ensuring job security. The foundation bridges entrepreneurship with science, research, and art, further solidifying BITZER's commitment to a sustainable future.

Sanhua kicked off its 40th anniversary celebrations



Guests from around the world - including OEM customers and distributors from Europe, America, Asia-Pacific, and China - visited the Sanhua factory to explore its production lines. The factory is equipped with automated production lines using advanced automation technology, significant-

ly improving production efficiency and product quality.

The visitors had the opportunity to see various productions, including 4-way valves, thermal expansion valves, commercial electronic expansion valves, BPHE lines and many more. It has to be thrilled to see it live!

The grand opening focused on the company's 40-year journey and working with partners to create a green future. More than 200 guests gathered at Sanhua's headquarters to share insights and development plans, including Chinese and international OEM customers, distributors and representatives from various HVAC&R media.

Viessmann Climate Solutions strengthens its German service network



Viessmann Climate Solutions, part of Carrier Global Corporation, global leader in intelligent climate and energy solutions, announced the acquisition of Waldhauser GmbH & Co. Wärmetechnik KG and Waldhauser GmbH. The company's specialists will increase the availability of service capacities locally in the Munich metropolitan region and thus strengthen a region with particularly high service requirements. Once the contractually binding orders have been processed, the specialists taken on will be specially qualified for devices from the Viessmann Climate Solutions SE portfolio and will then make their capacities exclusively available to the Viessmann Climate Solutions SE network of specialist partners.

Daikin Marks a Century of Innovation and Sustainability in the HVAC Industry



Artisan soul,
innovative personality

Daniele
Refrigeration system assembly worker



*We take the time we need
to find new solutions*

YOU CAN RELAX IN THE KNOWLEDGE
THAT YOU CAN COOL AND HEAT
WITH THE SAME SYSTEM.



BOOSTER and **BOOSTER XL** are the creations of Arneg's R&D department. These refrigeration systems use CO₂, a natural refrigerant, and combine normal and low temperature refrigeration in the same unit. They even recover heat for hot water production or store heating.



arneg

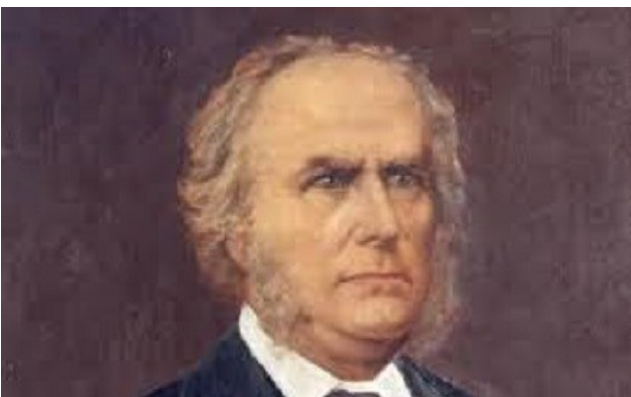
arneg.com

Daikin is proud to announce the celebration of its 100th anniversary. Since its founding in 1924, Daikin has been at the forefront of creating innovative, energy-efficient solutions that have shaped the HVAC industry.

Akira Yamada, a young Japanese engineer, founded Osaka Kinzoku Kogyosho Ltd., marking the beginning of Daikin history with the manufacture of aircraft radiator tubes.

Throughout its century-long journey, Daikin has remained committed to advancing technology and sustainability. The company has been a pioneer in developing products that reduce environmental impact, such as the introduction of energy-efficient air conditioning systems and the adoption of environmentally friendly refrigerants.

ARC salutes the father of refrigeration



The Australian Refrigeration Council (ARC) is celebrating James Harrison Day by encouraging everyone in the refrigeration industry to spare a thought for the Australian who invented commercial refrigeration 170 years ago.

James Harrison Day is celebrated each year on 17 April, the day Harrison was born in Scotland in 1816, and the beginning of a remarkable life as a publisher, statesman and inventor.

ARC chief executive officer Glenn Evans said it was fitting that everyone in the refrigeration sector, especially in Australia, recognised the monumental role Harrison played in establishing the industry.

Harrison invented his successful ice making machine in Geelong in 1854 and perfected it in London in 1857 before returning in 1858 to set up Australia's first ice works in North Geelong.

Kelvion and Rosseau announced a partnership at revolutionizing liquid cooling solutions

Kelvion and Rosseau announced a significant partnership aimed at revolutionizing liquid cooling solutions within the High Performance Computing (HPC) market, start-



ing with bitcoin mining.

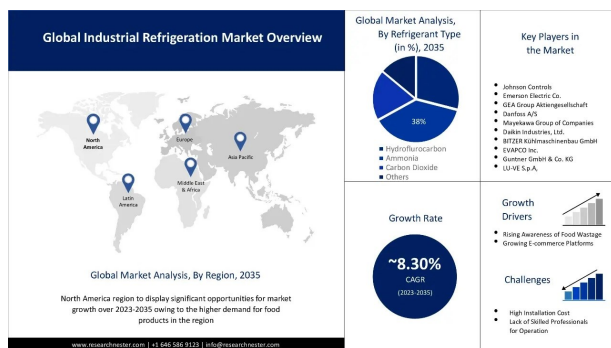
This technological collaboration and joint venture unites Kelvion's advanced cooling systems with Rosseau's cutting-edge immersion cooling technology to set new standards in power density, efficiency, and performance for the HPC Market. The partnership underscores a shared commitment to innovation and to delivering an industry-leading, end-to-end immersion cooling solution for bitcoin mining and data center operations.

The collaboration is poised to address the accelerating thermal management challenges prevalent in bitcoin mining and AI, setting new benchmarks that are pivotal for the advancement of the industry.

Send your news: info@refindustry.com

Market Research

Industrial Refrigeration Market Set for Robust Growth, to Hit \$55.75 Billion by 2035



According to a study by Research Nester, the Industrial Refrigeration Market is projected to reach a value of USD 55.75 Billion by the year 2035 with an annual growth rate (CAGR) of 8.30% from 2023 to 2035. The industry's size in the year 2022 was recorded at USD 21.42 Billion. Additionally it is expected that the market will continue to grow at a CAGR of 8.30% throughout the forecast period spanning from 2023 to 2035.

The industrial refrigeration market is experiencing growth opportunities due to the increasing demand for cold storage facilities. This demand is primarily driven by the

expansion of the food and beverage industry.

The North American market is expected to have the highest share of revenue during the predicted timeframe. This can be attributed to the expansion of e commerce and the increasing demand for food and agricultural products along, with efforts being made to meet this demand.

The industrial refrigeration market is highly competitive, with several key players dominating the industry namely; Johnson Controls, Emerson Electric Co., GEA Group Aktiengesellschaft, Danfoss A/S, Mayekawa Group of Companies, Daikin Industries, Ltd., BITZER Kuhlmaschinenbau GmbH, EVAPCO Inc., Guntner GmbH & Co. KG, LUVE S.p.A, and other key players.

BSRIA: World Air Conditioning Market Insights 2023



The global AC market has been growing continually over the last decade, posting a healthy compound annual growth of some 7%.

2023 has followed the trend and the global sales of all AC units increased 5% from 2022 in value terms. Residential air conditioning market has grown by 9.4%, while the commercial AC market posted growth of 4.6%.

The fastest market progression has been recorded in the Middle East.

The US has also seen positive market environment, particularly in the commercial segment, which outperformed expectations buoyed by investments in manufacturing, data centres, life sciences and hospitality sectors.

Brazil and Mexico are representing two bright spots in Latin America.

Europe overall has experienced a positive development in AC market in 2023, recording over 6% growth on 2022, despite challenges due to economic strains and sluggish construction activity.

Asia represents the biggest share by far of the global AC market. The overall Asian market has posted a healthy double-digit growth in 2023 supported by several positive developments in different countries.

Case Study

The partner's materials

Enex Integral Unit – Poland

Transgourmet Polska has remodeled a hypermarket in Warsaw with all the refrigeration and AC /HP with natural refrigerant CO₂

Transgourmet Polska, owner of the retail brands Selgros & Transgourmet is one of the European leading retail companies. It has commercial centers in Germany, Switzerland and also in western Europe coun-

tries, like Romania and Poland. Transgourmet Polska is at the very forefront regarding use of natural refrigerants in their shops, since many years.

They have decided to go further, extending the use, in their commercial centers, of natural refrigerants to space heating and cooling.

Frigo-Consulting, one of the leading European design & Project management companies, based near Bern, operating as a consultant/designer for Selgros, has a long experience in CO₂ systems, and also in integral units, combining refrigeration with the

production of heat and cold for climatization.

The problem:

Refrigeration is using more and more natural refrigerants, Carbon dioxide, Propane and Ammonia. Introduced again in commercial refrigeration in the first years 2000's, after decades during which it was completely forgotten, CO₂ systems are now a standard choice.

In commercial buildings there are also other users with synthetic refrigerants, like, for example, chillers for air conditioning and heat pumps for space heating. Due to electrification process, within the wide energy transition process, heat pumps are being used more and more. In the supermarkets and hypermarkets however, it is not practical to use flammable or toxic refrigerants. For this reason, only CO₂ is the ideal refrigerant.

Intrinsically a CO₂ transcritical system is more complex of a "simple" refrigeration system with synthetic refrigerants. All that has blocked for years the extension of the use of CO₂ to other applications. Moreover, the idea of combining the use of "warm side" and "cold side" of a refrigeration system is very attractive, because energy wise such system can be in overall very efficient.



Two identical units were designed. For each one the following capacities were selected:

	kW	Conditions
MT Load	200	-3°C <u>evap temp</u>
LT Load	32	-28°C <u>evap temp</u>
AC Load	150	152 kW at +5°C (water 16-10°C)
Heating Load	360	Water 27 42°C
Sanitary Water	100	Water 25 72°C

The solution:

Since several years Enex is producing “integral systems”. Beside refrigeration, they produce hot water for winter heating and cold water in summer for cooling the



space. Until now the interest was concentrated in some countries for small plants. After several installations during which the design was optimized and refined, it was the moment to spread out this solution also for hypermarkets.

A further specification was to maximize energy efficiency. All the most innovative design solutions developed by Enex were considered, including one solution particularly efficient, that is liquid ejector for semi-overfed evaporation.

It is worth to remind that “liquid ejector” overfeeding is an invention of Enex, which filed several patents about it and installed so far several hundreds of systems. The original Enex solution has no rivals in terms of efficiency, simplicity and reliability.

Comments:

Mr. Krzysztof Błauciak
from Frigo-Consulting: “We are more than satisfied with

truly efficient and energy-saving integrated installation with no oil return problems or anything else!”

Mr. Bartosz Jankowiak from Transgourmet Polska: “This CO2 installation with heat recovery, as well as other store functions, such as LED lighting, are part of our mission to reduce emissions harmful to the climate and protect valuable resources”.

Mrs Joanna Lenk from Epta Systemy Chłodnicze Sp.ż.o.o. (formerly Viessmann S.C.): “I am proud and happy that we managed to meet high-level and very specific requirements of such a project. Thanks to the technologically advanced CO2 units and high-quality refrigeration cabinets, we are able to achieve great evaporation level: -2°C on MT and -26°C on LT side, which together results in a very energy-efficient installation.”

Sergio Girotto, CTO Enex Technologies: “We followed Frigo-Consulting specifications, which point in the right direction: reinforcing the decarbonization process particularly during the hot season, when air conditioning plays an important role”.

In terms of environmental impact and energy saving the values for which the system are designed are very positive. Each of the two installed machines provides:

	Thermal energy kWh/year	Predicted system energy consumption kWh/year	Total system energy consumption (with new technologies) kWh/year
Refrigeration load annual energy	750.000	340.320	280.100
AC energy	110.000	63.200	58.200
Heating energy	150.000	80.400	---
Total energy reference	---	483.920	338.300
			-30%

The plant allows in impressive saving in CO2 emissions, about 70 tons/year due to lower energy consumption and mostly a lower CO2 equivalent emissions when compared to a synthetic

refrigerant due to leakage in the atmosphere: it is sufficient to say that using a natural refrigerant for such a plant size, with a charge of about 500 kg, the “content” in the circuit is reduced

by 1000 equivalent tons of substances producing greenhouse effect.

Energy saving compared to standard solutions is due to several factors:

- Thermal recovery of free heat
- Recompression of flash vapor
- Recovery of expansion energy with ejectors
- Saving due to liquid ejector
- Innovative air conditioning system
- Use of modulating 3 way ball valves before the heat exchangers



Luis Crespo, President of the Commercial Refrigeration & HVAC businesses units of Enx technologies added: *"Our mission is to support the global energy transition through Climate-Tech solutions while making our customers successful. We are committed to continue on our efforts to be pioneers in natural refrigerant technology for HVACR."*

Discover detailed operational schemes of refrigeration systems and read [the full article on our website](#).

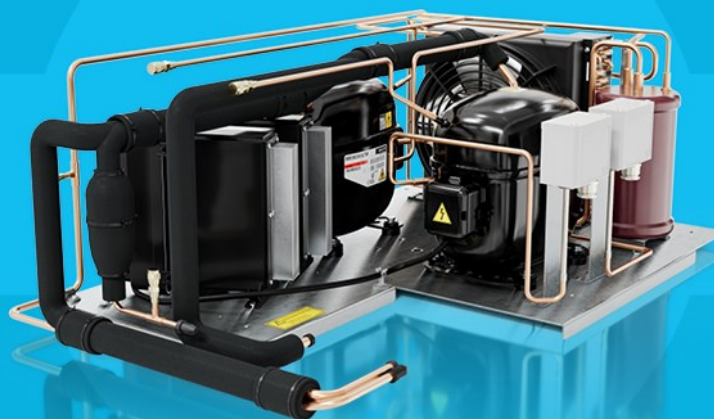
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The partner's materials.

The phase-down for fluorinated refrigerants becomes a phase-out: BITZER recommendations for future-proof systems

The accelerated phase-down of fluorinated refrigerants poses challenges for the refrigeration, air conditioning and heat pump industry, and not just in the EU. Dr Heinz Jürgensen is Director Application Technology and Product Performance at BITZER. In this interview, he explains what is important now when choosing the right refrigerant and how BITZER is supporting its customers and partners.

What does the new F-Gas Regulation 2024/573 of 2024-02-20 mean in practice?

Dr. Heinz Jürgensen: With the accelerated phase-down of HFCs, the refrigeration, air conditioning and heat pump industry that supplies Europe must prepare for serious restrictions on new and existing systems. The first drastic measures of the revision are to apply from January 2025. Hundreds of thousands of systems throughout the EU

will be affected. The vast majority of these cannot be converted to operate with long-term available refrigerants. Europe is therefore heading towards a future with virtually no fluorinated refrigerants.

Which refrigerants will still be available in the long term?

Dr. Heinz Jürgensen: The use of natural refrigerants will become increasingly important. Refrigerants must have the lowest possible environmental impact in order to be available in the long term. By today's standards, this could mean: ozone depletion potential (ODP) = 0, global warming potential (GWP) < 10, high energy efficiency, little or no environmentally harmful degradation products, very low production costs, very little production waste. Depending on the application, a number of naturally occurring substances such as R744 (CO₂), R717 (ammonia), R290 (propane), R729 (air) and R718 (water) fulfil these criteria.

What refrigerant recommendations can you make for new systems?

Dr. Heinz Jürgensen: Whenever possible, we at BITZER recommend that our customers design and construct new systems in the



Dr Heinz Jürgensen, Director Application Technology and Product Performance at BITZER

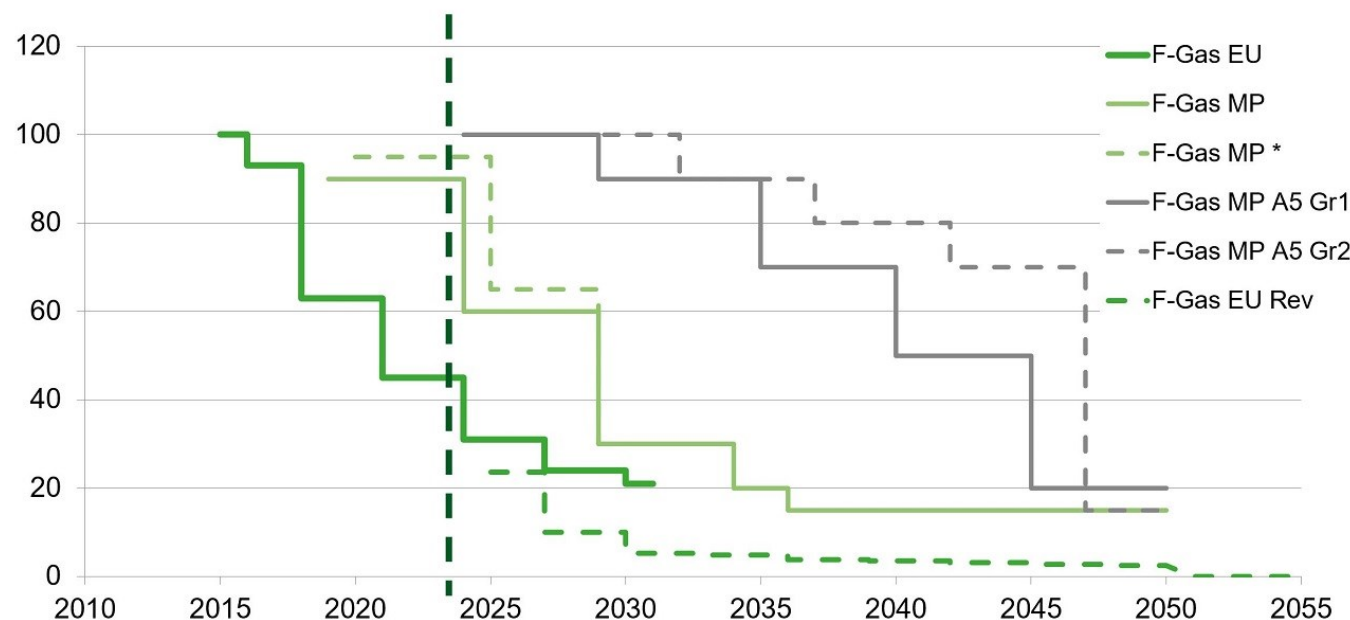
EU for all applications to operate with the natural refrigerants described above, which are available in the long term. BITZER has been building up its portfolio and expertise in handling natural refrigerants for decades. For example, the company has been selling compressors for R744 (CO₂) since 2003 and is the only compressor manufacturer to offer reciprocating, screw and scroll compressors for R290 (propane).

If the use of natural refrigerants is not possible for technical reasons, for example, we always recommend choosing a refrigerant

with a GWP < 10, such as R1234yf. If this is also not possible, the limit value GWP < 150 can be considered. However, caution is advised here: This value could already be considered too high for new systems if the proposed phase-down values after 2030 are taken into account. Where refrigerants with a higher global warming potential are absolutely necessary, they should only be used for the maintenance of existing systems. According to our estimates, the quotas will only be sufficient for this from 2027 at the latest, despite increasing recycling.

What will happen to existing systems that are operated with fluorinated refrigerants?

Dr. Heinz Jürgensen: It is quite possible that functioning systems will have to be replaced by new ones, as the refrigerants no longer fulfil the legal requirements. According to our information, the operation and maintenance of existing systems with HFCs will still be possible for around 10 to 15 years. However, there will be limits to the permitted GWP values and the quantity of fluorinated refrigerants available. We expect significant price increases from 2025, and refrigerant shortages cannot be ruled out from 2027. Significant price increases for refrigerants with a GWP > 150 are inevi-



The Montreal Protocol phase down stages in percentage points for fluorinated greenhouse gases for four country groups. MP: standard member

table from this point onwards.

BITZER therefore urgently recommends converting or retrofitting existing systems with high maintenance requirements or refrigerant loss to the lowest GWP values that are technically and economically feasible. We also offer our customers and partners support, for example through training, guidelines and special designs.

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Interview

IIR's New Leader, Dr Yosr Allouche, on Transitioning the Refrigeration Industry

By Ilana Koegelenberg

The International Institute of Refrigeration (IIR) has elected Dr Yosr Allouche (39) as its

new Director General. With 13 years of experience, Dr Allouche will take up her new role on October 1, 2024, succeeding Didier Coulomb, who held the position for two decades.

Dr Allouche, a Norwegian-Tunisian world-renowned refrigeration scientist, hails from academia and is excited to apply her extensive theory in practice, finding ways to address the various challenges the refrigeration industry faces.

In this exclusive interview, Refrigeration Industry speaks to Dr Allouche about her journey to the top, the challenges the industry faces, and the role of the IIR in addressing these. Why is the refrigeration industry so important and how can it adapt for the future?

Refrigeration Industry (Ri): Can you briefly share your journey in the field of refrigeration and how it led you to this prestigious role at the IIR?

Dr Yosr Allouche (YA): I am a refrigeration scientist and an energy engineer, so I originally came from academia. To be honest, I did not choose the field, the field chose me. When reviewing PhD proposals, I came across one on solar-driven ejector cooling systems, which really appealed to me. I was curious about the idea of achieving cooling effects through solar and decided to explore this area. That is how I found the refrigeration world.

I then did my PhD in Portugal on this topic, after which I moved to Norway for my research work in the Energy Process Technologies Department at the Norwegian University of Science and Technology (NTNU). Here, I mainly focused on natural refrigerants, working with Professor Armin Hafner, and gaining a lot of knowledge in the field. I greatly enjoyed my time here.

Then, I moved to France for personal reasons and had the opportunity to integrate into the IIR. I had been serving as the institute's Head of Projects for three years already when the Norwegian delegation proposed me as a candidate for the direction of the IIR and I was elected during Congress last August.

After 15 years in research and academia, I now enjoy looking at things from a different perspective. My academic background is complementary to the work I am doing in the field. I am still a researcher but I now also look at the real-world implementation part. Things like what are the main challenges; what are the difficulties in terms of how technology is related to policy; and how to link different parameters and elements that are connected.

Before I focused only on my small ejector, trying to model it for years, but I was not as aware of the total landscape. Now, I am zooming out and looking at things from a different perspective, which I think is very informative and important.

Ri: You have been a lifelong scholar in the refrigeration industry, what would you consider your most important work?

YA: I believe all the work I have been doing until now is relevant and very important. With research, you cannot move to the next

step if the previous step has not been completed. As such, I believe that in research, and life also, all the steps and work are very important.

My tenure with Prof Hafner has been very important to me because I was able to build a very strong background, and I could see the potential of natural refrigerants to contribute to the transition of the sector. The speed at which natural refrigerant challenges are being solved and the advancements made are very impressive. With the third revision of the F-Gas Regulation, the message is clear – it is better to get ahead and adapt than to try and escape reality. You cannot escape.

Ri: What important research do you think is missing in the refrigeration industry still? Where should scientists and researchers be focusing and why?

YA: I believe there are three goals we need to strive for in this sector – low GWP (Global Warming Potential) refrigerant type, energy efficiency, and reducing the cooling demand. Before even looking at the refrigerant selection and energy efficiency, it is important to deep dive into how we can reduce the cooling demand. There are various passive opportunities available to reduce this demand with more appearing every day. All tools and knowledge to sup-

port the deployment of new energy-efficient equipment and the selection of the appropriate refrigerant already exist.

But we need to be careful to look at the whole picture because “low-GWP” does not mean it is energy efficient, and vice versa. Energy efficiency and type of refrigerant are linked. For instance, if you select a low-GWP refrigerant and thus reduce the direct emissions from refrigerant leakage, but your system is not energy efficient, leading to increased indirect emissions, it does not make sense. It is important to consider all these factors at the same time.

We need to focus on finding a compromise between these three goals to find the best solution to achieve sustainability.

Ri: What are some of the biggest challenges the refrigeration industry faces currently and what can (and should) be done to address these?

YA: One of the key challenges is implementing the three goals mentioned in the previous question simultaneously. In the context of the new F-Gas Regulation, the big challenge is also how to efficiently implement the actions and goals to align with the regulation. The message of this regulation is very clear: we need to adapt; we need to take some concrete actions to transition the sector. This may be challenging for oth-



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er industries outside of Europe to keep up as Europe is moving at a great speed with high ambitions. Ensuring market continuity and alignment of all regulations will be challenging but not impossible.

Training technicians and operators on how to maintain a system safely and efficiently also remains a big challenge. The refrigeration equipment is another challenge and we need to make sure that a well-trained workforce is in place.

The means to overcome these challenges are there, so it is about changing the mindset to say “yes, we can do it.”

Ri: What impact do you think the refrigeration industry can have on climate change and sustainability goals? Why is this sector so important? Do people realize how important it is?

YA: The refrigeration sector, which includes everything from cryogenics to heat pumps, consumes 20% of global electricity demand, according to the latest numbers. We forecast this number to double by 2050 under a business-as-usual scenario where no action is taken.

Few people outside of our small network are aware of the challenges this industry faces and the great potential it has to mitigate climate change. Although the industry



contributes greatly to climate change, it also has the potential to make a big difference in addressing the issue.

There are several important global initiatives to address this issue and the number has been increasing greatly as of late. At COP27, we saw very little representation of refrigeration, whereas, at COP28, there was a lot of activity and even an entire thematic day dedicated to this sector. This clearly shows that the sector is gaining more awareness.

During COP28, the Global Cooling Pledge was also signed, a global call for a collaborative effort to reduce cooling-related emissions by 68% by 2050, compared to 2022 levels. It has been signed by more than 60 countries and the IIR was one of the main authors of the report associated with the pledge.

Ri: As much as you should be celebrated for your achievements regardless of gender, it is clear that there is a big deal being made about you being the first female-presenting person to head up the IIR. Is this significant to you? Or do you wish people would stop bringing this up?

YA: Honestly, in the beginning, it was probably exciting but I would prefer to just stop bringing it up. Of course, it is a big achievement for women and we need more women in leadership (and in the refrigeration sector). But we need to remember that I was elected by the majority of the IIR's member countries. If I was elected by the majority, I do not believe it is because I am a woman, but rather because of my background, and my vision and future mission for the IIR.

[Read the full interview](#)



Interview

Nidec/Embraco: Transforming the Market with Solutions Beyond Technology

By Ilana Koegelenberg

Nidec Global Appliance expanded into the refrigeration sector with its acquisition of compressor manufacturer Embraco in 2019. Since then, the company has invest-

ed heavily in R&D, bringing various exciting new products to market.

In an exclusive interview, Refrigeration Industry speaks to Nidec Global Appliance President Guilherme Almeida about Embraco's new brand position, global refrigeration industry trends on the rise, and natural refrigerant product growth - amongst others.

What does the future of refrigeration look like?

Refrigeration Industry (Ri): Since the acqui-

sition of Embraco, how has the company evolved?

Guilherme Almeida (GA): First, it is important to explain the structure of the Nidec group. It has six divisions and one of them is ACIM (Nidec Appliance, Commercial, and Industrial Motors business unit). In its turn, ACIM has three business platforms and one of them is Nidec Global Appliance (GA), which is the one that incorporated Embraco.

Before the acquisition of Embraco, Nidec Global Appliance was composed of plants focused on motor manufacturing for home appliances (washing machines, dryers, and dishwashers). With Embraco, the platform's scope of action expanded to the refrigeration market, both residential and commercial. It also added Embraco's seven manufacturing plants, thousands of employees, and high-end research centers.

The new structure created a competitive, innovative, and robust company that is a global partner for home and commercial appliances industries, and that accounts for a significant percentage of ACIM's annual turnover.

Ri: Embraco recently announced a new brand positioning. What has already been put in place to facilitate this plan, and

what is planned for 2024?

GA: That's right, at the end of 2023, Embraco announced a new positioning to consolidate its leadership in the refrigeration industry, highlighting the "thing ahead" spirit that has been in the brand's DNA since its beginning in 1971. To think ahead means that we anticipate trends, focus on future needs, develop smart products that can transform the market, and are innovation leaders making a positive impact on global refrigeration.

We are thinking of solutions beyond technology, and developing products and values that can transform the market. It's a behavior that reflects our concern and actions toward the real needs of the future. We think ahead and find ways to make our customers' lives easier while meeting society's challenges.

We started 2024 by launching (on February 8th), a new pack of electronic components - the Embraco AIR fan and the Embraco SYNC controller; a components' integration concept called Sync it All (involving Embraco compressors and condensing units); and the YouControl software.

Our priority for 2024 is to increasingly consolidate Embraco's position as an integrated solutions provider who always thinks

ahead. We want to be seen as a single trusted partner for our key component customers.

Ri: How important is R&D to Nidec Global Appliance?

GA: Research and Development (R&D) is one of our main differentiation attributes. Our investment in innovation is 3% to 4% of Nidec Global Appliance's annual revenues.

Nidec Global Appliance has eight R&D centers around the world and more than 500 expert engineers, working in a global structure. Our advanced engineering team researches technologies and market trends five years ahead of time.

We also have a robust external structure for innovation based on partnerships with universities and research centers, not to mention our application engineers working directly with customers in their projects.

We are always working on projects of new compressors, cooling solutions, and motors, whether to launch improved versions of existing models or to launch new products following four drivers: energy efficiency, natural refrigerants, low noise, and miniaturization.

Ri: With a growing emphasis on sustainability, what are Nidec Global Appliance's

initiatives and plans regarding developing and adopting natural refrigerant products and services?

GA: For Embraco, focusing on innovation is the way to deliver solutions that tackle climate change and improve people's well-being around the world while providing the best technology for customers.

Compressors are a vital part of appliances but also contribute to their life cycle impacts, especially due to energy consumption and the use of refrigerant fluids. That is why we seek to lead the market in the development of solutions that are aligned with the current and future trends, such as the regulation to phase down fluorocarbon refrigerants (as per the Kigali Amendment to the Montreal Protocol).

The company's deep expertise in R&D aims to deliver innovation focused on customers' demands and anticipating trends and regulations, to minimize risks and potentialize opportunities in our product portfolio. Working with natural refrigerants is an example of that. The gradual reduction in hydrofluorocarbons (HFCs) in the refrigeration sector represents an important contribution to international efforts to mitigate climate change.

The investment in compressors that use

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refrigerants with low global warming impact started in the early 1990s and continues to be one of our product development guidelines for Embraco and, today, almost 100% of our new developments use natural refrigerants.

For commercial refrigeration, for example, we already have entire portfolios ready to work with higher charges of the natural refrigerant R290, in preparation for future regulations currently under discussion.

Ri: What are Global Appliance's environmental commitments, particularly relating to the reduction of carbon emissions and enhancing energy efficiency?

GA: Our sustainability framework is composed of three fronts: to build a sustainable company by pursuing carbon neutrality in our operations and by developing our people; to manufacture sustainable solutions by providing products and services that support our customers' decarbonization journey; and to foster a sustainable supply chain by relying on partners aligned to our environmental, social, and governance commitments.

Regarding our products and solutions, case studies show that our variable speed compressors already reach up to 40% energy efficiency if compared to conventional on-



off compressors. A total of 82% of all compressors produced and sold by Nidec Global Appliance in 2022 to new applications, excluding replacement market, already use natural refrigerants. Also, our compressors' size was reduced by 41%, with a 60% weight reduction, using embedded technology to save natural resources and deliver the same cooling capacity and efficiency in a smaller frame. All of this innovation allows our products to have a smaller carbon footprint.

Talking about formal global commitments,

we have been signatories of the United Nations (UN)'s Global Compact since 2004 as Embraco and kept the commitment under Nidec Corporation. We have also committed to the Science Based Targets in 2022, and recently launched a new target to reach carbon neutrality in our operations by 2030.

[Read the full interview](#)



Events

Chillventa 2024: Leading the World in Refrigeration and HVAC Innovation

Chillventa, the world's premier trade fair dedicated to the refrigeration, AC, ventilation, and heat pump sectors, invites industry experts and professionals to Nuremberg from October 8 to 10, 2024. As the definitive hub for innovation and trends, Chill-

venta will display the latest advancements in technology, from refrigeration and insulation to automation and beyond.

Unmatched Expertise and Knowledge Sharing

The event promises a robust agenda filled with educational and networking opportunities. Attendees will benefit from forums, special presentations, and guided tours designed to showcase the forefront of industry technology and trends. The Chillventa CONGRESS, set for the day before the fair, will again be a highlight, offering deep dives

into key industry topics.

A Global Stage for Industry Leaders

Chillventa is unparalleled in its scope and significance, providing a comprehensive overview of the technologies shaping our world. With its unique focus, the fair attracts the leading experts, major players, and important associations from around the globe, making it an essential event for anyone in the field looking to stay ahead of the curve.

Key Themes for 2024

The 2024 edition of Chillventa will focus on the most pressing issues facing the industry today:

- Sustainability
- Energy performance
- Digitalization
- Refrigerants

[*Find out more*](#)

Introducing the magazine in PDF Format to the partners

We are thrilled to introduce our new PDF magazine, designed to be a valuable resource for our readers. In a world brimming with information, our mission is to streamline the process of staying informed by delivering the most crucial updates and insights from the past quarter.

Distribution Strategy

We are committed to ensuring that our readers receive our magazine promptly. We distribute it through our newsletter to over 4,000 subscribers, registered users on our website, and webinar attendees.

Additionally, we will actively promote the magazine across our social media platforms. With more than 50,000 followers on our news feeds and over 150,000 members in our LinkedIn and Facebook groups, we guarantee extensive and far-reaching exposure.

We are excited to share our initial outlook on this new magazine and have plans for its ongoing development. Join us on this exciting journey, and please share your feedback and ideas.

Discover more about the magazine's features and pricing on the following pages.

Main Headings in the Magazine

- **The Most Popular News from Refindustry.com:** Stay updated with the most crucial developments.
- **Sustainability:** Discussing green refrigeration practices and their impact on the environment.
- **Technical Insights:** Explaining complex concepts and providing technical insights into refrigeration equipment.
- **Case Studies:** Real-world examples of successful industrial refrigeration projects, installations, and problem-solving.
- **Maintenance and Troubleshooting:** Tips and guides for maintaining and troubleshooting refrigeration equipment.
- **Interviews:** Insights from industry experts, engineers, and leaders in the field.

- **Opinions:** Expert perspectives, commentary, and analysis on relevant industry issues and trends.

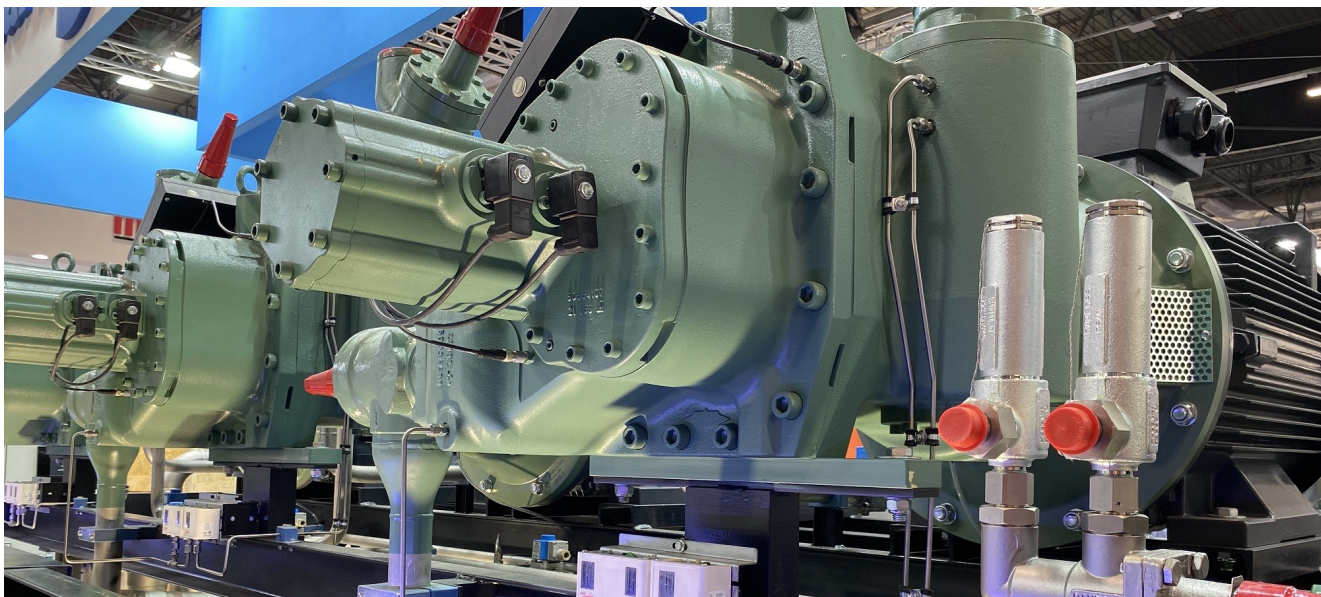
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Magazine Issue Plan

- July 2024 — Issue N 2024 / 3
- October 2024 — Issue N 2024 / 4
- January 2025 — Issue N 2025 / 1

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