Refrigeration Industry
online magazine and directory

N 2024 / 4

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Chillventa 2024 review.
The most important news and insights of the industry.

Introducing the magazine “Refrigeration Industry”

Welcome to the fourth 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.

Please feel free to email us if you would like to know more, have any feedback, or suggestions. You can also 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 2025 / 1 — January
- N 2025 / 2 — April
- N 2025 / 3 — July
- N 2025 / 4 — October

Learn more about the opportunities for refrigeration equipment suppliers in this magazine and on refindustry.com.

Chillventa 2024 review: Key Technologies Ahead

BITZER IQ MODULE: Smart functions bring digitisation to refrigeration and air conditioning

Heat Recovery in NHL Ice Arenas: Numbers, Facts, and Efficiency

The clock is ticking. 2025's EPA regulations are coming; are you prepared?

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The magazine “Refrigeration Industry”, 2024/4.

We recommend reading in a PDF viewer's full-screen mode.
Links may not work in a browser.

News Products

Kelvion Unveils Advanced Hybrid Cooling System

Kelvion has introduced a groundbreaking hybrid cooling system designed to deliver exceptional thermal performance while minimizing environmental impact. This innovative system sets a new standard in the heat rejection industry by offering a perfect balance between water and energy consumption.

The hybrid cooling system bridges the gap between standard adiabatic coolers and cooling towers with two cooling modes: dry and wet. In dry mode, heat is exchanged with ambient air via sensible enthalpy.

In wet mode, the system waters the coil and uses both sensible and latent enthalpy through an adiabatic effect, allowing operation at ambient dry bulb temperatures well above process fluid outlet temperatures.

Sanhua introduced RFKH Series with Optimized Design

Sanhua is pleased to announce the introduction of the optimized RFKH series thermostatic expansion valves. These valves are designed to regulate the mass flow of refrigerant into the evaporator while controlling the refrigerant's superheat at the evaporator outlet. Suitable for various refrigerants under all working conditions, the RFKH series is ideal for refrigeration systems such as freezers, ice makers, dehumidifiers, air conditioners, and heat pumps across a wide range of evaporation temperatures.

The company has implemented design changes to optimize the product structure and performance, maintaining piping connections without installation impact.

Copeland and Hitachi Introduce Innovative Chiller Solution in Brazil

Copeland has partnered with Hitachi to launch the airCenter Scroll R-32, an innovative chiller equipped with high-efficiency Copeland scroll compressors. This new chiller aims to provide the Brazilian HVAC-R sector with a unique blend of performance,

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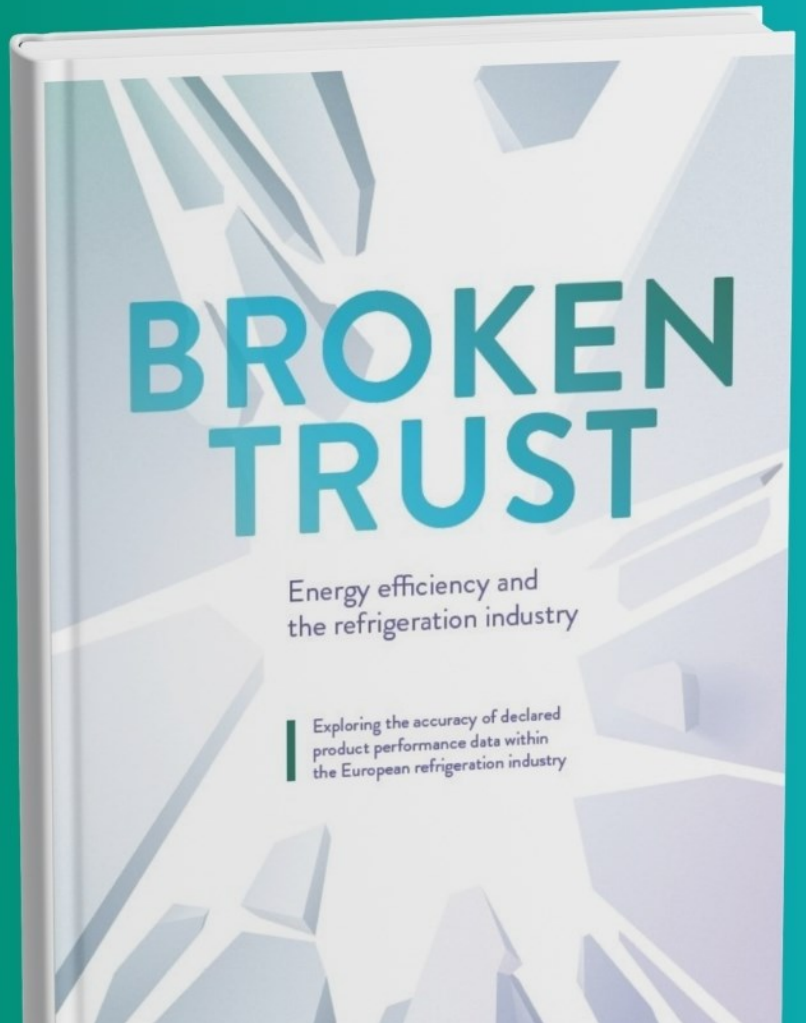
Are you playing refrigeration roulette?



Don’t take gamble on refrigeration equipment

Download the whitepaper

sustainability, and reliability.

The Copeland scroll compressors used in the airCenter Scroll R-32 are specifically designed to operate with R-32 refrigerant, which boasts a significantly lower Global Warming Potential (GWP) than traditional refrigerants.

With a capacity range of 40 to 200 TR, the airCenter Scroll R-32 sets a new benchmark in the chiller market. It offers a low carbon footprint solution for commercial and industrial applications that demand high performance and reliability. When connected in tandem, the scroll compressors provide flexible capacity modulation, ensuring system operation even if one compressor fails.

Daikin Applied Unveils Next-Generation Self-Contained HVAC System with R-32 Refrigerant

Daikin Applied has introduced the latest generation of its self-contained HVAC system, the Model SWP J-Vintage. This new system is designed for floor-by-floor applications and features the highly efficient, low-global warming potential (GWP) R-32 refrigerant, making it both cost-effective and environmentally friendly.

The SWP J-Vintage sets a new benchmark in self-contained units by offering superior efficiency, flexibility, and enhanced performance while addressing key installation and maintenance challenges faced by building owners and facility managers. The system seamlessly integrates with Daikin Applied's existing self-contained units, incorporating familiar MicroTech controls and a standardized ECM fan array for redundant operation.

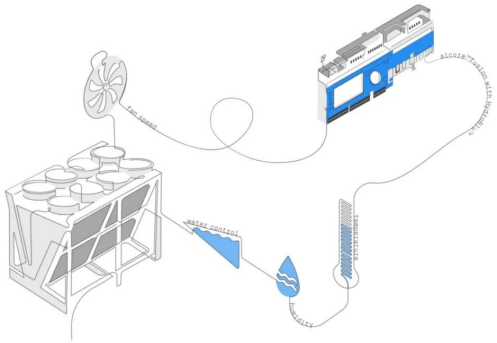
Siemens Introduces the MVL702 Magnetic Expansion Valve

Siemens has launched the MVL702 Magnetic Expansion Valve, a groundbreaking innovation designed to enhance efficiency in refrigeration and heat pump systems. The valve is set to revolutionize the industry with its speed, precision, and robust design, addressing the rising energy costs and the push towards renewable energy.

Key Features of the MVL702 Magnetic Expansion Valve:

- Transitions from closed to fully open in just one second, making it the fastest valve on the market.
- Ensures higher system stability and energy efficiency, with potential heating capacity increases of up to 21% compared to traditional stepper valve technology.
- Mechanically closes in case of power failure, eliminating the need for additional solenoid valves or super-cap batteries.
- A3 certification qualifies it for use with natural refrigerants, supporting eco-friendly equipment designs

Güntner Unveils Future-Ready AICORE Product Line



Güntner announces the launch of its new future-proof product range, aicore. This data-driven range aims at optimizing energy efficiency, system reliability, and providing in-depth analysis and monitoring.

The aicore range includes aicore air (formerly GMMnext) and aicore hydro (formerly GHM), as well as the new aicore fusion, which combines the features of both previous products for comprehensive adiabatic operation. Paired with aicore cloud, the IoT and analytics platform offers a 360-degree operational view with real-time insights.

The integrated system is designed to address the increasing demand for skilled workers by automating processes and using artificial intelligence and machine learning to optimize resource consumption and maintenance.

The aicore air focuses on cooling by synchronizing EC fans for maximum energy efficiency. Meanwhile, aicore fusion merges energy management with an exact water algorithm to minimize resource waste.

New Compact Freezer on R-449A Lowers Food Manufacturing Costs

A new moving-belt cycle/blast freezer leveraging BITZER Ecoline compressors on R-449A helps food manufacturers boost production in limited spaces while ensuring top-notch cooling performance, energy efficiency, and reliability.

David Thirtle AirCon and Refrigeration Ltd redesigned traditional bulky industrial freezers to create this compact solution, resolving accommodation and maintenance challenges. The British-designed BBF500 employs advanced cycle crust freezing technology for rapid and uniform freezing, suitable for various food products like seafood, meat, cheese, and bakery items.

The BBF500 boasts a capacity of up to 500kg per hour and integrates with standard food preparation machines for seamless production. It supports product and process temperatures between -25 and -42 degrees Celsius and features a Siemens controller for precise belt speed adjustments. The stainless-steel unit, designed to endure industrial environments, measures H 2.41m x L 2.4m x W 2.2m and includes a 900mm wide moving belt.

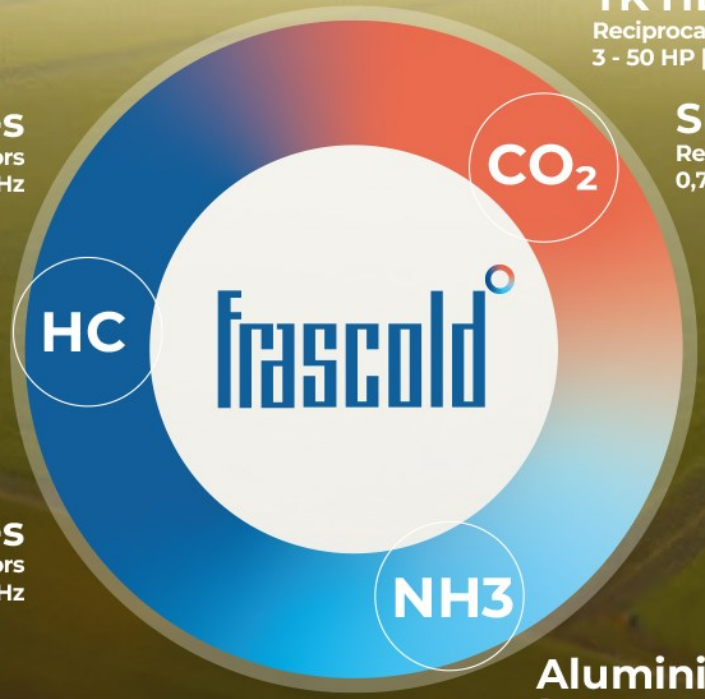
MCI Unveils Star Cool 1.1: A Decarbonization Milestone in Reefer Technology

Maersk Container Industry (MCI) has launched the Star Cool 1.1, the world's first reefer cooling machine adaptable to three alternative refrigerants, setting a new industry benchmark through its energy-efficient and eco-friendly design.

The Star Cool 1.1 employs the climate-friendly refrigerant R1234yf, known for its ultra-low Global Warming Potential (GWP).

YOUR CHOICE OUR COMMITMENT

Discover our **reciprocating** and **screw compressors** designed for use with **natural refrigerants:**



TK HD Series
Reciprocating compressors
3 - 50 HP | 1,9 - 37,9 m³/h @50Hz

SK3 Series
Reciprocating compressors
0,7 - 30 HP | 1,7 - 47,2 m³/h @50Hz

ATEX HT Series
Reciprocating compressors
7 - 70 HP | 32,8 - 205,8 m³/h @50Hz

ATEX Series
Reciprocating compressors
0,5 - 80 HP | 4 - 240 m³/h @50Hz

FVR ATEX Series
Screw compressors
30 - 300 HP | 120 - 910 m³/h @50Hz

CX ATEX Series
Compact screw compressors
50 - 310 HP | 199 - 1085 m³/h @50Hz

Aluminium Series
Screw compressors
130 - 160 HP | 315 - 470 m³/h @50Hz

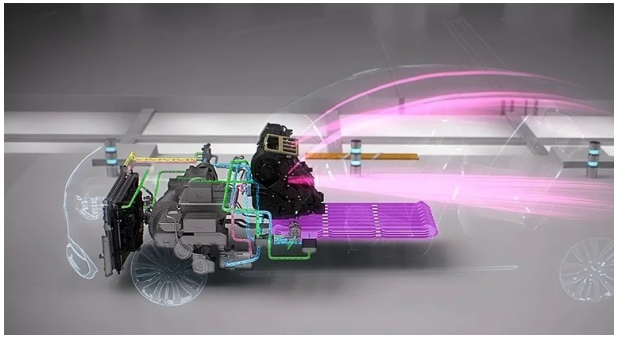
www.frascold.it

This pioneering initiative allows the unit to eliminate greenhouse gas emissions from refrigerants effectively, without sacrificing energy efficiency. The machine also uses 8% less energy than previous models, thanks to advancements in compressor technology and design optimization. This next-generation compressor enables faster temperature control, enhancing cargo care.

The Star Cool 1.1 also features a built-in energy meter which wirelessly transmits data through the Sekstant solution, allowing operators to track energy savings and convert this information into carbon footprint data for specific voyages or periods.

Hanon Systems Develops World's First 4th Generation Heat Pump System for Electric Vehicles

Hanon Systems, a global supplier in automotive thermal management for electrified



mobility, has developed the world's first 4th generation heat pump system, now commercially available since July. This innovative system is a breakthrough thermal management solution for electric vehicles (EVs).

This 4th generation heat pump system is noteworthy for its parallel heat source recovery method, which captures waste heat from the motor and battery in addition to heat from the external air. This recovered heat is utilized for heating, cooling, and battery temperature management, significantly boosting EV driving range.

The system integrates the Refrigerant Control Module (RCM) and the Coolant Control Module (CCM) into a unified control unit, enabling comprehensive management of the entire thermal system.

The 4th generation heat pump system was initially implemented in the Kia EV3 in South Korea, with production expansion planned for the U.S. and Europe.

Thermo King Introduces E-COOLPAC Battery Solutions for Emission-Free Transport Refrigeration

Thermo King has launched the E-COOLPAC battery solutions. This new technology is the result of a collaboration between Thermo King and Swiss energy systems manufacturer AKSA (AKSA Würenlos AG), who tested and produced the batteries.

The E-COOLPAC is a zero direct emission battery power technology designed to electrify refrigerated trucks, trailers, and marine containers. The system offers battery modules and extension packs with power ranges from 15kWh to 105kWh. These batteries can be fitted or retrofitted to hybrid, LNG, electric, or diesel-powered vehicles.

Product Showcase

The partner's materials

KARYER Launches New Series of Evaporators, Condensers, and Dry Coolers with Radial/Centrifugal Fan Design

KARYER, a leading manufacturer in refrigeration technologies, has introduced a new series of evaporators, condensers, and dry coolers equipped with radial/centrifugal fans. This new design aims to meet emerging demands within the refrigeration market.

Unlike traditional axial fans, radial/centrifugal fans allow KARYER's products to operate at higher pressures, provide greater air flow rates, and offer multiple air outlet locations without additional equipment. These fans enhance the capacity of the products significantly compared to their axial counterparts.

The centrifugal/radial fans are particularly advantageous in applications requiring more static pressure, as they can handle higher pressure losses. This makes them ideal where external pressure demands are high, placing KARYER's new products at the forefront of innovation in high-pressure refrigeration solutions.

Know more

Secop Unveils New Compressor Range for Light Commercial Applications at Chillventa 2024

Secop launching a new range of compressors for light commercial applications, showcased at Chillventa 2024 (Hall 7A|Booth 228). Tailored for food retail, service, beverages, and customized applications, the SCE PLUS range offers models with up to 25cc displacement, delivering high efficiency and supporting R290 compact solutions for larger cooling capacities. This allows for reduced technical compartments and maximized application space. The upcoming NLE PLUS platform, optimized for R290 with up to 15cc Optimized

for R290 up to 15cc displacement, means an increase in the range of target applications with a new modular electrical connection system boasting new features for product connectivity. Secop also introduces the NLV15CN model and a new generation of electronic controls, offering enhanced electromagnetic compatibility, easy configuration, and scalable features for improved cooling capacity, efficiency, and performance in food retail and service applications.

Know 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.

artisan soul, innovative personality

Alberto
Refrigeration system mechanical designer

ARNEG CO_2 SYSTEMS

We take the time we need to build a new refrigeration system

YOU CAN RELAX IN THE KNOWLEDGE
THAT OUR SYSTEMS COMBINE
MAXIMUM PERFORMANCE
WITH MINIMUM DIMENSIONS.

GLOBO and **MINI BOOSTER** are the creations of Arneg's R&D department. Thanks to their extended power range, these two innovative technical solutions combine NT and LT refrigeration in the same unit to deliver maximum efficiency in a minimum of space.

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arneg.com

Market News

Johnson Controls Sells HVAC Business to Bosch for $8.1 Billion

Johnson Controls International plc today announced it has reached a definitive agreement to sell its Residential and Light Commercial HVAC business in an all-cash transaction to the Bosch Group. The transaction includes the North America Ducted business and global Residential joint venture with Hitachi, Ltd., of which Johnson Controls owns 60% and Hitachi owns 40%.

The total transaction is valued at $8.1 billion, and the Company's portion of the consideration is approximately $6.7 billion. As part of the transaction, Hitachi will retain certain ductless HVAC assets located in Shimizu, Japan.

Johnson Controls' R&LC HVAC business, which is reported in the Global Products segment, engineers and manufactures ducted and ductless HVAC equipment and components globally for both residential and light commercial applications. In fiscal 2023, the R&LC HVAC business generated approximately $4.5 billion in consolidated revenue.

Following the close of the transaction, the R&LC HVAC business will continue to provide residential and light commercial HVAC products under the York and Hitachi brands as well as Coleman, Champion, Luxaire, Guardian, Evcon, TempMaster and others.

Heat Pumps Are the Future, Declares Germany's Economic Affairs Minister

Germany's Minister for Economic Affairs and Climate Protection, Robert Habeck, has declared heat pumps as pivotal to the future of climate-friendly heating solutions. This declaration came during his heat pump tour, which included a stop at a new Viessmann heat pump installation in Bremen-Walle.

During his visit, Habeck viewed the Vitocal 250-A system installed in the home of Linda and Martin Gruet. The system includes a 50-liter buffer cylinder and is a project by Uwe Röhrs, a Viessmann partner company now run by Steffen Röhrs.

CAREL's E5V-C Electronic Expansion Valve Receives UL Certification

CAREL has announced that its E5V-C electronic expansion valve is now UL certified for capacities ranging from 100 kW to 600 kW. This certification applies to its use in

transcritical CO2 high pressure and gas bypass control applications.

The E5V-C valve is meticulously designed for low environmental impact and high energy savings. It represents CAREL's high cooling capacity solution, capable of handling up to 600 kW.

Available in four sizes (85, 95, A0, A2), the valve features a bipolar motor and is suitable for both transcritical and subcritical CO2 circuits.

Trane Technologies Acquires Klinge Corporation

Trane Technologies has completed the acquisition of Klinge Corporation on August 1, 2024. Trane Technologies' Thermo King brand, known for sustainable transport temperature control solutions, will integrate Klinge's advanced transport container solutions.

Klinge Corporation is renowned for its specialized ISO refrigerated containers used across various industries. This acquisition enhances Thermo King's suite of innovative, sustainable products, particularly those designed for transporting extremely temperature-sensitive goods.

This merger aligns with Thermo King's strategy of providing innovative, ultra-reliable temperature control solutions.

Copeland Opens New Office in Romania to Support Global Operations

Copeland has inaugurated a new office in Cluj-Napoca, Romania to better serve its European customers. This strategic move aims to meet the increasing demand for sustainable heating and cooling solutions.

The new office is situated in United Business Center (UBC), near Iulius Mall, and spans 1,550 square meters. It will accommodate nearly 200 employees across various departments, including Customer Support, Engineering, Marketing, Finance, IT, and Legal & Compliance.

Attending the office opening were Cluj-Napoca Vice Mayor Emese Olah, Copeland Europe President Sandro Matic, UBC representatives, Copeland staff, and other district collaborators.

TEFCOLD Acquires Eureka

The TEFCOLD Group has announced its acquisition of Eureka, a German distributor of professional cooling equipment. Eureka, based in Emsdetten, Germany, will now operate under the name TEFCOLD DE GmbH.

This acquisition aims to bolster TEFCOLD's foothold in the German market. TEFCOLD CEO Jesper Kirkeby Hansen highlighted that the inclusion of Eureka and its experi-

Mobility Solutions

Green Refrigerant Solutions

Service Solutions

Electronic-Controlled Solution

Medical Cold Chain Solutions

CHILLVENTA
Hall 7A
228

enced team is a strategic step to enhance the group's brand presence in Germany. Eureka, known for its strong market reputation, serves major brand owners like beer and ice cream manufacturers across Germany, and has a comprehensive service setup nationwide.

Thailand Hosts Cool Training for RAC Technicians on R290

Eighteen air conditioning and refrigeration (RAC) technicians attended a specialized Cool Training in Songkhla province, Thailand, focused on handling the natural refrigerant R290.

During the intensive three-day course, participants learned to safely install R290 (propane) air conditioners through a combination of theoretical lessons and hands-on practical training. The training took place at the Department for Skills Development (DSD) training center, aiming to upgrade technicians' skills for maintaining and installing ACs using natural refrigerants.

This training is part of an ongoing series provided by the Green Cooling Initiative III in collaboration with DSD. The initiative aims to prepare technicians for evolving job requirements, helping Thailand meet its National Determined Contributions (NDCs) in the RAC sector, which plays a significant role in climate change mitigation.

Key Highlights from the 46th Montreal Protocol OEWG Meeting

Key Highlights from the 46th Montreal Protocol OEWG Meeting

The 46th meeting of the Open-ended Working Group (OEWG) of the Parties to the Montreal Protocol convened in Montreal from July 8 to 12, 2024, addressing crucial issues related to ozone depletion and climate change.

The discussions, based on assessment panel reports, centered around whether the Montreal Protocol should expand to include the impact of Very Short-Lived Substances (VSLSs) on the ozone layer. Countries like Canada, the US, Australia, and the EU advocate for including VSLSs due to their potential impact. However, China and Russia oppose, citing insufficient evidence and predominant use of VSLSs as feedstock without atmospheric emissions.

The replenishment of the Multilateral Fund for 2024-2026, estimated at around USD 1 billion, was a significant agenda item, highlighting its importance for supporting developing countries in meeting Protocol obligations.

Discussions also covered the USD 100 million Multilateral Fund to finance energy efficiency projects alongside HFC phase-down, crucial for high ambient temperature countries transitioning to efficient refrigeration and air conditioning technologies. Additionally, the EU proposal on transitioning to low-GWP propellants in metered-dose inhalers (MDIs) was discussed, with varying levels of interest and readiness concerns.

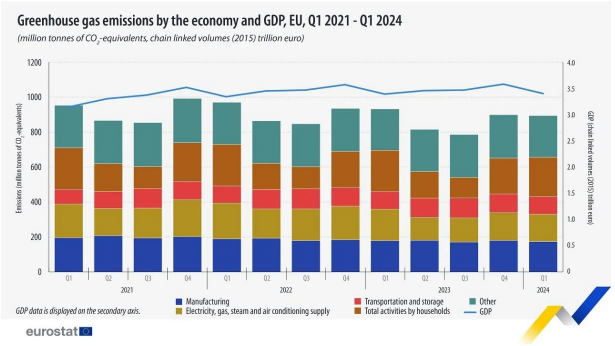
Panasonic Acquires Polish Refrigeration Equipment Manufacturer Area Cooling

Panasonic Corporation announced that its Cold Chain Solutions Company has entered into an agreement with Cooling Solutions S.L. to acquire all shares of its subsidiary Area Cooling Solutions Sp. z o.o., a Polish refrigeration equipment manufacturer. This strategic move aims to strengthen Panasonic's condensing unit business in the European market and boost its global expansion efforts.

Area Cooling and Panasonic will share resources and create synergies in the condensing unit business. Their collaboration aims to develop products, manufacture locally in Europe, and enhance the presence of Panasonic condensing units in the European market.

EU Greenhouse Gas Emissions Drop by 4.0% in Q1 2024

In the first quarter of 2024, the EU economy's greenhouse gas emissions were estimated at 894 million tonnes of CO2-equivalents (CO2-eq), marking a 4.0% decrease from the same quarter in 2023, which recorded 931 million tonnes of CO2-eq. During this period, the EU's gross domestic product (GDP) remained stable with a slight growth of 0.3%.



This information is derived from Eurostat's quarterly estimates for greenhouse gas emissions by economic activity, which complement quarterly socio-economic data like GDP and employment.

The sectors showing the most significant emissions reductions in Q1 2024 compared to Q1 2023 were electricity and gas supply (-12.6%) and households (-4.4%).

Emissions Down in 20 EU Countries

In Q1 2024, greenhouse gas emissions decreased in 20 EU countries compared to the same quarter in 2023. Bulgaria led the reductions (-15.2%), followed by Germany (-6.7%) and Belgium (-6.0%).

Among the 20 countries with reduced emissions, eight also saw a decline in GDP (Czechia, Germany, Estonia, Ireland, Luxembourg, the Netherlands, Austria, and Finland). Conversely, the other 12 countries (Belgium, Bulgaria, Denmark, Spain, France, Italy, Hungary, Poland, Portugal, Slovakia, Sweden, and Croatia) decreased emissions while achieving economic growth.

AKO

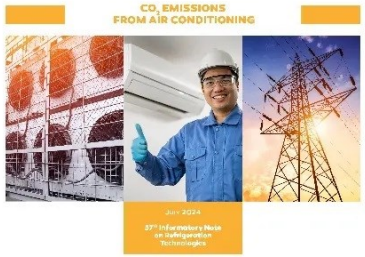
The power to control gas leaks is in your hands

Refrigerant gas leaks pose a key challenge in industrial and commercial refrigeration. Control and detect these gases to ensure efficiency, safety, and sustainability in your refrigeration facilities.

Discover more

Market Research

IIR Highlights CO2 Emissions and Energy Impact of Global Air Conditioning



The International Institute of Refrigeration (IIR) has released a new Informatory Note detailing the current and future CO2 emissions attributed to air conditioning across various regions worldwide.

Air conditioning is critical for economic development in hot, humid areas and is becoming increasingly necessary due to the frequent heat waves driven by global warming. The Informatory Note titled “CO2 emissions from air conditioning” aims to quantify these emissions to inform policy implementation.

The IIR's model reveals that air conditioning is responsible for over 12% of global electricity consumption and 5% of energy-related CO2 emissions. Of these emissions, 77% are indirect, stemming from the electricity used by air-conditioning units, while 23% are direct emissions from refrigerant leaks during operation and disposal.

Achieving a one-third reduction in global air-conditioning emissions by 2050 requires significant advancements in energy efficiency policies and intensified efforts to reduce refrigerant leaks. The IIR advocates for a proactive approach to meet these targets.

Smart Cooling Systems Market to Surge to $156.6 Billion by 2032

The global smart cooling systems market, valued at $3.1 billion in 2023, is projected to soar to $156.6 billion by 2032, growing at a remarkable CAGR of 53.4% from 2024 to 2032, according to a report by Allied Market Research.

Key Growth Drivers

The rise in smart home and building trends significantly fuels the smart cooling systems market. Homeowners and building managers are increasingly adopting smart cooling solutions to integrate with other smart devices, enhancing comfort, convenience, and energy management. Government regulations and incentives promoting energy efficiency and reducing greenhouse gas emissions further support the adoption of smart cooling systems.

Smart Split ACs Lead the Market

In 2023, the market was dominated by smart split ACs due to their high energy efficiency and advanced features such as inverter technology, variable speed compressors, and intelligent thermostats. These innovations optimize energy usage, reducing electricity costs, and offer remote control via smartphones and compatibility with voice assistants, providing added convenience for users.

Commercial Segment Dominates

The commercial segment held the largest market share in 2023. Advances in sensor technology, connectivity, and AI have enhanced the functionality and reliability of smart split ACs.

Technical Insights

The partner's materials.

BITZER IQ MODULE: Smart functions bring digitisation to refrigeration, air conditioning and heat pump components

The IQ MODULE CM-RC-02 for BITZER ECOLINE reciprocating compressors was developed to make the daily working routine easier for installers and contractors with smart functions and a user-friendly operating concept. It also paves the way for even more efficient compressor operation. It is one of the product highlights that BITZER is presenting at this year's Chillventa in Hall 7, Stand 350.

Since the beginning of the year, BITZER ECOLINE reciprocating compressors from the C3 series onwards have been equipped as standard with the new generation of the IQ MODULE CM-RC-02. Performance kits are available for retrofitting.

Faster and simpler installation and commissioning

The compressor and accessories are premounted, wired and configured in the BITZER factory. Tests are also performed on the hardware and function logic to reduce the amount of work required on site. This simplifies the installation and commissioning of the compressor and guarantees optimal, efficient operation for the installed accessories.

Improved data handling and comprehensive support

The IQ MODULE connects the compressor to useful digital services that make day-to-day work easier. Installers and contractors can configure the compressor and its accessories via Bluetooth with the BEST SOFTWARE or the BEST app. They can even display clearly structured current and historical operating data from the compressor. The IQ MODULE grants optional access to the BITZER Digital Network (BDN), making it possible to access the operating data of the compressor at any time and carry out optimisations remotely.

BITZER offers comprehensive support for installers and contractors working with the IQ MODULE. This includes quick-start guides as well as technical documentation and numerous step-by-step tutorials.

Retrofitting enhanced compressor functions made easy

Additional functions for BITZER ECOLINE reciprocating compressors, such as VARISTEP capacity control or oil level monitoring with OLM-IQ, can be operated from the IQ MODULE with extension boards, which are available separately. This approach means less wiring arrangement and documentation work for installers and contractors, as fewer modifications have to be made to the control system in the switch cabinet compared to conventional system designs. The extension boards are available with different functionalities when ordering new compressors or for retrofitting. This makes even retrofitting existing compressors easier than ever before.

Find out more

Visit us at
CHILLVENTA
8-10 October
Stand 7-210

All-in-one Solutions

MEET THE NATURAL CLIMATE TECH PIONEERS AT CHILLVENTA

All 4 natural refrigerants in one booth

HIGHLY SUSTAINABLE R744 NATURAL REFRIGERANT

HIGHLY SUSTAINABLE R290 NATURAL REFRIGERANT

HIGHLY SUSTAINABLE R717 NATURAL REFRIGERANT

HIGHLY SUSTAINABLE R718 NATURAL REFRIGERANT

HVAC

CO_2 Packaged air-to-water reciprocating heat pump for outdoor use, for **DHW production**

Propane Modular packaged air-to-water reversible with **scroll compressors** and **TRIO** or **TANDEM** configuration

Refrigeration

Custom NH_3 **packaged refrigeration** system

CO_2 **industrial refrigeration** rack

Heat Exchangers

V-Shaped dry coolers with axial fans and **adiabatic panels**

Flat dry coolers with axial fans

enex technologies
cooling and heating naturally

Events

Chillventa 2024 review: Key Technologies Ahead

With As the global hub for the refrigeration, air conditioning, ventilation, and heat pump industries, Chillventa 2024 is set to return to Nuremberg, Germany, from October 8 to 10. With a focus on cutting-edge innovations, this highly anticipated event will bring together the world's leading experts, companies, and professionals to explore the latest trends and technologies shaping the future of the RACHP industry. Attendees can look forward to a packed schedule of exhibitions, knowledge-sharing sessions, and networking opportunities that delve into critical advancements in energy efficiency, sustainability, and digitalization. In this preview, we explore some of the key technologies and trends to watch for ahead of October's event.

Our Partners at Chillventa 2024
Leading international companies will present new refrigeration equipment and components at Chillventa 2024. Below is a summary of what some of our key partners will showcase at the event.

Arneg
Hall 9, Stand 426

Arneg, a global leader in commercial refrigeration, will introduce their innovative CO2 condensing unit designed for flexible refrigeration solutions in the retail industry. One of the highlights will be the Arneg Cold Ring system, which uses the natural refrigerant R290 along with glycol to cool small and medium-sized supermarkets efficiently and eco-consciously. Additionally, the Globo transcritical CO2 system integrates medium - and low-temperature circuits into one compact frame, maximizing energy efficiency while minimizing the system's overall footprint.
Another key product on display will be the Faro vertical refrigerated display, which features a natural refrigerant-based integrated motor. This product continues Arneg's commitment to using environmentally sustainable solutions while delivering high per-

formance for the retail refrigeration sector.

BITZER
Hall 7, Stand 350

BITZER will present its vision for the future of refrigeration, air conditioning, and heat pump technologies under the theme "SHAPING THE FUTURE WITH YOU". The company will spotlight its energy-efficient components and solutions for future refrigerants in the face of stricter environmental regulations, such as the upcoming EU F-Gas Regulation.
Visitors will be introduced to the IQ MODULE CM-RC-02, a new feature for BITZER's ECOLINE compressors, designed to optimize energy consumption and system performance. Additionally, BITZER's R290 compressor line remains the only comprehensive solution across all types of compressors—reciprocating, screw, and scroll—demonstrating their leadership in promoting sustainability within the HVACR industry.

Frascold
Hall 6, Stand 312

At Chillventa 2024, Frascold, a leader in semi-hermetic piston and screw compressors for refrigeration and heating, will showcase three distinct areas: R&D, Cold, and Hot. In the R&D Area, visitors can discover Frascold's latest prototypes, including the Magnetic screw compressor, featuring a permanent magnet motor for optimal efficiency at partial loads, 2Vi technology for load adaptability, and ATEX certification for HC refrigerants. The area will also display the extended TK HD series for transcritical CO2 in size Z, along with the new CO2 STK two-stage series. In the Cold Area, Frascold will present the FVR compressor designed for extreme cold temperatures, while the Hot Area will highlight the size Z model of the ATEX HT series and new W-size models for the piston compressor series.

Enex Technologies
Hall 7, Stand 210

Enex Technologies will showcase its pioneering expertise in climate technology, specializing in the use of natural refrigerants like CO2, propane, ammonia, and water. The company's all-in-one approach ensures seamless integration of their energy-efficient products, making it easier for clients to achieve their sustainability and decarbonization goals.
Key products to be showcased include the CO2 rack system designed for small footprint installations and the adiabatic dry cooler, built for extreme temperatures and corrosive environments. Enex will also participate in the Chillventa Specialist Forum to share insights on their low-GWP solutions and the future of refrigerants in HVACR applications.

Hitema
Hall 4A, Stand 350

Hitema, a renowned manufacturer of industrial cooling systems, will highlight its latest advancements in industrial chillers and refrigeration units at Chillventa 2024. The company's display will focus on high-performance solutions designed for efficiency and durability across various sectors, including manufacturing and process industries. Hitema's industrial chillers are optimized for energy efficiency, aligning with global sustainability goals.
Additionally, Hitema will showcase its eco-friendly refrigeration units, which utilize low-GWP refrigerants to reduce environmental impact. With over 30 years of experience, Hitema remains dedicated to providing tailored cooling solutions that meet the unique needs of each customer and project.

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Ready for R290 Heat Pumps

R290

Braze Plate Heat Exchangers – series S40/S60

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- Designed and optimized for Heat Pump application
- Anti-freezing design
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- EU PED certification for flammable refrigerants, including R290
- Patented asymmetric plate design has in average 25% lower pressure drop on secondary side compared to other available heat exchangers

Our wide range of SANHUA BPHEs include many different sizes and models. They can be used as evaporators, condensers, de-superheaters or fluid to fluid exchangers. Our design is easy to install, and gasket free technology makes them fully hermetic.

Solutions for natural refrigerants

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Booth 7A-328

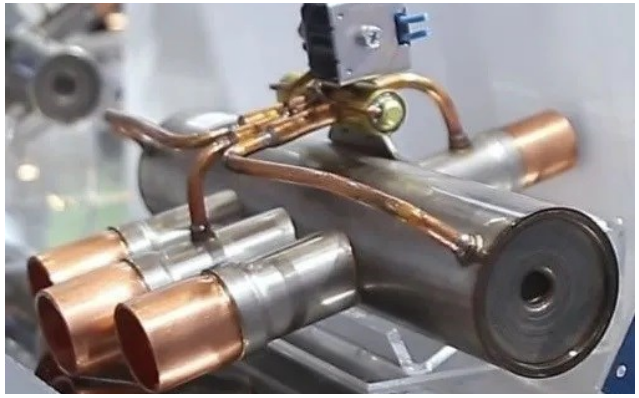
40 years innovating together
1984-2024
SANHUA

KARYER
Hall 8, Stand 8-108

KARYER, a global leader in heat exchanger technology, will present its innovative range of heat pump coils and compact condensers at Chillventa 2024. KARYER's heat pump coil is engineered for integration with renewable energy sources like solar collectors, providing highly efficient heat transfer while reducing carbon emissions, making it ideal for modern heating applications.
In addition, KARYER's 5mm CO2 condenser is designed for high capacity and efficiency in a compact form. This eco-friendly solution requires less installation space and reduces refrigerant charge volumes, aligning with energy-saving goals and environmental standards. KARYER's products, recognized for their advanced heat transfer capabilities, are crucial in supporting the global transition to greener technologies.

Sanhua
Hall 7A, Stand 328

Celebrating its 40th anniversary, Sanhua will debut a wide range of advanced HVACR solutions at Chillventa 2024. The company is focused on energy efficiency and low-GWP refrigerants, with key products including the GigaForce 4-Way Valve (SHF-GF Series) for large-scale air-cooled screw chillers and stainless-steel valves designed to reduce the carbon footprint and enhance operational efficiency.



Sanhua will also showcase its Micro-Channel Heat Exchangers (MCHETM) and Brazed Plate Heat Exchangers (BPHE), optimized for demanding applications such as R290 heat pumps. These solutions underline Sanhua's leadership in developing cutting-edge refrigeration technologies that meet global environmental standards.

Secop
Hall 7A, Stand 228

Secop will showcase its latest innovations in sustainable cooling solutions for light commercial applications, battery-driven mobility cooling, and the medical cold chain. In addition to the robust and efficient KL-Series, designed for R290 refrigerant, Secop will present the extended SCE PLUS series with capacities up to 25cc, the upcoming NLE PLUS up to 15cc, and the NLV15 variable-speed compressor with a new generation of electronic controllers. The booth will also feature the battery-driven range for automotive solutions and new ultra-low temperature solutions for the medical cold chain.

Read the full Chillventa review

Sustainability

The clock is ticking. 2025's EPA regulations are coming; are you prepared?

by Basant Singhatwadia, Global Director of Customer Success & Strategy, Facilio

The refrigeration industry is facing a major shift as new EPA regulations demand a move from reactive leak management to proactive prevention. These changes will bring significant financial and legal challenges, especially for sectors previously unaffected by such regulations. With steep fines for non-compliance, the industry must adopt advanced technologies and proactive strategies to ensure compliance and sustainability. This shift represents both a challenge and an opportunity to redefine refrigerant management for the future.

In the world of refrigeration, leaks have long been an accepted, albeit costly, reality. But that's all about to change. The new EPA regulations demand a shift in mindset - a move away from reactive firefighting towards proactive leak prevention.

The leaky status quo is no longer sustainable.

National expert on end-user refrigerant management and Principal at Refrigerant Management Solutions (RMS) **Keilly Witman** says, “We are facing the biggest change to refrigerant regulations in the United States since these regulations were created in the late ’80s. These changes will not only cost refrigerant end-users hundreds of millions of dollars, but entire sectors that haven’t had to worry about these regulations in the past - like c-stores - will suddenly be faced with unprecedented legal liability.”

With potential fines reaching up to $57,617 per violation per day, not to mention substantial legal fees, the stakes couldn't be higher. Remember the cautionary tales of giants like Costco, Safeway, and Trader Joe's, which have faced severe penalties?

The EPA's stricter regulations on refrigerant leaks are set to take effect, and the consequences of non-compliance could be disastrous. This isn't just about avoiding fines;

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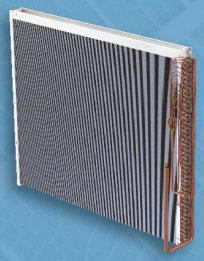
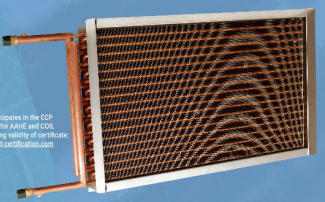
Heat Exchangers compatible with natural refrigerants: R290 Propane, R600a Isobutane, R744 CO_2

Unit Coolers

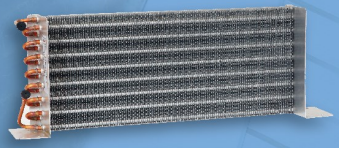
Heat Pump Coils



Water Coils



Small Tube 5mm Heat Exchangers



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The regulatory shift: 2025 and beyond

EPA regulations under Section 608 of the Clean Air Act address the handling, recovery and recycling of refrigerants used in refrigeration and air-conditioning equipment. The AIM Act Part III proposes expanding Section 608 requirements for appliances containing 15 pounds or more of HFC refrigerant or substitutes with a Global Warming Potential (GWP) higher than 53. GWP is a measure that allows for comparisons of the global warming impacts of different gases.

The proposed changes would include mandating regular leak inspections to quickly find and fix leaks, thereby minimizing refrigerant loss. Additionally, companies face requirements for annual reporting of chronically leaking appliances and detailed record-keeping to ensure compliance. The proposed regulations are expected to come into effect in the second half of 2024.

The revised EPA regulations continue to mandate specific leak repair requirements for various types of systems, reflecting existing standards:

- For systems with more than 500 pounds of refrigerant, the owner or operator must conduct a leak inspection once every three months until they can demonstrate through leak rate calculations that the leak rate has not exceeded 20% (for commercial refrigeration) or 30% (for industrial process refrigeration) for four quarters in a row.
- For systems with 50 to 500 pounds of refrigerant, leak inspection needs to be conducted once per calendar year to ensure leak rate has not exceeded 20% for commercial refrigeration or 30% for industrial process refrigeration (IPF) for one year.
- For Comfort Cooling Systems (HVAC) with 50 pounds or more, leak inspections need to be conducted once per calendar year until the owner/operator can demonstrate through the leak rate calculations that the leak rate has not exceeded 10% for one year.

Starting January 1, 2025, proposed regulations would include:

- Appliances with a full charge of 15 pounds or more of a refrigerant containing an HFC or a substitute for an HFC with a GWP above 53 would be required to comply.
- Commercial refrigeration or IPF appliances that contain 1,500 pounds or more of an HFC or a substitute with a GWP above 53 would be required to have an automatic leak detection system (ALD) installed on new and existing appliances.
- Mandatory use of reclaimed refrigerant for servicing HFC systems starting Jan. 1, 2028
- Disposable Cylinders must be sent to reclaimer for removal of refrigerant heel starting Jan. 1, 2025

These changes could classify many more systems as "chronically leaky," significantly increasing the risk to companies of penalties for non-compliance and potentially leading to significant fines if not addressed proactively.

Impact on store operations teams

The expanded regulatory scope under Part III of the AIM Act will lead to increased costs associated with more frequent and stringent leak inspections for handling refrigerants. To ensure compliance, companies should be proactive in adaptation to evolving regulations and implementing continuous monitoring, accompanied by timely adjustments.

This also involves dealing with complex state-specific reporting requirements. These tasks can be time-consuming and resource-intensive, requiring dedicated staff. The extra workload and resources needed may strain budgets and will require careful planning.

Rising refrigerant costs will directly impact financial planning and operations, forcing c -store managers to adjust budgets accordingly. This may involve exploring alternative refrigerants or investing in more efficient systems to manage long-term costs.

Read the full article

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Technical Insights

Heat Recovery in NHL Ice Arenas: Numbers, Facts, and Efficiency

by Elvira M. Kadyrova

The Let's discuss heat recovery without conjecture or misconceptions, relying solely on meter readings. This article will explain how we build NHL ice arenas and how effective heat recovery is.

NHL Arena Standards

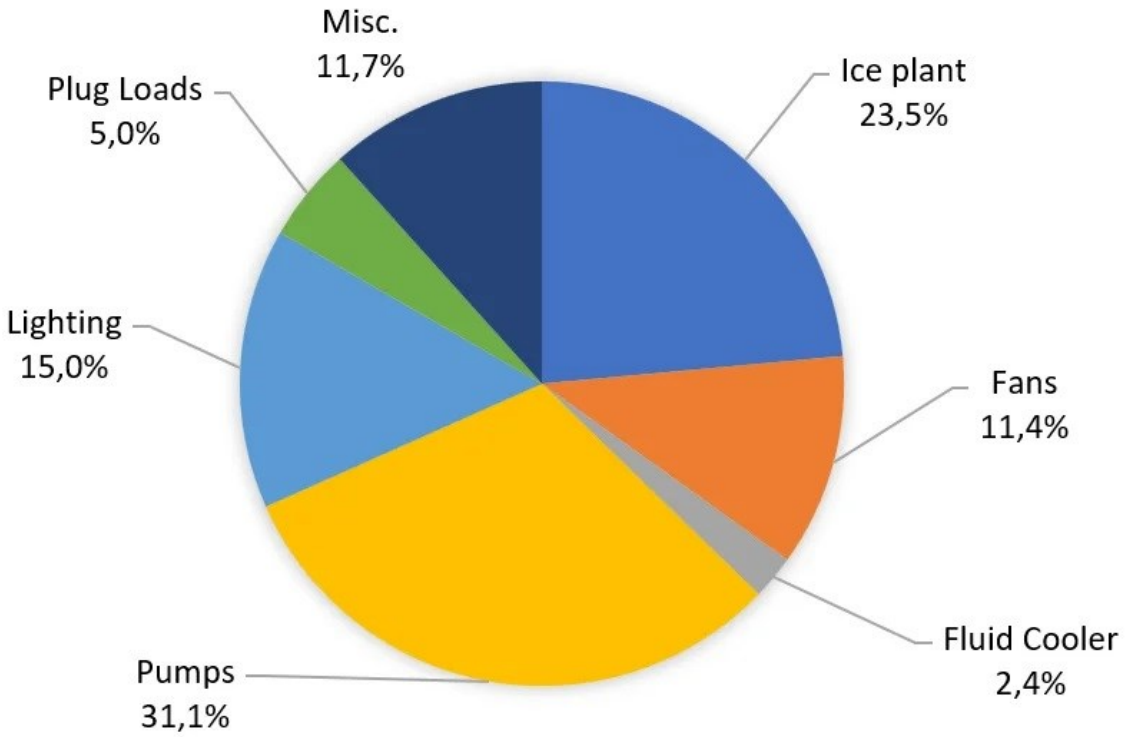
The National Hockey League sets high standards for its arenas. Firstly, the quality of the ice is crucial. The ice must maintain a specific temperature and hardness. If your ice melts, it means the arena is improperly designed, and blaming overly warm visitors or abnormal weather is not entirely correct.

The arena must also be safe for both visitors and staff. Among other considerations, it is important to account for the building's location to avoid evacuating the entire area in case of a toxic refrigerant leak. Lastly, the arena is a commercial project and must be profitable while remaining accessible to all social groups, including offering free public skating and services like walking tracks, workshops, etc.

Case Study: Nova Scotia Ice Arena

As an example, we will examine a recently renovated ice arena in Nova Scotia, Canada. The building features an ice rink, a pub (for those who prefer to watch hockey with a drink), a walking track (a favourite spot for local seniors and runners), and rooms for workshops and lease.

The heart of the arena is an ammonia refrigeration plant equipped with Mycom piston compressors, an Alfa-Laval plate heat exchanger condenser, and a Vahterus plate shell evaporator heat exchanger. The cooling capacity of the unit is 660 kW (188 TR). This plant serves a dual purpose: providing the necessary cooling for the ice arena while also generating heat that is effectively used in the building’s heating system. The heat from the refrigeration plant is directed to various components of the heating system, including fan coils, ventilation equipment, underfloor heating, and water pre-



heating. The refrigeration plant consumption accounts for 26.7% of the building's total energy consumption. Excess heat is disposed of through a fluid cooler, which consumes 2.7% of the energy. Additionally, pumps play a key role in circulating the heat transfer fluid throughout the heating system. They supply cold glycol to the ice floor and dehumidifier coil, and hot glycol to fan coils, heating coils of ventilation units, and underfloor heating. Pump energy consumption is 35.2% of the arena's energy balance.

Another element in the system is the fans, which ensure air exchange and heat distribution throughout the building. Fan energy consumption is 12.9%, covering supply and return fans for the dehumidifier, supply and return fans for ventilation units, and fan coil fans. Lighting accounts for 17% of the arena's total energy balance, and 5.7% of the energy is used for other electrical loads.

Geothermal pump consumption is not included in the balance because it was not used throughout the year. The geothermal heat pump is installed as a backup heat source and is used when the building requires thermal energy, and the existing refrigeration plant and propane boiler cannot meet the heating needs.

Energy Consumption Before and After Renovation

We will start by comparing data from before and after the renovation: how the building was operated in terms of energy consumption over a year. The basic unit of measurement is the equivalent kW (ekW).

Tables show the electrical and heating energy consumption of the arena before and after the equipment upgrade. After the renovation, the building's electricity consumption decreased by 7%, and fuel consumption dropped by 80%.

EUI (Energy Use Intensity) is a key metric used to measure the amount of energy consumed per unit area of the building. Initially, the energy consumption was 21.1 kW per square foot. However, after the renovations and improvements, this figure significantly decreased to 17.6 kW per square foot. EUI serves as an important tool for assessing a building's energy efficiency. By measuring the energy consumed per square foot, EUI allows for comparison and analysis of energy consumption across different buildings, regardless of their size. This helps evaluate how efficiently energy is used in a building and provides a basis for implementing improvements to reduce energy costs.

Read the full article

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.

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- **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.

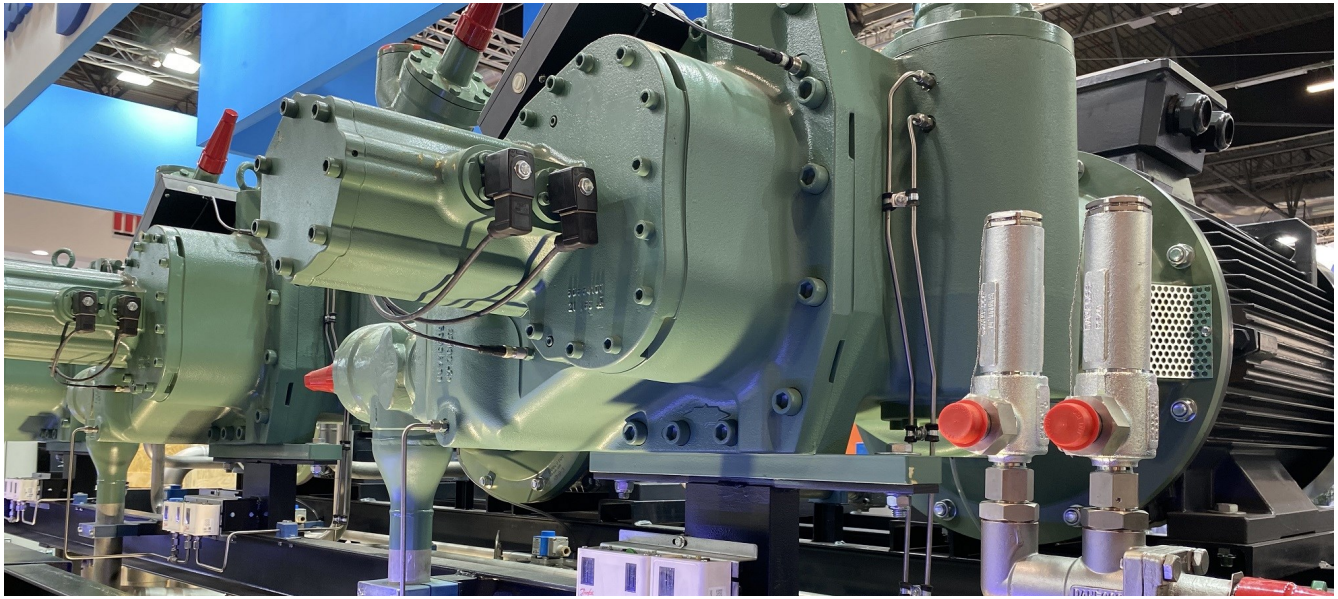
Advertising Opportunities in Our Magazine

Place an advertising module or contribute an article on topics like sustainability or successful case studies, sharing your company's experience with the magazine audience. Know more in Media Kit 2024.

Magazine Issue Plan

- N 2025 / 1 — January
- N 2025 / 2 — April
- N 2025 / 3 — July
- N 2025 / 4 — October

For any inquiries, feel free to contact us at info@refindustry.com.



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