

SHOWEXPRESS

2023

NO.75

The 34th International Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation,
Frozen Food Processing, Packaging and Storage

April 7-9, 2023
Shanghai New International
Expo Centre, China

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CHINA REFRIGERATION EXPO



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Organizers



Show Management



The 34th China Refrigeration Expo will be Unveiled in Shanghai

Co-sponsored by China Council for the Promotion of International Trade Beijing Sub-council (Beijing Chamber of International Commerce), Chinese Association of Refrigeration (CAR), China Refrigeration and Air-conditioning Industry Association (CRAA), Shanghai Society of Refrigeration, and Shanghai Air-conditioning and Refrigeration Institute (SARI), and organized by Beijing International Exhibition Center Co., Ltd. (BIEC), the 34th International Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation, Frozen Food Processing, Packaging and Storage (hereinafter referred to as China Refrigeration Expo) will be held at Shanghai New International Expo Centre from April 7 to 9, 2023.

The theme of this year's China Refrigeration Expo is "Focus on global cooling, heating and climate change; Devoted to system performance improvement and systematic and integrity innovation". There are 9 exhibition halls, covering an area of 103,500 square meters. There will be nearly 1,100 exhibitors from 19 countries and more than 60,000 visitors attending the exhibition. In addition, the sponsors of China Refrigeration Expo closely follow the current industry trend and pay attention to upstream and downstream industries. During the exhibition, there will be theme forums, as well as various symposiums and technical exchange meetings with rich content. The sponsors will actively invite chief engineer group from the National Design Institute, the observation group from refrigeration and HVAC industry, and the observation group from national and provincial refrigeration societies, strengthening in-depth exchange with exhibitors. 4 special exhibition areas will be set up in combination of the hot topics of the industry development, namely the Ozone2Climate Technology Roadshow, the Demonstration Area for Light Commercial Refrigeration Technology and Solutions, the Heat Pump Area, and China Refrigeration and Air Conditioning After-market Standard Service Exhibition Area, providing more exhibitors and visitors with a platform for display and exchange in various market segments.

For more news and activities, please check the official publication - the Express, the official website, WeChat public account and official Tik Tok account of China Refrigeration Expo.

China Refrigeration Expo looks forward to meeting you in Shanghai!



The first day of the China Refrigeration Expo (Shanghai) 2021



Unite to seek development and lay a solid foundation for a new start

Zhang Youlin
First-level Inspector
China Council for the Promotion of
International Trade Beijing Sub-council
(CCPIT Beijing)
(Beijing Chamber of International Commerce)

张幼林

**Energy conservation and carbon reduction,
leading the green development of the industry
Development of cooling and heating technology,
creating a better environment for mankind**



Meng Qingguo
Executive Vice President
Chinese Association of Refrigeration

孟庆国



**Innovation-driven, open and shared
development to jointly build a green
ecological civilization**

Li Jiang
Chairman
China Refrigeration and Air-
conditioning Industry Association

李江



Congratulatory Message to China Refrigeration Expo 2023

On behalf of United Nations Environment Programme (UNEP)'s OzonAction, I am honored to extend our congratulations on the opening of the 34th International Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation, Frozen Food Processing, Packing and Storage (China Refrigeration Expo 2023)!

As one of the world's leading exhibitions where industry leaders come together to showcase their latest innovative products and exchange technical ideas and expertise, China Refrigeration Expo is critical to the development of sustainable refrigeration and air-conditioning equipment. Technology development in the cooling sector is one of the core elements that contribute to the successful implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer and it also greatly affects our collective efforts for climate protection.

The cooling sector is expected to experience continued and rapid growth as it is essential for human health and global food security among others, thus accessible and affordable cooling is closely linked to the achievement of the Sustainable Development Goals. It is also one of the most energy intensive sectors, requiring us to be more innovative about energy efficiency and the overall sustainability of appliances including the environmental impact of the refrigerants inside them. China Refrigeration Expo is an ideal platform where technology companies and experts come together to explore ozone and climate friendly solutions while at the same time the industry can introduce and promote their latest technologies to the end users directly. The world looks to China's example and innovations in this sector, and we are confident that the China Refrigeration Expo will continue to lead the industry to ensure that the refrigeration and air-conditioning sector is sustainably developed.

With the support of the organizer of the China Refrigeration Exhibition, as part of the Expo, UNEP, Foreign Economic Cooperation Office, Ministry of Ecology and Environment, China (FECO/MEE), China Refrigeration and Air-Conditioning Industry Association (CRAA), and United Nations Development Programme (UNDP) continue our successful partnership to jointly organize the Ozone2Climate Technology Roadshow and Industry Roundtable since its inception in 2011. We look forward to your support by visiting the Roadshow and share with us your valuable ideas during the Industry Roundtable.

James S. Curlin
Head of OzonAction
Law Division
United Nations Environment Programme



INSTITUT INTERNATIONAL DU FROID
INTERNATIONAL INSTITUTE OF REFRIGERATION



Letter of congratulations

China Refrigeration is one of the world's most important events in the field of refrigeration.

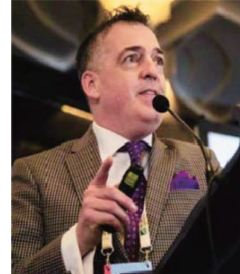
Refrigeration is a strategic priority for the coming decades for every country in the world. Refrigeration equipment will continue to be developed because of essential human needs, such as health and food safety through the cold chain, air conditioning, cryogenic applications. Since refrigeration requires more and more energy (it already accounts for 20% of the world's energy consumption) and still too many refrigerants with high global warming potential, we must continue to develop more environmentally friendly systems.

The International Institute of Refrigeration (IIR) publishes numerous policy notes for decision makers and guides for practitioners; the IIR organises conferences and webinars and participates in national projects thanks to international funding (see IIR website www.iifir.org). The IIR is present in all regions of the world and is at the service of all stakeholders in refrigeration technologies and uses. China is a very active IIR member country and I am pleased to see the involvement of our colleagues from the Chinese Association of Refrigeration in organising events and participating in IIR publications, including in Chinese language.

China Refrigeration is a major event. I invite everyone to participate and continue to participate in other major events in 2023, including the IIR Congress in Paris in August (see IIR website) and the upcoming Conference of the Parties on Climate Change in Dubai (United Arab Emirates): refrigeration will be at the top of the agenda at this UN Conference, showing the importance of the sector.

Refrigeration is at the heart of the global sustainable development goals. I congratulate the organisers of China Refrigeration 2023 and I wish them every success.

Didier Coulomb
Director General



To all of our dear friends at CAR and the refrigeration industry in China:

On behalf of the IIAR, we welcome all the participants to **China Refrigeration Expo 2023 in SHANGHAI.**

The IIAR is honored to be associated once again with the event and its long-standing relationship with the CAR (Chinese Association of Refrigeration). Our sincere congratulations to the CAR and the organizing committee for putting together and hosting such an important event, and thank you for hosting us all for the first event of the post pandemic era. It will be great for you all to gather again in person and resume business as usual.

IIAR is the world's leading advocate for the safe, reliable and efficient use of NATURAL refrigerant that are Ammonia, CO2 and hydrocarbons. IIAR's members share their collective knowledge and experience to produce consensus documents that address various aspects of the NATURAL refrigeration industry.

IIAR has a very broad industry representation, including manufacturers, design engineers, specialized contractors, end users, academics, scientists, trainers and students. IIAR members come from all over the world, more than 50 countries, with some of our valuable material now available in Chinese after translation by the CAR, including system design standards and some training materials for safety and maintenance. Since 1971 the IIAR sets the standard for providing advocacy, education, and the most up-to-date technical information to the NATURAL refrigeration community. We help professionals to develop their skills and further their careers by promoting the common interests of our growing membership.

Our VISION: To create a better world through the safe and sustainable use of NATURAL refrigerants

Our MISSION: To provide advocacy, education, and standards for the benefit of the global community in the safe and sustainable design, installation and operation of ammonia and other natural refrigerant systems.

IIAR wishes all the participants and visitors of China Refrigeration Expo 2023 a very successful conference and exhibition and we are looking forward to continuing the cooperation with CAR and the China refrigeration industry with the common goal of growing the usage of NATURAL Refrigerants in China.

With our sincere and warmest regards.

Gary Schrift
President of the IIAR

Guy J.E. Cloutier
Regional Vice-Chair – China and Asian Countries
IIAR International Committee



Letter of congratulations from Eurovent on China Refrigeration Expo 2023

Dear colleagues from the Chinese Association of Refrigeration (CAR) and the China Refrigeration and Air-Conditioning Industry Association (CRAA). On behalf of Eurovent (the European Industry Association for Indoor Climate, Process Cooling, and Food Cold Chain Technologies), Eurovent Middle East (Association of the region’s leading HVACR manufacturers), and our entire network, we congratulate the China Refrigeration Expo organisers on this year’s exhibition taking place from 7-9 April in Shanghai.

The international trade developments between Europe, China and the Middle East have been expanding on a sturdy pace ensuring a favourable level playing field for the players in the HVACR sector. In light of the developments, we are confident that this will further enhance our partnership with future positive outcomes and remain fruitful. Like before, the China Refrigeration Expo, provides a platform for manufacturers to showcase their products, this in a way brings ideas together to conserve global resources through use of renewable energy and achieve climate protection targets by use of well digitalised technologies.

Although we will not be able to attend this year’s edition, we would like to wish the organisers of the expo much success. We are continuously proud of being part of this fair and really hope to be able to visit the 2024 Expo. Eurovent, Eurovent Middle East and together with all the HVACR manufacturers we represent, would like to continuously thank you for our cooperation and support, furthermore to build and strengthen more relations between Europe, Middle East and China.

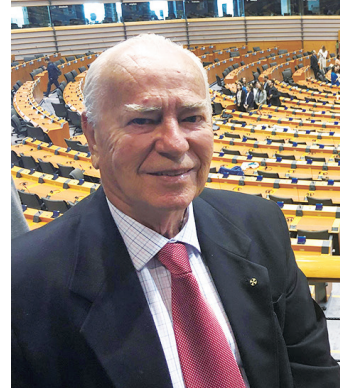
Yours sincerely,

Raul Corredera Haener
President
Eurovent



Francesco Scuderi
Secretary General
Eurovent





To: China Refrigeration – EXPO 2023 Ref.: ABRAVA´s Congratulations

ABRAVA, The Brazilian Association for HVAC-R, have a great pleasure in take this opportunity to congratulate with CR-Expo 2023, recognizing the great value that this Expo represents to our global sector.

This trade show brings the opportunity to talk and change ideas with colleagues of a country as important as China and many others from Pacific Asia and abroad. CR Expo has been along the years a synonym of Innovation and the best forum for discussions on productivity, higher quality air systems, higher quality energy efficiency and environment protection.

Once again, on behalf of ABRAVA and its members, I would like to send our warming congratulations to the Organizing Committee and wish a successful CR-Expo 2023.

Very truly of yours

SamoelVS Samoel Vieira de Souza
ABRAVA´s International Affairs Directo



February 15, 2023

On behalf of the 320 manufacturers of HVACR and water heating equipment that are members of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), I am pleased to extend best wishes to the organizers, sponsors, and exhibitors of the 2023 China Exhibition for Refrigeration, Air-conditioning, Heating and Ventilation, Frozen Food Processing, Packaging, and Storage. Although it appears unlikely that we will be able to travel to China for the show this year, we are proud to have an excellent China-based staff, led by our Vice President of Asia Operations Bridge Xue, who will be at the show, interacting with our member companies and with our Chinese industry friends. In addition, as in past years, many AHRI member companies will exhibit at an event that innovatively illustrates the importance of the Chinese market to our industry.

Whether in person or through electronic means, we have long-standing ties to China, whether it is through our member companies with operations in China or through our valuable partnerships with the China Refrigeration and Air Conditioning Association (CRAA) and the Chinese Association of Refrigeration (CAR), both of which help AHRI members do business in China. Through these mechanisms, we collaborate not just on individual business issues, but also on issues of common industry concern, including decarbonization initiatives, energy efficiency, refrigerant policy, and environmental stewardship. Some of that collaboration occurs on an individual company basis, of course, but much of it occurs through our association partner CRAA, which is a longstanding member of the International Council of Air-Conditioning, Refrigeration, and Heating Manufacturers Associations (ICARHMA), a group that comprises 11 industry associations from around the world.

I look forward to the day that I will once again be able to travel to China to participate in the exhibition, because our relationships and interactions with old friends are so important to the global industry and to me personally. We thank you for your friendship and hospitality and offer our best wishes for an excellent show!

Sincerely,

Stephen R. Yurek
President and CEO



China Refrigeration Expo Congratulatory Message 2022-23 ASHRAE President Farooq Mehboob, Fellow Life Member

Greetings!

On behalf of ASHRAE and its board of directors, congratulations to the Chinese Association of Refrigeration (CAR) and the China Refrigeration and Air-conditioning Industry Association (CRAA) on organizing China Refrigeration Expo 2023, now in its 34th year.

ASHRAE's Society theme this year, "Securing Our Future," focuses on leveraging relationships, knowledge and change, as the formula for making an impact and embracing our diverse world. ASHRAE was born out of a realization that a platform for the exchange of ideas and experiences among HVAC&R professionals was needed for the profession to flourish and China Refrigeration Expo 2023 is a perfect example of the collaborative thought that takes place when we come together.

Through our diverse experiences and sharing of our technical expertise, along with our willingness to participate in an event such as this, we have the ability develop strategies and technological advances that will secure the future of humanity.

ASHRAE is excited to support China Refrigeration Expo 2023 and we invite you to take full advantage of all that it has to offer. The time to secure our future is NOW and this event is sure to provide you with the knowledge and innovations needed to impact the communities that you serve for generations to come.

Enjoy your time at the expo!

Sincerely,

A handwritten signature in black ink, appearing to read "Farooq Mehboob". The signature is fluid and cursive, written in a professional style.

Farooq Mehboob, Fellow Life Member ASHRAE
2022-23 ASHRAE President



China Refrigeration Expo Congratulatory Message 2022-23 ASHRAE Director, Region XIII

Greetings!

On behalf of ASHRAE Region XIII, we congratulate the Chinese Association of Refrigeration (CAR) and the China Refrigeration and Air-conditioning Industry Association (CRAA) for the 34th China Refrigeration Expo 2023 in Shanghai New International Expo Centre, China,

The China Refrigeration Expo is one of the big top shows in the world with high attendance and participations from many people all over the world. It is also a platform for many players involved in the HVAC field to gather, share, learn and gain mutual benefits. There are seminars, technical exchanges, exhibition booths and business opportunities for the participants.

Though we may from different parts of the world, living in different climates and environments; CAR, CRAA and ASHRAE have much common goals. ASHRAE's mission is "To advance the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world". I am sure CAR and CRAA mission statements are similar.

Our collaborations and partnerships will make much advances for humanity and mankind.

Congratulations once again to the Chinese Association of Refrigeration (CAR) and the China Refrigeration and Air-conditioning Industry Association (CRAA) for a successful and exciting CR 2023!

Yours Sincerely,

A handwritten signature in black ink, appearing to read "Leong Cheng Wee". The signature is fluid and cursive, with a horizontal line underneath the name.

Leong Cheng Wee
ASHRAE Director, Region XIII (2022-2025)



Russian HVAC&R society ABOK

On behalf of Russian specialists in the HVAC&R field it is my pleasure to send warmly greetings to the guests and participants of the China Refrigeration Expo 2023!

New technologies, which are presented at the exhibition, can be considered outstanding achievements in the field of smart technologies, energy saving and environmental friendliness.

Currently, the task of bringing construction resources to the market, and first of all, the resources of the People's Republic of China, is urgent for Russia. These resources should make up for the deficit created due to the inability to supply construction resources from a number of countries exerting sanctions pressure.

China Refrigeration Expo 2023 has become one of the most significant and trustworthy events of the year; it makes a considerable contribution to the solution of the most important professional tasks, because it's an ideal base for the all-round contacts and could demonstrate the overall present-day resources of this branch. The show is characterized by a highly-professional visitor audience represented by the major Chinese and worldwide wholesalers and distributors, engineering design and installation, construction and real estate development companies.

Role of indoor climate quality and energy saving is very important, that these items represent the guideline of the exhibition's ideology and run through the scientific and business program of the China Refrigeration Expo 2023.

I would like to note well thought-out and accurate work of the organizers of the China Refrigeration Expo 2023. These companies open for broad cooperation, they can recruit different organizations, first of all, those determining construction' ideology, and mass media. I would like to note aspiration for more intellectual matter of the exhibition, not only reflecting the present-day state of the branch, but in many respects determining its tendency.

Co-operative work of the exhibition and symposium will set up the best conditions not only for mutually beneficial contracting, but also for promotion of the latest technology and developments in different fields of this branch of industry.

I wish all the participants and visitors of China Refrigeration Expo 2023 every success, expansion of business contacts and mutually beneficial partnership.

Russian HVAC society is looking for the close cooperation with Chinese Association of Refrigeration (CAR) and it's members in the indoor climate quality and energy saving engineering

IURII TABUNSHCHIKOV, President ABOK (Russian HVAC&R society)

Head of the Engineering Department of Moscow Architectural Institute (State Academy), Professor, Member of the Russian State Academy of Architecture and Construction Science, President of the Russian Heating, Ventilation, Air-Conditioning, Heat Supply and Constructional Thermal Physics Engineers Association (ABOK), ASHRAE Fellow member, VDI correspondent member, In 2007, he became a Nobel Prize Winner as a member of the International Panel on Climate Change (IPCC).



**CONGRATULATIONS
To
China Refrigeration Expo 2023**

We are pleased to learn that the 34th edition of China Refrigeration Expo is going to take place in Shanghai on April 7-9, 2023.

This Expo held in Shanghai has established itself as a unique and essential professional exhibition to showcase innovation and improvement in the HVAC&R Industry.

This Expo regularly features a wide range of exhibits, with the latest advances in technologies reflecting the most significant developments and achievements in the industry.

This International Expo with participation from several countries all over the world attracts technical and trade visitors & promotes cooperation and mutual advantage.

ISHRAE would like to congratulate the organizers - Chinese Association of Refrigeration (CAR) for consistently putting up a grand show and we in ISHRAE share a close cooperation with CAR based on our existing MoU.

With our best wishes for the success of China Refrigeration Expo 2023.

A handwritten signature in black ink that reads "Y Thakkar".

Yogesh Thakkar
National President - ISHRAE (2023-24)



Num : 48/2023
Date : 06.03 2023

To the kind attention of
China Refrigeration Expo Organizing Committee,

On behalf of İSKİD, Air Conditioning and Refrigeration Manufacturers' Association and its member companies, I would like to congratulate CAR and organizer team of **China Refrigeration Expo 2023**.

"China Refrigeration Expo" has proven itself as one of the landmarks in the sector of air conditioning, ventilation, and refrigeration throughout the years. It has surely gained a reputation as a successful project. Today, we witness that the exhibition continues to expand, contributing to the prosperity of the sector. We, İSKİD would like to thank The China Refrigeration Expo for contribution to the sector of the HVACR Industry by reaching all around the world. Today, a strong relationship between the two nations provides us an opportunity to develop the sector globally.

I trust that the exhibition will get great success again like in the past years. Once again thank you for your friendship, we look forward to standing continue our cooperation in the future.

Sincerely,

Ayk Serdar DiDONYAN
Chairman of İSKİD



JARN



Congratulations from JARN

The decarbonization issue has become the biggest challenge for the whole world, and is also a business opportunity for the HVAC&R industry.

In recent years, China has been developing inverter technology, promoting environmentally friendly refrigerants, and replacing coal-burning systems with ATW heat pumps, in order to reduce carbon emissions and contribute to efforts designed to achieve global carbon neutrality. I firmly believe that China, as the world's largest supply chain market, and China Refrigeration Expo, as the grandest industry event, will embrace a much brighter future.

Even in the face of the COVID-19 pandemic, JARN has maintained close connections with Chinese customers, and has witnessed how Chinese enterprises are sparing no efforts in expanding overseas markets, and are achieving growth in export markets despite a decreasing trend.

As an old friend of China Refrigeration Expo, hereby I would like to wish the 34th China Refrigeration Expo great success! JARN is looking forward to teaming up with all industry friends, to contribute to a low carbon society!

Sincerely yours,
Keisho Ka (何继承)
President
JARN

Japan Air Conditioning, Heating & Refrigeration News

JRAIA

The Japan Refrigeration and Air Conditioning Industry Association



CHINA REFRIGERATION EXPO 2023

On behalf of the JRAIA member companies, I would like to express my sincere congratulations on the CHINA REFRIGERATION EXPO 2023 in Shanghai that brings together manufacturers, industry experts and visitors.

Last year, it became more unstable compared to previous years. From the perspective of the economy, it will take some time to resolve major issues. From the perspective of climate changes, Japan experienced a record-breaking heat wave last summer, and Europe and the United States suffered forest fires and floods due to heat waves caused by global warming.

The refrigeration and air conditioning and heat pump products covered by JRAIA are environmentally friendly products that contribute to the reduction of CO₂ emissions, and are expected to contribute to overcome global warming and the realization of carbon neutrality, not only in Japan but also in global scale. JRAIA is striving in various activities including "appropriate action on environmental issues", "establishment of standards and guidelines", "support safety issues", "promotion of deregulation and support new technologies", and "promotion of international activities". JRAIA is supporting Japanese government's policies outlined in the "Sixth Basic Energy Plan" and the "Global Warming Prevention Plan" approved by the Cabinet in October 2021, in response to the "Carbon Neutrality Declaration for 2050.

This year, on 16th to 17th November 2023, JRAIA plans to hold the "International Symposium on Environment and New Refrigerants" at the Kobe International Conference Center Main Hall for the first time in five years. It is our pleasure to host the symposium in person, as the previous symposium in 2021 was held virtually.

And coming 2024, from 30th January to 2nd February, HVAC & R JAPAN, will held at Tokyo big site, which is gathering exhibitors and visitors from all over the world.

We hope to welcome many participants to attend this symposium and HVAC & R2024 to share latest updates on technology development and industry activities.

I believe that CRE2023 will provide the best opportunity for both exhibitors and visitors to exchange information on the latest technologies and to establish new businesses.

Congratulations again and wish all the best with success in this exhibition and hope that our close relationship will last for years to come.

Your Truly

Tetsuji Okada
President,

The Japan Refrigeration and Air conditioning Industry Association (JRAIA),Japan



JSRAE President Kuniaki Kawamura

Ladies and gentlemen, I am Kuniaki Kawamura president of JSRAE

JSRAE members all send our best wishes to China Refrigeration Expo 2023, one of the world's greatest events.

In the modern society, refrigeration and air-conditioning are essential items, and in Asia, many emerging technologies and tons of new products are developed and spread to the world.

During China Refrigeration Expo 2023, environmental and energy issues, including refrigerant issues, are expected to be discussed between the national and international attendees and exhibitors, and the results will contribute to humanity's greatest challenges.

I wish the success of China Refrigeration Expo 2023 and the attendees and exhibitors. And also hope for the continued development of CAR, JSRAE, and other related societies, keeping friends with.



Congratulation message for CR EXPO 2023

On behalf of KRAAC (Korea Refrigeration and Air-conditioning Assessment Center), I would like to congratulate this “China Refrigeration EXPO 2023”. My name is Park Cheon-jae, the newly appointed president. In the meantime, the former president has been developed the friendship through active exchanges with the CAR and I will further strive to improve the relationship between the two organizations.

Although the world is experiencing economic difficulties due to the COVID-19 crisis and is now transitioning from a pandemic to an endemic, However the rise in international energy prices due to the Russia-Ukraine crisis is acting as a driving force to further expand the heat pump market. The global heat pump market is expected to reach \$94.41 billion this year, increasing at a compound annual growth rate of 11.68% from \$54.33 billion in 2018. And the world is operating various policies on global climate change. Currently, heat pumps account for about 10% of global building heating demand, and according to the IEA 2050 Net Zero scenario analysis, it is evaluated that the proportion of heat pumps must increase by more than 20% by 2030 to effectively respond to global climate change. Accordingly, efforts for regional policy development and market transformation are being requested, and in the case of the European market, sales of heat pumps in 2021 increased by 35% compared to 2020. In this way, demand and technology development for heat pumps have become important, and I believe that the exchange of new technologies and information in the refrigeration and air conditioning fields of China and Korea, especially heat pumps, will be of great help to the development of both countries through this CR Expo.

KRAAC has been established in 2006 as non-profitable organization for assisting Korean HVAC companies to get oversea certifications. We worked for testing, assessment, technology development and energy policy in HVACR field in Korea and focused on the efficiency and verification tests related to MEPs of Korea.

Finally, I would like to congratulate deeply again and express my sincere appreciation to the members of the China Association of Refrigeration (CAR) and China Refrigeration and Air-conditioning Industry Association (CRAA) for their efforts to hold this exhibition “China Refrigeration EXPO 2023”



박천재

Cheonjae Park, President
Korea Refrigeration and Air-conditioning Assessment Center (KRAAC)





Hello!

My name is Sunghee Kang, and I'm the Chairman of the Korea Refrigeration and Air-conditioning Industry Association.

I would like to extend my sincerest congratulations to China Refrigeration 2023, the world's largest refrigeration and air-conditioning exhibition.

We see green building regulations increasingly tightening all around the world. Now we face a crucial time with growing needs and demand for smart-urban and energy-saving refrigeration equipment.

The refrigeration and air-conditioning industry is preparing for a new world by developing products that combine energy-saving technologies, renewable energy, artificial intelligence, and natural ventilation to reduce carbon emissions and maximize user convenience.

Products powered by the latest technologies to be unveiled at this year's China Refrigeration include air conditioning systems capable of responding to fine particular matter, cold chain systems with environmentally friendly refrigerants, and high-efficiency chillers. We hope this exhibition will be an inspiration for companies around the world to further their effort to develop future technologies that will facilitate the advancement of the industry.

I would like to thank all of you from the Chinese Association of Refrigeration, the China Refrigeration and Air-conditioning Industry Association or many businesses for your strong effort and devotion for the global HVAC industry.

I look forward to witnessing China Refrigeration 2023 becoming a festive ground for all those involved in the global refrigeration and air-conditioning industry.

Thank you.

February 27, 2023
Sunghee Kang
Chairman

Korea Refrigeration and Air-conditioning Industry Association



**The Society of Air-conditioning
and Refrigerating Engineers of Korea**

The Society of Air-Conditioning And Refrigerating Engineers of Korea



Dear CAR Colleagues

On behalf of my entire organization SAREK, I deeply feel the heartiest congratulations on the successful 34th China Refrigeration Expo 2023.

I sincerely appreciate your friendly invitation and would be happy to attend physically. I expect lots of ideas and products in relation with COVID will be widely found in China Refrigeration Expo 2023, and I am sure it will certainly offer valuable information to all participants.

Held for over 30 years, this event has established itself as one of the largest HVAC&R exhibitions in the world. At this Expo, creative ideas behind the high-tech products and the level of professionalism, knowledge, and passion are easily found. I am sure that this Expo will provide fruitful information of integrated systems, products, components, algorithms, and efficient controls to our refrigeration and air-conditioning society. In addition, this will be of paramount importance to meet experienced people from all over the world.

Your hard work and dedication have paid off, and the Expo was a huge success. Your contributions to the HVAC industry have been invaluable, and your commitment to providing innovative solutions has left a lasting impact.

It is our hope that this expo will further strengthen the relationship between CAR and SAREK and create new opportunities for collaboration and growth in the industry. Keep up the fantastic work, and here's to another successful year for the China Refrigeration Expo 2023.

With Warmest regards

Jae Dong CHUNG, President
The Society of Air-conditioning and Refrigerating Engineers of Korea (SAREK)



China Refrigeration Expo Congratulatory Message

On behalf of ASHRAE, let's congratulate the Chinese Association of Refrigeration (CAR) and the China Refrigeration and Air-conditioning Industry Association (CRAA) for the 34th China Refrigeration Expo 2023 in Shanghai New International Expo Centre, China,

Such a Expo is an important global interconnectedness for our HVAC&R professionals and industry, particular after the pandemic. The face-to-face exchange at the expo as well as those conference sessions will help improving the HVAC&R technologies, which will better serve the whole built-environment community in the globe.

We shall continue our collaborations and partnership with CAR to advance the arts and sciences of heating, ventilating, air-conditioning and refrigerating to serve humanity and promote a sustainable world, which is also the ASHRAE mission.

Again, congratulations. Best wishes for a successful Expo and Conference.

Sincerely,

A handwritten signature in blue ink, appearing to read "Edward Tsui".

Edward Tsui
ASHRAE Regional representative (China)



台灣區冷凍空調工程工業同業公會
Taiwan Refrigeration & Air-conditioning Engineering Association



恭祝二〇二三年第三十四屆中國制冷展

萬商雲集
駿業肇興

台灣區冷凍空調工程工業同業公會

理事長 段春雷 敬賀

恭賀中國制冷學會2023中國制冷展成功

萬商雲集
展出成功

台灣省冷凍空調技師公會
理事長及全體理事敬賀

祝賀 2023中國製冷展

活動圓滿成功

台灣冷凍空調學會 理事長 施陽正

暨全體理事 敬賀



Congratulatory Message

On behalf of ASHRAE Hong Kong Chapter, I convey my heartiest congratulation to the Organizing Committee for China Refrigeration Expo on the 34th China Refrigeration Expo 2023 and wish the CR expo every success.

Ever since its initiation in 1987, CR expo has continued to make remarkable contributions to the nourishment of professionals in meeting the world's evolving needs on HVAC&R due to the climate change and our continuous decarbonization goal. This extraordinary event intended to bring together professionals in wide range of disciplines associated with the HVAC&R industry. It continues to attract the top members in the industry and has been continuously serving as a professional development platform.

On behalf of the ASHARE Hong Kong Chapter, I am looking forward to having more collaborations with Chinese Association of Refrigeration and I would like to wish the China Refrigeration Expo a fruitful and memorable event, and members of the Chinese Association of Refrigeration continued success in their future endeavors.



A stylized, handwritten signature in black ink, appearing to read "Joe Chow".

Joe Chow
 President (2022-2023)
 ASHRAE Hong Kong Chapter



TC Chan,
Chair 22-23 of The Chartered Institution
of Building Services Engineers,
Hong Kong Region

Congratulations messages

It's my great honor to give on behalf of CIBSE HK Region the heartiest congratulation to the Chinese Association of Refrigeration on your China Refrigeration Expo 2023 in Shanghai. Wishing you every success on your exhibition! I would expect you to reach your goal to promote professionalism and innovation.



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香港能源工程師學會會長

余达志工程師

敬賀

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中国制冷展二零二三



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The Hong Kong Air Conditioning and Refrigeration Association Limited
香港空調及冷凍商會有限公司

A Founding Association of HKFEMC

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香港空調及冷凍商會

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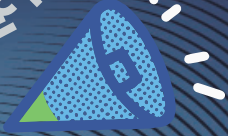


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Timetable for CRH 2023

DATE	TIME	PROGRAMME	VENUE
April 6 th	15:30-16:30	Innovation Products Launch	Himalayas Ballroom, 6 th Floor, Jumeirah Himalayas Hotel
April 7 th	09:00-11:50	Opening Ceremony and CRH 2023 Forum	Grand Ballroom, 3 rd Floor, Jumeirah Himalayas Hotel
April 7 th	09:00-17:30	Exhibition	Shanghai New Int'l Expo Centre (SNIEC)
April 8 th	09:00-17:30		
April 9 th	09:00-16:00		
April 7 th -8 th	09:30-17:30	CRH 2023 Symposiums	Shanghai New Int'l Expo Centre (SNIEC)
April 7 th -9 th	09:00-17:30	Technical Seminars	Meeting Rooms, SNIEC Grand Ballroom , Holiday Inn Shanghai Pudong Kangqiao Second Floor, Ballroom C, SheratonGrand Shanghai Pudong Hotel
April 9 th	10:00-11:00	Golden Products Launch	Meeting Room E2-M19, SNIEC

CRH 2023 Forum

DATE	TOPIC	SPEAKERS		VENUE
April 7 th 09:20-11:50	The Important Position of Heat Pump in Energy Revolution and the Technical Key that must be Solved	JIANG Yi	Prof, Academician of Chinese Academy of Engineering, Director of Building Energy Conservation Research Center of Tsinghua University, Chairman of Chinese Association of Refrigeration	Grand Ballroom, 3 rd Floor of Jumeirah Himalayas Hotel, SHANGHAI
	Wisdom Maintenance of Urban Vitality	WU Zhiqiang	Prof, Academician of Chinese Academy of Engineering, School of Architecture and Urban planning, Tongji University	
	Guidance for Industry Elites	WU Desheng	Prof, Professorate Senior Engineer, Director of the Expert Committee of China Refrigeration Expo	
	Global Trends in Space Heating and Cooling Energy Demand in Buildings: a Focus on Heat Pumps	Araceli Fernandez	Head of Technology and Innovation Unit, International Energy Agency	

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ISSN 0253-4339
CN 11-2182/TB

《中国制冷简报》着重介绍中国制冷、空调、供暖、通风及相关领域的各类信息摘录，行业国际资讯。旨在推动科技创新，推广应用技术；报道行业动态，促进业内交流。

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CRH2023 Symposiums

DATE	TIME	TOPIC	VENUE
April 7 th	14:00-16:30	Symposium 1: Technical Innovation and Application for R&AC	Meeting Room W4-M7, SNIEC
	14:00-16:30	Symposium 2: New Technology of Refrigerating Compressor	Meeting Room W5-M8, SNIEC
	14:00-16:30	Symposium 3: Special Technical Report on New Standards of Refrigeration and Air Conditioning Equipment	Meeting Room E1-M11,SNIEC
	14:00-16:30	Symposium 4: Energy Storage Air Conditioning Development Forum	Meeting Room E2-M14,SNIEC
	14:00-16:30	Symposium 5: Compressor Application Technology-Heat Pump Compressor	Meeting Room E2-M17,SNIEC
	14:00-16:30	Symposium 6: Green Low-carbon Building and Park Technology Route Practice Forum	Meeting Room E2-M18,SNIEC
	14:00-16:30	Symposium 7: Energy-saving of Air-conditioning System and New Dehumidification Technology & Introduction and Book Signing of Shanghai Refrigeration History	Meeting Room E2-M19,SNIEC
	14:00-16:30	Symposium 8: Launch of <i>Heat Pump Application Demonstration Projects Case Set</i> and Typical Case Reports	Meeting Room E3-M23,SNIEC
	14:00-16:30	Symposium 9: Potentials and Barriers of Implementing Nature Refrigerants	Meeting Room E3-M24,SNIEC
	14:00-16:30	Symposium 10: Prospects for Sustainable Innovation in Ice Technology and Industry in Post-Winter Olympic Era	Meeting Room E4-M25,SNIEC
	14:00-16:30	Symposium 11: International Cold Chain Technical Forum (Simultaneous Interpretation)	Meeting Room E4-M27,SNIEC
	14:00-16:30	Symposium 12: Green and Smart Data Center Cooling Technology Forum	Meeting Room E5-M28,SNIEC
	14:00-16:30	Symposium 13: Forum on Innovative Development of Cold Chain Logistics in China under the Double Carbon Goal	Meeting Room E5-M32,SNIEC
	13:30-16:30	Symposium 14: 2023 Ozone2Climate Technology Industry Roundtable	Ozone2Climate Technology Roadshow and Industry Roundtable (Booth# E3G31)
April 8 th	09:30-12:30	Symposium 14: 2023 Ozone2Climate Technology Industry Roundtable	Ozone2Climate Technology Roadshow and Industry Roundtable (Booth# E3G31)
	13:30-16:30		
	09:30-12:00	Symposium 15: International Forum on Low Carbon Solution for Space Heating and Cooling (Online, Simultaneous Interpretation)	Online

DATE	TIME	TOPIC	VENUE
April 8 th	09:30-12:00	Symposium 16: Technical Forum on Cold Chain Equipment	Meeting Room W4-M7,SNIEC
	09:30-12:00	Symposium 17: Key Technology and Application of Evaporative Cooling Air Conditioning	Meeting Room W5-M8,SNIEC
	09:30-12:00	Symposium 18: High Efficiency Chiller Plant (HECP) – Advances in High Efficiency HVAC&R Systems in China	Meeting Room W2-M9,SNIEC
	09:30-12:00	Symposium 19: Forum on Energy Storage Peak Regulation Technology in Building Air Conditioning and Heating System	Meeting Room E2-M14,SNIEC
	09:30-12:00	Symposium 20: Health, High Efficiency and Low Carbon Indoor Air Environment	Meeting Room E1-M16,SNIEC
	09:30-12:00	Symposium 21: Low-carbon Technology and Engineering Application of Refrigeration and Air Conditioning	Meeting Room E2-M17,SNIEC
	09:30-12:00	Symposium 22: Workshop on Low Carbon Development of VRF System	Meeting Room E2-M18,SNIEC
	09:30-10:30	Symposium 23: Symposium on Quality Improvement of Multi-Connected Air Condition (Heat Pump) units	Meeting Room E2-M19,SNIEC
	10:30-12:00	Symposium 24: Symposium on Quality Improvement of Refrigeration and Air-Conditioning Components	Meeting Room E2-M19,SNIEC
	09:30-12:00	Symposium 25: New Type of Energy Storage and Advanced Low Carbon Technology Symposium	Meeting Room E3-M23,SNIEC
	09:30-12:00	Symposium 26: Technologies on Low Carbon and Long-term Effectiveness of Heat Exchanger	Meeting Room E3-M24,SNIEC
	09:30-12:00	Symposium 27: Cold Chain Technology and Management Forum for Agricultural Products	Meeting Room E4-M27,SNIEC
	09:30-12:00	Symposium 28: The 5th Air Purification and Fresh Air Technology Symposium	Meeting Room E5-M28,SNIEC
	09:30-12:00	Symposium 29: Cold Chain New Technology under Carbon Peaking and Carbon Neutrality Goals	Meeting Room E5-M32,SNIEC
	14:00-16:30	Symposium 30: Refrigeration, Air-conditioning and Ventilationfor Rail Transit	Meeting Room W4-M7,SNIEC
	14:00-16:30	Symposium 31: Smart OM – Improving System Efficiency and Reliability of HVAC&R through Intelligent Operation and Maintainance	Meeting Room W2-M9,SNIEC
14:00-16:30	Symposium 32: Forum on Energy Station Design and Low-carbon Operation	Meeting Room E1-M13,SNIEC	
14:00-16:30	Symposium 33: Outstanding Engineer Forum	Meeting Room E1-M15,SNIEC	

DATE	TIME	TOPIC	VENUE
April 8 th	14:00-16:30	Symposium 34: Forum on Thermal Comfort, Health and Applications	Meeting Room E1-M16,SNIEC
	14:00-16:30	Symposium 35: Building Energy Storage Helps the Low-carbon Transition of Power System	Meeting Room E2-M17,SNIEC
	14:00-16:30	Symposium 36: Symposium on Advanced Air Conditioning and Dehumidification Technologies and their Applications	Meeting Room E2-M18,SNIEC
	13:30-15:00	Symposium 37: Symposium on High-Tech & Refrigeration Technology	Meeting Room E2-M19,SNIEC
	15:00-16:30	Symposium 38: Symposium on Refrigeration & Air-conditioning Technology for Ice and Snow Industry	Meeting Room E2-M19,SNIEC
	14:00-16:30	Symposium 39: High-efficiency Heat Pump Technology for Building Heating	Meeting Room E3-M23,SNIEC
	14:00-16:30	Symposium 40: Symposium on Refrigeration and Food Safety	Meeting Room E4-M27,SNIEC
	13:30-17:00	Symposium 41: Symposium on Heat Pump New Technology and Quality Improvement Development	Meeting Room E5-M28,SNIEC
	14:00-16:30	Symposium 42: Symposium on Innovation Technology and National Standard Revision of Central-station Air Handling Units	Meeting Room E5-M32,SNIEC

Schedule for Technical Seminars

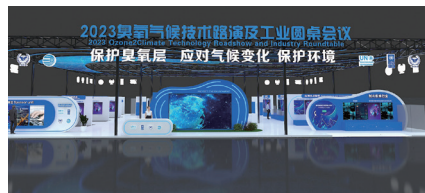
DATE	TIME	COMPANY	TOPIC	VENUE
April 7 th	11:30-13:00	China Refrigeration and Air-Conditioning Industry Association (CRAA)	Press Conference of the 17 th Science and Technology Contests for College Students of China R&AC Industry	Meeting Room E1-M12, SNEIC
	13:00-15:00	Johnson Controls-Hitachi Wanbao Compressor (Guangzhou) Co., Ltd.	Low GWP Refrigerant Variable Speed Scroll Compressor for Heat Pump	Meeting Room W3-M10, SNEIC
	13:00-17:00	Johnson Controls-Hitachi Wanbao Air-conditioning (Guangzhou) Co., Ltd.	Hitachi Vertical Solution Seminar	Meeting Room W2-M2, SNEIC
	13:30-16:00	Hollingsworth & Vose (Suzhou) Co., Ltd.	Seminar on Frontier Technologies for Healthy Indoor Space and Low-carbon Building Construction	Meeting Room W4-M6, SNEIC
	13:30-16:30	Emerson Climate Technologies (Suzhou) Co., Ltd.	1. Copeland™ Data Center Low PUE Solutions 2. Copeland™ Super-high Temperature Heat Pumps Give New Vitality To Industrial Heating 3. Copeland™ Cold Chain Integrated Solutions Guarantee The Quality of Fresh Fruits and Vegetables	Meeting Room E1-M13, SNEIC
	13:30-17:00	Chinese Association of Refrigeration	Media Cup China HVACR Innovation Award	Meeting Room E1-M15, SNEIC
	13:45-14:25	Shenzhen Syslab Electronics Co., Ltd.	Variable Frequency Driver Introduction	Meeting Room W1-M1, SNEIC
	14:30-15:10		Frequency Direct Expansion Units Controller Solution and Application	
	15:20-16:05		Energy Storage Air Conditioner Controller Solution and Application	
	14:00-16:30	Shanghai General FuShi Refrigeration Equipment Co., Ltd.	How to Build A Low Emission Efficient and Reliable Refrigeration System for Cold Storage	Meeting Room E1-M16, SNEIC
	14:00-15:30	Climaveneta Chat Union Refrigeration Equipment (Shanghai) Co., Ltd.	Climaveneta Green Data Center Products Meeting-Magnetic Levitation Phase Change Cooling System	Meeting Room W2-M3, SNEIC
	15:30-16:45		Climaveneta Green Healthcare Solution Forum	
	15:00-16:00	Gree Electric Appliances, Inc. Of Zhuhai	Gree Efficient Commercial Air Conditioning Technology Empowers Carbon Neutrality of Buildings	Meeting Room W2-M9, SNEIC

DATE	TIME	COMPANY	TOPIC	VENUE
April 8 th	08:30-12:35	The Organizing Committee of China Refrigeration Expo Building Environment and Energy Utilization Branch of China Engineering & Consulting Association	Technical Seminar of National Chief Engineer Delegation	Grand Ballroom 2, Holiday Inn Shanghai Pudong Kangqiao
	09:00-13:00	Shanghai Hanbell Machinery Co., Ltd.	1.Introduction to the Application of New Environmental Friendly Refrigerant 2.Application Introduction of Hanbell Large Displacement and High Efficiency Refrigeration Screw Compressor 3.Application Introduction of Hanbell High Efficiency and Variable Frequency Air-conditioning Compressor 4.Freezing and Refrigeration Application Solutions of Hanbell Screw Compressor 5.Natural Refrigerant Application Solutions of Hanbell Screw Compressor 6.Model Selection and Energy-saving Application Solutions of Hanbell Freezing and Refrigeration Screw Compressor 7.Introduction of Hanbell Magnetic Centrifugal Compressor	Meeting Room E1-M13, SNEIC
	09:30-13:00	ACOL(Shanghai) Online Controls Co., Ltd.	Innovative selection and design of water system components to ensure the safety of main engine operation&application of water flow sensor in heat pump main engine	Meeting Room W4-M6, SNEIC
	09:30-12:00	Chinese Association of Refrigeration	Chinese Substitutions of Refrigerants Seminar on Chinese Substitutions of Refrigerants and their Readiness Evaluation (Closed-door Meeting)	Meeting Room E4-M25, SNEIC
	10:00-11:00	Sanhua (Hangzhou) Micro Channel Heat Exchanger Co., Ltd.	Highly Anti-corrosion MCHE Coils	Meeting Room E1-M12, SNEIC
	10:00-12:00	Beijing HaiLin Control Technology Inc.	An New Era of Chinese BAS - Hailin Controls 1.Hailin BAS Characters Different from Others 2.Hailin BAS Products Contribution for Building Carbon Neutrality 3.High Efficient Energy Monitor and Control by Hailin Smart Control	Meeting Room W2-M2, SNEIC
	10:00-12:30	Xi'an Green Spanner Environmental Technology Co., Ltd.	Green Spanner C Launching Ceremony	Meeting Room W2-M3, SNEIC

DATE	TIME	COMPANY	TOPIC	VENUE
April 8 th	11:00-12:00	Chinese Association of Refrigeration ASHRAE National Steering Subcommittee for Higher Education in Building Environment and Energy Engineering	CAR-ASHRAE Student Design Project Competition Award 2022	Meeting Room E1-M15, SNIEC
	13:00-17:00	Nantong Huaxin Central Air Conditioning Co., Ltd.	Temperature and Humidity Independent Control Product Development and Application (Open Forum)	Meeting Room W3-M4, SNIEC
	13:30-14:15	BITZER Refrigeration Technology (China) Co., Ltd.	BITZER Natural Refrigerants Solutions	Meeting Room E3-M22, SNIEC
	13:30-16:00	SHANGHAI DORIN COMPRESSOR SALES CO., LTD.	Dorin: Advanced Application of Refrigeration and Heat Pump Technology 1.The Application Range of the New Series 2.Visualization of Performance Improvement 3.Features and Advantages of Dorin Compressors"	Meeting Room E1-M12, SNIEC
	13:30-15:00	Climaveneta Chat Union Refrigeration Equipment (Shanghai) Co., Ltd.	Climaveneta Green Low Ambient Temperature Heating Solution Forum	Meeting Room W2-M3, SNIEC
	15:00-17:00		Climaveneta Green ClimaHOME 2.0 Quality Residential Solution Forum	
	14:00-16:00	Honeywell China Company Limited	Honeywell Efficient and Environmental-friendly Refrigerants Solution	Meeting Room W3-M10, SNIEC
	14:30-16:30	INTERTEK GROUP PLC	Technical Seminar of Flammable Refrigerant Standards Explanation	Meeting Room W1-M1, SNIEC
	14:00-16:30	Chinese Association of Refrigeration China Nonferrous Metals Industry Association Aluminium Branch	Seminar on Key Technologies and Industrial Collaboration for Application of Aluminum Based Heat Exchangers in HVAC (Closed-door Meeting)	Meeting Room E2-M14, SNIEC
	14:00-17:00	Southeast University China National Institute of Standardization	Seminar on Low-carbon Technologies and Standards for Water Chilling (Heat Pump) Units	Meeting Room E3-M24, SNIEC
April 9 th	09:30-12:00	Chinese Association of Refrigeration	Seminar of the Technical Roadmap for Product and System Standards in Commercial Refrigeration Sector(Closed-door Meeting)	Meeting Room E2-M17, SNIEC
	14:30-17:30	Chinese Association of Refrigeration	The 8th Light Commercial Refrigeration Technology Industry- University Integration Conference & <i>China Light Commercial Refrigeration Industry Development Blue Book in 2022</i> Release Ceremony	Second Floor, Ballroom C, Sheraton Grand Shanghai Pudong Hotel

Ozone2Climate Technology Roadshow and Industry Roundtable 2023

The Ozone2Climate Technology Roadshow and Industry Roundtable 2023 will be held from April 7 to 9 at booth E3G31 of the 34th China Refrigeration Expo.



Since the Ozone2Climate Technology Roadshow and Roundtable 2012 held at China Refrigeration Expo, it has developed into an important platform for the exchange of ozone climate-friendly information in the global refrigeration, air conditioning and HVAC&R industry.

Experts from relative government departments, international institutions, industry associations, enterprises, research colleges and universities and other institutions brought the latest policies and regulations, technological developments, standard progress, achievements, and experience, making indispensable contributions to the realization of the phased implementation goals of the Montreal Protocol in China and even the global refrigeration and air conditioning industry.

In 2021, China officially joined the Kigali Amendment and China has proposed the "dual goals" of carbon emission peaking and carbon neutrality in 2020. The tasks on elimination of HCFCs, carbon emission reduction and HFCs reduction promoted the refrigeration and air conditioning industry to choose more environmentally friendly, greener, and more efficient products and technologies. On this occasion, Under the support of organizers of China Refrigeration Expo, and guidance of Department of Atmospheric Environment, Ministry of Ecology and Environment, the four organizers of the activities of the Ozone2Climate Technology Roadshow and Industrial Roundtable, namely the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), the Foreign Environmental Cooperation Center (FECO) of the Ministry of Ecology and Environment, and the China Refrigeration and Air-Conditioning Industry Association (CRAA), will carry out a series of technical demonstrations and exchange activities during the roadshow and Industry roundtable.

Schedule of events:

Event	Time	Venue
Ozone2Climate Technology Roadshow	April 7~9 9:00~17:00	Booth E3G31
Industry Roundtable	Policies and Challenges April 7 13:30~16:30	
	Air Conditioning and Cold Chain Technology April 8 9:30~12:30	
	Good Maintenance Practice April 9 13:30~16:30	

There will be English and Chinese Simultaneous interpretation at the roundtables.

During the roundtable, the China Refrigeration and Air-Conditioning Industry Association will hold the new book release ceremony of "Safety Risk Assessment and Application Technology of R32 Refrigerant" at the roundtable on "Air Conditioning and Cold Chain Technology". The release and book donation ceremony of the group standard of "Management Code for Refrigeration and Air Conditioning Equipment and System Refrigerants" at the roundtable on "Good Maintenance Practice". Welcome to scan the code to register for the limited opportunities.



Ozone2Climate Technology Industry Roundtable 2023

Chinese-English Simultaneous Interpretation

Time: 13:30-16:30, April 7, 2023

9:30-12:00, 13:30-16:30, April 8, 2023

Venue: Ozone2Climate Technology Roadshow and Industry Roundtable
(Booth No. E3G31)

13:30-16:30, April 7

Lectures:

1. Implementation Progress on Montreal Protocol of China
——Mr. Xing Xuebin, Officer, Department of Atmospheric Environment, Ministry of Ecology and Environment
2. Experience and Trend of Refrigerant Substitution Under the Montreal Protocol in China
——Ms. Guo Xiaolin, Foreign Environmental Cooperation Center, Ministry of Ecology and Environment (FECO)
3. Overview of the HCFC Phaseout in the R AC Sector in the Asia Pacific
——Ms. Elisa Rim, Programme Management Officer - South Asia Network, OzonAction Branch, UNEP
4. Technological Challenges and Opportunities for the Phase-out of HCFCs and Phase-down of HFCs
——Mr. Anderson Moreira do Vale Alves, Regional Coordinator for Asia-Pacific – Montreal Protocol Unit, UNDP
5. State of Refrigerant Transition
——Mr. Stephen Yurek, President and CEO, Air-Conditioning, Heating, and Refrigeration Institute (AHRI)
6. Opportunities and Challenges for the RACHP Sector in the EU
——Ms. Federica Rizzo, Senior Policy Director, European Partnership for Energy and the Environment (EPEE)
7. Refrigerant Substitution Technology, Market Information & Development Trends in India
——Mr. Vikram Murthy, Chair ISHRAE Environment Protection Committee, Indian Society of Heating Refrigerating & Air conditioning Engineers (ISHRAE)
8. HCFCs Policy Options and Restrictions in Global Markets
——Ms. Pan Jie, Regional Technical Advisor, UNDP

9:30-12:30, April 8

Lectures:

1. Developments and Prospects of Refrigerant Substitution Technology in China
——Mr. Zhang Zhaohui, Vice Chairman & Secretary General, China Refrigeration and Air-Conditioning Industry Association (CRAA)
2. Implementing Ningbo Urban Green and Low-Carbon Development Project with ADB Loan
——Mr. Wang Guangxu, President, Ningbo Development Planning Research Institute
3. Progress and Prospects of Energy Efficiency Standards for Refrigeration and Air Conditioning in China
——Mr. Cheng Jianhong, Researcher, China National Institute of Standardization

4. Energy Efficiency and Consumption of HVAC in Buildings

—Mr. Pan Yungang, Chief Engineer, China Architecture Design & Research Group

5. The Important Technology and Development Trends of Key Equipment Used in the Cold Chain

—Prof. Liu Shengchun, Dean, Tianjin University of Commerce

6. Innovative application of environment-friendly refrigerant, low carbon cooling and heating technology in petroleum and petrochemical fields

—Mr. Zhang Huiming, Vice President, Moon Environment Technology Co., Ltd.

7. Development of Energy Efficiency Improvement for Transcritical CO₂ Heat Pumps & AC Systems

—Prof. Cao Feng, Xi'an Jiaotong University

8. Application of Carbon Dioxide Heat Pumps

—Mr. Song Minggang, General Manager, Shandong Shenzhou Refrigeration Equipment Co. LTD

13:30-16:30, April 8

Lectures:

1. Progress in Refrigeration the and Air-Conditioning Servicing Sector

—Ms. Hua Xue, Senior Project Officer, Foreign Environmental Cooperation Center, Ministry of Ecology and Environment (FECO)

2. Refrigerant Recovery and Disposal Management in the Context of Carbon Reduction

—Ms. Hu Junjie, Senior Engineer, China Solid Waste and Chemicals Management Technology Center
Ms. Hu Junjie, Senior Engineer, China Solid Waste and Chemicals Management Technology Center

3. High Level Training Room Construction Supports High-Quality Development of the Industry

—Prof. Xu Yansheng, Shunde Polytechnic

4. Interpretation of Technical Specification for Refrigerant Management of Refrigerating and Air-Conditioning Equipment and System

—Ms. Liu Lulu, Senior Engineer, China Refrigeration and Air-Conditioning Industry Association (CRAA)

5. An In-Depth Look at Refrigerant Recovery and Reclamation

—Prof. Han Xiaohong, Zhejiang University

6. Exploration of Long-Term Refrigerant Management Mechanisms and Good Practices in Shanghai

—Mr. Shao Naiyu, Secretary-General, Shanghai Refrigeration and air conditioning Industry Association

7. Research on After-sales Installation and Maintenance of Central Air Conditioning: Based on Carbon Peaking and Carbon Neutrality Targets

—Mr. Liu Qinglong, After-sales Technology Supervisor, GREE Electric Appliances, Inc. Of Zhuhai

8. Status Quo and Potential Analysis of Refrigerant Recovery and Utilization

—Mr. Wang Haitao, General Manager, Tianjin Aohong Environmental Protection Material Co., Ltd.

Symposium 16: Technical Forum on Cold Chain Equipment

Time: 9:30-12:00, April 8, 2023

Venue: W4-M7

Symposium 17: Key Technology and Application of Evaporative Cooling Air Conditioning

Time: 9:30-12:00, April 8, 2023

Venue: W5-M8

Symposium 23: Symposium on Quality Improvement of Multi-Connected Air Condition (Heat Pump) Units

Time: 9:30-10:30, April 8, 2023

Venue: E2-M19

Symposium 24: Symposium on Quality Improvement of Refrigeration and Air-Conditioning Components

Time: 10:30-12:00, April 8, 2023

Venue: E2-M19

Symposium 28: The 5th Air Purification and Fresh Air Technology Symposium

Time: 9:30-12:00, April 8, 2023

Venue: E5-M28

Symposium 30: Refrigeration, Air-conditioning and Ventilation for Rail Transit

Time: 14:00-16:30, April 8, 2023

Venue: W4-M7

Symposium 37: Symposium on High-Tech & Refrigeration Technology

Time: 13:30-15:00, April 8, 2023

Venue: E2-M19

Symposium 38: Symposium on Refrigeration & Air-conditioning Technology for Ice and Snow Industry

Time: 15:00-16:30, April 8, 2023

Venue: E2-M19

Symposium 41: Symposium on Heat Pump New Technology and Quality Improvement Development

Time: 13:00-17:00, April 8, 2023

Venue: E5-M28

Demonstration Area of Light Commercial Refrigeration Technology and Solutions to Debut in CRH 2023

Demonstration Area of Light Commercial Refrigeration Technology and Solutions (Light Commercial Demonstration Area in short) will make its grand debut during 34th International Exhibition for Refrigeration, Air-conditioning, Heating & Ventilation, Frozen Food Processing, Packing and Storage (CRH 2023) in April 7-9th 2023.

Thanks to the accelerating development of the demand on the coldchain logistics from the end users, fresh produce e-business and catering industry, the function of the light commercial refrigeration field products becomes more and more prominent. To push forward the technology innovation in the light commercial refrigeration field, contribute to the high-quality development of the industry, as entrusted by the CRH Organizing Committee, Chinese Association of Refrigeration will continue to sponsor the Demonstration Area for the third year.

The Demonstration Area is located at the booth E1D31 of E1 Hall within Shanghai New International Expo Centre. With the philosophy of environment protection, low carbon emission and high reliability, there are following seven exhibitors showcasing their latest technology and products.

Changhong Huayi Compressor Co., Ltd

Shanghai Highly (Group) Co., Ltd

Shanghai General Fushi Refrigerating Machine Co., Ltd

Guangzhou WanBao Group Compressor Co., Ltd

Panasonic Coldchain (Dalian) Co., Ltd

Haier Carrier Refrigeration Equipment Co.,Ltd. (Qingdao)

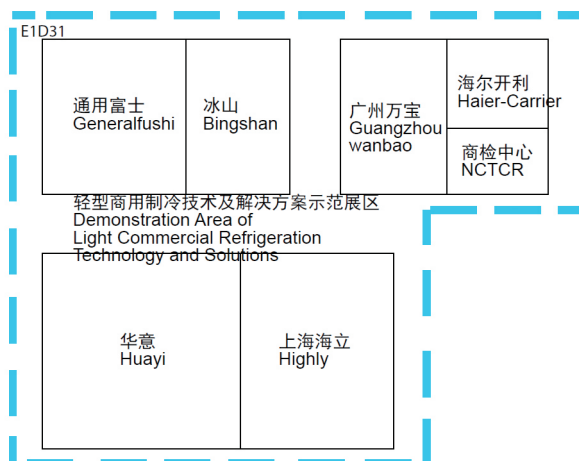
National Center for Testing Commercial Refrigerators (NCTCR)

E1D31 Light Commercial Demonstration Area expects your visiting.

Contact: Sun Yukun, Chinese Association of Refrigeration (CAR)

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Heat Pump New Technology and Higher Product Quality ——Heat Pump Area at CRH 2023

The Heat Pump Area will be launched during the 34th International Exhibition for Refrigeration, Air-conditioning, Heating & Ventilation, Frozen Food Processing, Packing and Storage (China Refrigeration Expo) on April 7-9th 2023.

China is strong in researching, producing and using refrigerators and heat pumps. Thanks to the push from the heating policy relating to replace the coal with clean energy in North China, the heating demand from South China grows stronger and stronger, such that the heat pump turns into one of the best sellers in the industry. Owing to the European Energy crisis as a result of the Russia-Ukraine conflict, the export of the heat pump embraces explosive increase. To assist in the quality-oriented development for the heat pump, CRH Organizing Committee determines to set up the Heat Pump Area and launch the related campaigns same as last year. The heat pump area is hosted by the China Refrigeration Exhibition Organizing Committee, organized by China Refrigeration and Air Conditioning Industry Association, and co-organized by China Refrigeration and Air Conditioning Industry Association Heat Pump Branch and Hefei General Machinery & Electrical Products Inspection Institute, and makers engaging in the domestic mainstream heat pumps and their key parts offer vigorous supports in this respect.

The Heat Pump Area, located in Booth E4D01 of E4 Hall, covers an area of 500 square meters, with the theme of “Heat Pump New Technology and Higher Product Quality”, and all-round exhibits the heat pumps technical merits in saving the energy and carbon emission. The major heat pump manufacturers in China, such as ARCO, OUTES, AOKOL, TENESUN and HONGYAN will exhibit their latest technology and products. The mainstream heat pump key parts makers consisted of Emerson, Danfoss, Bitzer, SONYO, HZSS and TATSUKIN will also showcase their latest technology and commercial applications.

The Area will further hold open-themed technical seminar in relation with the theme of “Heat Pump New Technology and Higher Product Quality” on the afternoon of April 8th, which may cover the following latest technology in the heat pump industry: the heat pump technology development and reform as guided by double-carbon goal, European R290 heat pump copeland solution, heat pump compressor new application and technology development etc.

Let’s meet at E4D01 and E5-M28 Heat Pump Area.

Branded Companies Regulated Service, Good Practice and Skilled Craftsman Debut at China Refrigeration and Air Conditioning After-market Standard Service Exhibition Area in the 34th CRH

China Refrigeration and Air Conditioning After-market Standard Service Exhibition Area successfully debuted in 32th and 33th CRH, attracted broad attention from major brands aftermarket service departments in the industry, who in turn attached greater importance in this respect. The exhibition area offer platform for the branded companies to take the lead and for micro-and-small companies to absorb the experience via learning, playing active role in enhancing the aftermarket regulated service level.

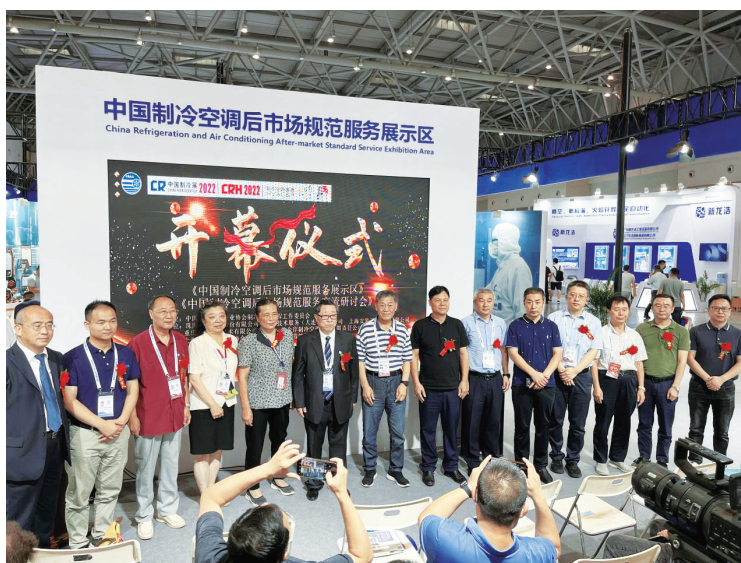
The aftermarket service has involved into an important condition for a company to grow bigger and stronger. It is widely known that the air-conditioner market sustaining fierce competition has shifted from the pre-sales to post-sales, the marketing refers to not only the product and price, but the aftermarket, who can offer best service in aftermarket, then it can win the the users preference and market share in broader sense. It is laudable that the refrigerator aftermarket is bound to be a blue market in the industry, which is of critical significance for the double-carbon commitment, energy-conservation and emission reduction, environment protection and public sanitation and air quality assurance.

Owing to the disruption of the pandemic, there were lots of branded companies absent from the first two China Refrigeration and AC Aftermarket Standard Service Exhibition Area, who are zealous in signing in this year, and plan to dispatch strong team to exhibit their well-regulated service. However, as restrict by the area coverage, it is recommended that the following services are included in the featured service in the exhibition area: Gree expertise service, Haier seven-starred installation service, Moon-tech low carbon butler service and Bingshan Double-wheel service, who will bring a grand feast to the visitor from another perspective.

In terms of the industrial highlights, the area will further invites the branded companies home and abroad to exhibit the technology and service for the public venue air quality assurance.

In addition, in line wit the demand of protecting the environment and ozone layer in particular from the Ministry of Ecological and Environment, we will also sponsor site demo as follows: refrigerant good practice, good practice of welding without open flame.

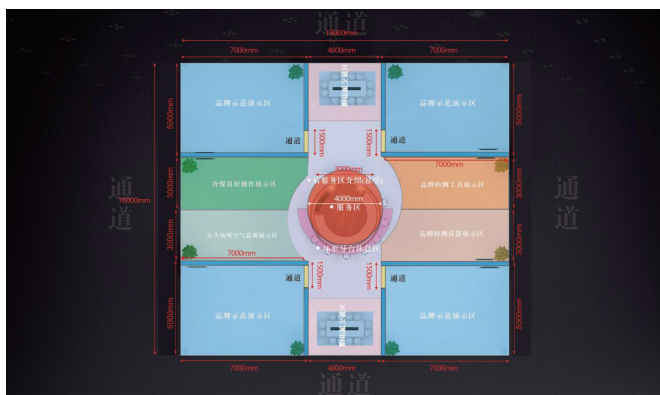
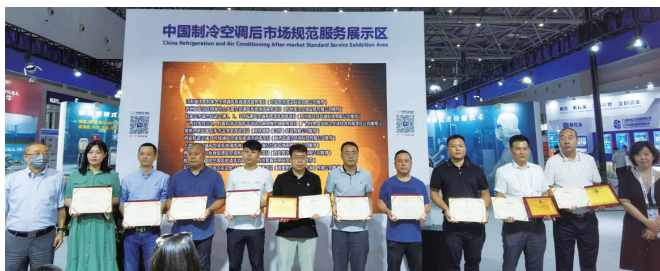
Such exhibition area during the CRH major aims to leading the industry development via reinforcing the overall service level. On the part of the micro and small businesses with higher proportion, they not only wish to learn the well-regulated service undertaken by the branded companies via the first-class tool demo, but obtain more supports from the later.



To this end, the exhibition area not only invites the world-class branded testing instruments factory to lively demonstrate “how to make good use of the advanced tools to warrant the well-regulated service”, but we will launch six round table technical seminars in innovative fashion to make possible the face-to-face exchange between the branded company aftermarket service department, tool maker GM (CTO) with the micro and small business with specific demands.

It is convinced that the exhibition area is bound to emerge highlights in succession, growing into an unmissable exchange opportunity and grand venue for skills contest.

Welcome your visit to exchange and offer your valuable comments.



Innovation and Cooperation towards Collaborative Development

—The 14th "Chief Engineer Group of National Design Institutes" Gathers in Shanghai

Hosted by the Organizing Committee of China Refrigeration Expo, organized by China Refrigeration and Air-conditioning Industry Association, co-organized by Building Environment and Energy Utilization Branch of China Engineering and Consulting Association, the 14th "National Engineering Group of National Design Institutes" Activity (hereinafter referred to as the Chief Engineer Group), undertaken by Beijing CRAA Quality Certification Center Co., Ltd., will be held at the China Refrigeration Expo on April 7-8, 2023.

The "Chief Engineer Group" has been successfully held for 12 consecutive sessions. The chief engineers and designer experts from the major design institutes and architectural institutes across the country have formed a professional team, connecting design institutes and enterprises as a link, and building a two-way selection exchange platform between designers and enterprises to help generate better cooperation intentions. Since the first "Chief Engineer Group" activity held in 2010, with new chief engineers and technical experts from HVAC design institutes joining the team every year, the number of members has increased year by year. With the recognition of more and more users and enterprises, the "Chief Engineer Group" activity, as one of the landmark theme activities of China Refrigeration Expo, has condensed into the "Chief Engineer Group Culture" effect, and continues to promote the participation value of the exhibition year by year.

The "Chief Engineer Group" activity this year actively responds to the call of the state for the refrigeration and air conditioning industry, with "Innovation and Cooperation towards Collaborative Development" as the theme. It advocates to actively promote the "carbon neutrality" action in the aspects covering the design and development, production, and manufacturing, as well as the personal use, operation, and maintenance of HVAC products.

From April 7 to 8, 2023, the "Chief Engineer Group" activity will invite designers and technical experts from all over China to gather in Shanghai, bringing experience, wisdom, and innovative ideas, as well as the observation and analysis of the current market situation, to provide the best solution suggestions for enterprise products in terms of technical route selection and market application.

The "Chief Engineer Group of National Design Institutes" activities during the Expo are as follows:

1. On April 7th, the chief engineers will be organized in groups to visit the booths for technical exchanges and the 34th China Refrigeration Expo.
2. On the morning of April 8, the group will participate in the technical exchange meeting on "Innovation and Cooperation towards Collaborative Development". The technical exchange meeting consists of a speech session for chief engineers, a speech session for enterprises, and an interactive session for discussions. The meeting will be held through video recording.

Beijing CRAA Quality Certification Center Co., Ltd. sincerely invites enterprises, experts, and scholars in the industry to participate in the "Chief Engineer Group of National Design Institutes" 2023.

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The 17th China R&AC Industry Science & Technology Contest for University Students will be Launched

The Launching Ceremony and Press Conference of the 17th China R&AC Industry Science & Technology Contest for University Students will be held at the 34th China Refrigeration Expo on April 7, 2023.

The China R&AC Industry Science & Technology Contest for University Students is a mass scientific and technological activity with social welfare attributes for college students and graduate students. The purpose is to help promote the innovation and reform of the curriculum system and content of disciplines in colleges and universities covering energy power, building environment and energy application engineering, to assist colleges and universities to implement quality education. It is committed to publicizing and guiding the young students to actively participate in extracurricular scientific and technological activities, cultivating innovative awareness, promoting the spirit of craftsmanship, enriching practical experience, improving engineering literacy, and promoting the cultivation of outstanding talents in the industry through more scientific and technological practices. After more than ten years of development, the contest has become a platform for students of energy power, building environment and other related disciplines of colleges and universities to participate in and pay attention to actively.

The Contest 2023 has received strong support and sponsor from various globally famous enterprises. Qingdao Haier Air Conditioning Electronics Co., Ltd., MOON-TECH Co., Ltd., BITZER Refrigeration Technology (China) Co., Ltd., Shanghai Hanbell Precision Machinery Co., Ltd., Zhuhai Gree Electric Appliance Co., Ltd. and Daikin (China) Investment Co., Ltd. will be the title sponsors to co-host the six finals in North China, East China, Central China, South China, West China and Northeast China. The six finals basically cover the whole country. It is expected that more than 100 college teams will participate in the finals. The six finals will be hosted by the universities in each region. The preliminary rounds of the participating colleges and universities will begin in full swing.

The epidemic from 2020 to 2022 has never stopped the contest. With the strong support of the universities, enterprises, experts, and participating students, the organizing committee explored the competition mode combining online and offline methods. The contest activities 2023 will be carried out based on the previous successful experience, initiating the complementary competition journey by on-site competition and online innovative defense.

Further detailed introduction and arrangement of the contest activities will be elaborated on at the launching ceremony and press conference of the 17th China R&AC Industry Science & Technology Contest for University Students at 11:30-13:00 on April 7, 2023, at the conference room E1-M12 of China Refrigeration Expo.

The Striding Midea Building Technologies

Midea Building Technologies (MBT) is one of the important business segments of Midea Group. After more than 20 years of development, it has transformed from a central air-conditioning product supplier to a service provider on building intelligent ecological integration solution. With iBUILDING, the Midea digital platform for building, as the technical base, it integrates hardware equipment such as MDV multi-connection central air conditioning, KWING water machine central air conditioning, LINVOL digital intelligent elevator, KONG building automatic control equipment, with carbon consulting, carbon management, contract energy management and other businesses, providing zero-carbon, digital and sustainable overall solutions for industrial, park, infrastructure, medical and diversified buildings. At present, MBT has 7 product R&D and manufacturing bases located in Shunde, Nanhai, Chongqing, Hefei, Jingzhou and Italy, and 4 innovation and R&D centers located in Foshan, Shanghai, Hangzhou and Europe. There are 29 sales centers of MBT in China, and the products are exported to more than 200 countries. In 2021, MBT had had more than 5,000 patents granted. It has formed a smart building product matrix with the largest scale, the widest product line, and the most complete product series in China.

In the field of water machines, MBT launched a new brand of water machines "KWING", setting a model for domestic brands in the centrifuge market. With an annual output and sales of more than 1,600 centrifuges,

it ranks first among domestic brands. MBT launched iEasyEnergy integrating solar storage and thermal flexibility solution in Europe, based on the "dual storage" system, with "zero carbon" heat pump, combined with flexible control, which increases the self-sufficiency rate from 30% to 90%, taking a step closer to home energy independence.

In terms of product development, MBT continues to innovate, continuously increases investment in R&D, and releases a number of new products. Midea's MDV8 Unbounded Multi-Online challenges the Non-stop AC, restores the essence of comfort, releases energy-saving potential, and breaks design constraints. Midea's MDVFIT multi-connected commercial central air conditioner is energy-saving, comfortable, intelligent, which is specially designed for small and medium-sized commercial spaces. KWING maglev ice animal cold double-working condition unit adopts self-learning anti-surge control technology, broadening the operating range. The three major technologies overcome the problem of energy efficiency and achieve remarkable energy-saving effects. It breaks through the boundaries of compressor reliability and achieves stable operation.

In the field of building automation, Midea's KONG reviewed the strategic route of KONG C3SI and product evolution, and released the "KONG NZ" and "Wukong Smart Ward Solution" for cloud-edge collaborative building construction. MBT efficiently and rapidly



promoted the application of IoT technology in the field of smart buildings from three aspects, software, data and services.

At present, MBT has been widely recognized by the industry in the fields of product innovation, technology R&D, and model project construction. In 2022, MBT won the "Enterprise-University-Institute Cooperation and Promotion Award". The smart building renovation projects MBT participated in have also won industry certifications for many times. The intelligent operations

center for HE Museum participated by iBUILDING won the German Red Dot Award. Midea's headquarters building and Shanghai Tongji Hospital MBUILDING Porta1 won the IDA (International Design Award). Midea West Industrial Park has obtained "LEED & WELL Double Gold Certification".

MBT is striving to explore and progress in the professional field with the spirit of continuous breakthrough, helping to accelerate the transformation and development of smart cities.

Nanjing Tica Climate Solutions Co.,Ltd.

Founded in 1991, TICA, as always, persists in its development strategy of an environmental protection route and two business units. As the single champion at state level, its terminal products occupied the top list for 13 straight years in terms of the market share. In its past 32 years, it always persists in the mindset of an engineer to explore the true experience of quality for the process to satisfy and exceed the users' demand. TICA develops deep understanding on the China heating demand and pains, works out diversified clean heating compound solution according to different regions and climates, which will be solemnly launched during this Expo.

Booth details:

Booth No.: W2F01

Coverage: 22*16=352 m²

I. TICA Diversified Clean Heating Compound Solution

Catering to China climate and regional uniqueness, TICA prepares strict budgeting for each user. The air source heat pump embraces such merits as being steady, energy-efficient, economical, easy, simple and comfortable in relation to the solar energy, gas-fired boiler and electricity boiler, such that they are broadly accepted by the users. We further consider the initial investment and operating cost to make possible the diversified clean heating compound solution (GHP+EHP) with lower cost.

1. Make rational use of the energy, either electricity or gas.



TICA Booth

2. Make better the grid load to lessen the investment in distribution equipment.

3. Sound heating effect at low temperature without any attenuation when heating at -15°C.

4. Self-optimizing control ensures lower cost during entire lifetime.

II. TICA All-scenario Multi-split Unit



TICA always carries out the philosophy of building competitiveness via quality. Through nearly two decades of VRF technology accumulation and ten-plus years of market application verification, TICA quality could challenge our counterparts in Japan. We dedicate to making top-quality home-made multi-split unit for all-scenarios with best quality assurance best catering to the demand of the Chinese users, ultimately bring healthy air for each space.

1. Originate enhanced vapor injection VF multi-split unit without assisted electric heating, energy conservation in its true sense.

2. Its unique HYplus four-layer filtration technology. Firstly it could physically block PM2.5 and PM0.3. Secondly its silver ion could inhibit the bacteria. Thirdly it could chemically decompose the formaldehyde. Fourthly, ultraviolet could statically inactivate the live bacteria, such that the indoor air could be maintained with constant temperature abundant with fresh air and oxygen.

3. Initiate Micro-HEX micro-channel cooling technology with its operation range -27°C ~56°C.

4. Initially launch TCC defrost without shutdown halving the defrosting duration.

5. Smart digital display makes possible the purification visible.



TICA All-scenario Multi-split Unit



TICA Total Effect Air Eco-system

III. TICA Total Effect Air Eco-system

The eco-system applies the TICA 32-year industrial cleaning black technology in the human settlements for broader health-preservation. The following five constant health system is customized and standardized according to the healthy and comfortable ideal human habitat: constant temperature, humidity, oxygen, purified air and quietness on the part of the smart household centralized air-conditioning system. During the CRH, we will freshly launch the heavenly series kitchen indoor unit in use of the kitchen-only anti-oil design, along with multiple protection to ensure the kitchen air to be clean.

- 1.The unit shell is totally painted with its electric control box totally sealed catering to the kitchen humidity and oily fume.
- 2.The heat exchanger is in use of the anti-corrosive flat foil to minimize the oily fog accumulation.
- 3.The special-purpose filter mesh could effectively

prevent the oily fog and water fog in the air from making access to the unit interior to ensure the unit to be clean.

About TICA

Founded in 1991, TICA, as always, persists in its development strategy of “One Environmental Protection Route and Two Business Sections”, consisted of the professional Air environment process business unit and green renewable energy business unit dominated by TICA energy, wherein the former focuses on the air extreme environment and architecture refrigeration system energy-saving application, and its market share far leads the peers along with the state level championship. While the later expands in the following six major energy markets: geothermal (hot dry rock) power generation, industrial residual heat power generation, LNG cold power generation, photoelectromotive power generation and energy storage etc, with the total installed capacity arrives at 1,000MW.

Zhejiang Zhongguang Electric Co., Ltd

—Visit us at the expo and enjoy the charm of "the global leader of heat pump air conditioning"!



From April 7th to 9th, the Zhongguang OUTES will prepare a display stand covering its full category of products at booth W1F25 with an exhibition area of 496 m², located in the south entrance of Hall W1 at the China Refrigeration Expo.

Founded in 2006, Zhejiang Zhongguang Electric Co., Ltd. is a national high-tech enterprise. With heat pump as its core technology, it integrates R&D, production, sales and service of air source heat pump, heat pump-based air conditioning, water purification, fresh air, intelligence, and other products. It has created brands such as Zhongguang OUTES, Kalaoni, IK, etc.

The group covers an area of 500 acres, it has a production base and international first-class production line covering the whole industrial chain with a construction area of more than 500,000 m², giving an annual production capacity of more than one million sets. It is the "green factory" recognized by the Ministry of Industry and Information Technology of China. The company has built an industry-leading laboratory cluster accredited by the CNAS, hiring more than 450 technical R&D personnel, and 5 major R&D centers located in Lishui, Ningbo, Foshan, Hangzhou, and Shanghai, contributing the most investment in R&D.

As the "Official Supplier of Hangzhou Asian Games", "Leading Brand of China's Heat Pump Industry" and "Strategic Partner of China's Aerospace Industry", Zhongguang Electric has been deeply engaged in the industry for 17 years with heat pump as its core technology and has won a good reputation in the upstream and downstream of the industrial chain.

Over the years, Zhongguang has been adhering to the corporate tenet of "creating a better life with science and technology" and the "extreme" pursuit, to create more "extreme" products intelligently, bringing "extreme" experience to consumers with more "extreme" quality and more "extreme" service.

As the "global leader of heat pump air conditioning", Zhongguang has more than ten years of innovation and application experience in the field of "heat pumps" and took the lead in the industry to propose "redefining air conditioning with heat pumps", opening a new era of the fourth "station", the heat pump system, in the HVAC industry.

In 2023, Zhongguang announced its "heat pump+" global strategy, which will start from the four dimensions of "heat pump + product", "heat pump + new energy", "heat pump + scene" and "heat pump + ecology" to provide users with more comprehensive, greener, healthier, more comfortable and intelligent "heat pump +" comprehensive





solutions.

At the China Refrigeration Expo this year, Zhongguang OUTES will bring a full range of products including home and commercial heat pump air conditioners (split heat pump air conditioners, unit heat pump air conditioners, multi-connected heat pump air conditioners, and floor heating heat pump air conditioners), heat pump water heaters, heat pump dryers, home commercial water purifiers, ventilation equipment, etc. We sincerely look forward to your visit.

Heat pump + products

Water heating, heating, air conditioning, drying, dehumidification

Dishwashers, clothes dryers, clothes care machines...



Heat pump + scene

Full-scenario comfortable home, industrial and commercial solutions

Agricultural cultivation/drying solutions

Heat pump + new energy

Hydropower, wind power, photovoltaics, nuclear energy
Heat pump + ecology

Water purification, fresh air, smart home

Selective Product display

Oxygen-rich Zhongguang heat pump air conditioner "X9 Zhizong" series

Micro positive pressure ventilation technology to ensure smooth breathing;

57°C sterilization and steaming to prevent internal bacteria;

EVI heat pump special compressor, with heating energy efficiency far exceeding conventional air conditioner;

CO₂ concentration detection module to realize smart early warning and linkage ventilation;

Smart light sensor temperature adjustment for display brightness and beep volume; Multi-mode operation, minimum operation decibel 18dB(A);

WiFi interconnection to realize cloud voice interaction.

Powerful "cooling and heating" Zhongguang heat pump air conditioner "Yunjing" series

The full DC twin-rotor inverter compressor, equipped with hot and cold double-injection EVI technology, achieving an increase in the high-temperature cooling capacity by 10% and the low-temperature heating by 15%;

Ultra-wide operation range of -35~°C to 55~°C, and





high-temperature refrigeration at 43°C and low-temperature heating at -15-°C with 0 attenuation;

The IPLV(C) value reaching up to 6.9, far exceeding the national primary energy efficiency (3.6);

The APF value is as high as 5.35, far exceeding the new national primary energy efficiency (4.8);

Indoor stepless temperature control $\pm 0.5^{\circ}\text{C}$, 58°C automatic sterilization cleaning. Purification filtration with sterilization function/return air box/condensate lifting pump/intelligent touch screen wire controller and other high-end optional configuration schemes;

Patented VIP non-sensitive defrosting technology, defrosting with no temperature reduction, more constant indoor temperature bringing better experience;

Central air conditioning, central air fluoride conditioning + underfloor fluoride heating, central air fluoride conditioning + underfloor water heating, a variety of cooling and heating ends at will.

Smart low-carbon Commercial Zhongguang heat pump air conditioner "Zhiku A" series

Full DC frequency conversion, equipped with full refrigerant cooling + EVI gas supplement and enthalpy supplement technology to achieve stable operation from -30°C to 55°C;

Insensitive defrost, precise temperature control $\pm 0.5^{\circ}\text{C}$;

Multiple noise reduction, high efficiency mutation, achieving the lowest noise at 40dB (A);

Anti-headwind, anti-snow, lightning protection function, achieving safer using;

Anti-aging technology and anti-corrosion materials, suitable for coastal and other special occasions;

Remote IoT centralized control system, suitable for installation scenarios of various complex structures;

The comprehensive performance coefficient IPLV(C) is up to 10.0, which exceeds the national primary energy efficiency standard;

R410A environmentally friendly refrigerant, with limited pollution.

Double high efficiency in cooling and heating Zhongguang floor heating heat pump air conditioner "Gemini Super" series

IPLV(C) up to 4.58, IPLV(H) floor heating at 3.50, far exceeding the national primary energy efficiency;

Cold and warm double spray EVI, effectively reducing the exhaust temperature from 15°C to 25°C;

OTA remote module to cool or heat at home at any time;

Automatic voltage stabilization device to effectively extend the operating life of the system;

Refrigeration operating temperature range at 5°C to 55°C; Heating operation temperature range at -35°C to 43°C;

Intelligent water temperature control with accuracy of $\pm 0.1^{\circ}\text{C}$;

Enjoy silent technology and enjoy the quality of life.



Smart Heating and Cooling Energy Interconnection ——Bingshan Group's New Energy-Saving and Carbon-Reduction Technologies, Products and Solutions will Unveil at CRH 2023

At the China Refrigeration Expo (Shanghai) 2023, Bingshan Group will focus on "Smart Heating and Cooling Energy Interconnection", display a series of new technologies, products and solutions for energy conservation and carbon reduction, and provide assistance to achieve the dual goals of carbon emission peaking and carbon neutrality.

In recent years, Bingshan Group has continuously improved and enriched the comprehensive solutions of deep enthalpy energy system from minus 272°C to minus 430°C and refined green cooling and heating technology, studied on the industrial refrigeration and heating, air conditioning and environment, commercial freezing and refrigeration, smart cold chain, biotechnology, industrial interconnection and intelligent control, as well as new business fields such as hydrogen energy, to provide customers with carbon reduction, zero carbon and carbon negative technology services. At this refrigeration expo, Bingshan Group will display energy-saving and carbon-reduction products such as open high-pressure compressors, cascade ammonia screw heat pump units, CCUS carbon dioxide booster units, water vapor screw compressor units, new GHPU products, CO₂ air coolers, fully enclosed condensing units, CO₂ heat pump water heaters, intelligent cooling towers and other energy-saving and carbon-reducing products.

At this exhibition, Bingshan will display the Bingshan smart energy island solution for the first time, including "EMS smart energy system", "air source heat pump valley power storage", "solar heat collection", "photovoltaic green power", "waste heat and pressure power generation", "ice cold storage", "soil source heat pump", "air compressor waste heat recovery", "rainwater collection" and "CO₂ recycling" and other Bingshan carbon reduction, zero carbon and negative carbon technologies, providing experience cases to help customers save energy, reduce carbon emission, transform and upgrade, and build zero-carbon factories.

R290 DC variable frequency scroll compressor for heat pump hot water is also the highlight of this exhibition.

The low-carbon and environmentally friendly product adopts green refrigerant R290 with less charge and extremely low GWP, lowering the natural environmental protection cost. With technology at the international leading level, it can achieve low evaporation at -35°C, and high water temperature at 70°C. In addition, scroll compressors for refrigeration and a full range of scroll compressors that meet the needs of different market segments such as rail transit air conditioners, heat pumps, and air conditioners will also be unveiled at the exhibition.

Bingshan Group will also showcase the intelligent operation and maintenance platform of refrigeration system based on 5G + industrial Internet, which can provide customers with a series of professional technical services such as energy management (energy saving), remote inspection, remote configuration update, fault prediction, and "5G + AR remote guidance". The platform focuses on energy management, realizing energy conservation in industrial refrigeration stations and commercial refrigeration systems, which has provided customers with energy-saving and carbon-reduction services throughout the life cycle. The platform is also an important component of the manufacturing sub-center for cooling and heating equipment of the national industrial Internet big data center.

At this exhibition, Bingshan Group will also display the downward swirl tunnel corn freezer, demonstrating the comprehensive solutions of Bingshan's technology in helping agricultural transformation and upgrading and improving corn production capacity layout.

In addition to the on-site exhibition, Bingshan will also conduct technical exchanges on carbon emission peaking and carbon neutrality, scroll compressors, smart energy, and other fields at the exhibition. What's more, welcome to visit booth E1D31 in the light trade exhibition area to learn about the intelligent cold chain integrated solutions of Bingshan Group, booth W4D15 for Bingshan industrial Internet, and the heat pump zone E4D01 and the environmental roadshow E3G31 for related solutions.

For more information, welcome to visit booth E1D01 of Bingshan at the Shanghai New International Expo Centre. Please follow the WeChat public account and the official TikTok account @bingshan1930 of Bingshan Group for more exciting content. Looking forward to meeting you.



Shanghai Hanbell Precise Machinery at E2F15

Shanghai Hanbell Precise Machinery Co.,Ltd (Hanbell) specially engages in the R&D, manufacture and sales, and maintenance and repair of screw, centrifuge and vortex compressor. Our product line covers refrigerating compressor, air compressor and vacuum pump, wherein the refrigerating compressor further falls into refrigerating products, air-conditioning product and high temperature heat pump according to their applications, which are in extensive use in LNG, chemical and pharmaceutical engineering, refrigeration, central air-conditioner, industrial hot water and centralized heating with the covering temperature range from -163°C to 125°C. After years of development, we have grown into the one of the strongest compressor makers in Mainland China integrating the compressor design, R&D, manufacture, quality assurance and sales and service. Ever since 2006, Hanbell screw refrigerating compressor tops the list in terms of the market share for years.

During this Expo, Hanbell will follow the theme of pioneering future with smart VF for saving the energy. We will make our debut with our following product line: air-conditioning products featured with upgraded energy efficiency led by technology (consisted of: 460 standard tons of refrigeration RE series new generation of highly efficient air-conditioning screw compressor, 270 standard tons of high-speed permanent magnet VF screw compressor, 280 standard tons of RC2- EVI series VF water cooling special-purpose compressor, and RTM series maglev centrifugal compressor), refrigeration products at the new age of refrigeration house energy conservation (made up of: 450HP LTII series 2nd generation two-stage VF refrigeration compressor, 160HP LC series 3rd generation of single

stage refrigerating compressor, 125HP RGII series 2nd generation open-type screw compressor and 50HP RC2-DH series refrigeration-only compressor, and 150HP RH-V series semi-closed HP screw VF compressor), and the high temperature heat pump theming clean heating for better future (inclusive of: 200HP RC2-PLUS series one-stage low temperature air source heat pump compressor and 180HP RC2-G&T series one-stage high temperature heat pump compressor and). Hanbell is always on the way of innovation for product and application, wishing to do our part in contributing to the sound, efficient and green development of the industry together with our peers.

The image displays ten different Hanbell compressor models arranged in a 5x2 grid. Each model is accompanied by a '新品' (New Product) label and a list of key features in Chinese. The models and their specifications are as follows:

- RE系列新一代高效空调螺杆压缩机** (RE Series New Generation High-Efficiency Air Conditioning Screw Compressor): COP: 6.0-6.5 (4/35°C). Features include high efficiency, optimized structure, wide selection, and reliable performance.
- RM系列高速永磁变频螺杆压缩机** (RM Series High-Speed Permanent Magnet Variable Frequency Screw Compressor): IPLV: 10.6 (4/35°C), COP: 6.7 (4/35°C). Features include high efficiency, low noise, and high reliability.
- RC2-EVI系列变频水冷专用压缩机** (RC2-EVI Series Variable Frequency Water-Cooled Special Purpose Compressor): IPLV: 8.1-8.3 (4/35°C). Features include high efficiency, low noise, and high reliability.
- LT-S-IV系列全变频两级变频螺杆压缩机** (LT-S-IV Series Full Variable Frequency Two-Stage Variable Frequency Screw Compressor): COP: 3.30-3.36 (4/35°C), 3.33-3.37 (4/35°C). Features include high efficiency, low noise, and high reliability.
- LC系列全新低温单级冷螺杆压缩机** (LC Series New Generation Low-Temperature Single-Stage Screw Compressor): COP: 3.28 (4/35°C), 3.18 (4/35°C). Features include high efficiency, low noise, and high reliability.
- RGII系列新一代开式螺杆压缩机** (RGII Series New Generation Open-Type Screw Compressor): COP: 4.0 (4/35°C), 3.80-3.85 (4/35°C). Features include high efficiency, low noise, and high reliability.
- RC2-D-H系列冷媒专用压缩机** (RC2-D-H Series Refrigerant Special Purpose Compressor): COP: 3.38 (4/35°C), 3.36 (4/35°C). Features include high efficiency, low noise, and high reliability.
- RH-V系列半封闭高温螺杆压缩机** (RH-V Series Semi-Closed High-Temperature Screw Compressor): COP: 6.75 (4/125°C). Features include high efficiency, low noise, and high reliability.

Zhejiang Yilida Ventilator Co., Ltd



Zhejiang Yilida Ventilator Co., Ltd (Stock code 002686) was founded in 1994, controlled by Zhesang Asset Management Co., Ltd. A well-known manufacturer of central air conditioning fans and manufacturer of building and engineering fans. We uphold the philosophy of innovation, stride forward from the traditional fan manufacturer to the integrator of fan and intelligent motor drive system, and realize the “smart air” brand concept through the development of intelligent high efficiency motor. On July 23rd 2012, Yilida is successfully listed on Shenzhen Stock Exchange. By virtue of the capital market assisted merger and restructure, we gradually expand into new energy, new material, automobile lightweight parts, a stride forward to the sustainable development.

Our product line covers four major fields as follows: air motor system, automobile new energy, automobile lightweight parts and new marine material. Our brands include: “Yilida”, “Wolter”, “Fulihua”, “ESSENTEC”, “AMMT”, “TC charger” and “Sanjin”, wherein “Yilida” is a well-known domestic central air-conditioning fan brand. “Wolter” is a high-end brand in the field of domestic building ventilation, providing world-class ventilation products and services. “Fulihua” is a high-quality axial fan brand in domestic market. “ESSENTEC” is a butler service provider for components and parts and serves all world famous manufacturers in air conditioning industry. “AMMT” is an expert in vessel and marine protective material, functional materials and composite materials. “TC Charger” is a well-known domestic charger market leader which is used

in new energy automobile. “Sanjin” is a core supplier in domestic market for automotive lightweight components. We have seven major manufacture bases in Taizhou, Fogang, Zhangjiagang, Haining, Tianjin, Hangzhou and Qingdao, which could assure our top-quality products and timely supply.

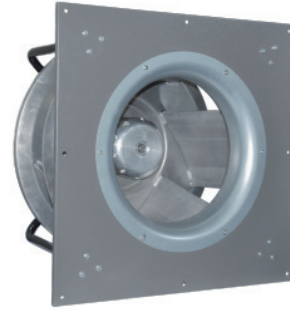
During this Expo, we will launch the following exhibits: multiple EC coiler air motor assembly, EC outer rotor centrifugal fan, axial fan, EC inner-rotor centrifugal fan, axial fan, air wall system and smart air handling unit etc, along with multiple configurations and solutions.

Our newly developed YUWA series EC fan is our innovative product, wherein its blade is designed to be in airfoil shape catering to the aerodynamics rationale, such that it enjoys top efficiency with lowest noise. The efficient EC motor integrates the motor and the controller with compact construction, and its energy efficiency could reach IE5 with less electric cost expense, bringing in less energy and carbon emission. It is in use of power source design with wide voltage range along with multiple control modes as follows: 4-20ma, 0-10v and modbus communication. It could be started with one button, which is easy to be handled thanks to its smart interconnection. Its controller could be easily dismantled along with alarming system could significantly minimize the repairing time. Its in-built acceleration sensor could real-time monitor the abnormal rotating speed, and it could automatically avoid the resonance. The blade is directly connected with the motor without axis, bearing, belt or belt pulley at the fan terminal, which could save

mounting space and less maintenance and minimum replacement of vulnerable parts. The self-equipped controller makes the distribution cabinet and the like electrical system useless.

Booth No.: W4F01 welcome your esteemed visit and instruction.

Our efforts keep tens of millions Yilida fans continuous operating in the world's landmark buildings and urban infrastructure, so that more people enjoy energy conservation, environmental protection and healthy living, ultimately achieving sustainable development between society and enterprise revenue.



Oubo Air Conditioning Welcome You to the 34th CRH

The 34th International Exhibition for Refrigeration, Air-conditioning, Heating & Ventilation, Frozen Food Processing, Packing and Storage (CRH 2023) will be launched in Shanghai New International Expo Centre in April 7-9 2023.

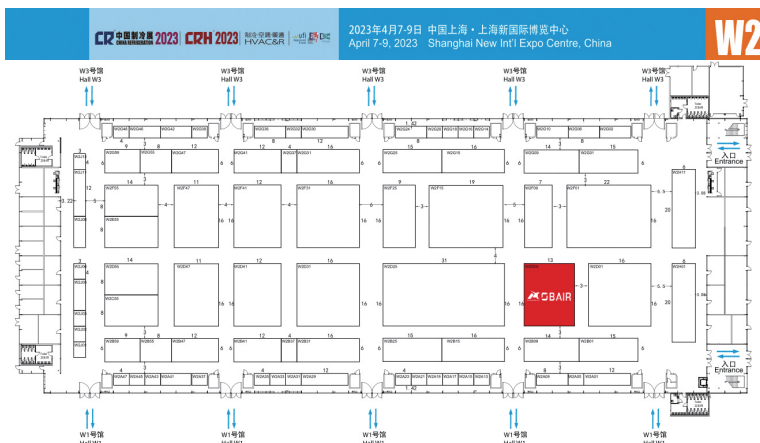
As an expertise maker of purifying centralized air conditioners, Oubo has worked hard in the industry for over ten years. We always uphold the philosophy that we would rather explain the price for a while than apologize for the quality for a lifetime. By virtue of our sound remarks and classic cases in the industry, we are well recognized by the customer as we are the first

option for buyers. During the expo, we will exhibit our latest series of products, inclusive of our blockbusters as follows: modular air handling units, VF water-cooling screw water-chilling unit, four-pipe modular unit, low ambient temperature air-cooling maelstrom unit etc. We will showcase our new technology, application and philosophy with the insiders to share the resource integration. It is convinced to be unique experience. we sincerely invite you to visit our booth D09 of W2 Hall.

Date: April 7-9 2023

Venue: Shanghai New International Expo Centre

Booth No.: D09 at W2 Hall



Let's Meet in China Refrigeration Expo (Shanghai) in April 7-9

The 34th International Exhibition for Refrigeration, Air-conditioning, Heating & Ventilation, Frozen Food Processing, Packing and Storage (China Refrigeration Expo) will be launched in Shanghai New International Expo Centre in April 7-9, 2023.

Zhejiang Xingxing Refrigeration Co., Ltd, as a dedicated creator for global coldchain ecology, offers products from their origin, transit, storage to terminal for the global industrial chain, ready to establish wider exchange platform for more exhibitors and audiences. (Booth No.: E1-D25)

Let's meet in Shanghai!



Zhejiang Xingxing Refrigeration Co., Ltd-Booth No.: E1-D25

Zhejiang Xingxing Refrigeration Co., Ltd.(XINGX), headquartered in Taizhou, Zhejiang, was founded with a registered capital of 483.9 million yuan. It has four industrial bases in Taizhou of Zhejiang, Xuzhou of Jiangsu, Foshan of Guangdong, and Yongchuan of Chongqing. As a leading cold chain equipment manufacturer and comprehensive service provider, XINGX's main business line focuses on the R&D, production and marketing of commercial, commercial kitchen, domestic and medical refrigerators. It also provides customers with cold storage engineering service along with equipped devices. XINGX's products and solutions could be easily found in supermarket, convenience store, farmers market,



hotel, catering corporate, household, cold storage, hospital, pharmacy and the like scenarios.

Adhering to scientific and technological innovation, XINGX's annual investment in R&D accounts for over 3% of its yearly income, and the R&D staff account for nearly 10% of its human resource pool. It has established a National Technology Center (NTC) and 3 CNAS accredited laboratories. It has 893 patents including 16 invention patents, 603 utility model patents, and 274 appearance patents along with 76 more software copyrights. It has passed a number of management system certifications such as quality, environment, occupational health and safety management system, AAA measurement management system, and "Made in Zhejiang" certification. It has won many honors and titles such as "China Famous Trademark", "Green Factory", "Green Supply Chain Management Enterprise". XINGX is a forerunner in terms of commercial cabinet enterprise standards, and a participator in the formulation of 9 national standards, 6 industry standards, and 15 group standards.



XINGX follows its core development strategy consisted of the industrial ecology, product scenario, management digitization, and service platform, and shoulders the mission of "safeguarding fresh life". As its products are used across the farmland and dining table, XINGX has realized the multi-scenario layout of the industrial chain, and stepped onto the track of transformation and upgrading from "single refrigerator manufacture" to "deeper customized products and services provider under specific scenarios", a stride toward a leader in the global cold chain industry.

XINGX Cold Storage Unit Division briefly engages in the manufacture of large, medium and small refrigeration unit, air cooler, condenser, quick-freezer and other cold chain equipment, cold storage construction (inclusive

of slaughterhouse, air-conditioned warehouse, pre-cooling warehouses, agricultural product warehouse, mobile warehouse, and logistics transit warehouse, processing cold chain storage, central kitchen, medical warehouse, high-bay warehouse, automatic 3D warehouse etc.), and dedicates to providing overall solutions for cold storage via offering high-quality, energy-saving, green, environment-friendly and intelligent cold storage for customers. Based on XINGX smart platform, it provides a self-developed fully automatic unattended intelligent control system for cold storage, a perfect combination of temperature control traceability and smart control.



APAC Cold International Supply Chain Cold Storage Project



Xinhong Pharmaceutical Cold Storage Project



Henan Aokun Food Cold Storage Project



Refrigerator Marketing Division

Zhejiang Xingxing Refrigeration Co., Ltd

March 10th 2023

EBM-PAPST Debut CRH 2023 with Focus on Energy-saving and Contribution to HVAC

In the context of double-carbon and EU energy crisis, the energy conservation and emission reduction is inevitable. As an expert in global fan and motor, since its foundation in 1963, EBM-PAPST has worked hard in the refrigeration and ventilation field for years with sustainable innovation. Our figure could be found either in the evaporator in the refrigeration house, precision air-conditioner in the data center, cooling tower in the factory or air handling unit (AHU) in the commercial buildings. We will bring our products and solutions to debut in Booth W1D01, looking forward to your esteemed visit.



High backpressure AxiEco series: its innovative design and outstanding performance could fight icing and high pressure

The application climate for the refrigeration industry is widely known as tough as there are often such challenges as high pressure, frost and icing. To deal with this, we successfully develop products demanded by refrigeration to adapt the evaporator and condenser, that is axial flow fan AxiEco series. It is more adaptable to the high backpressure, and it is of higher performance from its root. In contrast with last generation of counterpart, its power loss is 18% lower and noise 6 dB(A) down whilst the static efficiency 9% up. Its innovative design disables the fan blade to be frozen together with the air ring and shell. Its jet flow could go farther which could decelerate the freezing speed of the protective enclosure, which all



together minimizes the equipment maintenance time and cost. The series relate to the following dimensions to be optional: 300, 350, 400, 450 and 500 etc.

Data center application: highly efficient and energy-conservative RadiCal II centrifugal fan

It is of greater importance for the product energy efficiency and harmonic wave in terms of the data center precision air-conditioner and the like industrial ventilation field. On the part of RadiCal II centrifugal



fan, in contrast with its earlier generation, its efficiency is above 10% up as it could integrate active PFC, significantly minimizing the power supply load rise as a result of the harmonic wave.

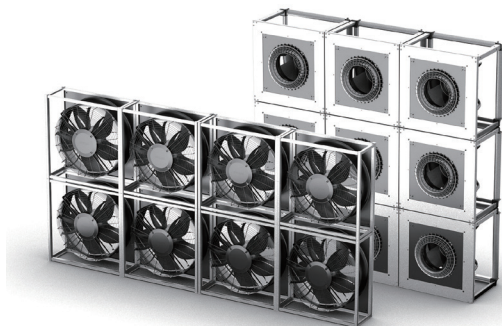
Industrial refrigeration application: reliable and durable AxiBlade axial blow fan

In some specific application scenario, the protection grade for the fan is especially rigid, such as the outdoor unprotected cooling tower. The AxiBlade axial blow fan has passed a series of extreme conditions test with its protection grade reaching IP55&IP65 even H2+S, which is capable of sustaining high temperature salty fog and the like deteriorating environment with valid anti-corrosion effect. In addition, the fan could achieve 85% energy saving with its operating noise notably 8 dB(A) lower than the last generation. It is flexibly designed to be able to supply flow air to cooling tower, condenser and water-cooling unit etc.



Commercial ventilation application: Redundantly designed FanGrid air wall

The FanGrid air wall is consisted of multiple plug and play EC fans, which could be found in broad application in the public area air-conditioning system as follows: Commercial buildings, rail transit and airport etc. The air wall technology makes possible the redundancy via paralleling to ensure the system to be in reliable operation. The wall is mounted in compact construction saving space. As for a single fan in whole (made up of the blade, motor and VF modular), its highest static efficiency could arrive at 68%. Apart from the RadiPac centrifugal fan, it is optional to select the axial blow fan to configure.



About EBM-PAPST

EBM-PAPST Group is a global expert in the field of fan and motor. Ever since its foundation in 1963, we keep setting new industrial standards for the global market. To date, we have developed nearly 20,000 varieties of products, which could be applied in the following industries: ventilation, air-conditioning, refrigeration, heating and drive technology etc.

We make access to the China market in 1996, and we have expanded 19 subsidiaries and offices. We have established R&D Centers in Shanghai and Xi'an equipped with advanced equipment same as their counterparts in Germany, so that they could offer comprehensive testing and customized service for the users.



第三十五届国际制冷、空调、供暖、通风及食品冷冻加工展览会

THE 35TH INTERNATIONAL EXHIBITION FOR REFRIGERATION, AIR-CONDITIONING, HEATING AND VENTILATION, FROZEN FOOD PROCESSING, PACKAGING AND STORAGE



2024年4月8日至10日

APR 8-10, 2024



北京·中国国际展览中心新馆（顺义馆）

CHINA INTERNATIONAL EXHIBITION CENTER (SHUNYI HALL), BEIJING

主办:  中国国际贸易促进委员会北京市分会（北京国际商会）



中国制冷学会



中国制冷空调工业协会

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