



ISKID MAGAZINE

HVAC&R JOURNAL OF TÜRKİYE

ISKID AIR CONDITIONING & REFRIGERATION MANUFACTURERS' ASSOCIATION | PER SIX MONTHS - 2023 - VOLUME 26 | [f /iskidTR](#) [x /iskidTR](#) [i /iskidtr](#) [in /iskidtr](#) [y /iskidorgtr](#)

TRAINING REQUIREMENTS on ALTERNATIVE REFRIGERANTS in the FRAMEWORK of F-GAS REGULATION and NET ZERO

Türkiye

**Turkish
HVAC-R**








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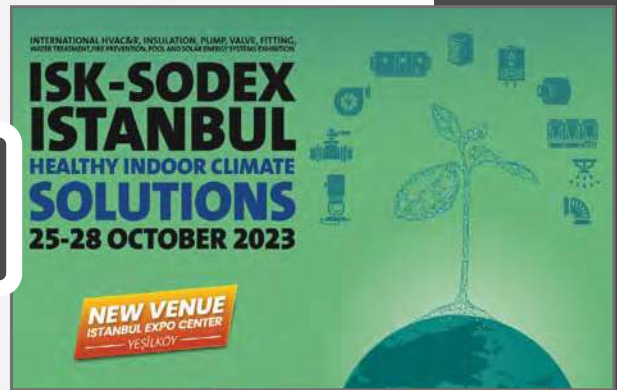
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AYK SERDAR DİDONYAN
Chairman of the Board, ISKID

The hottest summer...

Despite the severe global economic conditions, the summer of 2023, the year we began with expectations and good intentions, passes with positive export data for the Turkish HVAC & R industry. Overall, the HVAC & R industry continues to grow, with an export figure of \$3.6 billion in the first half of 2023 (January-June), representing a 6.7% increase over the same period in 2022. Despite the fact that many countries are facing economic downturns, our export success reflects the excellence of our manufacturers.

The Turkish HVAC & R industry's versatile and high-quality production capability, geographical proximity to key markets, and highly qualified workforce lead our manufacturers to a valuable position in international trade. These advantages have brought international investors' attention to the Turkish HVAC & R industry. Major international companies are investing in our industry. As Türkiye is advancing to become Europe's manufacturing backbone, our technology infrastructure as well as human resources are rapidly developing. Focusing more on R&D, the Turkish HVAC & R industry will carry the momentum gained in exports to a higher position in 2023. Türkiye aims to own 1.5% of the global HVAC&R industry in the next three years.

While Türkiye experiences high export numbers during the summer, the extreme temperatures brought on by climate change are reaching alarming degrees throughout Europe, including our country. Drought and water scarcity are projected to worsen in the coming years. Drought has caused rivers and other water supplies to dry up over in the Mediterranean climate zone, particularly in Spain, Italy, Greece, Türkiye, and southern France. Climate change negatively impacts countries more and more each year, due to factors such as immense population growth and insufficient transformation in our production and consumption practices that do not harm our planet. As part of the European Green Deal, one of the key steps in the fight against climate change, it is essential to fund research and development projects that are in line with the carbon neutrality target, prioritize clean energy investments, use eco-friendly

fluids for cooling, and move quickly to implement new carbon-neutral manufacturing techniques. We hope that additional concrete efforts will be done in our HVAC & R industry, which is critical in the fight against climate change, by the end of 2023.

Our preparations for ISK SODEX, Eurasia's largest air conditioning industry show, which will be held in Istanbul on October 25-28, 2023, are in full swing. ISKID will meet with visitors in the main hall of the expo at stand F04. This year's fair, themed "Healthy HVAC&R Solutions," draws attention as a key event that everyone interested in keeping up with the newest trends and advancements in the air conditioning industry should put on their schedule. As an association, we look forward to meeting all of our stakeholders who will be attending the fair in various events. We welcome all of our international stakeholders who wish to stay up to date on the latest trends and advancements in the air conditioning industry to visit ISK SODEX.

As ISKID, we will organize a workshop in autumn 2023 to determine the sustainable association activities that will guide the future activities of our association, to involve the younger generation more effectively, and to determine a new vision in line with the needs of the industry. In cooperation with distinguished Turkish universities, we are working on a plan for the workshop, which our member company representatives will attend. The workshop outputs will hopefully be an achievement for our industry and our association, and perhaps will also be a source of inspiration for the international associations with which we cooperate. In the age of digital communication, each of us follows each other's practices more intensively, and we mutually benefit from these experiences.

I hope to meet you at ISK SODEX in Istanbul on October 25-28, and I wish you a healthy and joyful summer.

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AIR CONDITIONING AND REFRIGERATION MANUFACTURER'S ASSOCIATION İSKİD



İSKİD

The air conditioning and refrigeration industry, which has emerged in the 1950s in Türkiye, developed very quickly. İSKİD was established in 1992 with the contributions of prominent companies in the sector, to conduct work towards achieving sustainable and regulated HVAC&R Industry development in compliance with the world.

Over 100 member companies are gathering under İSKİD's roof to conduct activities for the development of the industry and to produce with high-quality standards.

The objective of İSKİD:

To ensure cooperation between the members that are manufacturers and/or importers of climatization, refrigeration and air conditioning devices in Türkiye and work on finding solutions for their problems,

To protect the rights of air conditioning consumers and companies on a national and international level;

To conduct activities that will ensure companies to protect the environment while providing solutions for the country's HVAC&R needs and contribute to the country economy by supporting energy efficient product solutions.

Mission:

To realize strategic plans for the development of the Air Conditioning Industry and the actions that will carry out these strategies in cooperation with the sector and the other stakeholders.

Vision:

To raise the Air Conditioning Industry to a reputable and leading position both in our country and abroad through its work increasing public life quality, to be sensitive to the environment, innovative, reliable and competitive.

Goals:

- To develop the sector's research-development infrastructure and university-industry cooperation,
- To encourage the training of a qualified workforce for the sector,
- To encourage the use of renewable energy resources, high-end products, innovative technologies and applications,
- To increase activity in the national and international media,
- To track and update regulations and standards, create specifications when needed, perform market monitoring more effective and prevent unfair competition to maintain a more trustworthy sector image,
- To promote and support industry-Government relations,
- To introduce high-quality Turkish product image to the international market and increase our reputation,
- To increase cooperation with international organizations.

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ISKID has announced the 2022 Türkiye HVAC'R Industry Report



ISKID, The Turkish Air Conditioning Industry Association, has announced the 2022 Türkiye HVAC Sector Report. The annual statistics collected by ISKID were evaluated this year with the participation of 72 real companies. The results were shared with contributing firms on March 11, 2023. The statistics, which cover approximately 29 product groups, were used to analyze developments of important products and to create comments about the state of the sector and potential improvements.

ISKID shares the complete report of the statistics with companies that provide data and offers data for each product group for a fee from the ISKID Association.

In the report announced by ISKID Chairman Ayk Serdar DIDONYAN, it was stated that Türkiye is a production hub in Europe and demand for A++ energy class and inverter compressor split air conditioner products, which are significant product groups of the sector and provide up to 40% energy savings, has significantly increased. DIDONYAN said, "Strong manufacturer and distributor firms are responding to increasing consumer expectations of service quality. The EU accession process is also significantly accelerating technological developments in the sector, particularly in terms of the environment and energy efficiency."



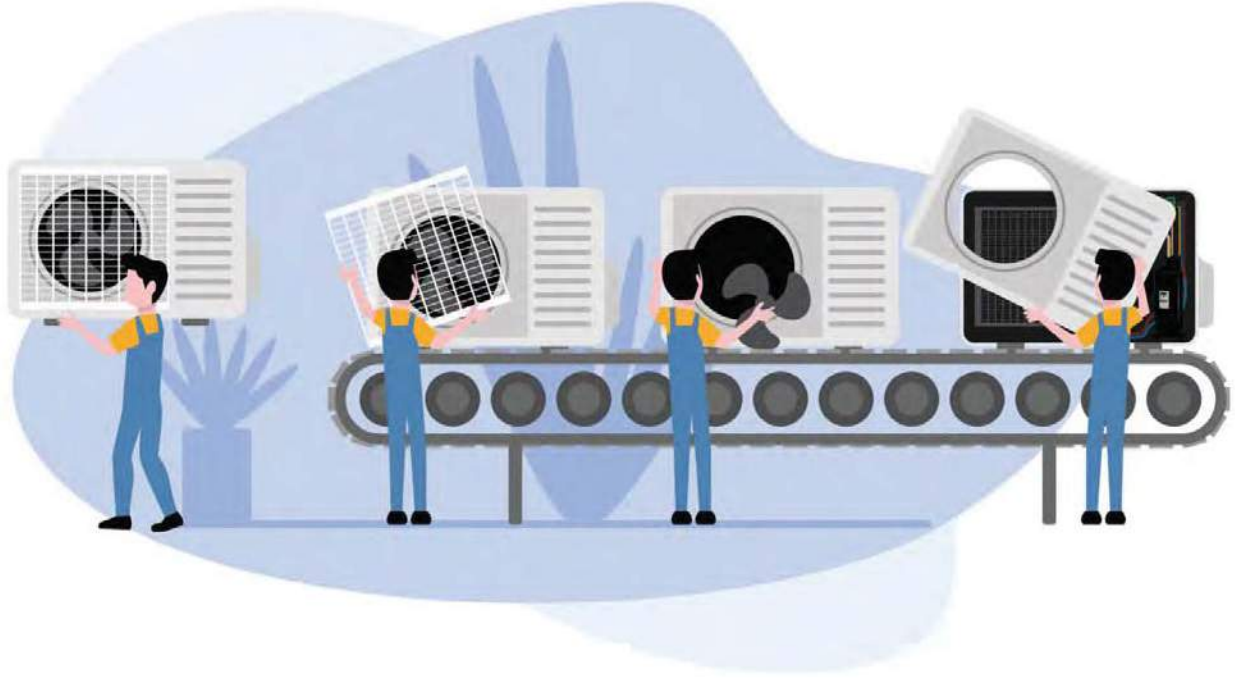
According to the statistical results, there was a 20% increase in split air conditioning production compared to the previous year, a 2% increase in domestic sales, and a 20% increase in exports. However, when considering five-year data, there was a 130% increase in split air conditioning production, a 35% increase in domestic sales, and a 260% increase in exports. Ayk Serdar DIDONYAN, who evaluated this growth rate and the domestic market, said, "Last year, there was a slight increase in domestic sales due to sudden price increases, a relatively cool summer, and a decrease in economic purchasing power. This situation can be interpreted as the domestic market reaching a certain saturation point. We should not expect significant growth for 2023. However, the export development of Turkish firms is also reflected in the split air conditioning sector, and we observe that manufacturing is increasing for exports."

Another significant product group, the VRF/VRV/VRS market saw a 15% increase in the domestic market and a 150% increase in exports compared to the previous year. DIDONYAN said, "When we evaluate the data, the Turkish VRF market continues to grow domestically with an increasing number of active sales companies. However, the actual growth is on the export side. This situation is due to many neighboring countries giving sales rights to Turkish firms and the growth of the market in these countries. We can give an example of Turkish contractor firms increasing their activities and product supply from Türkiye in the Turkish Republics and other countries. Another factor is that newly established local manufacturers' primary target market is abroad, which increases export figures. We are

grateful to investors who enable the growth of the sector with new investments."

As for the Rooftop Air Conditioner Units, due to its widespread use in investment in the construction sector, shopping centers, and large supermarkets in 2022, there was a 30% increase in production and a 50% increase in the market compared to the previous year. It was observed that the market in this group shifted towards Turkish-made products. A pleasing development in the Rooftop Air Conditioner product group was the increase in exports every year. While export figures increased by 12% compared to the previous year, this increase was recorded as 108% in the last 5 years. It was determined that as the number of firms producing Rooftop Air Conditioner Units domestically in Türkiye increased, the local market increased accordingly. However, the biggest change in this product group was recorded as a shift from an import-oriented structure to a manufacturing-oriented structure within the last 5 years, and imports have become minimal. It was emphasized that with the increase in the number of manufacturers, Türkiye has become a significant supplier, especially in the Middle East region, and that the market will continue to grow.

According to İSKİD sector statistics, while there was a 43% increase in the production of Fancoil devices mainly used in public buildings compared to the previous year, a 20% increase was observed in domestic sales. Although the Fancoil device market cannot reach its level five years ago, it was stated that the positive effect of the revitalization of public investments that stagnated during the pandemic



has begun to affect the market's growth. With the export figures based on the last 5 years, a 40% increase was observed.

Although there has been a 14% decrease compared to the previous year and a 22% decrease in the last 5 years in the Air Handling Unit market, there has been a 12% increase in production and a 57% increase in export figures for the last 5 years. The domestic market of the Air Handling Units has shrunk due to the decrease in public investments. It is shared that the widespread use of alternative solutions such as Rooftop Air Conditioner in some Rooftop applications may be one of the reasons for this contraction. However, it was evaluated that the increase in production in the last 5 years was due to the increase in exports in this group.

In recent years, there has been a significant increase in Heat Pumps in our country, especially in the air source (Air-to-Water) product group. However, it was emphasized that this increase was not at the desired level. Imports in this product group increased by 140% in the last 5 years. Domestic sales reached 200%. However, it was found that there are not enough producers in the Heat Pumps product group.

In Europe, the importance of heat pumps has increased significantly in recent years due to the measures taken within the scope of the European Green Deal to achieve a neutral continent goal by 2050, efforts to reduce external dependency in energy supply, and incentives provided. According to EHPA data, a record was broken in 2022 with the sale of 3 million heat pumps (including air-to-air heat pumps).

In Türkiye, although there has been an increase in sales of air-to-water residential heat pumps in the last 5 years (about 63%), it is seen that the heat pump market has not grown as fast and as desired as in Europe due to the pandemic and

various reasons. This increase was limited to 4% in 2022 compared to 2021.

The use of heat pumps is increasing in Türkiye, as it is all over the world. However, since Türkiye is not affected by natural gas supply shortages that particularly affect Europe, there is no urgency in the use of these devices. Although incentives are being given abroad on this issue, no incentives have yet been discussed in our country. Since there is no urgent need for this in our country, there are no significant manufacturers yet. The fact that most of the main manufacturers of heat pump devices have a very large capacity and require very economic costs makes it difficult to manufacture domestically. However, it is emphasized that there will be a significant increase 90% of as an association, produces air conditioning devices in compliance with energy efficiency standards in Türkiye with rapid technological development. In Türkiye, new generation gases are being used in compliance with European Union regulations. İSKİD is conducting intensive activities to develop the HVAC&R industry and the air conditioning market in Türkiye. We continue our versatile work with the 14 commissions we have established," he said. Continuing his evaluations, DIDONYAN stated that İSKİD, which was founded in 1992 and has 121 members today, serves the society with social responsibility projects in fields such as technology, health, environment, education, and indoor air quality.

DIDONYAN noted that the world HVAC&R market has exceeded \$85 billion, "Türkiye has shown a fast development in the air conditioning market both in terms of quantity and quality with its production capacity. Although there has been a contraction in the air conditioning market in the pandemic, our country made a rapid entry into the international market after the pandemic. It reached a justified and respected level abroad by expanding its export areas," he shared.

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Türkiye's refrigeration sector is growing steadily as a global player



Air conditioning and refrigeration are vital technologies widely used in all aspects of our lives. Cooling technology is utilized in a wide range of fields, including food production, storage, and distribution, pharmaceutical industry, healthcare facilities such as blood banks and vaccine storage, metal processing, chemical manufacturing, energy production, data centers, and information technology.

İSKİD is actively engaged in commission work that embraces the concept of "sustainable refrigeration" to reduce the impacts of global warming. They promote the use of environmentally friendly refrigerants instead of F-gases, enhance energy efficiency in devices to reduce

energy consumption, and conduct webinars and educational programs to educate and inform the industry.

İSKİD Chairman Ayk Serdar DİDONYAN, referring to the export data of the Turkish Refrigeration Sector,

stated, "With an export value of 1 billion 22 million dollars in 2022, refrigeration Systems and Components rank as the third-largest subsector in the HVAC industry. In the first five months of 2023 (January-May), our export figures for Refrigeration Systems and Components reached approximately 445 million dollars, showing a 14% increase."

DİDONYAN also mentioned the countries to which the sector exports. He added that the cooling sector primarily exports to neighboring regions, including Germany, the United Kingdom, Russia, and other European Union countries, as well as the United States, Israel, North Africa, the Middle East, and the countries of Russia, the Caucasus, and Central Asia.

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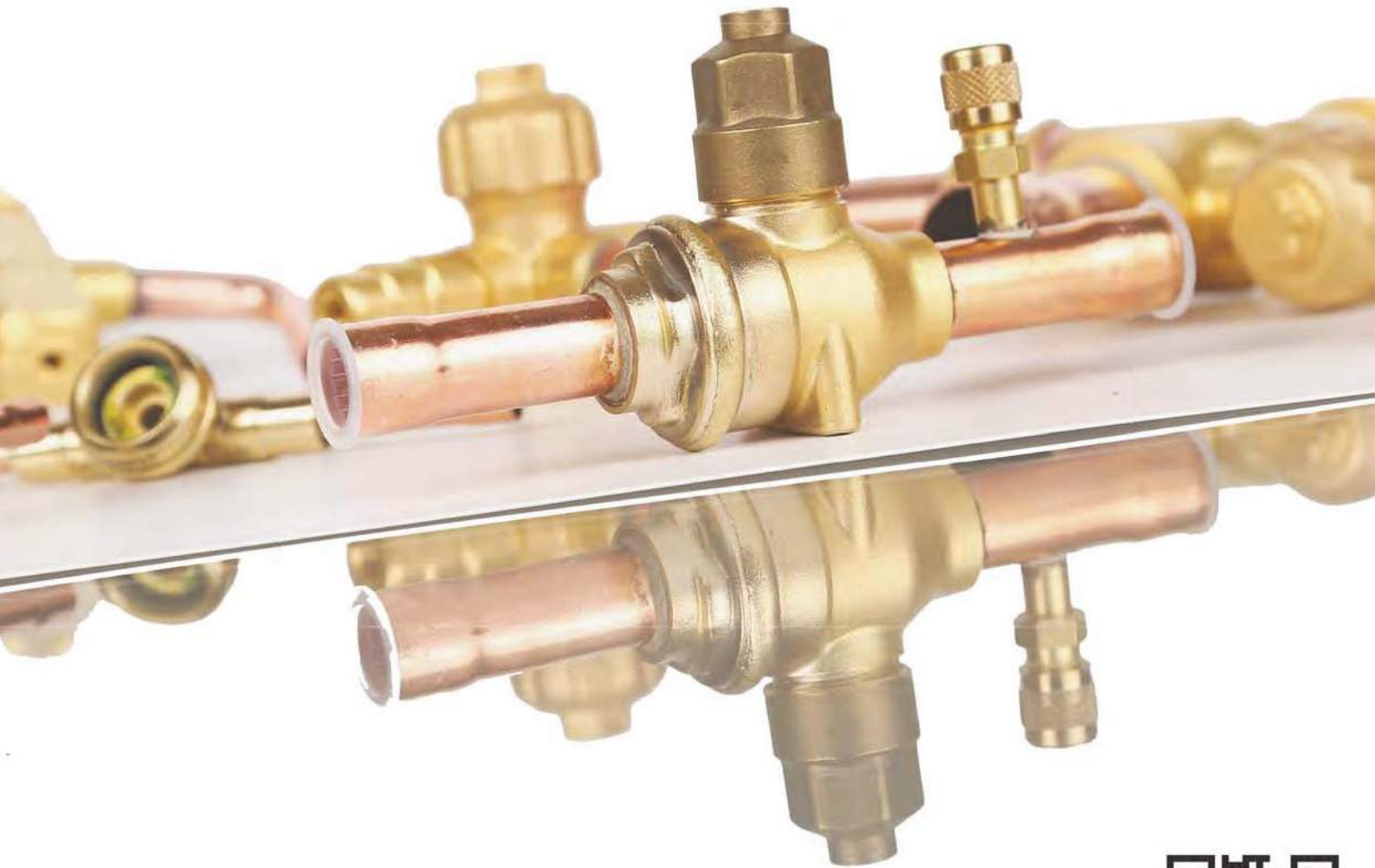


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Panel on Heat Pump Technologies, Project Design, and Application Samples by İSKİD



ISKID organized a panel titled "Heat Pump Technologies, Project Design, and Application Samples" at the conference section of the "WENERGY EXPO 2023 Clean Energy Technologies Fair," which hosts the clean energy sector.

On Wednesday, May 10, 2023, the panel titled "Heat Pump Technologies, Project Design, and Application Examples" took place, with İSKİD Board Member Turgay Yay serving as the moderator. During the panel, various presentations were delivered by members of the İSKİD Heat Pump Commission and Serhan Mumcu from GMD Moskay Engineering.

Arslan Çağlayan Gürel, a member of the İSKİD Heat Pump Commission, discussed topics such as the definition and classification of heat pumps, their benefits, the heat pump market in Europe and Türkiye, incentives in Europe, examples of air-source heat pump applications, and important considerations in heat pump installations.

Pınar Gürler, Deputy Chairperson of the İSKİD Heat Pump Commission, focused on water-source and ground-source heat pumps, their application details, and shared relevant information.

Serhan Mumcu from GMD Moskay Engineering presented on heat pump project design and application examples in buildings.

At the exhibition focused on the clean energy sector, various aspects of renewable energy, including wind, solar, hydrogen, biomass, and geothermal, were showcased along with their subcategories. The event also featured exhibits on cogeneration, environmental technologies, energy efficiency, energy logistics, digitization, energy storage, electric vehicles, charging technologies, smart grids, smart infrastructure, and cybersecurity in the energy sector. Cutting-edge technologies, the latest products, and services were presented at the fair.

ISKID established the Heat Pump Commission in 2018 to emphasize heat pumps and technologies and carry out effective initiatives. Through the İSKİD Heat Pump Commission, they closely monitor technological advancements and engage in extensive knowledge sharing with members, industry representatives, and public institutions. They organize webinars to inform the industry and the public about environmentally friendly heat pumps and technologies, as well as to share the latest developments.

ISKID's webinars on Heat Pumps and Technologies can be accessed through İSKİD's YouTube page.

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- Maintain customers at all times in competitive market conditions.
- To progress towards becoming a brand by giving importance to customer satisfaction.

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- To be behind all conditions of the product we sell.
- To give importance to customer satisfaction by acting in line with customer suggestions and complaints.
- To ensure that our company, employees, customers and suppliers are happy.
- To produce without damaging the environment and human health.



TÜRK STANDARDLARI ENSTİTÜSÜ



ISKID held its 15th Financial General Assembly



The Financial General Assembly of İSKİD, where the activities of the 15th Term Board of Directors and Audit Committee were discussed, took place on Friday, February 24th, at DoubleTree Hilton Moda Hotel, with the participation of representatives from member companies. The General Assembly was chaired by Mr. Tunç KORUN (Form), and Dr.

Deniz YILMAZ (Frigoblock) and Ms. Ece ULUĞTEKİN (Arçelik) served as the Vice Chairperson of the Assembly respectively.



During the Financial General Assembly, the activities of the 15th Term Board of Directors were shared with the members in a presentation by İSKİD's Chairman Ayk Serdar DIDONYAN. The activities of İSKİD's commissions in 2022 and their plans for 2023 were presented by various commission representatives to the member company representatives. These representatives included Mr. Emre KANDEMİR (Vice Chairman of Eurovent AHU Mirror Working Group), Mr. Kivanç ASLANTAŞ (Vice Chairman of Industrial and Commercial Refrigeration Systems Commission), Mr. Erinç ÇELİK (Chairman of the Ventilation Commission), Dr. Andaç YAKUT (Chairman of the Heat Pump Commission), Mr. Tunç KORUN (Vice Chairman of the Statistics Commission), Mr. Mehmet ŞAHANER (Chairman of the Central Air Conditioning Systems Commission), Mr. Herman HAÇADURYAN (Chairman of the Marketing Commission and University-Industry Cooperation Commission), Ms. Ece ULUĞTEKİN (Chairman of the Split and Variable Refrigerant Flow Air Conditioners Commission), Mr. Manuel TOGAÇ (Chairman of the International Promotion Commission), and Mr. Ozan ATASOY (Vice Chairman of the Commission for the Development and Support of International Competitiveness).



ISKID's Ordinary Financial General Assembly began with the welcoming speech delivered by Ayk Serdar DİDONYAN, the Chairman of the Board, on behalf of the board members. DİDONYAN stated, "Today, İSKİD is a large family representing over 90% of the Turkish HVAC&R sector with its 14 active commissions, more than 250 representatives actively serving in these commissions, and 120 member companies. Our General Assemblies hold great importance as they provide us with the opportunity to meet our members face-to-face. We thank you for your participation."

The import coverage ratio of air conditioning exports is 93.5%.

ISKID Chairman Ayk Serdar DİDONYAN emphasized that the sector faced challenges in 2022 due to the uncertainties caused by the inflationary atmosphere, which weakened Türkiye's competitive power and had a detrimental effect on the foreign trade balance. He stated, "In these difficult economic conditions, our sector companies have carried out diligent work with the support of the HVAC&R Exporters' Association and have shown good performance. The Turkish HVAC&R sector closed the year 2022 with an export volume of 6.68 billion dollars, a 7.9% increase compared to the previous year."

While the sector's exports reached an all-time high, the import coverage ratio stood at 93.5%. In 2022, the countries with the highest export volume were Germany, the United Kingdom, Italy, Russia, and France, respectively. The sector's unit price per kilogram increased from \$4.63 in 2021 to

\$5.35 in 2022. This success is attributed to the achievements of many sub-sector representative companies engaged in heating, cooling, insulation, ventilation, and plumbing," stated Ayk Serdar DİDONYAN, the Chairman of İSKİD.

DİDONYAN also mentioned the İSK SODEX fair in his speech, which will be held on October 25-28. He emphasized that İSK SODEX fair will be the most important event of the sector in 2023, and member companies actively contributing to the buyer delegation activities prepared under the coordination of İSİB and HİMSF, as well as inviting their customers to the fair, will significantly contribute to making the Turkish HVAC&R sector a global player and increasing exports.

The younger generation should be involved for sustainable association activities.

DİDONYAN highlighted the importance of planning and implementing the growth and strengthening of association activities with determination, in line with İSKİD's 30-year history, and transferring them to the new generations. He stated, "We have a challenging task of encouraging and promoting the participation of second and third-generation company representatives in association activities, and guiding them to follow in the footsteps of their predecessors. We hope to accomplish this transformation for sustainable activities and enable the younger generation to take on more responsibilities in association work."

The Financial General Assembly concluded with a reception attended by representatives of İSKİD member companies and the press representing the sector.



ISKID will organize the 7th Conference on Architectural Design in HVAC&R

ISKID will organize the seventh edition of the "HVAC'R Control in Architectural Design" conference to emphasize the importance of HVAC'R control in architectural design.

The conference, which will be held on Monday, September 25th, at the Beşiktaş Naval Museum, aims to promote the widespread adoption of well-designed buildings with high indoor air quality and proper climate control. It will

emphasize the importance of integrated collaboration among all stakeholders, including designers, architects, and engineers, from the early stages of the design process.

The conference will be organized with the sponsorship of Arçelik, Daikin, Fanmak, Form, Systemair, Termofan, Trane, Trox who are all members of İSKİD and Hannover Messe-Sodeks Fuarçılık A.Ş.



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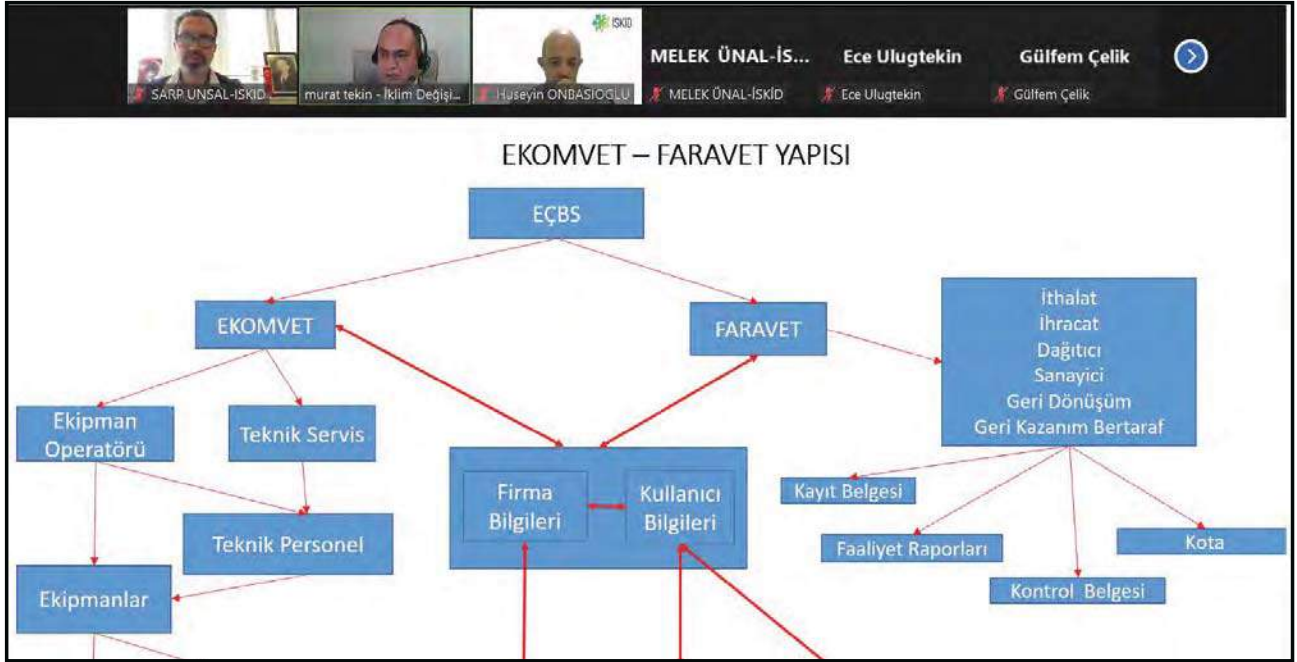


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F-Gas Regulation FARAVET and EKOMVET Database Introduction Webinar



ISKID organized the "FARAVET and EKOMVET Database Introduction Webinar" on Wednesday, April 5th, with the aim of monitoring the amount of F-gases used in Türkiye, informing the sector, and enabling the proper use of the system. Mr. Murat TEKİN from the Department of Monitoring of GHG

Emissions of the Ministry of Environment, Urbanization, and Climate Change attended the webinar, which received significant interest from representatives of companies in the HVAC&R sector. Information about the Equipment Operators Central Database (EKOMVET) and Activity Reports Database (FARAVET) was shared with the participants.

ISKID will meet visitors at ISK-SODEX 2023



ISK-SODEX Fair, the leading HVAC&R industry gathering point in the Eurasian region, is preparing to bring together sector professionals at Istanbul Expo Center on October 25-28, 2023.

ISKID will meet visitors at its main foyer, F04, at ISK-SODEX. This year, the fair will be organized under the theme of "Healthy HVAC&R Solutions," and it stands out as an important event that everyone interested in following the latest trends and developments in the HVAC&R sector should mark on their agenda.

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ISKID prepared a Air Conditioning Control Guide for Healthcare Facilities

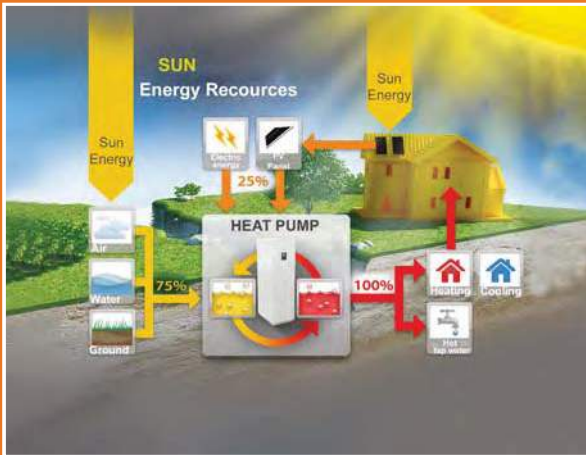
The "Air Conditioning Control Guide for Healthcare Facilities," which was prepared by the İSKİD HVAC&R Commission in Healthcare Facilities (SAYIK) with intensive and meticulous efforts, aims to establish criteria for climate control in healthcare buildings and serves as a valuable resource for both public and private sectors. The book, meticulously crafted through the in-depth work of academics and industry professionals within the İSKİD HVAC&R Commission in Healthcare Facilities (SAYIK), covers topics such as Fundamental Concepts, Design, Manufacturing and Production, Automation, Installation, Performance Tests, Operation and Maintenance.

The book will be presented to visitors at İSKİD's main booth, numbered F04, during the İSK-SODEX fair. Participants interested in acquiring the book can obtain detailed information at the İSKİD booth.



ISKID organize seminar titled "Heat Pump Technologies and Applications" at İSK-SODEX

ISKID Heat Pump Commission will organize a seminar titled "Heat Pump Technologies and Applications and an Overview of Market Developments" at the İSK-SODEX fair to be held on October 25-28.



In the seminar to be moderated by İSKİD Heat Pump Commission Member Mr. Arslan Çağlayan GÜREL, İSKİD Heat Pump Commission President Dr. Mr. Andaç YAKUT, Deputy Chairman of the Heat Pump Commission Ms.

Pınar GÜRLER and Commissioner Mr. Utkan GEREK will share their presentations with the participants.

All visitors are invited to the seminar, which will be held on Wednesday, October 25, between 13:30-15:00, in the 5th Hall Forum Area.

In 2018, İSKİD established the Heat Pump Commission to prioritize and conduct effective initiatives in the field of heat pumps and technologies. Through the İSKİD Heat Pump Commission, technological advancements are closely monitored, and there is extensive knowledge sharing among members, industry representatives, and public institutions. Webinars are organized to inform the industry and the public about environmentally friendly heat pumps and technologies and to share current developments.

İSKİD's webinar videos on Heat Pumps and Technologies can be accessed through İSKİD's YouTube account.

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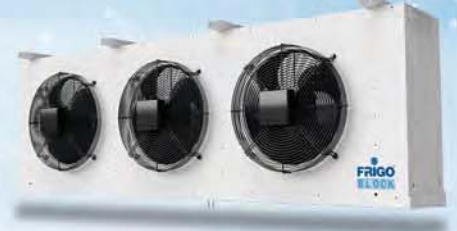
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ISKID Industry Talks featured sector veterans Bedi Korun and Tunç Korun as guests

The third episode of the ISKID Industry Talks series hosted sector veterans Mr. Bedi KORUN and Mr. Tunç KORUN, with ISKID Board Member Volkan ARSLAN serving as the moderator.



In the third episode of the "ISKID Industry Talks" program, we had the honor of hosting Mr. Bedi KORUN, Founder and Honorary Member of ISKID, and Mr. Tunç KORUN, the President of the 6th Term Board of Directors of ISKID, the Chairman of the ISKID Statistics Commission,

and the Chairman of the Form Group. They shared valuable insights on the development of the Turkish HVAC&R sector, early international activities, domestic production initiatives, and the growth of the sector since the establishment of ISKID.



ISKID Board Chairman Ayk Serdar DİDONYAN, who participated in the filming of the program, stated, "When we decided to create the 'ISKID Sector Conversations' program, our aim was to host industry veterans who have witnessed the birth and development of our sector, made dedicated and visionary contributions to making our sector a global player, and record the sector's memory to pass it on to future generations. As an association, we are steadily moving forward towards this goal."

ISKID Industry Talks videos can be accessed on the ISKID YouTube page.



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ISIB Chairman Mehmet Şanal



As of the first six months of 2023, the Turkish HVAC&R Sector concluded with a significant increase in export size, reaching 3.586 billion dollars, reflecting a growth of 6.7% compared to the same period of the previous year. The sector's export performance surpassed the average of Türkiye's total exports, while the export-to-import coverage ratio stood at 92.8%.

In the first half of 2023, the Turkish HVAC&R Sector experienced export growth in various sub-sectors compared to the same period in 2022. The Heating Systems and Components sub-sector saw a 3.6% increase, the Cooling Systems and Components sub-sector recorded an 8.5% increase, the Air Conditioning Systems and Components sub-sector had a 5.6% increase, the Installation Systems and Components sub-sector achieved a 7.2% increase, and the Ventilation Systems and Components sub-sector showed an impressive 13.9% increase in exports. However, there was a decrease in export value in the Insulation Materials sub-sector during the same period.

The top five countries that received the highest exports during the first quarter of 2023 were, in order, Germany, Russia, the United Kingdom, Italy, and France.

Furthermore, the sector's unit price per kilogram increased from 5.2 dollars in the first quarter of 2022 to 6.2 dollars in the first quarter of 2023.

As the Turkish HVAC&R sector, our main goal is to secure a 1.5% share in the global market. The figures from the first six months of 2023 support our ambition. To support our exporters, we have been actively engaging in extensive marketing and communication efforts in collaboration with all sector stakeholders. So far this year, we have organized 20 events, including trade fairs, national participations,

and commercial delegation organizations, covering a wide range of countries from Russia to Slovakia, Senegal to Indonesia. By the end of the year, we plan to conduct more than 40 events aligned with the goals of our exporters.

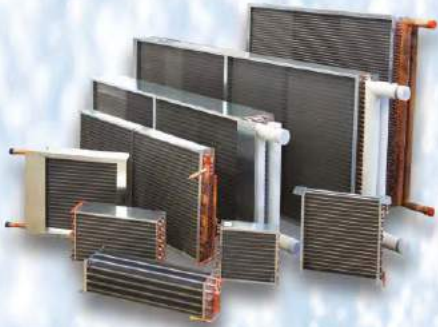
According to the data from the Turkish Exporters Assembly, the Turkish HVAC&R Sector holds the 11th position in terms of export volume, underscoring its significance in the overall export landscape of Türkiye.

The sector also holds a prominent position in the European market as the leader in split air conditioner production capacity, and it is recognized as the world leader in radiator and towel rail exports. We are making steady progress towards becoming the global production hub for boilers, ventilation equipment, and flexible air ducts. Our aim is to achieve similar successes in other product groups such as cooling, Installation, and insulation, and target a place in the top 10 in the global rankings in the medium term.

We are putting all our efforts into enhancing our country's exports and establishing a strong presence in international markets. To cater to the changing energy usage patterns in Europe, we are continuing production efforts to provide the right devices and equipment. In this regard, we have observed an increase in investments from foreign countries into Türkiye. The heat pump and equipment sector, in particular, has been very active. The heat pump market reached its highest point last year, driven by the natural gas restrictions due to the Russia-Ukraine conflict. The market grew 2.5 times compared to the previous year. We are witnessing a global growth in the heat pump market with increasing demand. By 2030, we expect the European heat pump market to reach an annual volume of 8 million units. We believe that this reshaping period will be very dynamic and productive for Turkish companies.



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Sectoral Trade Delegation Organizations from İSİB

İSİB's Sectoral Trade Delegation Organization in Poland



The Turkish HVAC-R Exporters Association (İSİB) held a Sectoral Trade Delegation organization in Poland between June 13-15 with the participation of Turkish exporters. Ali Aktaş, Member of the Board of Directors, participated in the organization on behalf of İSİB.

On June 14, 20 companies from Türkiye and 39 companies from Poland participated in the bilateral meetings held in Warsaw, the capital of Poland, and a total of 153 job interviews were held.

During the meetings, Cengiz Kamil Fırat, Ambassador of the Republic of Turkey in Warsaw, and Trade Counsellors Betül Buke Karaçin and Nevra Genç participated in the delegation organization and had a conversation with the participating companies. A dinner event was organized in the evening of the same day with the participation of the delegation participants and Betül Buke Karaçin and Nevra Genç, Trade Counsellors of the Republic of Turkey in Warsaw.

İSİB officials also held two separate meetings within the scope of the organization. In the first meeting, the İSİB delegation met with Robert Grejcz, President of the

National Refrigeration Forum (NFR), and discussed areas of cooperation within the scope of the Polish market. At the end of the meeting, he and his affiliated members were invited to the İSK-SODEX Buyer's Mission organization to be held in the last quarter of this year. In the second meeting, the officials of the Polish-Turkish Businessmen's Association visited the delegation and informed them.





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ISIB organised Sectoral Trade Delegation Organization in Serbia



HVAC-R Exporters Association (ISIB) organized a Sectoral Trade Delegation organization with the participation of Turkish exporters in Serbia between May 8-10. Kerem Ünlü and Ömer Duyar, Board Members representing ISIB, participated in the organization.

22 companies from Turkey and 80 companies from Serbia participated in the bilateral meetings held on May 9th in Belgrade, the capital of Serbia, and a total of 277 business meetings were held. During the meetings, Hami Aksoy, Ambassador of the Republic of Turkey in Belgrade, visited the participating companies and shared information.

Prior to the meetings, Yasemin Yüce, Trade Counselor of the Republic of Turkey in Belgrade, informed the participants about the country's economic situation, business culture, and relations between Turkey and Serbia.

Bratislav Blagojevic, President of SMEITS, Serbian Union of Mechanical and Electrical Engineers and Technicians, and Vladan Galebovic, Secretary General visited the event. They discussed with the ISIB Board of Directors the participation of our member companies in the KGH International HVAC-R exhibition to be organized by SMEITS in Belgrade on December 6-8, 2023. Officials from the Turkish-Serbian Businessmen Association also visited the event.

Sectoral Trade Delegation Organization from ISIB to Romania



HVAC-R Exporters Association (ISIB) organized a Sectoral Trade Delegation organization in Romania between April 26-28 with the participation of Turkish exporters.

18 companies from Turkey and 39 companies from Romania participated in the bilateral meetings held on April 27 in Bucharest, the capital of Romania, and a total of 153 business meetings were held. On the evening of the same day, a dinner event was organized with the attendance of the delegation participants and Sude Gürçan and Naci Akdoğan, Trade Counsellors of the Republic of Turkey in Bucharest. On Friday, April 28, the ISIB delegation held meetings on the Romanian market with Özgür Kıvanç Altan, Ambassador of the Republic of Turkey in Bucharest, and Sude Gürçan and Naci Akdoğan, Commercial Counsellors of the Republic of Turkey in Bucharest, at the Bucharest Embassy. On the same day, the delegation also had meetings with Ufuk Tandoğan, Chairman of the Board of Directors of the Turkish Businessmen Association, and Sever Raşid, Deputy Secretary General.



National Participation Organizations from İSİB

İSİB Participated in HVAC&Refrigeration Live Exhibition with Info Booth



HVAC-R Exporters Association (İSİB) participated in the HVAC&Refrigeration Live Exhibition held in London, the capital of England, on April 18-19 with an Info Booth. The exhibition was attended by 15 companies from Turkey and the head of the delegation was Osman Baştaş, Member of the Board of Directors of İSİB.

Abdurrahman Deniz, Commercial Counselor of the Republic of Turkey in London, and Emre Aydın, Trade Specialist, visited the booths of İSİB and Turkish exhibitors and discussed the trade relations between the two countries with the authorities.



Stating that HVAC&Refrigeration Live Exhibition is important for the Turkish HVAC-R Sector, Mr. Baştaş, Member of the Board of Directors of İSİB, said the following about the exhibition: "The UK is the 6th largest importer of HVAC-R sector in the world with an import volume of more than 18 billion dollars. Turkish HVAC-R Sector is the 7th largest exporter country in this country. We participated in the HVAC&Refrigeration Live Exhibition with 15 Turkish companies in order to consolidate the trade of our sector in this country and to take it up a notch. As İSİB, we were pleased to host our sector companies and our guests in the UK at our booth during the exhibition and to host meetings."

ISIB's National Participation Organization to the 7th Egypt HVAC-R Expo Exhibition



HVAC-R Exporters Association (ISIB) organized the national participation organization for the 7th Egypt HVAC-R Expo Exhibition held in Cairo, the capital of Egypt, between May 17-19.

Sixteen companies from Turkey participated in the National Participation organization along with ISIB, while 4 ISIB member companies participated through their distributors. Zeki Poyraz, Vice Chairman of the Board of Directors, and Cem Savcı, Member of the Board of Directors, participated in the exhibition on behalf of the HVAC-R Exporters Association.

Officially inaugurated by Dr. Eng. Mohamed Shaker El-Marqabi, Egyptian Minister of Electricity and Renewable Energy; the exhibition was attended by 149 international exhibitors from 9 countries in the fields of heating, cooling, ventilation, and renewable energy.





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ISKAV BIM Center manages the "ISKAV BIM Center" brand. It examines and reviews BIM Training and BIM consultancy activities conducted in the industry through collaboration with relevant institutions (with the participation of stakeholders). It approves the inclusion of those who meet the written criteria into the ISKAV BIM Center Consultant Pool. It allows the use of the "ISKAV BIM Center" brand in approved works and encourages such endeavors.

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Reliability: It provides reliable services to all stakeholders and follows a Data Confidentiality Policy.

Transparency: ISKAV BIM Center manages its relationships with stakeholders according to written rules that are transparent and accessible to everyone.

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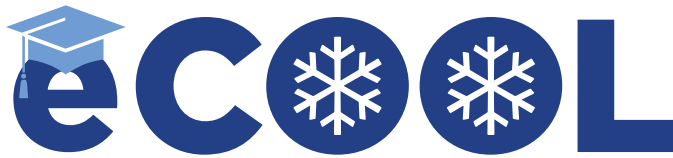
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Improving Capacity for VET Teachers: eCOOL Project

The aim of the eCOOL Project led by TTMD in partnership with ISKAV and Harran University Continuing Education Center (HARÜSEM) within the scope of the Improving the Quality of Vocational Education and Training through Establishment of Sectoral Centers of Excellence (IQVETIII) Grant Program, is to provide specialized online and on the job training programs to 180 vocational school teachers in the field of installation technology and air conditioning.

The Project aims to enhance the capacities of our teachers and contribute to improving the qualifications of their students who will enter our industry aligned with evolving Technologies and current regulations.

The Project commenced with the Opening Meeting and I. Dialogue Activity on Marc 31, 2023, in Ankara, and the II. Dialogue Activity was held in Istanbul, with the participation of sector representatives, association members, project stakeholders, teachers, and trainers attending online trainings. During the dialogue activities, the challenges in qualified employment in our sector were addressed, and the importance of vocational education and contributions that can be made through our Project in training competent workforce were shared.



The earthquake on February 6, 2023, which deeply affected our entire country, also had an impact on our Project implementation region,

Şanlıurfa. Due to the earthquake a temporary training area has been set up to conduct the training programs for our teachers in Başkent University. For this temporary training area in Ankara, Başkent University has allocated the Energy Systems Laboratory of the Engineering Faculty.

Up until now, six online and three on-the job training program have been organized within the Project. At the end of those programs 121 VET teachers participated online training program and 67 of 121 VET teachers participated on the job programs. Our training programs will be continue until participants will completed to 180 after September.

After trainings programs completed, A technical visit will be organized to Germany with 5 succesfull teachers who attended our programs. Project will be end at the end of 2023.

In addition to all , We'd like to thank to Form Grup, Havak, ITS Soğutma, Doğu İklimlendirme, System Air, Friterm, Solimpeks, Testo, Vente, Kas Grup and Klimasan for all their supports of the training area of this project.



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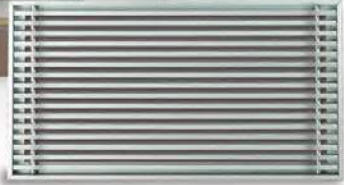
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The Main Agenda of ISK-SODEX 2023: Sustainability

Held this year between 25-28 October at the İstanbul Expo Centre, the biennial ISK-SODEX event provides an international platform for air conditioning industry representatives along with significant contributions to the industry's growth momentum through collaborations. Attended by sector representatives from Türkiye and around the world, the 2023 ISK-SODEX will feature participating companies showcasing environmentally friendly, energy-recovering and highly efficient sustainable products in an area of 120 thousand square metres.



The ISK-SODEX International HVAC&R, Insulation, Pump, Valve, Fitting, Water Treatment, Fire Prevention, Pool and Solar Energy Systems Fair, one of the most important events for the air conditioning industry, has been held for 26 years with the participation of experts and visitors from around the world. Hosting the globe's leading brands, the Fair also makes a significant contribution to the air conditioning sector's trade volume through collaborations after each fair. This year, 25 sectoral forums and panels will be presented during the four-day Fair, which takes place at the İstanbul Expo Centre between 25-28 October. With 90,000 professional visitors expected to attend, ISK-SODEX plans to host more than one thousand companies in addition to 500 VIP purchasing professionals from 80 countries. Low-cost, environmentally friendly and energy-efficient rooftop air conditioners, precision-controlled air conditioners for data centres, control panels and sensors, ventilation systems, and hygienic heating and cooling systems with butterfly valves will be highlighted during this year's Fair, which hosts innovations in the air conditioning sector every year.

Sustainability at the forefront

Since its inception in 1997, ISK-SODEX has made a significant contribution to Türkiye's export volume, steering the air conditioning sector by reaching more manufacturers and industry professionals. At the 2023 Fair, exhibitors will negotiate for new business deals while presenting the latest developments in updated energy-efficient solutions,

including those designed to accommodate the economical and hygienic heating and cooling systems demands of businesses, residences and institutions. As well, systems that offer maximum efficiency by optimising energy consumption in buildings will be exhibited, along with devices to reduce CO2 emissions from buildings, and ventilation units that quickly remove smoke and heat. Additionally, other products and systems, such as systems that reduce the psychological effects of artificial lighting with natural-like lighting, will be introduced to industry professionals.

Energy efficient solutions

Representatives in the air conditioning sector transfer a significant proportion of their turnover to R&D studies every year. Accordingly, solutions developed not only for today but for the future, in line with developing technologies and demands, will be highlighted at the Fair. Providing services in line with the needs of shopping malls, hospitals, business centres, sports halls, industrial facilities, hotels and other businesses in the tourism sector, representatives of the air-conditioning sector attending ISK-SODEX enjoy the opportunity to solidify relations with existing customers around the world and forge new customer relations.

Contributing significantly to the growth and successful export figures of the Turkish air conditioning industry, the Fair's participating companies will also showcase rooftop air conditioners, precision-controlled air conditioners for data centres, in-row air conditioners, chillers, cold storage devices, variable flow air system (VAV) controllers and engines, fire and smoke damper motors, and compact 1 and 2 Nm damper motors, together with the 3-way butterfly valve system and a new generation differential pressure sensor that facilitates the measurement of differential pressure in water lines. At the highly anticipated 2023 ISK-SODEX, innovations will be in the spotlight. Among these, heat pump devices that can produce hot water up to 80 °C, frequency-controlled water source heat pumps, and home and commercial type heat recovery devices that can produce energy savings of up to 40 percent. New technology devices such as air-to-water heat pumps, cooling devices with tropical air temperatures, passenger bridge air conditioners, and aircraft air conditioners will also be at the forefront.

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IN ACCORDANCE WITH THE LAW NUMBER 5174



Donatien Lambert

Eurovent
Ventilation Department
Project Manager

Fresh thinking for hygienic AHU certification

As we draw closer to ISK Sodex, Eurovent Certita Certification (ECC) is preparing to launch its new and improved Eurovent Certified Performance programme for Hygienic Air Handling Units (AHUs). With the focus on indoor air quality becoming increasingly important, and a range of buildings from schools to hospitals requiring a higher hygienic standard when it comes to ventilation, the hygienic AHU is growing in popularity for both new and retrofit projects. We spoke to ventilation department project manager, Donatien Lambert, about the changes ahead and the growing demand for hygienic air handling units.

Hello Donatien. Can you tell us what the main differences are between an AHU and a hygienic AHU?

"Hygienic AHUs provide the same functions as traditional AHUs, but are suitable for applications requiring a high hygienic standard. The main differences between a standard AHU and hygienic AHU, is that hygienic AHUs are easy to clean and disinfect, featuring access to all internal surfaces, and constructed to reduce places where dirt can accumulate. The materials used in construction are designed to prevent fungal and bacterial growth, resist corrosion and abrasion, and are odourless and emission free."

Eurovent Certita Certification already certifies AHUs.

Why introduce hygienic AHU certification?

"Hygienic certification is an optional extra for manufacturers already enrolled in our Eurovent Certified Performance programme for AHUs. The certification guarantees the hygienic aspect of an AHU by checking the quality of the materials used, the components selected, as well as the level of maintenance of the casing and of the components. The certification uses a star system to classify each AHU by application, allowing specifiers, designers and installers to easily select the right system for their project:

- **1 star** AHUs are suitable for applications including offices, commercial buildings, schools, hotels.
- **2 star** AHUs are suitable for use in hospitals and healthcare.
- **3 star** AHUs are suitable for applications including pharmaceutical, food processing, and white rooms."

What changes have been introduced in this new version of the Hygienic AHU programme?

"When it comes to hygienic AHUs, size matters. We are working on some compromises on the description of removable components, to avoid the use of empty sections between components. This will allow for smaller, more compact, hygienic AHUs to be certified."

Why did the programme have to change?

"ECC programmes adapt to industry requirements and we are continually improving our programmes according to the feedback from manufacturers and end users. The programme had to change because some rules are simply not relevant within the current market. Feedback from HVAC professionals showed that large AHUs can be problematic to install in retrofit applications, especially those in old buildings with not a lot of space, or where rooftop installation is prohibited. Manufacturer feedback showed that empty sections between components lead to bigger (and more expensive) units. This was unfair, and so to be competitive in a market where smaller units are thriving, the rules regarding sizing are being adapted, while keeping the certification programme strong."

Who decided on these changes and what was the process?

"It's very much a collaborative process. Changes are discussed with ECC team members (auditors, client managers, programme managers) and certified manufacturer members during working groups. Then a proposal is made. This can only be added to the certification rules after a validation process, including consultation of several entities."

When will these changes come into force?

"The target is to publish this new release of the Technical Certification Rules (programme rules) before ISK Sodex."

What is the added value for manufacturers in holding Hygienic AHU certification?

"The Eurovent Hygienic certification is simple to understand, with clear definitions, and no interpretations. The hygienic level of the product is clearly displayed, in terms universally understood. Manufacturers go through annual software and factory checks which can be hugely beneficial for quality control and keeping standards high. Annual checks also streamline the certification process when it comes to renewal."

What are the benefits for specifiers and industry professionals in choosing a Hygienic AHU certified product?

"The hygienic certification levels cover VDI 6022 part 1 or DIN 1946 part 4 standards for hygienic AHUs with additional requirement to strengthen the Eurovent certification, so HVAC professionals can rest assured units meet all required standards and codes. Additionally, the certification allows HVAC professionals to easily identify models with a high hygienic standard via the three star system. And once again, the yearly checks of the factories and software ensure a strong checking process."

How do you hope the sector will respond to the new and improved programme?

"The revamped programme corresponds to market demand. The programme will be clearer to understand, especially when compared to other standards. The big change will be that units will be more compact and more competitive with other hygienic units, while keeping a strong certification programme."

Is there anything else you want to say about the programme?

"You can find out more about our Hygienic AHU programme, or search for products in our online certified product directory via our website at www.eurovent-certification.com. If you are a manufacturer interested in Hygienic AHU certification, please contact me at d.lambert@eurovent-certification.com"

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THINK...SUSTAINABILITY

THINK PERFORMANCE



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Daikin Continues to Grow in Türkiye with its Production and Export Power



Daikin, the leading brand of the air conditioning industry, is making a name for itself with the importance it attaches to R&D and production, the awards won and increasing every year in the rankings it takes place. The company, which was the sector champion in the list of top 1000 exporters in 2022 announced by the Turkish Exporters Assembly (TIM), achieved a great success by ranking in the 70th place in the general ranking. According to the data of 2021, Daikin, which has moved up 41 places compare to the previous year, ranks 111th in the ranking of the 500 largest industrial enterprises in Türkiye.



Daikin, the leading brand of the air conditioning industry, crowns the results of its investments in production and R&D in 2022 with the awards received. According to the results of the 2022 financial year, the company which has achieved an export income of approximately 330 million dollars, took place as the export champion of its sector in the '2022 Türkiye's Top 1000 Exporters Survey' prepared by the Turkish Exporters Assembly (TIM) and achieved great success. In the general ranking, which



includes all sectors, Daikin was in the 81st place last year and managed to increase its export revenues by 31.5 percent this year and risen up to the 70th place.

Continuing to Rising in 'Türkiye's Top 500 Industrial Enterprises Research'

According to the data of 2021, Daikin, which has a history of 99 years and a wide product range with the pioneering technologies it offers to the air conditioning sector, has risen 41 places higher than the previous year and took place in 111th place in the "Türkiye's Top 500 Industrial Enterprises Research" prepared by the Istanbul Chamber of Industry (ISO).

Daikin Türkiye, which has been producing at world standards in its production center located in Sakarya / Hendek since July 2011, continued its growth by raising its position every year among the 500 largest giant corporations, that it entered from the 488th place in 2015.

Everywhere You Breathe....



Doğu HVAC Systems refreshes the air of ICity Towers, in Moscow, constructed as a complex consisting of two

skyscrapers, ICity Towers is among the tallest buildings in Moscow, one of the most popular cities in Russia, and in Europe. 34 floors of these two skyscraper complexes belonging to the project; Time Tower with a height of 150 m and 61 floors; The one with a height of 256 m is named as "The Space Tower". The estimated cost of this large project, which is planned to be completed by the end of 2024, is 23 billion dollars, and it also has the status of an International Business Center when completed.

Doğu HVAC Systems, The choice of this project, which is a candidate to be one of the largest business centers in Moscow and where it works with architects who are competent in its design, was in favor of Four Seasons branded Four-DKS Air Handling Units. It breathes with ICity Towers Doğu HVAC Systems, with environmentally friendly air handling units produced with high technology and capable of filtering, heating, cooling, humidification and quieter operation according to the needs of the environment.



Air Cooled Water Chiller with Scroll Compressor - EBHS



ERBAY Water Chillers are designed to outdoor installation and provide chilled water leaving temperatures which are given on capacity tables in our factory carrying out EN ISO 9001:2015 Quality Management System. The Units are supplied to ready for installation. All connections, oil and refrigerant charge and required tests are made in our factory. Our units are in conformity with health and safety requirements of European Union directives and relevant harmonized standards.



Cooling Compressor: According to capacity hermetic scroll compressors are used between 1 and 6 pieces and compressors are used as single, tandem or trio on each independent refrigerant circuit. Tandem and trio compressors are mounted on solid frame rail so vibration effect is prevented. Equal oil distribution is provided on compressors by using oil equalizing system.

Condenser: Air cooled condensers are manufactured by collating special profile aluminium fins on copper tubes. Copper tubes are expanded special process in order to increase thermic conductivity between copper tubes and aluminium fins. By this means heat transfer reaches to maximum level.

Fan : The high efficient axial fan which is directly coupled with the motor, noiseless bearing, balanced statically and dynamically is mounted on the device to provide the condensation of the refrigerant in the condenser.

Evaporator: Direct expansion evaporator is manufactured in Shell & Tube form and special high efficient copper tubes are fixed to steel tubesheet holes with tube expander method. It's allowed to maintenance and clean up because of the removable tube bundle. Evaporators are in conformity with EN 14276-1 and EN 13445 standards and designed for chilling water and glycol brines. External surface of evaporators and compressor suction lines are insulated with insulation material with suitable thickness.

Electrical Control Panel: The panel is designed to IP54. To operate the Unit automatically and securely, the panel is composed of two different sections. The first section is power section and the other one is control sections. The panel is equipped with enough number of contactors, thermic, fuses and on-off switches. The panel and wiring are in conformity with EN 60204-1 standard.

Microprocessor Control System: Microprocessor control system is used on the Unit. By means of this; entering and leaving water temperature, refrigerant pressures on the suction and discharge lines, occurred superheat temperature of evaporator, operating times of compressors, all faults occurred on the system and all alarm history can be seen on the digital screen and also capacity control can be made easily. Besides condenser fans are controlled automatically depending on the ambient temperature and the operating times of each compressor is balanced so optimum efficient operation of the Unit is provided.

Components of the Cooling Circuit: To operate the Unit automatically and securely; electronic expansion valve drier-filter, sight glass, relief valve, flow - switch, high - low pressure switch and shut - off valves are included.

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Ercan Teknik & E.C.A Solutions for Cooling System Valves with Maximum Durability and Adaptation



ERCAN TEKNİK and E.C.A's refrigerant valves, draw all attention towards themselves in the cooling market with their high performance and durability features.

Although E.C.A. is the biggest valve manufacturer in Turkey, for more than 50 years they have focused on water, steam, sanitary and gas valve production. With the collaboration of E.C.A. and ERCAN TEKNİK engineers, the new refrigeration valve range has been introduced to the market almost 10 years ago. With "continuous improvement" motto, E.C.A. became the preferred brand passing its European competitors in Turkey. Currently Turkish HVAC-R market uses 85% of E.C.A. with its esteemed brand and high quality. E.C.A. product range covers all CFC, HFC, HCFC, HFO and Natural Refrigerants excluding the Ammonia (NH₃). Nowadays the E.C.A. CO₂ product range becomes very popular in Europe due to the F-Gas Regulation and its wide range of products.

E.C.A. Refrigeration Product Range: Bi-flow Ball Valves, 2-3 Way Motorized Ball Valves, Safety Valves, Sight Glasses with Moisture Indicator, Changeover Valves, Y-Filters, Service Valves, Check Valves, Solenoid Valves.

SMART SYSTEMS WITH ENERGY EFFICIENCY THANKS TO 40 YEARS OF KNOWLEDGE AND EXPERIENCE FROM ERCAN TEKNİK!

As it is well known, 40 years of existence in a sector brings with a strong experience and solutions. With this experience and skills, Ercan Teknik team; offers high-level systems to their customers. For Ercan Teknik, it is also important to reduce costs in systems with eco-friendly methods. Therefore, Ercan Teknik solutions consist of eco-friendly equipment focused on minimizing consumption while maximizing energy efficiency in applications.

Ercan Teknik Solutions

RIPEN-IT:

Thermoregulation, Humidification, CO₂ Level Control, Air & Gas Homogenization, C₂H₄ Level Control, Periodically Generation of Food Quality & HACCP Reports, Live monitoring of the Ripening Process, Complete Control of the Refrigeration Cycle.

POT-8-0:

Precision Thermoregulation, Humidification, CO₂ Level Control, Air & Gas Homogenization, Free Cooling via Outdoor Air, Periodically Generation of Food Quality & HACCP Reports, Alarm Management & Notification via email or SMS, Potato Core Temperature Monitoring up to 3 different probes, Daily Potato Core Temperature Reduction Algorithm.

FRESH as EVER:

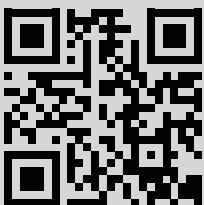
Thermoregulation, Humidification, CO₂ Level Control, C₂H₄ Level Control (optional), Complete Control of the Refrigeration Cycle (Split Units), Inverter Compressor Management, Digital Scroll Compressor Management, Condensation Management, Management of up to 3 Evaporators in a single Room.

DRYCOOLER

DRY Cooler application; manages pump stations, adiabatic coolers and heat exchangers with advanced ventilation regulation. The flexibility of this application allows it to work in combination with many other applications. Application can work either stand alone or integrated to a chiller unit as a free cooling source.

ERCAN TEKNİK Inc.

Your Partner in Food Conservation Automation



Flexibility in design, quality in production, saving in energy, customer happiness in service is the general policy of FANMAK



FANMAK family is engaged in production in Atasehir / Istanbul. Following the changing world technology and aiming to use the technology at the best level, Fanmak aims to increase production and service quality based on international standards.



Fanmak ventilation equipment, heating and cooling systems with its expert staff with many years of experience in the sector has succeeded to become one of the most sought after companies in the market with its superior service quality, customers in numerous regions in Turkey, offering all kinds of efficiency, proving the quality conscious and experienced personnel with many small to largesized companies serve quality product and after.

Asian region. The air handling unit supply of Tajikistan Rogan Dam will be done by Fanmak until 2026. Products were sent to another important project, the Iraq Skytower project, and there are still some devices that are still in production. Apart from these, intensive exports are made to many countries such as Iraq, Tajikistan, Kazakhstan, Turkmenistan, Libya, Uzbekistan, Georgia, Azerbaijan, Austria and Kosovo.

In our facilities where quality standards are produced, all products are carefully controlled at the input and post-production stages. In line with customer demand, Turkey and according to world standards, following the developing technology, continuously improving the quality of products and systems to provide quality products to our customers with team spirit and understanding.



Fanmak exports to many countries, especially the



More Than 15 Countries Choose The Quality Of Fanmak



OUR PRODUCTS



Air Handling Unit



Axial Fan



Roof Top Air Conditioner



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Air Cooled Chiller



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All Stars to FKS Air Handling Units



FORM has released new Eurovent certified FKS air handling units (AHUs) to provide customers with the best possible solution for all types of project requirements.

FKS air handling unit, which has a world-class competitive performance, is attracting great attention from domestic and international markets.

It stands out especially with T2 (TT Class) in Thermal Transmittance class and TB1 (TBF Class) in Thermal Bridging class values which represent very low energy loss.

FORM FKS Air Handling Unit, which can be produced in 60 different modules with a flow rate between 1,000 m³/h and 100,000 m³/h, has a special steel casing structure and 60 mm double skinned panels with thermal barrier PVC profile.

FKS air handling units meet the required level of indoor air quality while maintaining the humidity and the temperature under control. With modular, flexible and environment friendly solutions, it provides ideal comfort for commercial and residential buildings while providing high energy savings.





"Fresco Cooling Inc.: Growing with Innovative Steps in the Industry"



Fresco Cooling Inc. will showcase brand-new products and brands in the sector at the Sodex Fair, taking place at Istanbul Fair Center Hall 5, Stand E42 from October 25th to 28th, 2023. The company, which has maintained its role as an authorized Parker distributor for 4 years, is expanding its portfolio with DRY&ALL brand Filter Dryers imported from India and the NORTH BLADE fan brand based in the Netherlands.

Environmentally-Friendly and Economical Approach

Fresco Cooling Inc. stands out with its environmentally-friendly and economical solutions. Specifically designed for -80°C cooling requirements, the specialized R23, R744 or R290 cooling systems support energy efficiency and environmental sustainability goals. The company combines its engineering capabilities and eco-friendly approach to meet industry demands.

Strong Position and Growth

Fresco Cooling Inc. has rapidly established a strong position

in the sector, drawing attention with its engineering expertise and innovative products. The company aims to provide rapid and effective solutions to industry demands, prioritizing customer satisfaction.

Let's Meet at the Sodex Fair

Fresco Cooling Inc. is excited to host visitors with its cutting-edge technology products at the Sodex Fair. Don't miss the opportunity to learn more about Fresco Cooling Inc.'s innovative products and its prominent role in the sector at the event held at Istanbul Fair Center.

Conclusion

Fresco Cooling Inc. stands out with its successful growth story and environmentally-friendly solutions. At the Sodex Fair, you can have the chance to meet company representatives and closely acquaint yourself with the latest products and technologies. Fresco Cooling Inc. continues to solidify its position in the industry and prioritize customer satisfaction.

Frigoblock launches new product series with R455a Refrigerant



As transition from traditional refrigerants to low-GWP refrigerant system solutions is going through more severe restrictions due to F-Gas regulations, alternative mixed refrigerants which has no or low impact to the environment has been introduced to the market to be able to meet these standards. One of the most promising alternative refrigerants is R-455a which has GWP<150, wide range application temperature and higher COP levels with respect to traditional and alternative refrigerants. Seeing such improvement in the refrigerant manufacturing technology, FRIGOBLOCK has decided to adapt its product portfolio and introduce its brand-new technology using R-455a refrigerant.

Using R-455a Refrigeration Systems can be advantageous as it has;

- Higher efficiency in medium and low-temperature applications with respect to R-404a,
- Higher capacity per circuit vs. R-290 and lower safety risk,
- 46% lower capital cost and 36% operational cost vs. R-744 condensing unit (MT),



- More simple, safe and easy to maintenance vs R744 and R-290 systems,
- Smaller systems which conclude in reduction of power consumption,
- Much more versatile as it can cover low, medium-temperature and AC/chiller applications,
- Wide range of application area as it can be suitable for; cold rooms, convenience rooms, small/medium sized markets and large supermarkets,
- GWP<150 making it applicable through all restrictions covered by F-gas regulations



Friterm Continues to Expand its Product Range



Stainless Steel Heat Exchanger

Since 1979 Friterm has been developing and manufacturing heat exchanger for any type of applications. Stainless fin material was integrated into fin die 50x50, with this investment Friterm is able to design and manufacture completely stainless steel heat exchanger made of SS304 (1.4301) or 316L (1.4404).

For following applications, the use of a stainless steel heat exchanger is appropriate to take into consideration

- 1- Internal corrosion risk due to fluid in tube; demineralized water, NH₃, CO₂ etc.
- 2- External corrosion risk
 - environmental reasons or industrial markets with a corrosive environment such as off shore, sewage treatment plants
 - food industry such cheese, fish cold rooms, wine cellar
 - for aggressive sanitizing washings
 - for minimum of susceptibility to soiling and demanding hygienic areas
 - for continuous passage of water as for hydro cooling applications
- 3- Temperature reason (air inlet temperature below -40°C)
- 4- High material strength

Depending on application, the suitable material combinations are selected from a wide range of materials. Tube material is copper, K-65, stainless steel, aluminium and fin material is aluminium, copper, aluminium alloys, coated aluminium, stainless steel for finned type heat exchanger. Carbon steel and titanium tubes are also possible for custom made solution.

Please visit the website www.friterm.com for further information or please contact Friterm sales engineer. Friterm engineers are happy to advise the best solution using our know-how and thermal software.



Custom made Stainless Steel Air Cooler for NH₃ Pump System

GEMAK offers “Product Selection Programme”



GEMAK Product Selection Program

Main Page | Sections | My Project (0) | Actions | Help | Languages | Exit

Capacity Watt

Min/Max Range

Inlet Air Temperature °C

Evaporation Temp. °C

SC1 SC2 SC3 SC4

Refrigerant

Altitude m

Fin Material

Serie Selection

Fin Spacing

Number of Fan

Fan Diameter

Stock

Single Unit Selection

Distance m | dBA

Max. Length mm

Max. Width mm

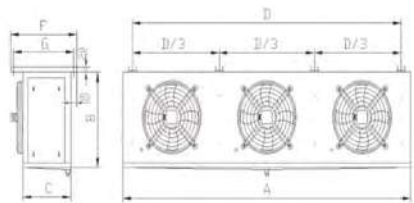
Max. Height mm

Product Select

Evaporator Product Selection List									
	Model	Capacity Watt	Heat Transfer S	Air Flow m ³ /h	Fan Diameter	Number of F.	Total Power Inp	LWA dBA	LPA dBA
1	8 GNE 35.3.6	10 000.00	38.2	7200	350	3	0.41	69	47
2	8 GTT 35.3.2 M	10 000.00	43.3	7500	350	3	0.50	69	47
3	4 GNE 35.3.4	10 520.00	47.9	7050	350	3	0.41	69	47
4	8 GNE 45.2.6	10 650.00	38.6	8400	450	2	0.49	76	54
5	6 GNE 45.2.5	10 750.00	41.6	8600	450	2	0.49	76	54
6	4 GNE 50.1.8	10 800.00	59.6	5100	500	1	0.68	77	55
7	6 GTT 40.2.2 M	10 900.00	48.4	6300	400	2	0.32	88	66
8	6 GNE 50.1.8	9 000.00	41	5300	500	1	0.68	77	55
9	4 GTT 35.2.2 M	9 050.00	55.1	4500	350	2	0.33	67	45
10	4 GNE 50.1.6	9 150.00	44.7	5350	500	1	0.68	77	55

Page 1 of 2 10 View 1 - 10 of 15

Dimensions Technical Specifications Fan Specifications



A: 1720 mm We: kg

B: 510 mm

C: 365 mm

D: 1530 mm

F: 485 mm

G: 429 mm

ØDin: 16 mm

ØDout: 28 mm

Engineered by ROADMAP Product Innovation Engineering

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Gemak provides Standart product selection software which is available free on our web site www.gemakltd.com with multiple language options like English, German, Russian, Italian and Arabic. Gemak standart product selector software is an application developed to select the most appropriate standart condensers and evaporators by entering the parametres

such as capacity, operating conditions, fin spacing, diemensions etc.

With its motto “Quality First” GEMAK has identified its success with the quality product policy. Our Quality Management System is of a structure in which all employees feel that they are a part of the system and evaluate their work. Aiming to achieve continuous

improvement, our company continues to work with a customer oriented approach. Focusing on customer satisfaction our company has the principle of assuring customers with its products and product quality. Diversity of products, opting to use international standards and advance technologies is the proof of this mindset.

Air Quality Expert General Filter Havak



**GENERAL FILTER
HAVAK** | Air quality experts



Akif Kayaş / Factory Manager

Air contains essential gases for human life. The air in the atmosphere contains natural or artificial particles along with the basic gases in its structure. Air contains natural and / or industrial pollutants such as factory flue gases, vehicle exhaust gases such as desert sand, sea salt, decayed organic particles, microbes, depending on its environment. When these particles are inhaled with air, they can cause serious harm to human health. Particles that need to be filtered are PM(Particulate matter) and molecular sizes and cannot be seen with the naked eye.

For this purpose, General Filter Havak designs and manufactures air filters with modern machinery and experienced employees. With its 60 years of knowledge, it also makes a significant difference in engineering service.

We increase our product range and quality with the continuous improvement and total quality approach, which are the basic requirements of the ISO 9001:2018 standard. Our products can be examined in two main groups as particle and molecular filtration.

Primary Filtration Classes: G2 G3 G4 It refers to the filtration made by both filter media and cells belonging to the "G" class of the EN 779:2012 standard and normally used in civil air-conditioning and as pre-filters in efficiency units.	Fine Filtration Classes: M5 M6 F7 F8 F9 Filters that can keep the fine particulate air pollution with a wide range of applications. Products include filter cells, bag filters and filters in "F" class of the EN.	Absolute Filtration Classes: E10 E11 H13 H14 Filters that can achieve the max level of filtration of the "H" class according to the EN 1822:2010 standard and that, therefore, are the most advanced products within the Group's offer.	Purification Filters that use activated charcoal to purify the air through a chemical process, therefore solving pollution problems due to gas or dust.	Elements and systems A comprehensive range of systems and accessories to give an adequate accommodation to any kind of filter, useful and sometimes necessary to achieve the best available

Molecular Filtration

In molecular (gas) filtration, we have become stronger by combining our experience in airports, petrochemical facilities, mines, laboratories and other special areas for many years with the experience of the Spanish BIOCONSERVATION company. General Filter Havak and Bioconservation made an agreement in 2022 to become a fully authorized dealer. With this cooperation, important projects were signed in a short time. Molecular filtration is used in many special areas such as Airports, Archives, Datacenters, Refineries, Clean Rooms.

■ Filter medias, Filters and Units,

The filter media used in molecular filtration are produced as a result of high technology and engineering efforts. There are filter media available that are suitable for the target gas and gas combinations.

Molecular filtering can be functionally examined in 4 groups.

■ Corrosion

Corrosion attacks process control systems. It can cause shutdowns, malfunctions and increase maintenance and production costs.

The corrosive gas level in the closed area where corrosion

measures will be taken should be brought to the G1 level according to ANSI ISA 71.04 standard. First of all, the coupon with silver and copper plates in the area is kept for 1 month in order to determine the target gas levels in the relevant area, and then our expert engineers design a filter system according to the analysis made in our laboratory.

Corrosion control should be done in mines, Geothermal Industry, Data centers and Pharmaceutical Industry.

■ Indoor Air Quality

Indoor air quality must be addressed for pollutants entering from outdoors as well as those present indoors in public and private buildings and industry.

■ Odor Control

The irritating harmful gases emitted from treatment plants, factories and kitchens should be filtered with molecular filters.

■ Biogas Pretreatment

Protecting biogas upgrading equipment (membranes). Purifying up to required levels for grid specifications (99,5%). Protects CHP motors from corrosive gases.

Ges Teknik R&D



Ges Teknik was established in 2003 by its founders with more than 25 years of professional and commercial experience in air conditioning. The company offered technical services in the field of HVAC control, building automation and tailor-made OEM solutions to its customers.

After 2008, in line with market demand, specific focus on developing parametric HVAC controllers was given through R&D activities. For the last 15 years, we have been developing controllers, gateways, etc, that are designed, developed and produced by our teams for domestic and international markets.

We are aware that sustainable growth, which we place on the main axis of our activities, is possible as long as we keep the sustainable environment and energy principles alive. In order to follow these principles in a systematic way, we went through ISO14001:2015 audits and achieved to get certified in 2022.

It is Ges Teknik's philosophy to follow the latest trends in order to meet today's needs with tomorrow's technology.

Input/Output Modules and Gateways

I/O Modules provide great flexibility when serial communication port is available on the PLC that is controlling the air handling unit. Ges Teknik's new I/O modules with a variety of combinations have been added to product offerings. They all provide not only cost effective, but also fast and easy to implement solutions for our customers.

R&D team also completed the development of a Gateway product, which enables systems with Modbus RTU, BACnet, KNX, MQTT and other communication protocols to be accessed over Wi-Fi and GSM.

All these devices with BACnet/Modbus communication protocols offer cost-effective solutions to our customers' automation needs.

Thermostats

The latest versions updated the fan coil thermostat range and provided controls for different combinations of fan (EC-3-speed), valve (on/off or modulating), VAV and trench heater.

All models are parametrically configurable. With this, end-users and the commissioning teams can do final settings from the service menu fast and easily.

BACnet/Modbus/Wi-Fi communication protocols provide diversified options for centralized control as well as fast commissioning in the field.



"Güven Soğutma: Innovations in Cooling Solutions Unveiled at ISK Sodex Fair 2023!"



Producing liquid receivers and compressor protective equipment while continuously diversifying our equipment range suitable for eco-friendly air conditioning liquids, Güven Soğutma Ünit. San. ve Tic. A.Ş. takes pride in its commitment to innovation. Day by day, we expand our offerings to better serve the industry's needs.

With pleasure, we share news of our extended product portfolio. Our valued customers can now access a wide array of high-quality products, offering both variety and competitive prices. This journey of expansion began with the esteemed German DEKA company, known for its liquid and oil control equipment. We further enriched our offerings by incorporating the engineering prowess of American PARKER SPORLAN and the value-added product sales initiative initiated in partnership with the Italian OLAB brand, specializing in valves and connection equipment for cooling systems. Our last achievement is becoming authorized distributor of SANHUA and we are eager to present these products to our customers.

Benefiting from nearly 38 years of experience in the HVAC&R industry, Güven Soğutma thrives on understanding our customers' needs. Our export to 65 countries and the presence of sales representatives in 47 countries underscore our global reach. Empowered by customer demands, we stride forward daily, solidifying our position.

Visit Güven Soğutma Stand at the ISK Sodex Fair!

Esteemed Participants,

With immense excitement, Güven Soğutma A.Ş. proudly announces its participation in the ISK Sodex Fair, taking place from October 25th to 28th, 2023. It is an honor for us to be a part of this distinguished event, which showcases the latest innovations and products in the industry.

We are delighted to welcome you to our booth at Hall 2, Stand A10, where you can closely follow the industry's recent developments and experience our newest products. Our expert team will be ready to provide you with detailed information about our products and their features.

Additionally, we are pleased to announce the launch of our new website. Our revamped website offers a user-friendly platform to explore our products in detail, examine their features and make selecting the most suitable products for your needs easier.

We encourage you not to miss this opportunity and invite you to visit our booth to observe collaboration prospects, the latest technologies, and the expansion of our product range.

We look forward to hosting you at our booth during the ISK Sodex Fair. We are eager to introduce our latest products and discuss potential collaborations with you.



HTK Klima Keep up Investments on 2023



After Investment and settled of new production facility at Baku-Azerbaijan on 2022, HTK Klima incorporated 2 new the latest high-tech machinery, thus keep increasing market share in the region. 3 Kw Auto Laser Cutting and 120 tons press capacity Bending Machine gives us capacity of fast production and delivery. On the other hand, our new eco-friendly production facility under construction at Kocaeli-Türkiye. It will be total 7100 m²

close area and possibly will be finished 1st quarter of 2024.

Some of the reference projects which we have approved/agreed projects;

- 1) Central Bank of Azerbaijan
- 2) Uzbekistan LOT 2 Shopping Mall
- 3) Gence Olympic Complex



KARYER Heat Exchangers



KARYER is one of the leading manufacturers & exporters of Heat Exchangers, Evaporators and Condensers capable of realizing both serial and custom projects. Our 45 years of experience enables us to export 78 countries in 6 continents (mainly in Europe) by ISO 9001:2015, ISO 14001:2015, ISO 45001:2018, ISO 27001:2013, CE, UL, EUROVENT, PED, EAC certified standards, while 60% of our turnover is obtained from export sales. KARYER won the ISIB Successful Exporters Awards in 2021. KARYER was nominated as the First company that "Exports Most Heat Exchangers" among heat exchanger manufacturers industry.

The product range of KARYER contains Heating & Cooling Coils, DX- Evaporators, Condenser Coils, Unit Coolers, Blast Freezers, Air Cooled Condensers, Air Coolers, Condensing Units (w/o compressor), Dry Coolers, Oil Coolers and Air to Air Heat Recovery Heat Exchangers.



KARYER presented new product series "Banana Unit Coolers"

Banana fruit, has a high commercial value, should be kept at the right temperature, humidity and proper conditions for ripening and storage. It is aimed to ensure that all bananas in the cold room ripen more quickly and evenly. Banana unit coolers are designed slightly different than traditional unit coolers as they require specific conditions for the fruit. EA-DR and ED-DR model banana unit coolers are able to reach small and medium amount of cooling needs for cold storage of bananas. The products have been optimized to operate effectively in low temperature differences and to provide low humidity loss. Sucking or blowing fans which have high static external pressure are used in the products. The coils, in unit coolers, are compact in addition to their thermally highly efficient performance.



EA-DR and ED-DR banana unit coolers, are designed copper tubes with high thermal efficiency and suitable for different usage conditions. Manufactured with electrostatic powder painted galvanized sheets to resist corrosion with attractive view in addition to its rigidity. In addition, easily removable screwed side covers and hinged drain pans are used for installation and maintenance operations. The unit coolers are offered with coated foil, stainless steel casing, EC fan options according to customer needs. Upon request, heating coils with electrical heaters can also be added to the products.

EA-DR and ED-DR banana unit coolers are optimized with the highest efficiency. Our company guarantees the right banana unit coolers with reliable engineering and quality manufacturing.

Merkez Motor is the largest electric motor and gearbox supplier in Türkiye



Merkez Motor company was established in 1997 to serve the machinery industrial sector. Since its establishment, with the customer-oriented service approach and professional perspective, Merkez Motor has become one of the largest electric motor and gearbox supplier. With more than 20 years of experience, expert staff and team of engineers, it is able to meet the demands of the sector in the fastest and most accurate way.

Our company is the exclusive distributor of the biggest brands of Türkiye and also has distributorship of European brands with the aim of; always offering the best quality

products to its customers. Starting with the motto of *"heart of the industry: Electric Motor"*, our company offers various types of high efficiency electric motors and gearboxes according to usage areas in its product range. In addition, it responds the needs of the sector with; smoke extraction motors, VTP cooled V pulleys, square frame motors, spindle motors, actuators, speed controllers etc.

As Merkez Motor, we provide nonstop service from our offices and warehouses located in Istanbul, both Asian and European sides, to all over Türkiye and to more than 15 countries in 3 continents from our stock continuously.





MERKEZ MOTOR

your
solution
partner
since 1997

**SMOKE EXTRACTION MOTORS
WITH**


HIGH EFFICIENCY

**2 HOURS
300° AND 400°
DEGREE MODELS**

WAT



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[merkezmotor.com.tr](https://www.merkezmotor.com.tr)

ISO 16890 General Ambient Ventilation Filter Tests



The ISO 16890 standard is the new standard that has replaced the EN779:2012 standard. This standard covers Coarse filters (Class G), Medium filters (Class M) and Fine filters (Class F). MGT Filter performs tests within the framework of ISO 16890 standard, exposing a filter to particles from 0.3 μm to 10 μm in size. This means testing the filters in conditions much more similar to real life and getting a product with the performance you expect.

MGT Filter performs tests on its products according to ISO 16890, EN 779 and ASHRAE test standards. Eurovent, which is independent, also has tests done on the capacity and performance test data of the products it produces in order to ensure "proven/confirmation".

R&D activities are carried out according to the pressure and efficiency performance results of the filter. In line with the customer's request, filter testing service is also offered.

EN 1822 and ISO 26463 High-efficiency Hepa-Ulpa Filter Tests

Efficient air filters (EPA), high efficiency air filters (HEPA) and ultra-low penetration air filters (ULPA), filters produced for ventilation and air conditioning systems such as clean room applications are tested according to EN 1822 and ISO 29463 standards. MGT Filter tests every product it produces according to these standards and determines the filter performance.

R&D activities are carried out according to the pressure and efficiency performance results of the filter. In line with customer demand, filter testing service is also offered to customers.

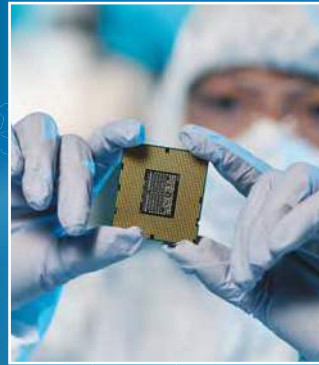
ISO 16890 General Ambient Ventilation Filter and EN 1822 Media Tests

MGT Filter makes detailed comparisons by pre-testing the media produced by raw material manufacturers. The selection of the most suitable quality raw materials is supported by the test results obtained from here. Pre-tests of raw materials before filter production are carried out with this system and controls are carried out.





30 YEARS OF EXPERIENCE IN CLEAN ROOM AIR FILTRATION



CLEAN ROOM HEPA FILTER SERIES

PHARMACEUTICAL INDUSTRY
HOSPITALS

MICRO ELECTRONICS
LABORATORIES





WE FILTER

THE WORLD'S AIR



Key Points of Mikropor HEPA Filters

HEPA filter is a type of pleated air filter used in clean and controlled environments to reduce the number of particles in the air. HEPA stands for "High Efficiency Particulate Air" (filter). HEPA filters are used in applications where clean and controlled air is required to protect people, products and processes even from the smallest particles that can circulate in the air stream. The main role of a HEPA filter is to trap particles in the air stream and ensure that the air supplied in the environment is optimal. Not all HEPA filters are being created equal and therefore HEPA filters must be evaluated on several key characteristics. Most important ones are listed as below;

- 
Particulate Efficiency: The best method to determine filter efficiency is to test the product. HEPA filters should provide the required efficiency when tested according to EN1822 or ISO 26493 standards. It should be ensured that HEPA filters are individually tested and approved according to the relevant standard. All HEPA filters produced at Mikropor are being tested individually and test reports are being provided for each filter.
- 
Initial Pressure Drop: The pressure drop is related to the energy consumption caused by the HEPA filter. A low initial pressure drop combined with a steady rise will result in lower energy consumption. The higher the pressure drop in the line, the greater the amount of energy consumed to maintain the desired process flow, requiring a higher horsepower motor. Conversely, the lower the pressure drop in a piping system, the less energy consumed, providing the potential to use a lower horsepower motor. Mikropor offers products with low initial pressure value with its advanced production technology.
- Service Life:** The HEPA filter must be replaced when it loses efficiency or reaches the final pressure drop. When choosing HEPA filters, it should be ensured that the filter maintains its efficiency and performance throughout its lifetime.

Not all HEPA filters are created equal. Only by using the EN1822:2019 and ISO 29463 test standards can end users really identify whether a HEPA filter has been manufactured and designed to fit the clean air requirements of their workplace. The EN1822 standard has had many iterations dating back to its original inception in the 1990s. In the latest iteration of this standard, the test procedure for ISO 29463 has been included to ensure global acceptance of the test. Whether the HEPA filter is used for controlled environments like cleanrooms or as part of a system upgrade in a HVAC system or in a standalone air cleaner, you should always check that the filter has been individually certified to these standards. With the high-tech test laboratory, Mikropor tests and gives certificates according to both EN1822:2019 and ISO 29493 standards.

Differences Between EN1822:2019 and ISO 29463

The basis of the ISO 29463 standard is the EN1822 standard. There are 13 different filter classes ranging from ISO 15E to ISO 75U.

Designation	Filter Groups according
EPA Filter (Efficient Particulate Air Filter)	ISO 15 E - ISO 30 E
HEPA Filter (High Efficiency Particulate Air Filter)	ISO 35 H - ISO 45 H
ULPA Filter (Ultra Low Penetration Air Filter)	ISO 50 U - ISO 75 U

In October 2011, the International Organization for Standardization (ISO) published ISO 29463 Parts 1-5 with the goal of accelerating harmonization of various filter standards used in the United States and Europe. It protects the EPA, HEPA and ULPA filter classes as specified in ISO 29463, EN1822. The evaluation in the new ISO standard is based on the efficiency value in MPPS (Most Penetrating Particle Size), that is the diameter of the most difficult to capture particle.

ISO 29463 maintains the EPA, HEPA und ULPA filter classes as specified in EN 1822. Evaluation in the new ISO standard is also based on particle arresstance at MPPS (Most Penetrating Particle Size). MPPS is the particle size at which an air filter shows minimum arresstance.

However, there is one difference in particulate filter classification between the two standards. EN 1822 classifies a particulate filter with an arresstance of e.g. 99.9993 % at its MPPS as HEPA filter class H14. When evaluated according to ISO 29463, however, this same air filter is classified as ULPA filter class ISO 50 U.

Table 1 - EN1822

Filter Classes according EN 1822	Integral Values in the MPPS in %	Local Values in the MPPS in %
E11	≥95	-
E12	≥99,5	-
H13	≥99,95	≥99,75
H14	≥99,995	≥99,975
U15	≥99,9995	≥99,9975
U16	≥99,99995	≥99,99975
U17	≥99,999995	≥99,99999

Table 1 - ISO 29463

Filter Classes according ISO 29463	Integral Values in the MPPS in %	Local Values in the MPPS in %
ISO 15E	≥95	-
ISO 20E	≥99	-
ISO 25E	≥99,5	-
ISO 30E	≥99,9	-
ISO 35H	≥99,95	≥99,75
ISO 40H	≥99,99	≥99,95
ISO 45H	≥99,995	≥99,975
ISO 50U	≥99,999	≥99,995
ISO 55U	≥99,9995	≥99,9975
ISO 60U	≥99,9999	≥99,9995
ISO 65U	≥99,99995	≥99,99975
ISO 70U	≥99,99999	≥99,99999
ISO 75U	≥99,999995	≥99,99999



mikropor

Manufacturing Forward

Beyond The Future

With Our Extensive Experience and
Passion for "Producing Tomorrow's Technology"

	1987	Establishment and Production of Air/Oil Separators
First Production in Ankara Organized Industrial Zone	1993	
	1996	Filter Production for Gas Turbines
HEPA Filter Production	1997	
	2001	Refrigerated Type Air Dryer Production
2nd Factory in Ankara Organized Industrial Zone	2003	
	2004	Mikropor America Activities
3rd Factory in Ankara Organized Industrial Zone	2008	
	2012	Among Turkey's Top 500 Exporters
4th Factory in Ankara Organized Industrial Zone	2014	
	2018	Deloitte's Best Managed Companies Award
Acquisition of Drytec , Mikropor America Facility	2019	
5nd and 6nd Factory in, Ankara Organized Industrial Zone Turquality Brand Support	2020	SAP Integration
	2021	
Turkey's Top 500 Industrial Enterprises,	2023	Our Journey to Create the Technology of the Future Continues
7nd Factory in Ankara Organized Industrial Zone, 1000+ Employee		

Refkar produces innovative and eco-friendly products with its new factory in Kırklareli / Türkiye



Refkar was established to offer technologically advanced and high-quality products for the refrigeration industry in 2008.

The company was first established with 3002 operating area and 2 employees. Based on a long experience organized in a new structure within years, moved into its new plant located in Kırklareli, with 30002 indoor production area and more than 55 employees. Choosing to specialize in shell and tube type heat exchanger production, Refkar is now one of the few companies producing equipment for HVAC-R industry. Since the year it was established, Refkar kept investing to keep up with the technological innovations. Moving into their new factory, Refkar improved its CNC machinery and added new advanced production machinery such as an automatic tube bender, finning machine and robotic welding machine.

In corporation with their Italian solution partner Unilab, S.RL, Refkar also launched its updated Selection Software this year, making its solution partners operations run more smoothly. The updated version of the software is available can be downloaded directly from Refkar's web page.

Refkar is an environment-friendly company with an ecologic conscious and works to impose this on everyone.



Refkar embraces reliability as its key value. Seeing Refkar's customers as their business partners "we will work hard to provide better service and top-quality products for our business partners" companies chairman Şant Özbülül says.

Exporting to over 35 countries at this moment, Refkar keeps participating in local and international exhibitions, trade missions and summits to present its products and services.





**PERFORMANCE,
QUALITY AND TRUST
ORIENTED**

New Design Dry Cooler with Adiabatic



SARBUZ HEAT EXCHANGERS Industry and Commerce Inc. was established in 1953 with the purpose to serve HVAC-R industry. Through its gradually increasing experience and knowledge by years, SARBUZ has started manufacturing finned type of heat exchangers in 1974. Sarbuz manufactures evaporators, condensers, heating and cooling coils, steam coils, dry coolers and O.E.M. coils for over 45 years for the companies which are active in the HVAC-R, energy and mobile refrigeration industry and also provides finned type heat exchangers for different companies in the country or internationally.

SARBUZ serving you customers by their new design DRY Cooler with Adiabatic Cooling Pad Systems.

Adiabatic Cooling Pad Systems

Efficiency has come to the fore in cooling systems due to increasing energy consumption costs. One of the most important energy consumption elements in cooling systems is defrost. In many applications, electric heaters are used for defrosting, negatively affecting energy consumption. Sarbuz company continues to take measures to reduce this energy consumption. Thanks to this technology called glycol defrost, a glycol circuit is used inside the evaporator instead of an electrical heater, providing a hot glycol-water mixture to pass through this circuit and defrosting is performed. It is possible to obtain the hot water-glycol mixture by using a desuperheater between the compressor and the condenser. In this way, there is an extra saving as it also reduces the need for condensers.

Condenser selection is very important in cooling systems and directly affects system efficiency and cooling capacity.

In the well-known finned and tube condenser, the heat transfer is directly limited by the dry bulb temperature. Therefore, it is possible to increase the efficiency of the system in dry and hot weather by using an adiabatic pad. The system works by evaporative cooling reduction of the condenser air inlet temperature by placing specially designed pads at the air inlet of the condenser and wetting pads. The air temperature entering the condenser reaches levels close to the wet bulb temperature. In this application, thanks to the pads, it is aimed to increase the efficiency by targeting the minimum water consumption.

As a Company Quality Policy, first quality material usage is very important subject also for this new series.

SARBUZ Family is racing with herself about increasing her turnover, export percentage and quality bar by long term customer relations and supports.



SINCE 1974

SARBUZ[®]
HEAT EXCHANGERS

Since 1974...



SARBUZ ISI TRANSFER CİHAZLARI SAN. ve TİC. A.Ş

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Seden Sok. No:14
Hadimköy 34555 Arnavutköy - İstanbul / TURKEY

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SINCE 1974
SARBUZ[®]
HEAT EXCHANGERS



Systemair Türkiye's new route



in exports is Western and Northern Europe

Systemair, a leading global supplier of high-quality ventilation, heating, and air conditioning products and systems, delivers its solutions produced in Türkiye to more than 30 different countries worldwide. The company's greatest strength in exports comes from its research and development (R&D) efforts, positioning Systemair Türkiye as one of the 13 R&D centers on a global scale within the Group. By exporting its engineering expertise through numerous R&D projects that it leads within the Group, Systemair Türkiye aims to sustain its pioneering role and success in exports in a sustainable manner.



designed Geniox Tera for data center cooling strengthens Türkiye's strategic position both within the Systemair Group and in the HVAC industry, making it an important technology.

The 365 Performance Center, Europe's most advanced data center testing laboratory, is a symbol of Systemair Group's trust in our country and the Turkish organization. It is capable of simulating climate conditions for 365 days, ranging from +45 degrees Celsius in summer to -5 degrees Celsius in winter. The laboratory conducts performance tests for the Geniox Tera., while measuring the overall performance of the system. These high-tech performance tests allow for the identification of potential issues that may arise under designated conditions and applied loads.

Systemair Türkiye, which produces engineering-intensive solutions tailored to the geographical requirements of its export markets, delivers its products from its state-of-the-art factory in Dilovası to a vast geography ranging from the Middle East to the Central Asia, Australia, and Europe. Benefiting from its logistical advantage, Systemair Türkiye primarily exports to the Central Asia and the Middle East and aims to increase its activities in Europe in the future. With an export rate of 45%, the company plans to shift its focus towards Western and Northern Europe in order to increase this rate to 50% in the short term.

Systemair Türkiye, primarily delivers various technologies to the world, including data center cooling units

Systemair Türkiye, manufacturing its patented solutions in Türkiye and exporting them worldwide, gains significant demand in European countries with the Geniox VOClean Ecological Unit. This unit stands out with its low power consumption, high pollutant capture capability, and automatic washing option, all of which are developed with an ecological perspective in mind. Similarly, the specially



365

Performance
center



THERMOWAY provides heat exchanger solutions for HVACR experts

Thermoway Inc. since its establishment, it has been following the technological developments, making needs oriented designs regarding customer expectations, and making growth oriented investments every day by observing the principles of energy efficiency and environmental protection.

For these purposes, Thermoway Inc. it expands its product range by adding new products to its product range.

- In our newly designed TLG series condensers, thermal efficiency has been increased and energy efficiency has been brought to the forefront by using inner grooved pipes and changing the lamella surface structure.



Capacity Range: between 17,8kw - 709,4kw
Lamella Spacing: 2,1mm - 2,5mm
Fan Diameter Range: From Ø500mm to Ø800mm

- Our new TEC series for cold room evaporators which have been designed to insure high heat transfer efficiency along with along easier assembling and maintenance processes are begin produced with 4-6-8-10 mm fin spacings.



TEC series evaporators are offered to your service in 4 different series according to their intended use.

- TEC C series standard room wall type,
- TEC S series corner ceiling type in small sized rooms,
- TEC D series is generally double blow ceiling type in working environments and places where low air velocities are preferred,
- TEC A series is designed to reduce product loss in fruit and vegetable storage, to increase thermal efficiency and to provide more homogeneous air distribution in the room.

Capacity Range: 2,0kw – 83,4kw
Lamella Spacing: 4-6-8-10mm
Fan Diameter Range: From Ø250mm to Ø500mm



- Box series condenser units designed in line with customer demands are designed to be able to install many types of compressors and auxiliary equipment, and 4 different types (TBOX, MBOX, SBOX, HBOX) are offered to our customers.

Capacity Range: between 2kw - 224kw
Lamella Spacing: 2,1mm - 2,5mm
Fan Diameter Range: From Ø250mm to Ø800mm



Thermoway Inc. it will continue to work with the aim of improving its machine park day by day, ensuring that its personnel are trained in a way that will ensure their development, and making product traceability possible under all conditions by improving the quality management system and will continue to be your reliable business partner by offering new products to our customers.

For the further information please visit our webside.

ThermoWay
Heat Exchanger Solutions

Heat Exchanger Solutions FOR HVAC EXPERTS



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Hadımköy / Arnavutköy / İstanbul - TÜRKİYE

ThermoWay
Heat Exchanger Solutions



ULPATEK Filter Continues to Grow by Increasing Production Capacity with New Investments

ULPATEK Filter, as a filter manufacturer that serves a wide range from the simplest ventilation systems to clean rooms, has made significant investments in 2022 and fully commissioned them in 2023. The company manufactures according to ISO 16890 and ISO 29463 (EN 1822) standards in its modern facility, using the most advanced machines in the filtration field.

The new investment in the HEPA Filter scanning test system (TOPAS) has increased the number of scanning test systems to two. Additionally, the commissioning of a new pleating machine has brought the total number of pleating machines to five, thereby increasing the production capacity. Along with these two significant investments, other investments have further strengthened ULPATEK's success in exporting to more than 80 countries.

The new investments not only increase ULPATEK's sustainable growth and competitive strength in the global market but also allow it to continue to lead in this field. The company supports this process with R&D studies carried

out within ULPALAB, conducting raw material control tests, filter performance and pressure loss tests, filter tests according to ISO 16890, and leakage and efficiency tests for HEPA/ULPA filters in compliance with ISO 29463 (EN 1822) with its experienced team.

ULPATEK is notable not only for its technological investments but also for its investments in human resources. Enhancing the rights of employees with additional benefits, along with increasing the number of employees, is among the company's priorities.

The recent investments by ULPATEK Filter are an indication of the company's determination in quality and capacity matters. As one of the leading manufacturers in the industry, ULPATEK plans to continue its growth in the future through these investments in technology and human resources.

With these innovative steps and investments, ULPATEK Filter continues to attract attention as a leading player in the industry.





Advanced Filtration for a better future!

WIDE RANGE OF AIR FILTERS



Z-Line Filter



Bag Filters



V-Compact Filters



V-Compact Type
Activated
Carbon Filters



Cylindrical Filters
Dust Collection and
Gas Turbine Systems



Ceiling Type
HEPA/ULPA Filters



HEPA Terminal
Hood Filters



High Capacity
HEPA Filters



Fan Filter Units



Cartridge Activated
Carbon Filters

CLEANROOM EQUIPMENTS



Safe Change Housings (BIBO)



Laminar Flow Units with FFUs



Laminar Flow Cabins for
Weighing and Sampling



AIR FILTER TECHNOLOGY



High comfort, low energy consumption with ÜNTES HEAT-X heat pumps



ÜNTES, offering Hisense split air conditioners and Nibe heat pumps through its dealers nationwide in Türkiye, now introduces its own branded HEAT-X Heat Pump to the market.

ÜNTES HEAT-X Heat Pump Systems offer numerous advantages through renewable technology, such as energy efficiency and low operating costs. Aimed at meeting the comfort needs in living spaces by utilizing energy from the atmosphere, the benefits of ÜNTES HEAT-X Heat Pump Systems include renewable resource utilization, energy efficiency, reduced operating costs, production of hot-water, cooling function, and control and integration.

High Efficiency

The efficiency values of ÜNTES HEAT-X heat pump products reach up to 4.84. This means that approximately 5 units of energy can be obtained with 1 unit of energy supplied to the system.

Low Energy Consumption and Low Cost

ÜNTES HEAT-X heat pumps provide energy savings in various applications with their high energy efficiency values. The devices' low energy consumption also contributes to reducing operating costs.

Environmentally Friendly Technology

ÜNTES HEAT-X heat pumps help reduce CO2 emissions thanks to their low carbon footprint.



Operates in All Weather Conditions

ÜNTES HEAT-X heat pumps can operate smoothly even at -20 °C outdoor temperatures, ensuring excellent indoor climate control.

Üntes introduces a new series of Eurovent Certified Rooftop units, compliant with Eco-Design criteria



Üntes, a company with over 55 years of experience in the air conditioning industry, partnered with the Swedish-based NIBE Group, a global player with over 15,000 employees and a focus on heat pump products, towards the end of

2021. This partnership has enabled them to continue their investments and R&D activities without slowing down.

With their Tropical Rooftop Series, Üntes has been exporting rooftop units to the Middle East market for approximately 5 years. Now, they are introducing the new ECO-SER series of rooftop units to the market, which is Eurovent Certified and compliant with Eco-design criteria. The ECO-SER series offers flexible solutions with 10 different models to meet various capacity requirements. It stands out with its operation using 100% fresh air, design compliant with ErP 2021 requirements, and the environmentally friendly R454B gas with low GWP value. The unit prioritizes high efficiency with its Effective Efficiency Control System



(EEC System). Additionally, it comes with options for gas-fired heating module, electric or water heating, and cross-flow or plate heat recovery for enhanced performance.



MORE THAN
50
YEARS
EXPERIENCE

147 – 1448 kW

VSA-CHILLER Series

WATER CHILLERS WITH SCREW COMPRESSORS AND AIR COOLED CONDENSERS



VSA-CHILLER Series introduces compact and reliable water chillers to the plastic, packing, machining and, air conditioning, and pharmaceutical industry which require reliable cooling for their processes. They incorporate all the features and components required for outdoor operation. High EER and ESEER values are guaranteed by utilizing ecological R134A refrigerant.

The standard series can operate at high ambient temperatures up to +50°C as standard. Special high temperature and low temperature versions are available.



COOLING



SCREW COMPRESSOR



AIR COOLED CONDENSER



SHELL&TUBE EVAPORATOR



AXIAL FAN



ELECTRONIC EXPANSION VALVE



PGD SCREEN

**HFC
R-134A**

**HFO
R-1234YF**

STANDARD FEATURES

- Counter-flow shell&tube heat exchangers optimized for R134A.

- **Reliable semi-hermetic twin screw compressors.**

- Generously sized copper pipe aluminum finned condenser coils with integrated subcooler for high efficiency.

- **Microprocessor controlled multi-lingual control panel with 4x20 LCD display.**

- Stepless capacity control (100%-25%) for precise cooling and high efficiency.

- **Electronic expansion valves with PID control.**

- Compressor suction and discharge valves.

- **Oil Level Switch.**

- INT 69 RCY motor protection module .

- **Part-winding or Y/Δ start.**

- Suction and discharge pressure transmitters.

- **Anti vibration dampers.**

- Water Flow-switch.

- **Main interlock switch.**

- Alarm output relay.

- **Back-up battery for EEV.**

- ON/OFF Fan pressure control.

Training Requirements on Alternative Refrigerants in the Framework of F-Gas Regulation and Net Zero



INTRODUCTION

The 2015 EU F-gas regulation (517/2014) is driving us to use lower GWP (Global Warming Potential) refrigerants in many applications. The regulation which came into force in EU in 2015 and in Türkiye in 2018. The regulation introduces a phase down, related to GWP and measured in CO₂ equivalent tonnes, which will drive industry to use lower GWP options. As a result, a new family of refrigerants has been developed. A feature of many of these products is that they exhibit lower flammability, and hence a new classification has been introduced by ASHRAE to cover this feature – A2L. The possibilities will have enormous implications for the refrigeration and air conditioning (RAC) sector in terms of increased workload, but this in turn will demand more skilled technicians in our sector.

NET ZERO and INCREASING DEMAND for COOLING

A changing environment with more extremes of heat will put more demand on cooling processes. We need to reduce the climate impact of cooling activities whilst meeting the increasing demand for cooling services. All this, at the same

time as improving safety, reliability, and cost effectiveness. Large and small businesses, manufacturers or users of cooling need expert, independent guidance on how to address these challenges. They need to have a shared purpose and framework to work together in order to plan for their business' future based on understanding the total cost of ownership of their cooling equipment – financial and environmental (Graphic credit: Cisco newsroom).

When it comes to net zero, it refers to the balance between the amount of greenhouse gas produced and the amount removed from the atmosphere. We reach net zero when the amount we add is no more than the amount taken away. A gross zero target would mean reducing all emissions





to zero - this is not realistic, so instead the net-zero target recognizes that there will be some emissions but that these need to be fully offset. The RAC sector as a major user of energy (indirect emissions) and global warming gases (direct emissions) has an important part to play in this [1].

TRANSITION to ALTERNATIVES

The transition towards climate-friendly alternatives to HFCs can only happen provided the conditions for the safe and efficient use of those alternatives are set. Indeed, there is an intrinsic connection between fluorinated greenhouse gases and alternative refrigerants. EU policies on the former have an immediate impact on the latter, and ultimately it is the same market. Moreover, there is an obvious environmental rationale since most alternative refrigerants also are greenhouse gases with a GWP [2].

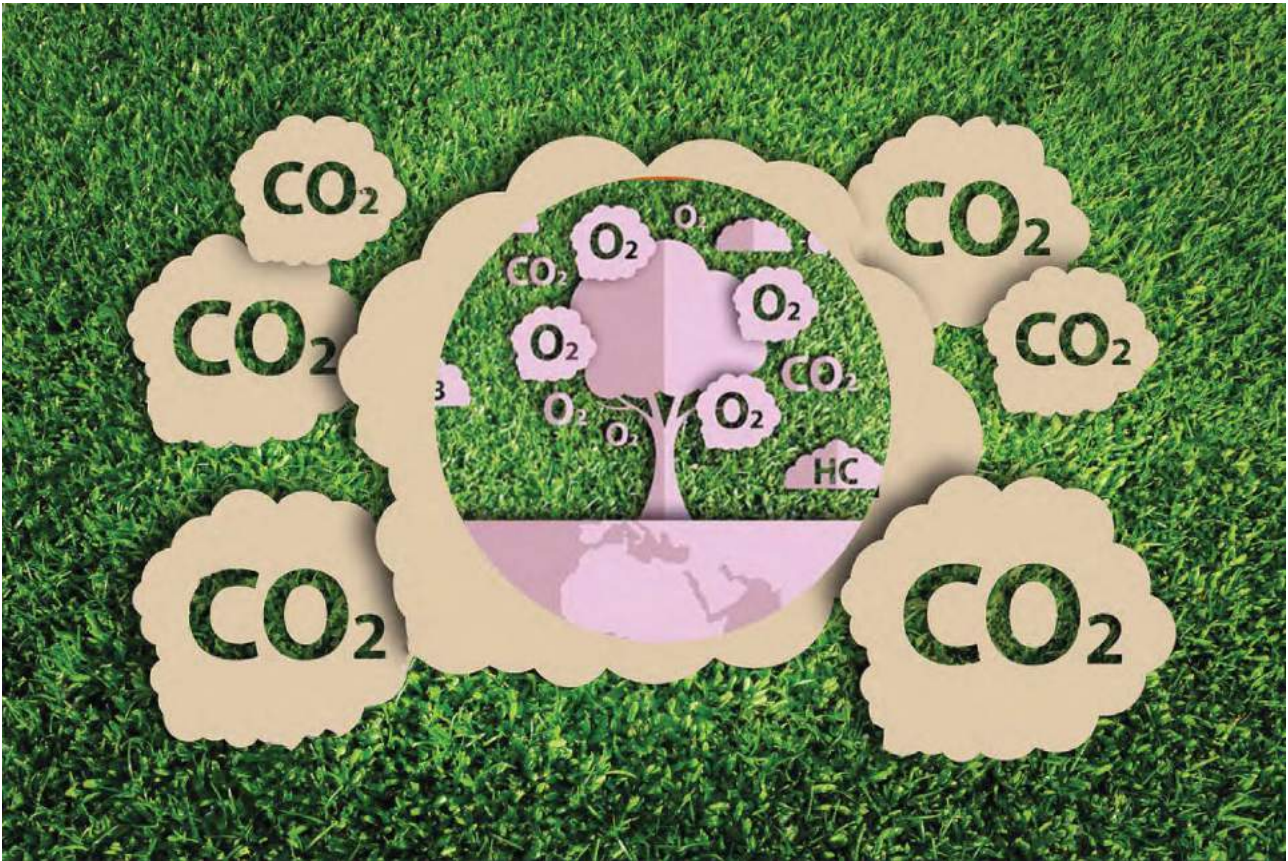
TRAINING and CERTIFICATION SCHEME

Whilst the current and proposed F-gas regulation clarify for the inclusion of alternative refrigerants in training and certification schemes, it does not mandate the installation and maintenance of RAC equipment with alternative refrigerants by certified installers only, as is the case now with HFCs. Concretely, this means that anybody can install RAC equipment running with hydrocarbons

(flammable) or with CO₂ (high pressures). Correlated with the fact that the new phase-down and bans will push the use of hydrocarbons for small air conditioning and heat pump solutions in households, the proposal generates unnecessary safety (potential accidents) and environmental (lower energy efficiency) risks (Photo credit: ammoniatraining.org).

On the other hand, ban on stationary split air-conditioning equipment and split heat pump equipment comes too soon throughout EU. An additional minimum of 3 years would be necessary for the market to adjust. In practice, the ban would push hydrocarbons solutions. Despite hydrocarbons'





high flammability, in the absence of mandatory certification, these units could then be installed by anybody and there would be no obligation to have them leak checked [3].

The training requirements for a host of technicians entering the sector or needing upskilling cannot be met by the current way we deliver training. A shortage of trainers and assessors which is not likely to be addressed in the short term means we need to look more holistically at how we deliver upskilling training through hybrid courses [2].

REAL ALTERNATIVES 4 LIFE

Real Alternative 4 LIFE is a comprehensive program for learning about low GWP replacement refrigerants. It covers flammables (HFOs, hydrocarbons, blends), carbon dioxide, ammonia and focuses on safety, efficiency, reliability, and good practice. Training materials, e-learning platforms, lesson plans and theory and practical assessments have been developed by international experts and are available in 15 languages (Logo credit: Real Alternatives). REAL Alternatives 4 LIFE training booklets can be downloaded free of charge from the website www.realalternatives4life.eu for educational purposes [4].



With contribution of the LIFE programme of the European Union

CONCLUSION

Both the restrictions under the F-gas regulation and the requirements to reduce emissions in line with the Net Zero target require the use of refrigerants with low GWP values. A significant portion of these refrigerants, which we can qualify as alternatives, are flammable and toxic. Unfortunately, a significant part of the technical personnel in the field do not have the necessary theoretical and practical skills in such applications that require some special approaches. In order to fill this gap as soon as possible, it is important that hybrid training systems take place in the field of application without wasting time.

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Bedi KORUN: Engineering is a wonderful profession that is both instructive and enjoyable



Mr. Bedi KORUN / Founding Member of ISKID, Founding President of Form Companies Group.

Mr. Bedi Korun, one of the founding members of ISKID and an Honorary Member of the association, is one of Türkiye's first engineers working in the field of air conditioning and also a distinguished figure in the HVAC industry. In 1965, he co-founded Form Collective company with his brother Yaşar Korun. Bedi Korun, a veteran of the Turkish HVAC industry, shared his experiences and valuable insights regarding the Turkish HVAC sector and ISKID in an interview with ISKID Magazine.

1-You have completed 70 years in the profession. Could you briefly share your life story belonging to the period leading up to the establishment of Form Companies Group in 1965?

It's like writing a novel to describe myself. I was born in 1930 in Izmir. I remained in Izmir until my high school

graduation. During my youth in Izmir, I was involved in sports, I was quite an athletic young person. I participated in the football, volleyball, handball, and rowing teams of Izmir Göztepe sports club, and we achieved first place victories in Izmir. My brother Yaşar was also into sports, and his sailing championship in Izmir was a constant source of pride within the family. So, I can say that my life was entirely focused on sports until I came to Istanbul.



1951 / Yıldız University

In 1949, I decided to take the entrance exam for Istanbul Technical School. Back then, around 800 people applied for mechanical engineering, and they admitted only 18 students. I was one of those fortunate 18, and that's how my years in Istanbul began. Of course, one of the crucial aspects of education was the tuition fee. My sports club supported me. In Istanbul, for 4 years, I was the captain of the volleyball team in the technical school division and our football team also achieved first place victories among higher education institutions. Between 1949 and 1953, it was named Yıldız Technical School, not Yıldız University as it is known today. Later, it became an academy and eventually transformed into a technical university.

I graduated from Yıldız Technical University in 1953. After graduation, I worked as a mechanical engineer at Turkish Motor AŞ, a subsidiary of Yapı Kredi Bank, for a year. After completing my military service, I worked for the Turkish Air Force at NATO.

2- How did you enter the HVAC industry? Could you tell us a bit about those years?

In the 1960s and 1970s, as a result of the Democratic Party's tourism initiatives, the Emekli Sandığı (Retirement Fund) was involved in constructing some of the most iconic buildings of that time, such as the Hilton Hotel, Tarabya Hotel, İzmir Efes Hotel, Eskişehir Porsuk Hotel, and Ankara Grand Hotel. These hotels marked a significant milestone for the HVAC industry in Türkiye. Up until then, the hotels that were built mainly focused on plumbing and heating systems. Air conditioning systems were not widely implemented. Air conditioning was primarily used in certain industrial areas, for instance, in entities like Sümerbank, Etibank, and Sugar Factories. However, it was mainly tailored to the specific needs of the manufacturing processes. The equipments used in these installations were imported from abroad, and foreign companies were responsible for the turnkey installations of these systems.

I worked at the Emekli Sandığı Hotel Construction Department between 1957 and 1960. During that period, Hilton brought significant innovations to Türkiye both in terms of architecture and engineering systems. We witnessed systems at the Hilton construction that we had never encountered before.

During my time at Emekli Sandığı (Retirement Fund), one day while I was in the office, I was examining hotel projects. The General Manager, Mr. Nuri Kınık, entered the room and asked me what I was doing when he saw me. I explained, "I'm reviewing the projects, conducting necessary checks, and getting them approved." His eyes landed on the presidential suite. He asked, "Have you ever seen or used the equipment here?" I replied, "No, we haven't used them." He simply said, "Alright," and left.

Two or three hours later, the general secretary called me. "Bring three photos and your ID card," she said. Confused, I asked, "What's happening?" She replied, "We're sending you to Germany." It turned out that after the conversation between me and the General Manager, he suggested, "Let's send the young colleagues to Europe, let them gain experience, and expand their knowledge." A decision was made accordingly. Along with the control engineer at Ulus Building, they sent us to Germany. We spent 10 days there, visiting hotels and exploring their mechanical rooms. This experience broadened our horizons. During my time there, I went to Europe four times. I had meetings and made purchases. Professionally, it was very beneficial for me and directed me towards the HVAC industry.

3- After the years in America, the foundations of Form were laid. How was Form company established?

I went to the United States for both my master's degree and work. I completed my higher education at City University of New York. After that, I worked in mechanical project offices in America for 2 years, then returned to Türkiye and established my own company. When we started our company, we began as mechanical designers. At that time, there weren't many contractors engaged in implementation. The one who did the design was often asked to also take on the mechanical contracting work. Therefore, we ended up taking on the mechanical contracting work for the projects we designed. In a sense, we were forced into mechanical contracting. Once



1963 / USA Freedomland - NYC

we secured a contract, we faced challenges in procuring equipment and materials. Due to the lack of materials, we became manufacturers ourselves. We had taken on projects like the old Adana and Antalya airports. Some ducts had been constructed, and a small room designated as the mechanical room was left behind. We had to manufacture an air handling unit, a humidifier, and an exchanger that would fit within the dimensions of that room. From the 1950s until the 1980s, Türkiye experienced significant foreign exchange constraints. We had secured the mechanical works of the General Directorate of Highways' construction project. There were no manufacturers for chillers in Türkiye, but only Grasso. Grasso would import the product and assemble it here. We went to Grasso to order compressors. However, they said they couldn't make the group we needed because they worked with ammonia, while we required a refrigerant-based system. We were at a standstill. Due to foreign exchange restrictions, importing equipment was extremely difficult. With the help of our friends in the United States, we obtained foreign exchange support, imported the compressor and automatic controls, and manufactured our own chillers. Thus, we became manufacturers of chillers out of necessity.

I remember at one point we had nearly 40 different types of manufacturing. Of course, producing such a diverse range of products isn't always logical or profitable. Typically, you manufacture around three to five units for your own mechanical application needs and sell to those who require them. Just before Turgut Özal came into power, in the late 1970s, we decided to manufacture screw-type chillers. We planned to produce everything in Türkiye except for the compressor. We made an agreement with the Dunham Bush company, and they sent us all the manufacturing plans. However, right at that time, a law was passed that stated there would be zero customs duty on equipment coming from abroad. This meant that if you tried to import a compressor, you would have to pay a 58% customs duty. On the other hand, you could bring in finished products with no customs duty. Thus, there were no competitive conditions left for entering into such production. Unfortunately, everything we had brought from abroad went to waste. At that time, many manufacturing companies shifted towards imports and obtained representations. Of course, there was also a significant advantage of that period: Technology transfer. We got to know the R&D outputs of leading global brands in the field and learned a lot. After



1968 / İzmir International Exhibition



Bedi Korun, a veteran of the Turkish HVAC industry, shared his experiences and valuable insights regarding the Turkish HVAC sector and ISKID in an interview with ISKID Magazine.

the 1980s, with the foreign exchange issue no longer a problem, the sector was driven by imports. In the early 1980s, international contracts also opened up. Prominent Turkish construction companies like STFA started taking projects in Libya, Saudi Arabia, and Iraq. There were crises in Türkiye in the 1980s, and demands decreased. Companies turned towards foreign demand. For a decade, we worked on projects in Saudi Arabia. Manufacturing came back into the picture. Mechanical companies started to strengthen during that period.

4- ISKID Is being Established... Could you also tell us about the process of professional organization within the sector in Türkiye?

Sectoral organization gained momentum in the early 1990s. At that time, companies like Teba, Alarko, Selnikel, HSK, and Form came together and decided to unite the professionals of the HVAC industry under a vocational organization. With the participation of fourteen out of twenty invited founding firms, ISKID (Air Conditioning and Refrigeration Manufacturer's Association) was established in 1992. Other associations followed suit. Thus, the HVAC sector, along with manufacturing, contracting, and design associations, embarked on a rising trend as a comprehensive industry. There has never been a true regression in the sector; one can always talk about the presence of development. Some businesses left the sector, but many others took their place. The HVAC sector expanded across a wide spectrum.

After the establishment of associations, we emphasized the concept of ethical principles. We struggled against unfair competitive conditions to establish a healthy trading culture. The elimination of competition is not feasible. In fact, competition is a necessary struggle for progress under normal circumstances. Competition brings quality and

encourages you to do better. The absence of competition is not beneficial for employers or employees and hinders the sector's advancement. In order to establish a healthy competitive environment in the Turkish HVAC sector, we established contacts with international ethical associations and examined international professional ethical principles. Associations like ISKAV, ISKID, ESSİAD, DOSİDER, and İZODER converged at a point and ethical values emerged. Of course, it's not just about establishing them; practicality is crucial. The more practical the principles are, the fewer problems arise among companies or in the sector, unfair practices decrease, and honest trade increases. Associations have contributed significantly to preventing the emergence of unfair competitive conditions.

5- How is the HVAC industry progressing in Türkiye and around the world?

The HVAC industry has experienced rapid growth not only in Türkiye but also worldwide. Having a dynamic sector provides us with significant advantages. It generates employment, maintains low unemployment rates within the industry, increases profitability, adds value, and contributes more to the country's economy. In my opinion, both those already in the sector and those entering it are fortunate. Of course, we need to aim for a structure that produces more conscious, honest, and robust technologies. There are challenges as well as opportunities. Manufacturers, project developers, and contractors all face challenges. These challenges are not unique to us; they exist in different dimensions and contexts, including in the United States and Europe.

Universities and industries need to show more interest in each other's development. New technology parks are beginning to be established, where the potential of universities can be leveraged even further. Universities provide you with



Korun Family

fundamental knowledge, but to practice your profession, you also learn critical things from companies. I've worked both in the United States and in Germany. There, companies hire students and provide training. As you progress, you can move up the ranks, but there is training at every level. It is a significant responsibility for companies in our industry to train the personnel needed. We don't rely solely on universities for this. For instance, a company's sales representative learns about newly developed technologies ahead of others every year in order to sell the advancing products. They convey this information to customers, thus informing the customer side as well. If we avoid making significant mistakes, the path for Türkiye's HVAC industry is open. We need to focus on our own development and progress. We need to remain integrated with the developed world and preserve our competitive nature. We have everything we need: our stock market, financiers, engineers – everything is in place.

6- As a Form company, you have brought publications to your sector.. Could you please tell me a bit about these books you have prepared?

In Türkiye, it was difficult to access information and documents that shed light on the history and development of the HVAC industry due to the lack of such archives. For a long time, we thought about how we could contribute to the industry. Eventually, we decided to compile and gather the history of the sector. We worked for about three years, visited all the companies, and unfortunately, we found that many firms didn't have proper archives. For instance, we couldn't find a picture of Mr. Todari Karakaş, the founder of Tokar company and one of the pioneers of the sector in Türkiye. He had passed away in Switzerland. We located his family members living there, obtained their pictures, and included them in the album. Through significant effort, we

managed to bring forth the history of the sector with our book titled "Witnessing the Legends: History of the HVAC Sector in Türkiye" and published this work before our 50th anniversary. We believe that our efforts were worthwhile.

Afterwards, we prepared a book called "From the First Day to Today: 56 Years of Form Group in the HVAC Sector," which encompasses our own institutional history. Who worked with us? Who did we collaborate with? It became a study covering these topics. We've undertaken hundreds, thousands of projects – we ourselves have even forgotten some of them. We extracted all the information from the archives and consolidated it in this book.

We are pleased to have gifted these two books to the industry, and we hope that our contribution has made a positive impact on our sector in this context as well.

7- Lastly, what would be your advice to the new generations?

I often receive questions like "Have you made a lot of mistakes?" and in response, I say that I've made plenty of mistakes. Making mistakes in life is necessary, because you don't forget what you've learned from those mistakes. But things you haven't made mistakes in, you tend to forget quickly. The key is to not repeat the same mistake. I would like to tell the youth not to fear making mistakes. My second piece of advice for them is to have goals and work towards them. They should remain honest and passionate for their profession. This is a field where your mind, body, and experience all come into play. For instance, you draw a project, and that project turns into a building. You take pride in what you've accomplished. Engineering is a wonderful profession that is both instructive and enjoyable.

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ADVENTURE and VACATION

the Lycian Way...



Located in the southwest of Türkiye, the Lycian Way is the first marked long-distance hiking trail in the country, spanning a total length of 535 km. The route starts from the Ovacık region of Muğla and ends in the village of Geyikbayırı, Antalya. The Lycian Way hiking trail presents visitors with the secrets of the ancient civilization of Lycia, with its natural beauty, ancient settlements, olive groves, and turquoise-colored sea dating back 3,000 years...

An experienced hiker, covering an average of 25 kilometers per day, can complete the journey in about 21 days. However, planning the route thoroughly is essential. The total duration of completing the whole path depends entirely on your fitness level, the weight you carry, accommodation duration, and weather conditions.

The Lycian Way is one of Turkey's most popular hiking routes, capturing the interest of hikers worldwide more and more each day. The trail's challenge and beauty make it a suitable choice for hikers of all levels.

Lycian History

The ancient Lycian Civilization was situated on the Teke Peninsula in the Mediterranean region. It is said to be the continuation of the Luwians who came to Anatolia around

3,000 BC. Their name comes from Lukka, which means "light" in Latin. The Lycians had a matriarchal social structure and mainly relied on seafaring, piracy, and mercenary work for their livelihood.

The Lycians established the first known democratic union in history, and their "union" constitution was unique in the ancient world. It even served as an inspiration during the establishment of the United States. The Lycian Assembly in Patara is one of the world's oldest known legislative bodies.

The Lycian Union consisted of 23 cities. All cities within the union elected representatives and sent them to the assembly in Patara. Patara, with its Victory Arch, ancient baths, 10,000-seat theater, and the oldest surviving lighthouse in the world, was one of the Mediterranean's three most important harbors.



Lycian Way



Lycian Way

The Lycians used their mothers' names instead of their fathers' names. When asked who they were, a Lycian would respond by stating their mother's and grandmother's names.

Along the Lycian Way, many ancient cities and structures of historical and archaeological significance can be found. Some of these ancient cities include Patara, Xanthos, Letoon, and Myra. Additionally, the hiking route is famous for its natural beauty. The turquoise-colored sea, olive groves, and Mediterranean flora offer breathtaking views during the hike. If hiking isn't your preference, you can also engage in cultural tourism to explore the numerous ancient



Basilica

cities and structures along the route. These historical sites provide a wonderful opportunity to witness the historical and cultural heritage of the Lycian civilization.



Gelidonya Lighthouse, Antalya

Ancient Cities Along the Lycian Way...

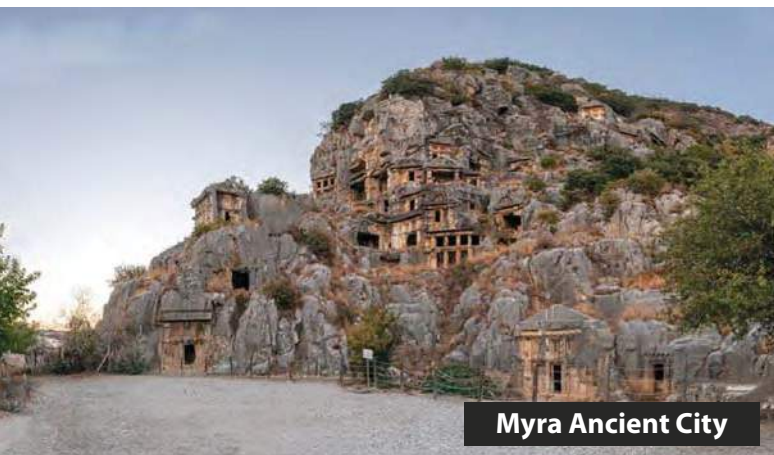
Patara Ancient City: Patara is one of the most significant ancient cities along the Lycian Way. During the Roman Empire period, it was an important trade center and was home to the famous Temple of Apollo.



Xanthos Ancient City: Xanthos is known as the capital of Lycia and is listed on the UNESCO World Heritage List. Among the many structures that can be seen in this ancient city are an ancient theater, agora, and the Nereid Monument.

Tlos Ancient City: Tlos is one of the best-preserved ancient cities along the Lycian Way. It was one of the largest cities belonging to the Lycian League and houses many remains from the Hellenistic, Roman, and Byzantine periods.

Myra Ancient City: Myra is known as the home of the famous Saint Nicholas and is famous for its ancient theater, Byzantine church, and Lycian rock tombs.



Olympos Ancient City: Olympos was part of the Lycian Union. Olympos is famous for its lush green forested areas on the coast and hosts the remains of an ancient Roman amphitheater, bathhouse, and castle.

Phaselis Ancient City: Phaselis, which historically relied heavily on maritime trade, is described as being elevated and windy in ancient sources. The 2,400-meter-high Tahtalı Mountain located behind the city casts a shadow over it in all its splendor. Presently, tourists visiting Antalya can reach Phaselis Ancient City both by land and by boat tours. The city, which has been a stopover for travelers since the beginning of the 18th century, is among the ancient cities that have well-preserved historical structures. Visitors to Phaselis Ancient City can explore the ruins of the ancient city, swim in the sea, and rest under dense pine trees. The city, which welcomed Alexander the Great with a golden crown in 333 BC, enjoyed its golden age during this period.



The Lycian Way also offers a wonderful opportunity to discover local culture and traditions. The route passes through small villages in the area and provides an opportunity to meet with the locals during the hike. Along the journey, you can also find opportunities to taste local dishes and shop for handmade souvenirs at small shops.

The hiking route can be completed in approximately 23 stages, with each stage varying in distance and duration depending on the difficulty of the hike. The most challenging stages are located in the Taurus Mountains and are more suitable for experienced hikers.

There are many activities you can do along the Lycian Way. The route also hosts various activities besides hiking. The Mediterranean coasts along the route offer great opportunities for sea tourism and water sports. Places like Patara Beach, Ölüdeniz, and Kabak Cove are popular destinations for swimming, diving, surfing, and canoeing. Some sections of the Lycian Way are also suitable for other outdoor activities such as mountain biking and horse riding.

The best times to visit the Lycian Way are in April and May, and September and October. During these months, the temperature is milder, and the humidity is lower. Additionally, the hiking route may be less crowded during these months compared to the peak tourist season in the summer.

Accommodation

Throughout the hiking route, there are accommodation options available. Hikers can stay in villages, towns, and hotels around the route. Some hikers prefer to camp by setting up tents to complete the route.

In conclusion, the Lycian Way is a fantastic hiking route in the southwest of Türkiye. It offers many opportunities to explore natural beauty, ancient cities, local culture, and outdoor activities. If you enjoy hiking or being immersed in nature, the Lycian Way is definitely one of the places you must visit.

The Lycian Way enchants its visitors with its natural beauty:

Saklikent Canyon: Saklikent is a canyon near Antalya and is one of the largest canyons in Türkiye. Exploring this canyon on foot is quite popular.



Saklikent Canyon

Kekova Island: Kekova is an island located on the sea coast west of Antalya. This island is famous for its natural beauty, turquoise waters, and sunken city.

Oludeniz: Oludeniz is one of Türkiye's most famous beaches. It is renowned for its turquoise waters, white sandy beaches, and unique mountain views.

Kabak Cove: Kabak Cove is famous for its lush green forests, turquoise waters, and tranquil atmosphere. It is also the starting point for many hiking routes.



Kekova Island



Oludeniz



Kabak Cove

The Lycian Way is one of Türkiye's most popular hiking routes, attracting visitors with its natural beauty and historical richness. With every step along the route, you can discover the beauty of nature and also visit ancient cities and historical structures.

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