

# Reference Book



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# Reference Book

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# CERN

## Did you know Daikin and CERN have had a partnership for the last 8 years?

Daikin chillers are cooling down the facility where the HIE-I-solde Experiment is run and are also cooling down the Large Hadron Collider (LHC) and data centers where valuable information is stored. The size and the function of the facility requires cooling on an unusually high scale. Just think about the 27 km long accelerator used by physicists to get insights into the fundamental laws of nature. Providing chilled water for the ventilation and dehumidification system of the tunnel where the LHC is installed, clearly requires a high cooling capacity, but also requires absolute reliability.

CERN also has stringent requirements with respect to energy efficiency levels. In this sense, Daikin has been able to satisfy all these needs thanks to its wide range of customizable solutions, providing over 20,000 kW of cooling capacity.

### [What we provide to CERN:](#)

Daikin Applied Europe provides over 20MW of cooling capacity with 30 units installed and is also providing support service with different types of periodical interventions - maintenance, inspection and leak detection, plus continuous monitoring of oil analysis - performing over 60 support service actions a year, and ensuring 24/7 helpdesk and extraordinary intervention support, all year round.





## The new DWSC-B featuring R-513A at CERN

“We have been working with Daikin for 8 years now, so we have a lot of experience with them. I’m here to check that the performance of the units matches the specification. The chillers already installed are also centrifugal and they’re using 3.3 kV power supply, so we chose the DWSC range with the same power supply. Of course, reliability is a main aspect in the project, since these chillers are going to be used for the air conditioning of the accelerator tunnel. [...] The refrigerant used on these chillers, then, the R513A, allows us to pursue an important goal for CERN, which is reducing our GWP footprint by choosing equipment that is sustainable for the future. Of course, with this choice we also want to comply with the F-Gas regulation”.

(Anders Andersen – **Cooling & Ventilation Group - CERN** )

### 2 DWSC-B

CERN is adding up to its 28 Daikin units cooling down its facilities 2 new DWSC in vintage B featuring low GWP refrigerant R-513A.

Cooling Capacity:  
2,800 kW





## The HIE-Isolde Experiment & the R-32 EWAT-B-

Daikin EWAT-B- featuring low GWP R-32 refrigerant was chosen to cool down the research facility where the HIE Isolde Experiment is run. Reliability, efficiency and perfect temperature control were the main reasons for this choice, but also sustainability was a key driver, as CERN is more and more concerned about our environment.



### EWAT-B-

It is the first scroll compressor chiller in the world featuring R-32 refrigerant.

A ground-breaking product making Daikin a pioneer in the use of R-32 refrigerant for HVAC technology.

Cooling Capacity: 339 kW







Littlewoods Ireland

GAA GAA GAA GAA

SuperValu

GAA.ie Tarrak Tarrak GAA MUSEUM MCR GROUP

PARK MEETINGS & EVENTS

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# DISTRICT COOLING

## Providing cooling capacity on unusually high scale is in Daikin DNA

The many Middle East District Cooling projects are the perfect demonstration of how Daikin can provide value in big and complex HVAC projects such as stadiums and city districts, which have always been in Daikin DNA. In fact, Daikin has historically been ahead of the game when it comes to providing cooling capacity on unusually high scale, being able to provide up to 21,800 kW with its WCT centrifugal range.

### A dedicated range:

Daikin provides a specific range entirely designed and built in-house. It is the WCT range, which ensures Industry-leading efficiency and the highest cooling capacity with factory assembled & tested unit.

The basic package includes two units arranged in series – counter flow: **from 5000 RT** (2500 RT + 2500 RT) **to 6000 RT** (3000 RT + 3000 RT) which can even operate in Middle East Conditions.





## Bringing Air Conditioning into the Khalifa Stadium

Since Qatar won the bidding to stage the 2022 FIFA World Cup, we have often been hearing about “the challenge of cooling stadiums and outdoor spaces”. Progresses have been made lately and what might have been a challenge a few years ago is no longer such. Qatar’s Khalifa International Stadium, with its innovative cooling system keeping both athletes on the pitch and spectators cool, is a perfect example of that, and Daikin has given its important contribution to the project providing 18 WCT premium efficiency centrifugal chillers for a total cooling capacity of 183,5 MW.

Daikin Applied Europe technology also played a role in the recognition of the Stadium as achieving sustainability standards – Khalifa International received the four-star rating in the Global Sustainability Assessment System (GSAS) administered by the Gulf Organization for Research & Development (GORD).

### 18 WCT

The 18 Daikin WCT chillers have been installed in a 70 metres long dedicate chiller plant.

Cooling Capacity:  
183,5 MW







## The Qatar University Project in Doha

“These chillers are going to be used in the Qatar University Central Service Unit 4, in a district cooling plant providing cooling to different buildings, from students accommodations, to study centers, labs and other buildings. We are here today to be sure these chillers will perform in the climatic conditions of Qatar as expected, matching the design conditions of the project. District cooling plants are complex systems, it’s important that chillers perform as per the project criteria. The application requires zero tolerance. [...] The test is meeting our expectations. Daikin team has been very supportive, we’ve been very well taken care of, and we constantly receive updates as they move forward with the tests. We are very happy of how things are going”.

(Homoud M Alhajri, Mechanical Section Head at **Qatar University**, and Haribaskar P, Senior Mechanical Engineer at **Qatar Design Consortium**)

### 2 WCT

Two WCT units will be used – connected in series counter-flow – to provide a total cooling capacity of 11,375 TR (roughly 40,000 kW) and the best possible efficiency level, meeting all the requirements of the project.

Cooling Capacity:  
11,375 TR



# BUSINESS HUBS



## Daikin provided technology for Dubai Jebel Ali Free Zone

Daikin, been recognized world-wide as a leader in the HVAC sector for providing high efficiency technology, is not new to providing solutions for big business hubs and areas, where efficiency is usually the most important aspect. The Jebel Ali Free Zone (JAFZA) in Dubai is an example of that.

Jafza is one of the world's leading free trade zones and is home to over 7,500 multinational companies. It accounts for 23.9% of total FDI (Foreign Direct Investment) flow into Dubai, sustaining the employment of more than 135,000 people in the United Arab Emirates. In 2018, Jafza generated trade worth USD 93 billion.

Strategically located at the crossroads of a region providing market access to over 3.5 billion people, Jebel Ali Port and Free Zone create an integrated multi-modal hub offering sea, air and land connectivity, complemented by extensive logistics facilities. The Port and Free Zone contributed 33.4% of Dubai's GDP in 2017.





## Making JAFZA more efficient

Daikin recently announced a partnership between Etihad Energy Services Company (Etihad ESCO) and Daikin Middle East and Africa in the context of a project involving the transformation of the JAFZA free economic zone in Dubai into an energy efficient zone.

This is happening in line with the efforts Etihad ESCO is making to actively contribute to the realization of the Emirate's energy efficiency goals. The project will see Daikin replacing 15 existing chillers with 15 new air-cooled Inverter screw chillers of the MZ range in 11 facilities. All this will result in a total annual energy saving of 3,019,679 kWh, corresponding to savings for 320,000+ EUR on the annual bottom line.

### 15 EWAD-MZ

The MZ air-cooled chiller series was specifically designed for Middle East. It is equipped with inverter compressors and is very efficient with full loads and partial loads in particular.

Cooling Capacity:  
8,4 MW











# DATA CENTERS

## Daikin, being a recognized brand for offering great energy performances, offers the most relevant technology for data centers

Data Centers can consume vast amounts of energy. From in-house developed inverter technology, to iCM optimizing chillers performance, and free cooling technology, Daikin offers a wide range of solutions to help reduce HVAC impact on energy consumption.

Stability, then, is a primary concern for data center operators, as a single minute of downtime can cost companies thousands of euros. Daikin provides failure-proof cooling solutions thanks to stringent quality tests, Rapid Restart feature in case of power failure, and protective coating features ensuring components functionality. As well, maintenance planning and monitoring of your chillers is key to ensure the durability and reliability of your plant. Daikin on Site is the perfect tool for that. It allows to collect operational data and schedule maintenance activities, avoiding units' downtime.



## Helping ODATA build an efficient facility

“ODATA is a company created with the purpose to provide IT infrastructures, servers, that can store large amounts of information for global companies with a presence in Latin America. As a consequence of its expansion, ODATA is building a new 8 MW (critical IT power) facility. A 7,000 sqm building accommodating racks and servers, that will be cooled down by 9 Daikin EWADC10TZX-SB2 chillers for a total cooling capacity of 11,250 kW, as data centers can generate a lot of heat that needs to be removed.

[...] Being able to provide our services at a lower price than competitors, makes us more attractive for clients. The more efficient is the chiller plant in our data center, the more competitive will be our offer to the market. Also, reliability is crucial for data centers. [...] Our plant is going to be Tier 3 certified – a certification that only allows 93 min of downtime a year – and to meet its requirements, we are going to have a number of chillers and then redundancy, so we have back up in case of maintenance or units’ downtime. Even though we have redundancy, we want to be a 100% prepared for outages, the rapid restart option is a way to prevent the increase of temperature, helping bringing the chillers back to full load capacity.”

(Mr Leon Cristalino and Mr Kelvin Tamura, respectively **Solutions Analyst and Engineer in the Engineering & Deployment Team at ODATA**)

### 9 EWAD-TZ

Cooling Capacity:  
11,250 kW







## Refurbishing BCP Bank HVAC system

"The datacenter is 2MW and accommodates 150 racks. The main issue we have is our proximity to the coast, which requires chillers to operate in a corrosive environment. Maintenance had become an issue, so we decided to replace the units with equipment that can actually operate in harsh environments. In the place where chillers are going to be installed there is over 90% humidity, and on top of that, being near to the coast, salt is a main corrosive agent.

So we chose chillers with blygold coating. [...] Other than that, the main aspects are reliability and efficiency. Reliability comes first, that's why we have redundancy, both in the mechanical and the electrical systems. We have also added the rapid restart option, which, in case of power failure, allows us to restart the units in roughly 30 seconds, bringing them back to the capacity they were producing before failure."

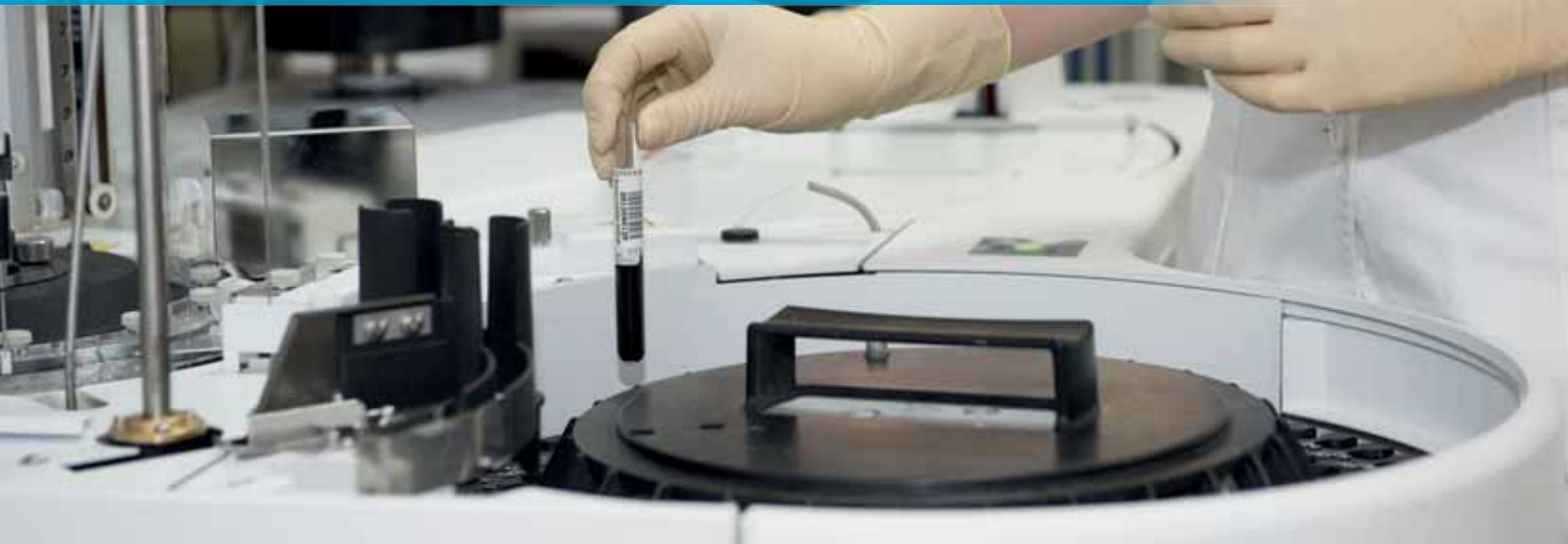
(Mr Salazar and Mr Jungbluth – **BCP**)

### 4 EWAD-TZ

Cooling Capacity:  
1,420 kW



# HOSPITALS



## Daikin perfectly knows how to meet the needs of critical applications like hospitals and medical facilities

Whether it is surgical rooms, over-crowded emergency rooms, labs and MRI rooms where equipment needs to stay cool, Daikin ensures perfect temperature control and outstanding air-quality.

Hospitals often require both heating and cooling in different parts of the building. Our multipurpose range can meet the need for hot water and chilled water at the same time. And if there's a group of chillers to manage, Daikin Intelligent Chiller Manager (iCM) can optimize the way chillers operate increasing their efficiency.

Maintenance planning and monitoring of your chillers or Air Handling Units, then, is key to ensure the durability and reliability of your plant. Daikin on Site is the perfect tool for that. It allows to collect operational data and schedule maintenance activities, avoiding units' downtime.





## The Tekirdağ Hospital in Turkey

"Tekirdağ City Hospital is a government project for a huge hospital complex in Tekirdağ City, not too far from Istanbul. The hospital area is about 157,000 square meters and is going to accommodate 480 beds and 16 surgery rooms. Daikin is providing six centrifugal DWSC chillers for a total cooling capacity of 23 MW, plus two R-32 air-cooled chillers with microchannel condenser of 450 kW each. For the air-cooled chillers we have redundancy because they are going to be used for surgery rooms, where temperature control is very important. So, one of these two chillers is going to be used as a main unit and the other as a back-up option.

For the optimization of this chiller system, they are going to use the Intelligent Chiller Manager iCM. It is Daikin system control for chiller plant optimization, it will ensure the system will work as efficiently as possible.

The main aspects for this project were efficiency – both for full load and part load – and clearly reliability. I think we can all understand the importance of having a reliable HVAC system in a building like a hospital where patients need thermal comfort, and equipment and surgery rooms require perfect temperature control". (Kemal AKA, **Technical Manager for Applied Products at Daikin Turkey**)

**6 DWSC**  
**2 EWAT-B-**

Cooling Capacity:  
over 23 MW





## Hospital Universitario Infanta Elena

A Daikin R-32 unit was installed to work in parallel with another Daikin chiller, to provide chilled water to MRI equipment and air handling units distributing cooling to surgical rooms. Here's what Mr Vives said about Daikin and the project: "We have been working with Daikin since the beginning, and we appreciate the brand not only because of the reliability of the units, but for the after sales service too. Also, in this project the R-32 low GWP refrigerant played an important role. We really care a lot for the environment, and the R-32 refrigerant met both our client's and our expectations".

(Rafael Vives, **Instalaciones OpenClima S.L.**)

### 2 EWAT-B-

Cooling Capacity:  
345 kW







# AIR HANDLING UNITS

## Providing Air Quality at Papworth Hospital

The New Papworth Hospital is a new facility built from scratch on the Cambridge Biomedical Campus, and it is part of the international centre of excellence in biomedical research. For this construction by Skanska, worth approximately £165m, Daikin provided 60 HTM compliant Professional Air Handling Units – 42 Internal and 18 External, with various air volumes – plus 3 water cooled chillers EWWQ 430 L SS totalling 1MW of cooling. It is one of the biggest health sector construction projects in the UK.

Daikin has provided value with its cutting-edge and sustainable technology helping to comply with the efficiency standards required (EN 1235/14), for both heat recovery and overall AHU power. Also, the selection and use of high efficiency EC fan and motor solution – which provides a great overall drive efficiency – were important aspects that helped achieving the efficiency goals. These fan arrangements used single fans, twin fans and multiple fan arrays which also allowed for increased resilience and rapid service.

**3 EWWQ-L-**

Cooling Capacity:

1 MW



# HOTELS & SPORTS CENTERS



## Customer experience is Daikin number one priority when it comes to hotels and resorts

Customer experience is the number one priority for hotels and resorts. Daikin helps business owners in this sector being responsive to customers' comfort expectations, no matter the season, ensuring the best possible comfort experience. Daikin Inverter compressor chillers can ensure the highest efficiency levels adapting their loads to the building demand in different moments of the year.

The same chiller or heat pump units can also provide sanitary hot water when heat recovery exchangers are integrated. Customer experience is of course grounded on reliability and durability. Maintenance planning and monitoring of your chillers or Air Handling Units is then critical. Daikin on Site is the perfect tool for that. It allows to collect operational data and schedule maintenance activities, avoiding units' downtime.





## Hotel Dolce: the luxury of having both reliability & efficiency

"It is a big hotel, including a wellness center and meeting rooms. When it comes to comfort customers have high expectations.

The project design was done by ENGIE Cofely Belgium, and our job is to make sure the units they chose are the right products. [...] Daikin is a choice made primarily on efficiency performance, since our main goal is having energy consumption as low as possible. At the same time, we were looking for reliability, which is important for the hotel. These chillers have to ensure energy efficiency to the building for a long time."

(Yves Disneur and Donovan Mouton, **Technical Manager and Project engineer at Deplasse & Associés**, and Olivier Mievis, **Project manager at ENGIE Axima**)

### 2 EWWD-DZ

Cooling Capacity:  
1,200 kW





## Hotel Pestana Vila Sol, Portugal

"It all started with a request for a top efficiency unit from the project designer, who performed an energy audit to ensure the client had the highest efficiency. The solution was replacing the existing chiller with a Daikin 4Z. The hotel has different operating needs, so having a flexible system for both cold and hot water at the same time, plus recovery for hot sanitary water, was fundamental. [...] We wanted to see the unit tested so we could prove its performance. This chiller, with integrated inverter screw compressor, provides the best efficiency in the market, and it was great having it tested with customers in the factory. [...] It was also good for them to see the manufacturing process, and have engineers answering their questions about controls and integration with the different BMS systems."

(Alexandra Velez, **Key Account at Daikin Portugal**)

### 1 EWYD-4Z

Cooling Capacity:  
400 kW  
Heating Capacity:  
398 kW







## NH Hotel HVAC system refurbishment, Madrid

“Daikin in-house developed Inverter technology was at the core of this refurbishment project, allowing to significantly improve efficiency, both with full and partial loads. But most importantly, Daikin managed to identify the right solutions for this hotel, performing an in-depth analysis of the context (type of business, occupancy rates and energy demand), which allowed to come up with the perfect chiller system.”

Find more in the article published on FuturENERGY (SAGUENAY, S.L.U.) pg 43-45

### 2 EWAD-TZ

Cooling capacity:  
400kW





## Holland Casino, Rotterdam

“Daikin was an immediate choice since it was offering the solution we needed in the price range we were expecting. We have also been working a lot with Daikin products a lot and we really appreciate the level of reliability and support that comes with the brand”.

(Arie Pronk, **Project Manager**, and Bergen Ronnie Franciscus, **Service Engineer**, both working at **ENGIE Services Nederland NV**)

**1 EWAD-TZ**

Cooling Capacity:  
612 kW







## Braywick leisure center project

"It's a high-end leisure center in Maidenhead, which the local population is really looking forward to. People come there and want to have the environment that they enjoy being in. That is why chilling the facility will be very important. Also, we have a unique acoustic requirement. We are next to a graveyard, so we have been specified 50 db at 20 meters, which is quite unique, and important to this project. We are running the unit at 89% load and that achieves the decibels that we need. This is a very important aspect to the local community. We have had letters written into newspapers about the way Wates is behaving on the project, so maintaining the right noise level sort of defines the way we are perceived by the public. [...] The new testing facility is great. We've found the whole experience impressive. Having this amount of data and visibility of what's going on is brilliant. It's a very high standard compared to other factories"

(Alex Jason, Assistant project engineer, and Peter Collier, Principal Building Services Manager Construction, both at **Wates Group**)

### 1 EWAD-TZ

Cooling Capacity:  
315 kW









# OFFICE BUILDINGS

## Office Buildings are among the projects Daikin most frequently provides technology for

Whether it is cooling, heating or indoor air quality, Daikin have been meeting all these needs for offices and business centers for years. Daikin in-house developed Inverter technology ensures high efficiency levels all year round, perfectly adapting to the cooling or heating load required, ensuring low energy consumptions and a quick ROI. Daikin Inverter technology, combined with low GWP refrigerants like R-32, can also help getting projects BREEAM or LEED certified.

Daikin System Control iCM and the cloud based monitoring tool Daikin on Site, the, offer a way to optimize chiller groups performance and monitor their operations, allowing to collect operational data and schedule preventive maintenance activities.

# SCREW INVERTER & SCROLL



## Sony UK is using Daikin Inverter to ensure efficiency

We want to use your Inverter driven screw compressors to adequately match the load of the office building. They use different parts of the building in different parts of the day, so we chose your inverter screw chillers which are very efficient and are suitable for comfort cooling application in meeting rooms and offices. [...] We identified Daikin as a partner through experience with your products in other projects. Your products are high quality, and the control system is high quality as well. [...] We'll get the DaikinOnSite installed, it will give us a little extra control on what's going on on site".

(James Waite, **Engineering Consultant at Arup**, and Timothy De Vos, **Senior Project Manager at Nationwide Air Conditioning Limited**)

2 EWAD-T-  
1 EWAT-B-

Cooling Capacity:  
449 kW



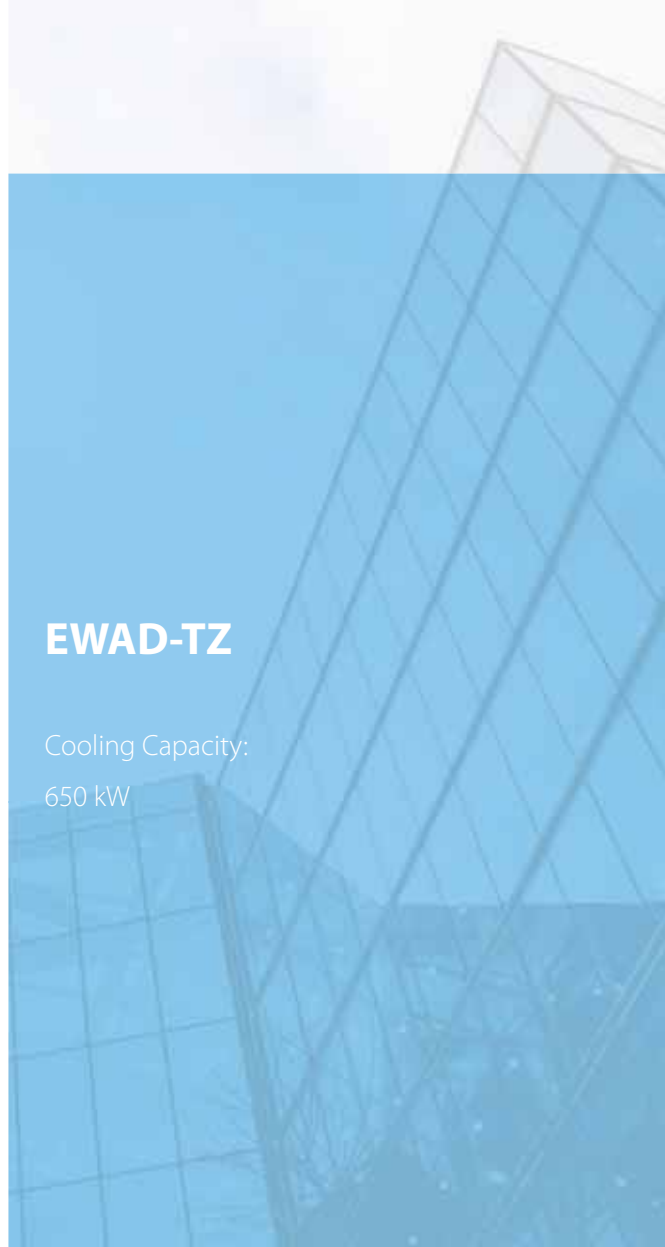




## Ensuring longevity to Close Brothers' Offices in London

"The new chiller has an acoustic pack on it. The environment where it is going to be installed is sensitive to noise, so we needed a machine that could satisfy the planning permissions for the area. We wanted a unit with 2 compressors and 2 separate refrigeration circuits, so if there is a fault, we have another circuit we can run to provide resilience, which is key for us. [...] There is only so much we can do with the space on the roof, but we've found with Daikin the best solution, getting the cooling capacity we need in a small footprint. Also, for the legacy of the building, we selected a chiller with screw Inverter driven compressors, so if the customer leaves the building, we leave a unit that is very efficient and has got longevity - we also added the protective coating option. It was cost and performance-competitive, it was the most preferred chiller".

(Lorenzo Morahan, **Head of Special Services and Energy at Optimum Group Services**, and Toby Coulton, **Facility Operation Manager at Close Brothers**)



### EWAD-TZ

Cooling Capacity:  
650 kW





## The Prince Sultan: a wide variety of needs

“This project aims at providing cooling for a 3000 m<sup>2</sup> administration building. Of course, efficiency and reliability are very important aspects. Since this project is going to be executed in Riyadh, in one of the highest temperatures in the gulf, we needed equipment specifically designed to perform in such conditions. Also, the building doesn’t allow roof top installation, so the units will have to be installed on the basement level, but with Daikin we came up with a solution that will allow us to use the space we have and still get the performance we expect out of these chillers – we have decided to lift them from the ground, so condenser fans will be above the ground and will work as efficiently as expected.

[...] When Daikin introduced us their technology, we were amazed by the features their units offer and the way their single screw compressors perform. Also, we were positively surprised by the sound levels and the efficiency levels provided by these chillers.”

(Mr Ahmed Ibrahim, **Project Manager from Energy House Contracting Company**)

### 3 EWAD-MZ

Cooling Capacity:  
1,854 kW







## Astor House: the first EWAT-B- in the UK

Two new EWAT-B- replaced a pair of chillers at the core of climate control in a two-storey office building at Newbury, Berkshire.

“We will be monitoring the performance and the operating costs of the two systems – and we expect significant benefits from the R32 technology. The new technology appealed to us because of its increased energy efficiency and reduced refrigerant requirement. It was also an opportunity to future-proof Astor House because of the lower global warming potential of R32 in comparison with R410A”.

(Adrian Griffith, **Director at Klimatec**)

### EWAT-B- Interesting Facts

The Astor House facilities manager, Mark Hogan of Orbit Property Management, and building services Contracts Manager, Aaron Lowe of Integral UK, were keen to accept our proposal and be the first to adopt the new technology – even though it meant delaying the replacement for a while when the existing chillers were literally on their last legs after nearly 20 years' service.





## Ensuring long term efficiency at IBM Hursley (UK)

“When I reviewed the chillers available on the market, we had to consider the most suitable chillers for a number of reasons... one is they would be operated by IBM through their life, so they are interested in long term efficiency, not just first cost, but they are also interested in price. [...] Also, it was important to demonstrate their efficiency. That’s why the witness test is a very good opportunity for us. We are actually doing a test now at 25% load, because these chillers will spend a significant proportion of their life - as most chillers do - at their lower load. Proving the efficiency at their lower load is very important”.

(Simon Ramsden – **Group Director at Hilsom Moran**)

### 2 EWAD-T-

Cooling Capacity:  
1,240 kW







## NISS: Providing comfort even in Sudan harsh environment

“NISS Building D is a governmental project, it’s an office building. We have 4 air cooled chillers providing cooling to the whole building, from the basement to the offices. We chose Daikin because it’s the right choice when you are thinking in the long term. We made this choice for the efficiency, the reliability and the durability of these units. It’s not the first experience we have with Daikin and we have never had any problem. Also, we were very satisfied with the performance of these chillers in Sudan conditions. In Sudan there are 46° C and above for 9 to 10 months and it’s a dusty environment for chillers. We needed units with durable components and the ability to perform in such a harsh environment. The EWAD-C- range perfectly meet our needs”.

(Mr Zahyr Abd Elmageed, **Project Director at Murtada Maaz Consultancy**, Mr Abdalwahab Ahmed Ali Salih, **Project Leader at Murtada Maaz Consultancy**, and Raja Chinnathambi, **MEP Manager at Ideal Trading & Contracting**)

### EWAD-C-

Cooling Capacity:  
3,960 kW





## Dhofar Power Company offices need efficiency

“We are working on Dhofar Power Company headquarter, in Salalah, south of Oman. It’s a new office building, built from scratch. Salalah is a place by the sea, and the corrosive environment of the installation site requires a special coating on the chillers to protect them and their components. Then, efficiency is a very important aspect too, because the company clearly wants the most energy efficient HVAC system in the building. [...] We are here to test the units’ performance, and we must say the tests here are presented in a very nice and effective way, and the fact that we can follow the tests on screens, from this lounge room, makes the experience very good. It’s a very modern and innovative way to test equipment.”

(H. V. Nagaraj, **Assistant Manager MEP at National Engineering Office (NEO)**, and Mr Imad Ismail Ausanjali, **Maintenance Manager at Dhofar Power Company SAOC**)

### 2 EWAD-C-

Cooling Capacity:  
1,886 kW







## The Civil Services Pension Fund

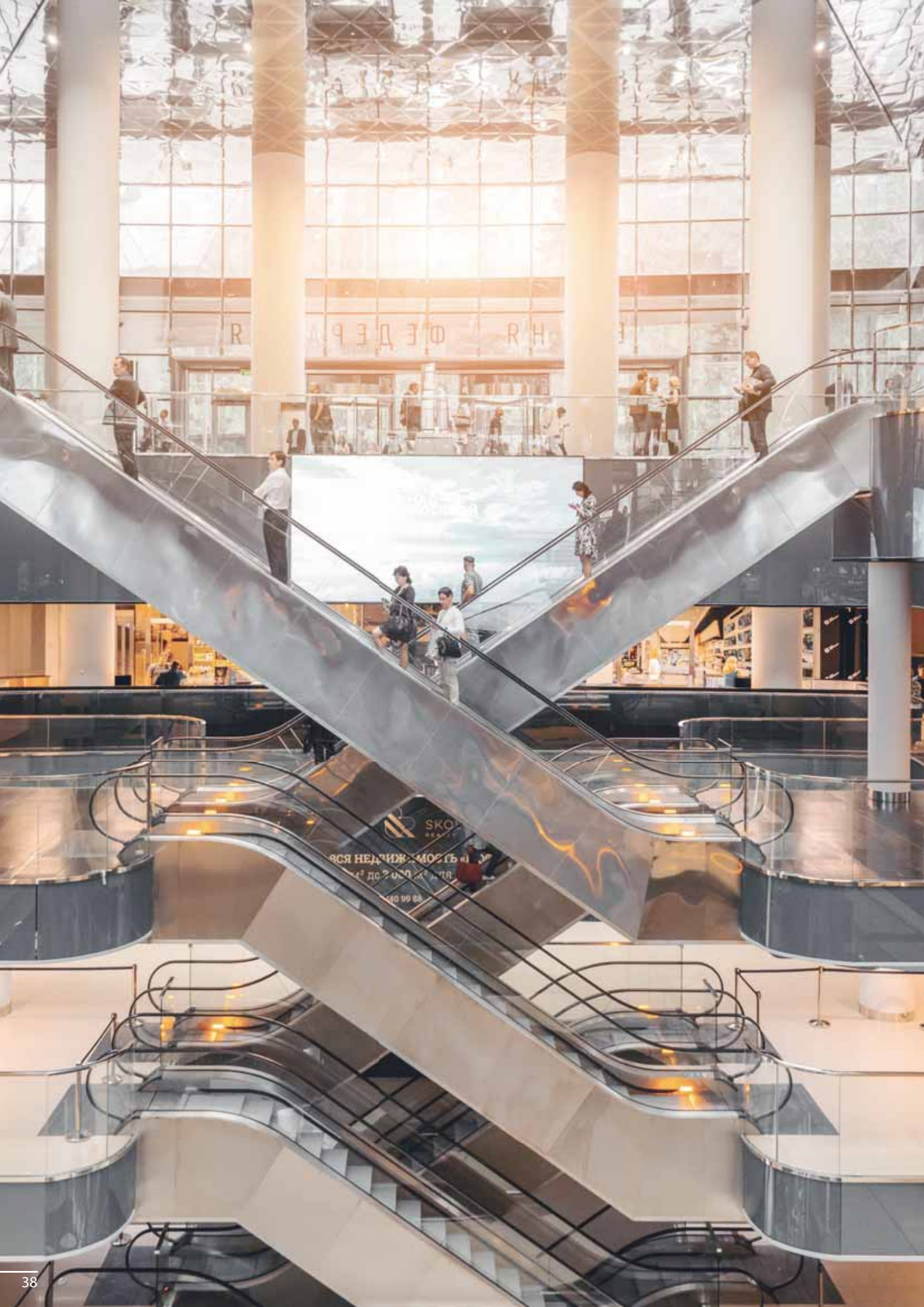
"These units will work in very high ambient temperature conditions, in a coastal environment scenario, in Oman. Hence, these conditions made reliability and performance key drivers for our choice. Daikin is a very good brand for quality and performance. On top of this, half of the building is dedicated to tenancy, therefore durability of the equipment is very important."

(Firasat Ali and Hamed Khamis Al Hatmi from **Civil Services Pension Fund**)

### 4 EWAD-C-

Cooling Capacity:  
5,120 kW









# MALLS, RETAIL & MIXED USE

## Daikin helps keeping up with customers' comfort expectations

Customer experience is the number one priority for hotels, resorts, casinos, malls and any other commercial building. Daikin helps being responsive to customers' comfort expectations, no matter the season, ensuring the best possible comfort experience through advanced technology such as Daikin Inverter compressor chillers, which can ensure the highest efficiency levels adapting their loads to the building demand in different moments of the year.

The same chiller or heat pump units can also provide sanitary hot water when heat recovery exchangers are integrated. Customer experience is of course grounded on reliability and durability. Maintenance planning and monitoring of your chillers or Air Handling Units is then critical. Daikin on Site is the perfect tool for that. It allows to collect operational data and schedule maintenance activities, avoiding units' downtime.



## Ideal Mall: a green building certified mall

"It's a mall with retail stores, movie theatres and food courts, in Hyderabad, India. We needed an energy efficient chiller, and that's where Daikin came into picture. We were looking to satisfy the major requirements for green building certification, respecting ECBC (Energy consultation building code) parameters, and Daikin made that possible. So, efficiency was very important, but it's not just about efficiency, it's also about reliability. We need to make sure this chiller will work for the time-period we want. Also, downtime should be very low. Those are the main aspects. [...] This is one of the best facilities we've seen. We are sure you have a fantastic team working hard to simulate ambient conditions, which isn't easy. Many companies can't test units in this climatic chamber, this is a big plus for you."

(N.S. Chandrasekar, **Consultant & Certified Energy Auditor**, and B. Anand, **Associate Consultant**, both working **at Genex Consultants**)

### 3 EWAD-C-

Cooling Capacity:  
1,029 kW





# SCREW INVERTER & SCROLL



## City Mall: providing Eurovent Class A certified units

“The City Mall is the biggest shopping mall in Tbilisi and in Georgia. It is a 50,000 Mq mall accommodating over 150 shops and business centers. The project has been supported by the EBRD (European Bank for Reconstruction and Development) through the credit line for energy efficiency, so the key driver for it was energy efficiency. The client needed Eurovent class A+ certified units, and also wanted the best manufacturing quality the market could offer. In this sense, there was no choice other than Daikin.”

(Tsisana Dolidze, **International Procurement Manager from Domson’s Engineering**)

**12 EWAD-T-  
1 EWAT-B-**

Cooling Capacity:  
5 MW





## The K1 Knightbridge, a mixed use building

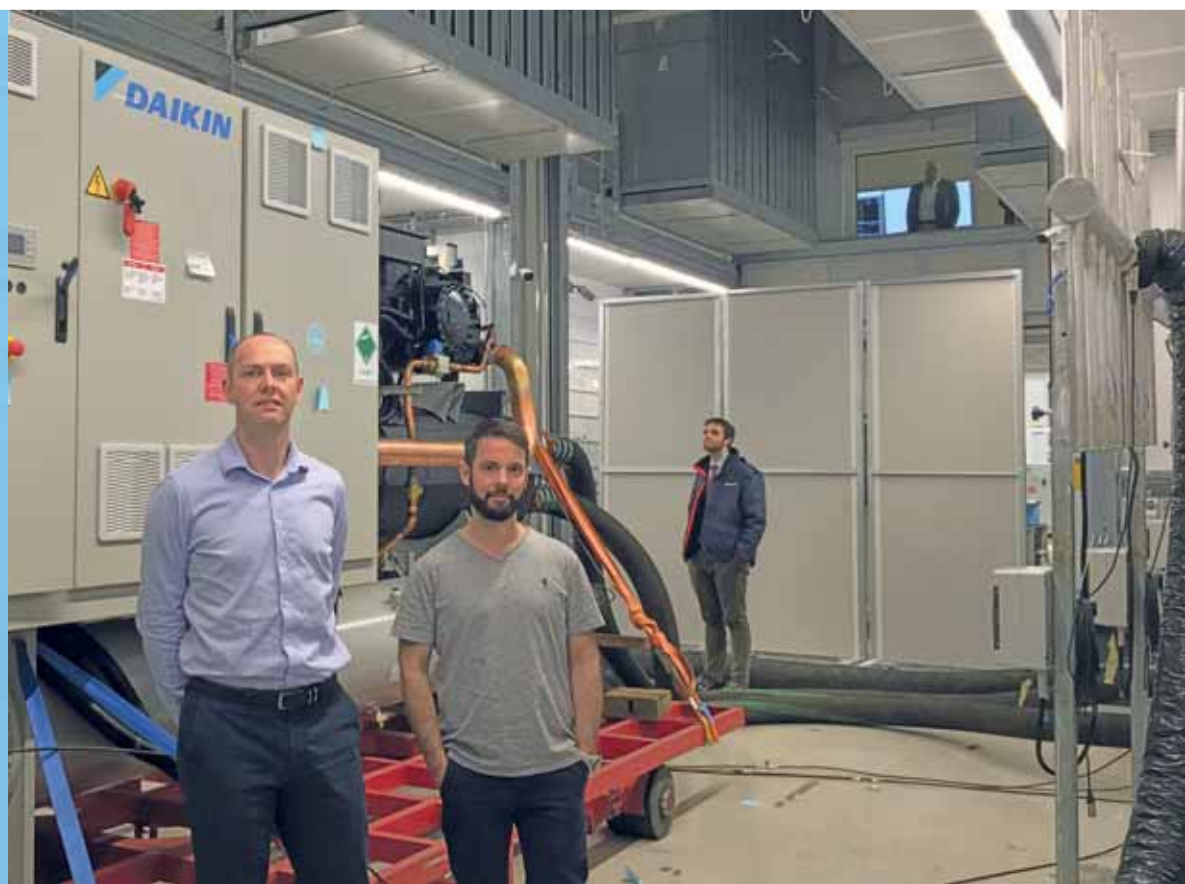
"It 340,000 sqft project combining commercial, residential and retail space in the Royal Borough of Kensington and Chelsea, London.

We reviewed with Daikin the various chiller options available to us. One of the biggest constrains has been space, which was dictated by the project architecturally. We worked with Daikin to reduce the number of chillers we were going to install, still maintaining the capacity the client needed - we're installing 3 chillers designed to run at 790 kW each, but each of the units will have the capability to run at 1,051 kW. [...] Because of the programs we've got to follow, the chillers are installed very early on in the project, so it's important to make sure that before they were installed they would meet the operational requirements".

(James White, **Mechanical Project Manager at Skanska**, and David King, **Associate Mechanical Engineer at Chapman Bdsp**)

### 3 EWWD-VZ

Cooling Capacity:  
3,153 kW







## The Al Shaya Warehouse Project

“We’ve found options in Daikin you cannot find in other manufacturers. Redundancy in the number of compressors, for instance. For these big capacity units Daikin has 3 compressors, other manufacturers have less. Reliability and durability are main aspects, but we are also looking for efficiency, which is up to our expectations with these units. [...] The witness test is very important, we are going to use the units in Riyadh, where temperatures can reach 50° C, so we need to verify units can actually perform in that temperature. The test in the new climatic chamber has been great so far, all the data are well displayed, and everything reflects the specifications. We are happy with it”.

(Mr Obeid, **Developing Manager from M. H. Alshaya Co.**, Mr Mollah, **Project Manager from Amana Contracting & Steel Buildings**, Mr Elhefnawy and Mr Essa, both **Consultants**)

### 6 EWAD-C-

Cooling Capacity:  
9,340 kW









# INDUSTRIAL FACILITIES

## Daikin offers a wide range of efficient and reliable solutions for any kind of industrial facility

Industrial facilities deserve maximum performance at the lowest possible energy consumption levels. This is where Daikin entirely in-house developed inverter technology makes the difference, ensuring high efficiency levels both at full and partial loads. Daikin products are thoroughly tested during the production process, ensuring the success of your HVAC project. Speed up unit restarting after power failure with Rapid Restart or increase the protection of the heat exchangers with inner and surface protective treatments.

Indoor air quality is also critical in most processing and manufacturing facilities. Daikin Air Handling Units ensure employees' health and process stability avoiding any kind of air contamination in industrial facilities.

As well, maintenance planning and monitoring of your chiller or AHU plant is key to ensure high process performances. Daikin on Site is the perfect tool for that. It allows to collect operational data and schedule maintenance activities, avoiding units' downtime.

# CENTRIFUGAL & SCREW INVERTER



## Granarolo: a leader in the Italian food & beverage

“Those centrifugal and screw chillers will be used in a system producing chilled water at 1° C temperature for different facilities – we are working on 6 industrial plants – for milk storage and for the cooling process downstream of the pasteurisation. Efficiency is a main aspect, but Daikin is also adding value from a design perspective. They made interesting choices in terms of components – flooded heat exchanger with very small approaches, for instance. Also, they are allowing us to produce chilled water at 1° C with no need to use glycol, which is important to the project. [...] The factory tour was a positive experience. We were impressed from the fact that the great majority of the components are made in Italy. [...] We have been using Daikin for a long time and we have always had a positive experience. The reliability and the quality of the products make Daikin a leader in the industry”.

(P. G. Meoli and M. Bonfichi from **Meno Energia**)

**3 EWWD-VZ**  
**2 DWDC**

Cooling Capacity:  
9,340 kW







## Chiller replacement for Boston Scientific Ireland

"We have 10 chillers in Boston Scientific and chiller 9 - as we call it - is at the end of life, so we need to replace it with a new one to match the demand of the facilities, that's why we are here. Basically, Daikin won the contract for the efficiency of the machine versus their competitors, the payback over a few years was substantial. And because Boston Scientific operates 24/7, it requires that equipment is reliable. What we were looking for is basically efficiency and reliability".

(Connor Lane, **Project Engineer at Boston Scientific**, Frank Gannon, **Project Manager at Kirby Group Engineering**, and **Noel Keane from Classic Air**)

### EWAD-CZ

Cooling Capacity:  
1,200 kW





## Parsons and Force 10 choosing Daikin for a big industrial plant

“We are working on an industrial project in Abu Dhabi involving a big production facility, which demands high redundancy for the different components of the cooling system. Daikin was among the manufacturers we were looking at right from the start. They met our requirements, also in terms of delivery time. The inverter compressor, then, is an excellent design, and that was relevant in our choice. [...] One of the advantages Daikin had over other manufacturers was the AHRI certified climatic chamber. The fact Daikin can demonstrate performance in Middle East climatic conditions here in the factory, doing an immediate test with minimal time of set up, is really a plus. [...] We were impressed with the level of information the Daikin team can provide. It was a good experience. Everything is in place. The production line is very organized, and we were impressed with the tests units and components go through. All this is giving us the confidence in the choice we have made”.

(Mr Vasos, **Consultant from Parsons**, and Mr Alaa Khayali, **General Manager at Force 10**)

### 3 EWAD-M-

Cooling Capacity:  
2,307 kW







# SCREW & AIR HANDLING UNITS

## Shakhbout electrical substation HVAC system

“Shakhbout City is expanding and the power consumption is increasing. The new electrical substation will provide distribution voltage to power distribution companies in the area. Daikin units will help control the temperature of critical equipment, allowing the substation to work properly. Due to the high outdoor temperature and dust, we keep 80 to 90% of the substation indoor, so critical equipment is protected. This way we can keep the ambient temperature between 21° and 25° C. For this project we chose condensing units that will be located outdoor and AHU distributing cooling indoor. For HVAC we have stringent requirements. Normally, design conditions for Middle East would be 46° C, but we require 50°, because we need to be on the safe side. [...] Daikin qualifies to do business with us for the really high standards they can provide. Also, Daikin is providing screw condensing units, which is the latest technology, and is meeting all the requirements specified, which are very strict”.

(A. Almessabi and M. Alhammadi, **Power Engineer** and **Senior Support Service Engineer** at TRANSCO)



### 8 ERAD-E-5 AHU Professional

Cooling Capacity:  
9,340 kW



# MARINE



## Daikin ability to provide comfort in quite peculiar conditions

Air conditioning systems for a Marine application require unparalleled reliability. Chillers installed on ships operate under challenging dynamic pitch & roll conditions, and usually have condensers cooled down by sea water. These two factors are common for passenger ships as cruises but even for commercial vessels, container ships and tankers. Daikin Marine chillers operate on a wide variety of ships, and are specifically designed to cope with sea water corrosive conditions and pitch & roll.

As well, efficiency and footprint are two main drivers to select the proper chiller for a ship. The higher the efficiency, the better it is for return on investment. Also, the lower is the chiller footprint, the better for ship owners, meaning that more space can be dedicated to business operations.

Daikin offers outstanding efficiency in a limited footprint with the Inverter screw EWWD-VZ, which is a cost-effective and easy to handle choice for its compact layout. In addition, the electrical panel can be installed separately from the unit for a proper optimization of chillers installation in a limited space. Daikin ensure passengers comfort offering a wide range of performance (from 450 to 9000 kW of cooling capacity) on a single unit. Both inverter screw and centrifugal compressors technology are available, as well as specific power supply conditions such as 460 V / 60 Hz, 690 V / 60 Hz or 11000 V / 60 Hz.





## VARD is using Daikin marine technology for a Ponant icebreaker

VARD built the first electric hybrid cruise icebreaker with Liquefied Natural Gas LNG propulsion for the French company Ponant. The icebreaker will be 30,000 gross tons, and will accommodate 270 passengers in 135 staterooms, plus a 180 people crew.

“We’ve been working with Daikin for a long time, they offer very good support from a technical perspective, and the after-sale is great, we’ve always had a great experience. The logistics is very good, we have never had delays from the factory. [...] Technology-wise, Daikin products are high quality, well manufactured, user-friendly, we get them with all the factory settings as they should be. When we use Daikin we never get complaints. Today is a good chance to bring the customers in the factory and let them meet the people who worked for them. They have been supporting us all along the project. Since we started Daikin has managed to satisfy all our needs”.

(Stig Fiskerstrand and Roald Amudsen, **Service Engineer and Project Manager at VARD**)

### EWWD-VZ

Cooling Capacity:  
4,000 kW



# RESIDENTIAL



## HVAC technology ensuring residential comfort

Home means comfort. Everyday, we seek the best possible comfort in our apartments. We have always thought we needed different products to respond to different needs, but that is not necessarily true. Daikin provides flexible technology meeting the most diverse needs of our clients with just a single product. Daikin heat pumps, for instance, can cover the full range of needs of a block of flats, providing cooling during summer and heating during winter, other than producing domestic hot water thanks to the heat recovery technology. Isn't that an example of sustainable air conditioning solution?

Daikin technology can help reducing the total GWP of cooling & heating systems in condominiums, but also Indoor air quality – which plays an important role – is addressed. Did you know indoor environments can be 9 to 5 times more polluted than outdoors? Daikin range of air handling units can easily solve the problem letting you breathe the highest quality air.





## CPL Landmark Pinnacle residential building

“The CPL Landmark Pinnacle project, in London (UK) involves a 239 meters high building with a tight roof footprint. Daikin units EWAD730T-XRB2 provided exactly the needed capacity in a limited space, being the right technical and financial choice”

(Paul Graham, **Technical Director at Haydon Mechanical & Electrical Ltd**)




Julian Osley / Canary Wharf: Landmark Pinnacle building under construction

### 6 EWAD-T-

Cooling Capacity:  
3,990 kW



A large industrial facility, possibly a power plant or refinery, featuring a prominent blue cylindrical structure and a white building with a staircase. The scene is brightly lit, suggesting a clear day.

For more information  
on Daikin portfolio visit

**[daikinapplied.eu](https://daikinapplied.eu)**





