

FläktGroup

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[🌀] AIR CONDITIONING & HEATING

Adia-DENCO

ADIA-DENCO®

>> INDIRECT EVAPORATIVE COOLING



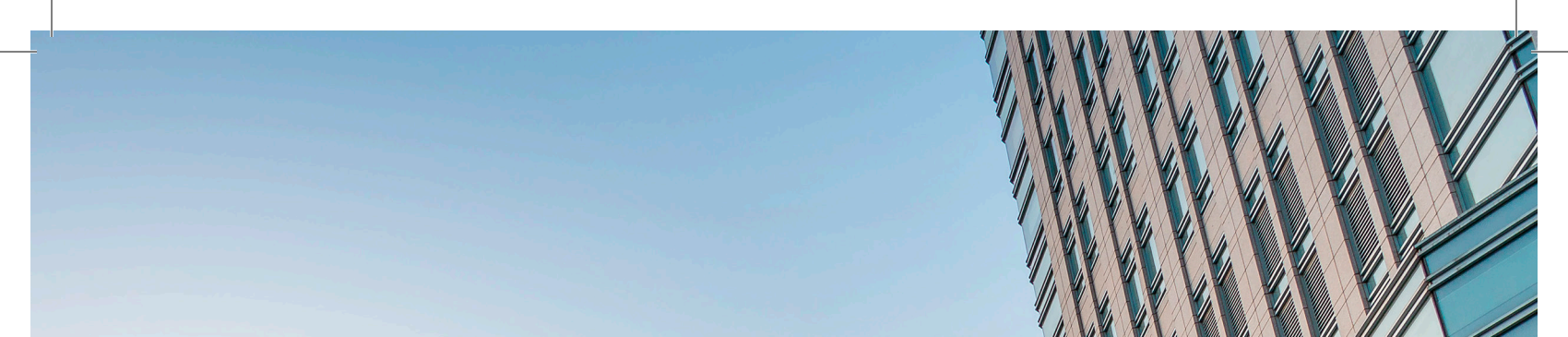
The new European market leader

BMS

m³/h

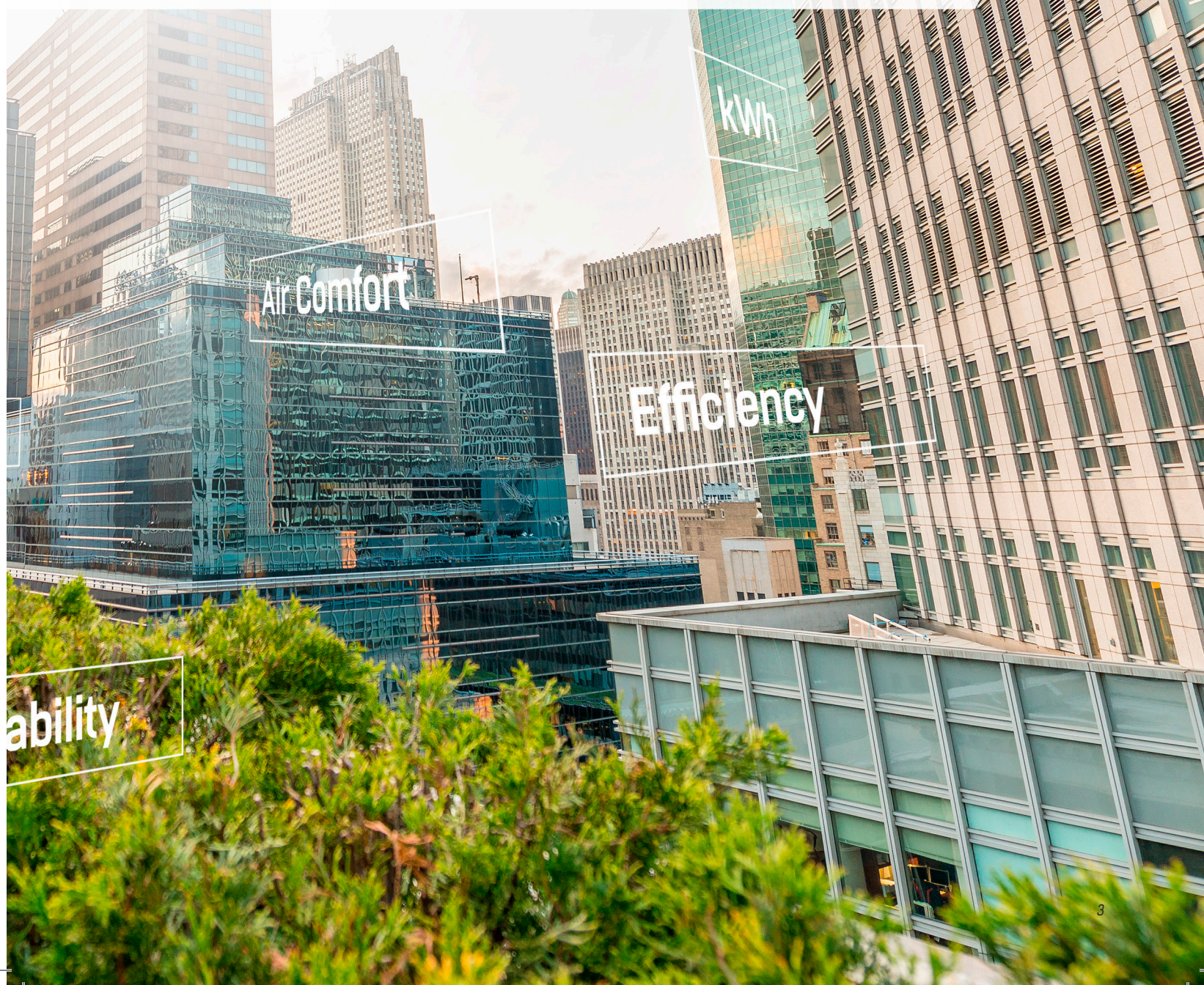
Life Cycle Cost

Sustainable



Fläkt Woods, a leading air technologies solutions provider for HVAC systems, and DencoHappel, a leading technology innovator in air treatment, air conditioning, filter technology and cooling process air, together have formed the new FläktGroup in October 2016. Complemented by a portfolio of strong product brands like DELBAG, DENCO, HAPPEL, ILOXAIR, SEMCO and WOODS that stand for decades of industry experience, our Group provides one of the most complete air treatment offerings in the industry.

Through the expertise and experience of our joint forces and our global sales network, we offer a comprehensive product portfolio with innovative technologies to match your needs – wherever you are in the world.



A low-angle shot of server racks in a field of green grass under a bright blue sky with a sun flare.

Our innovative Air2Air systems
conform to all requirements of Green IT

Data center cooling with highest energy efficiency

We are involved and experienced in a wide variety of industries: from industrial ventilation systems and large volume handlers to office-based comfort cooling. We use this vast pool of knowledge to supplement our extensive history within the industry to continually design, innovate, redesign and improve our products so we can enable your operations to thrive.

Our products are based and driven on efficiency. They are design efficient, service efficient, control efficient and most importantly energy efficient. With reports suggesting that energy consumption within data centres accounts for approximately 2% of global energy use, which is equivalent to the aviation sector, never before has energy efficiency been so fundamental to the future of the industry.

We do not only supply you with efficient components, but can supply efficient systems as well. With a wide range of industry knowledge, we provide ideal solutions to work in harmony with new or existing subsystems, maximising the potential saving returns. Our products are designed and built with the highest quality standards to provide an ecological and economical durability to your application. We can provide maintenance and service capabilities, further extending the lifetime and reliability.

We have an established support network and a global presence. With international locations of factories, sales offices, service and support, we can be wherever you need us. To find your nearest contact, please visit: www.flaktgroup.com

” *Our experience
shapes your future success*

FläktGroup

- Decades of experience
- Comprehensive product portfolio
- Efficiency focused design
- System based solutions
- High quality designs and manufacture
- In-house maintenance and service capabilities
- Established support network
- Global presence
- Trusted and experienced suppliers

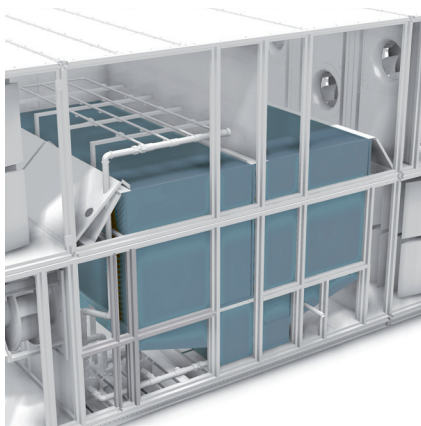
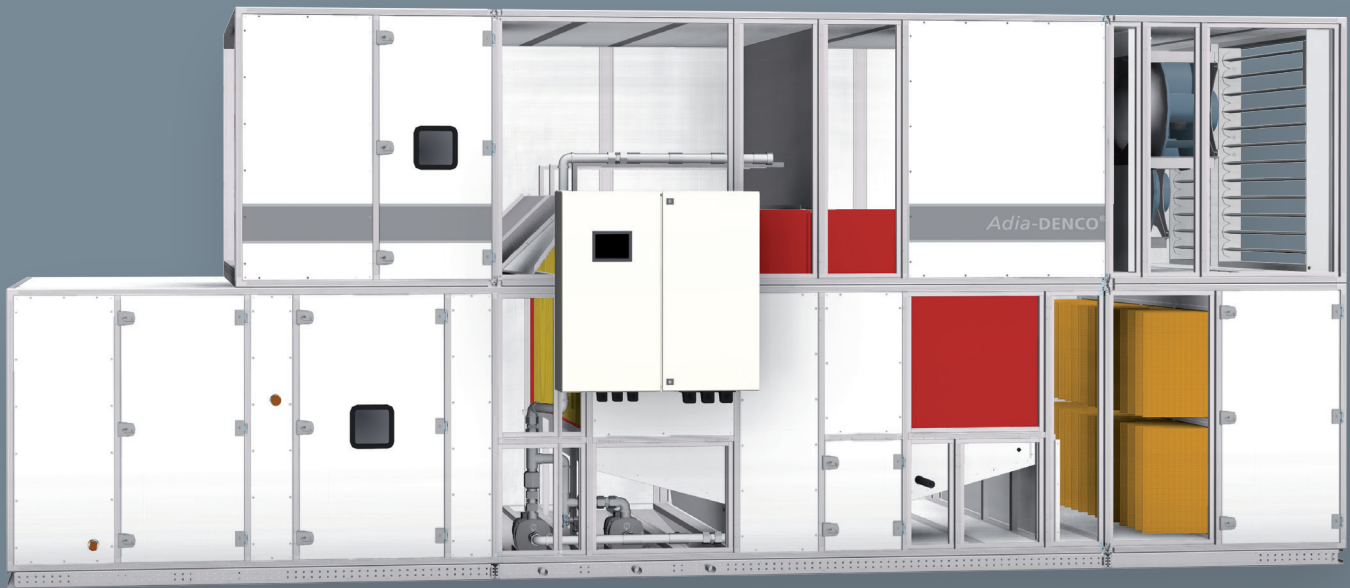


Adia-DENCO[®] **Large volume meets efficient design**

Adia-DENCO has evolved from the well-established CAIR range of air handling units, incorporating adiabatic cooling and being tailored to data centres. The adiabatic process is not used constantly. At ambient conditions below approximately 22°C (at 25°C supply air) it can operate on indirect freecooling. Adiabatic cooling (without using refrigeration technology) can extend cooling up to an ambient wet bulb temperature of 23°C (e.g. 32°C, 50%).

Adia-DENCO stands for indirect freecooling. It does not expose the room to contaminants in ambient air, ensuring a high quality of cleanliness. It can use Eurovent certified bag filters, which ensures that air entering the plate heat exchanger (PHE) is clean and of high quality.

These are only a few features available with a *Adia-DENCO* unit and when coupled with an advanced, multi-lingual control interface, makes it a fantastic investment.



Double Plate Heat Exchanger inside

- Large surface area
- Low air pressure drop
- Epoxy-coated
- Sealed aluminium plates



Adiabatic cooling

- Optimised nozzle configuration
- Inbuilt redundancy options
- No degradation using demineralised water
- Water saving controls
- Stainless steel low pressure nozzles

The ambient Enhancer

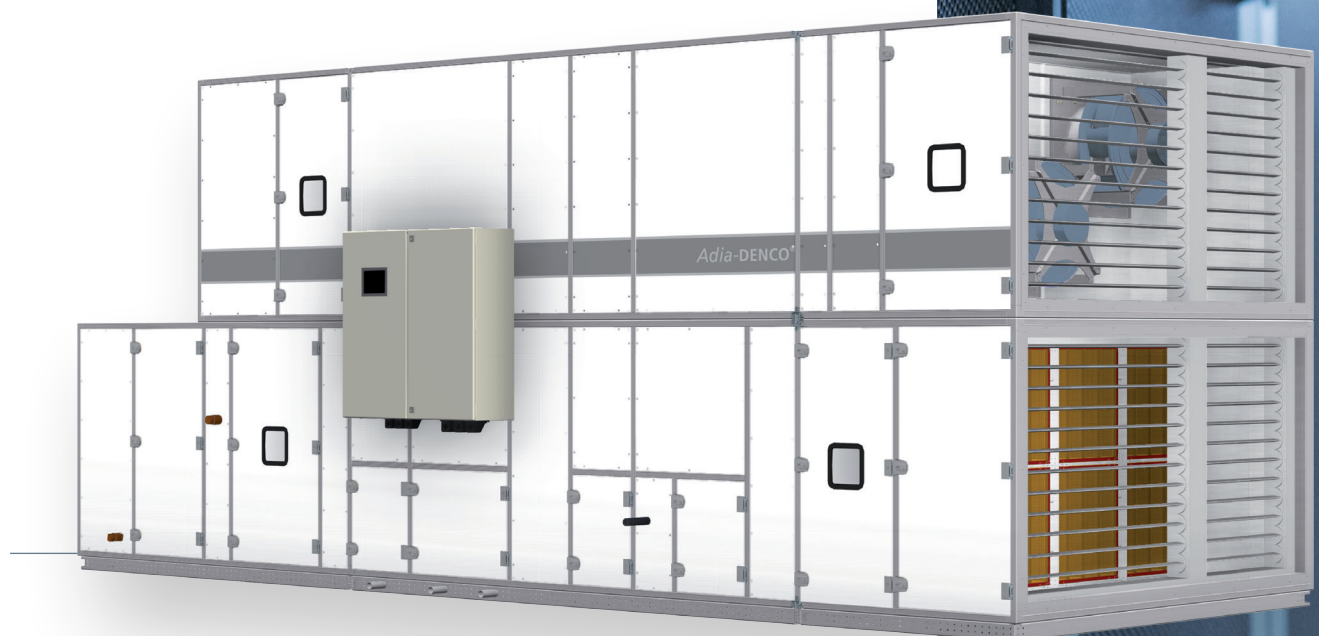
Adia-DENCO utilises your local climate for energy efficient operation. Adiabatic cooling, coupled with a large plate heat exchanger empowers long term, energy efficient customers to achieve exceptional EER values. Up to 300+kW in several casing sizes using two airflow configurations, means that any site location can capitalise on the potential of their ambient climate.

Peak protection. For climates with wide variability in their temperatures, *Adia-DENCO* units can be installed with a redundant cooler coil as an option. These coils can cover either peak load or redundancy to ensure smooth operation.

Casing configured. *Adia-DENCO* has a variety of casing features available including indoor and outdoor versions and can be installed with dampers, weather guards and a weather roof. The casing material can also be tailored to individual needs.

Finest filtration. Using Eurovent certified bag filters, your unit will ensure durability and effectiveness between maintenances. Filters meet EN779:2012 and filter classes G4, M5 and F7 are selectable along with special requests for hygienic, explosion-proof and fire-proof filters.

Water saving. *Adia-DENCO* units use reverse osmosis water which allows for the water to be reused in adiabatic cooling several times. This dramatically reduces flush cycles from every hour to typically once a week. This, combined with intelligent control software, allows for water use to be minimised.





Case study

Reduce operating expenditure

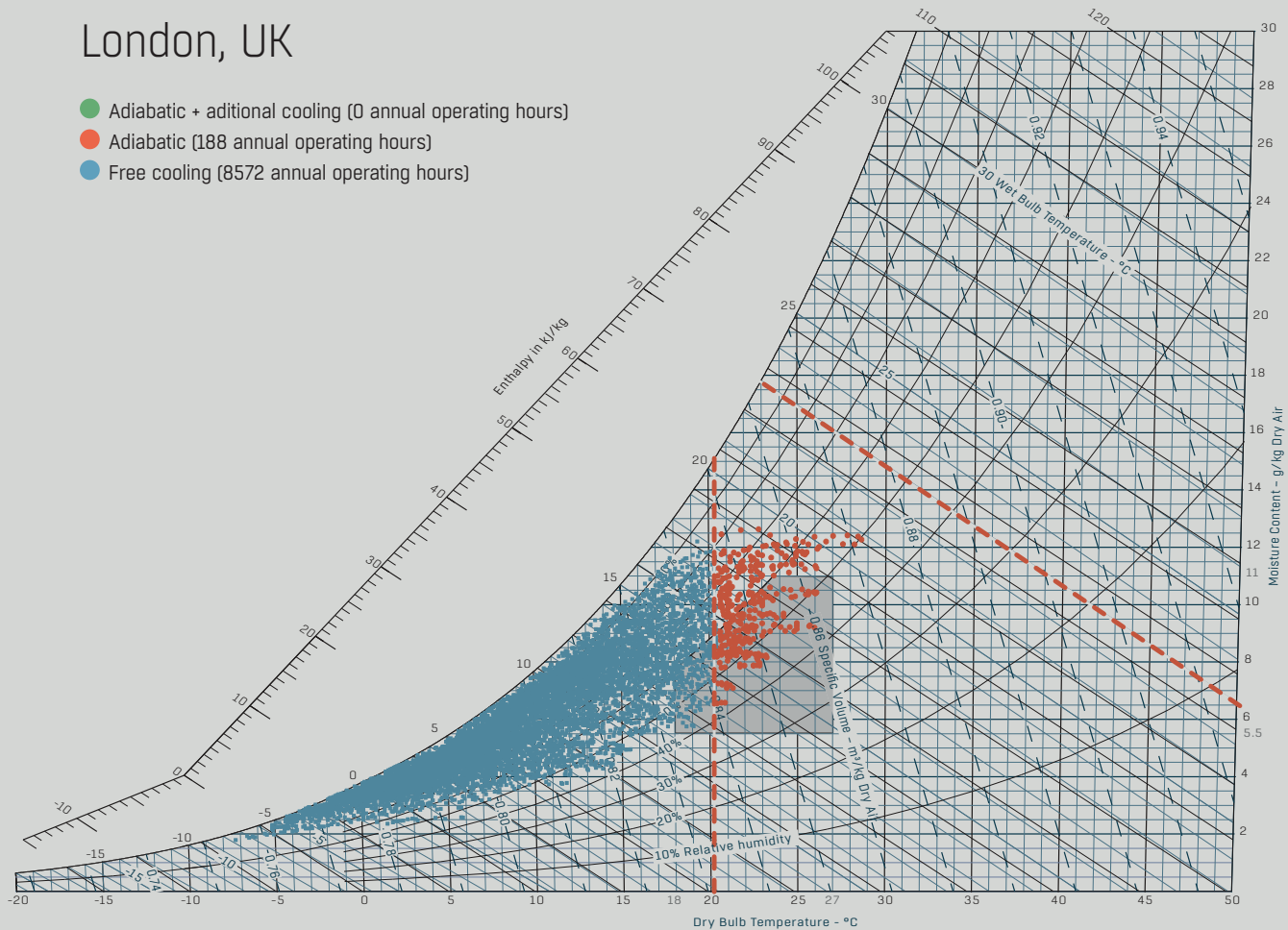
The graph below shows the temperature and humidity profile of London, UK over a year on a psychrometrics chart. The two dotted lines represent approximate points where *Adia-DENCO* unit operation changes. The left line shows a change from freecooling to adiabatic cooling with the right line showing a transition from adiabatic to mechanical cooling.

Those boundaries are representative and we have proven that you can achieve all those samples using adiabatic and freecooling only, with a supply air temperature of 25°C. We have compared this temperature profile with the rest of central Europe and it has shown that mechanical cooling is not required with an *Adia-DENCO* within central Europe. This design means you can have lower capital costs, lower install costs and, most importantly, lower consumption costs for both energy and water.

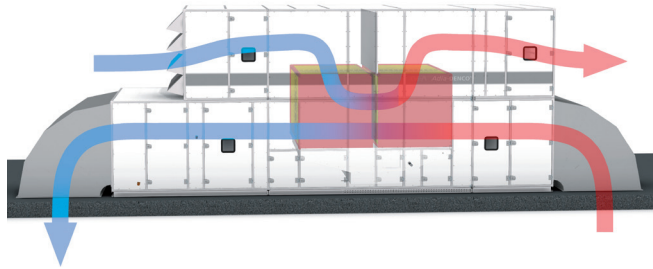
- Exploits the principles of both freecooling and adiabatic cooling
- Can reduce or eliminate need for mechanical cooling within central Europe
- Meets all requirements relating to Green IT
- Global compatibility

London, UK

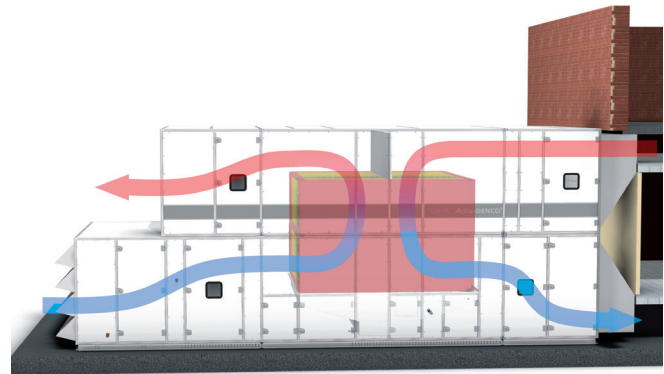
- Adiabatic + additional cooling (0 annual operating hours)
- Adiabatic (188 annual operating hours)
- Free cooling (8572 annual operating hours)



Configurations

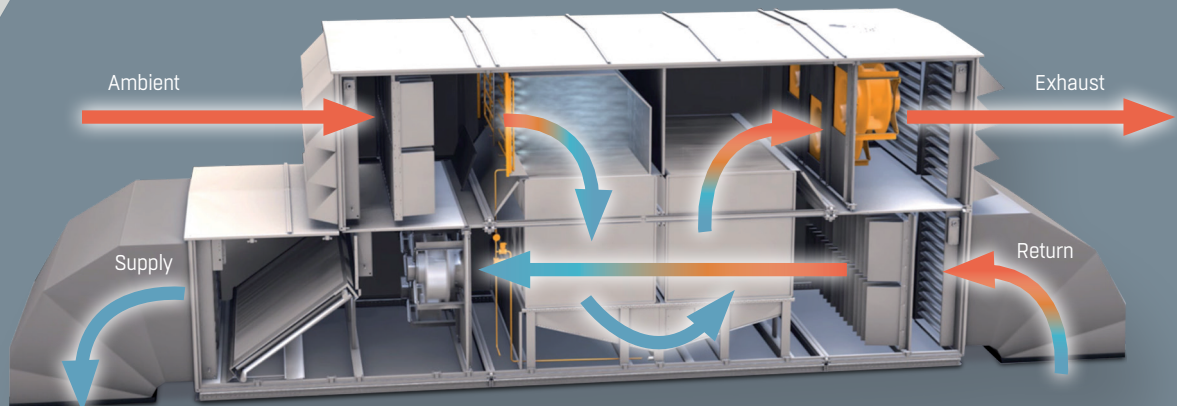


Roof configuration. In this configuration, ambient air, entering in the top left of this image, passes through the plate heat exchanger and exits the unit on the top level out of the right hand side. The air returning from the white space enters from the bottom right of the unit and travels in a straight line through the plate heat exchanger to be returned back to the room out of the bottom left of the unit.



Wall configuration. In this configuration, any air that enters the unit is returned to the same side, therefore allowing the unit to be installed alongside your room. Ambient air enters in the bottom left of the unit and flows upwards through the plate heat exchanger. Air returning from the white space enters in the top right of the unit and is drawn downwards through the plate heat exchanger, allowing for cross flow against the ambient air.

The *Adia-DENCO*[®] Process



QUALITY

Our DENCO range uses a variety of high-end components. Only the finest parts and materials are used to ensure that your solution is built to last. We undertake strict processes to ensure our suppliers deliver the highest of standards that we require, because our customers deserve nothing less.



Technical Data

Adia-DENCO®

Nominal Cooling

Model Sizes		DA055R	DA120R	DA170W	DA190R	DA220W	DA250R	DA250W
Net cooling capacity	kW	56	117	172	191	224	248	249
Data center air flow	m³/h	11,100	23,200	34,100	37,900	44,400	49,400	49,400
Ambient air flow	m³/h	7,997	16,435	27,395	28,402	35,780	44,852	45,729
pPUE (nominal)		1.08	1.06	1.09	1.07	1.09	1.09	1.09
pPUE (annual)		1.05	1.05	1.05	1.05	1.06	1.06	1.06

Maximal Cooling

Model Sizes		DA055R	DA120R	DA170W	DA190R	DA220W	DA250R	DA250W
Net cooling capacity	kW	89	187	276	306	359	398	394
Data center air flow	m³/h	17,700	37,200	54,600	60,600	71,000	79,100	79,100
Ambient air flow	m³/h	14,899	30,542	55,259	53,913	71,503	86,130	86,130

Adiabatic

Model Sizes		DA055R	DA120R	DA170W	DA190R	DA220W	DA250R	DA250W
Water flow circulation	m³/h	3,6	8,3	10,7	11,9	14,0	15,6	15,6
Evaporating water	l/h	89	183	289	316	386	452	456

Electrical data

Model Sizes		DA055R	DA120R	DA170W	DA190R	DA220W	DA250R	DA250W
Power consumption	kW	4.5	7.4	15.2	12.9	19.4	22.6	23.7
Power supply	V/Hz	3ph/400V/50Hz						

Weight and Dimensions

Model Sizes		DA055R	DA120R	DA170W	DA190R	DA220W	DA250R	DA250W
Height	mm	2240	2880	4240	4240	4880	4880	4880
Depth	mm	1720	2640	2640	2920	2920	3240	3240
Length	mm	5400	5800	5400	6600	5600	6600	5600
Weight	kg	2200	4100	4500	5900	6200	7300	6400

Return Air Conditions: 40°C / 20% rel.H., Supply air with a Delta T 15 K, 100 Pa external pressure drop
 Ambient: 35°C DB / 21°C WB, 100 Pa external pressure drop
 Weights and dimensions are approximate representations and will vary depending on features installed and version selected.
 For more information see specific unit drawings.
 Annual pPUE is based on London weather data.

Service and maintenance for peace of mind

Our commitment to you

Specification and Installation

Whether you choose to have FläktGroup, or another supplier's equipment installed, we will be by your side to ensure installation and commissioning is completed efficiently and effectively.

Evaluation and Recommendation

FläktGroup service experts will visit site and evaluate your existing equipment. We can offer recommendations how to achieve the best from your existing equipment, enhancing efficiency and longevity.

First Fix Strategy

If you have a problem or an issue we will work with you to fix the problem on site the first time our engineers visit. We will be by your side to ensure your equipment is functioning and achieving the best output in the most efficient manner achievable.

Development and Replacement

We will build a relationship with you and learn your needs. We will then be able to use our knowledge of existing and developing systems to be able to advise when the best choice is a replacement system. Our engineering and manufacturing teams keep our engineers informed of technological advancements, so when it is time to upgrade and replace your equipment, we will be the perfect partner to help you through the benefits and gains from new, more efficient equipment.

Contract levels to suit all requirements

We provide an excellent choice of planned maintenance options along with essential emergency cover to give you peace of mind.



Benefits

- Single Heating, Ventilation and Air Conditioning service provider
- Broad and in depth system knowledge
- Fix or replace with the same team
- Focused on the customer's ongoing operations



2500

- Initial installation
- Maintenance and servicing
- Assembly services
- Spare parts
- Customer service
- Consulting
- Refurbishing
- Training

EXCELLENCE IN SOLUTIONS

WWW.FLAKTGROUP.COM

Adia-DENCO

FläktGroup is the European market leader for smart and energy efficient Indoor Air and Critical Air solutions to support every application area. We offer our customers innovative technologies, high quality and outstanding performance supported by more than a century of accumulated industry experience. The widest product range in the market, and strong market presence in 65 countries worldwide, guarantee that we are always by your side, ready to deliver Excellence in Solutions.

PRODUCT FUNCTIONS BY FLÄKTGROUP

Air Treatment | Air Movement | Air Diffusion | Air Distribution
Air Filtration | Air Management | Air Conditioning & Heating
Controls | Service

» Learn more on www.flaktgroup.com
or contact one of our offices

