



1st Place

GERMAN REFRIGERATION PRIZE

Hybrid adiabatic
evaporative cooling



menerga
a systemair company

The German Refrigeration Prize

HVAC AND REFRIGERATION TECHNOLOGY FOR INDUSTRIAL AND COMMERCIAL USES, AND IN OFFICE AND RESIDENTIAL BUILDINGS

In their applications in industrial facilities, food and beverage stores, residential buildings, and data centers, the areas of application of the 120 million HVAC and refrigeration systems in Germany are extensive and highly diversified. Industrial and commercial users particularly depend on refrigeration and cooling technology – and modern residential and office buildings are no longer possible

without sophisticated climate-control technologies. Although these systems of course make our professional and private lives easier, they on the other hand tremendously burden nature and our environment: for example, almost 60 million metric tons of CO₂-equivalent emissions arise annually as a result of refrigeration and cooling systems in Germany alone.

This is equivalent to approx. 40 percent of the emissions of all motor vehicles on all German streets and roads – and the tendency in this area is upward. Major efforts by politics and the economy are necessary to reverse this trend.

THE GERMAN BMU SUPPORTS CLIMATE-FRIENDLY DEVELOPMENT WORK

To exploit the energy savings potential of HVAC and refrigeration systems, the German Federal Ministry of the Environment, Nature Conservation, and Nuclear Safety (BMU) has since 2008 supported efficiency measures for such systems. The use of highly efficient components and systems means that these technologies consume less energy and thereby enable reduced CO₂ emissions arising from electric power generation. The use of refrigerants with slighter greenhouse effects can reduce direct

emissions as well. In support of these efforts, the German Refrigeration Prize invites submissions on a regular basis. In 2018 as well, the award organizers searched out companies and persons who develop and apply especially low-emission solutions in the refrigeration and HVAC technologies. The winners can look forward to prizes with a total amount of €52,500.

The competition in 2018

ENERGY-EFFICIENT REFRIGERATION TECHNOLOGY WINS OUT

In 2018 the German Refrigeration Prize is now being awarded for the sixth time. The three prize categories reflect the extent of forward-looking developments and the great diversity of the fields of application. The German Federal Ministry of the Environment, Nature Conservation, and Nuclear Safety awards prizes for each of the three categories in

the amounts of €2,500, €5,000, and €10,000. The objective of these awards is to support further development and public awareness of the prize-winning projects. The competition organization has once again taken over the non-profit company co2online GmbH, together with the Refrigeration Working Group (Arbeitsgemeinschaft Kälte).

120
million refrigeration and
air conditioning systems in
Germany cause
↓
17 %
of electricity consumption
in Germany and
↓
60
million tons of greenhouse
gas emissions per year



THE CATEGORIES OF THE GERMAN REFRIGERATION PRIZE FOR 2018

A total of nine incentive awards were presented in 2018 in the following categories: HVAC and Refrigeration Innovations, Energy-Efficient HVAC and Refrigeration Systems with Indirect Cooling, and Intelligent Monitoring of HVAC and Refrigeration Systems. With the prizes awarded to HVAC and refrigeration systems with indirect cooling, the German Refrigeration Prize this Year has addressed a topic of great current interest. The coveted award goes to distinguish pioneers with their solutions in an attractive future-oriented market.

Adconair Adiabatic^{zeroGWP}

LEARNED FROM NATURE

When evaporating water cools the human skin, we call this an example of adiabatic cooling. As part of especially energy-efficient technology, this principle has become predominantly accepted for the climate control of rooms: since additional energy is necessary only for air circulation and for humidification of the air. On hot and humid summer days, however, adiabatic cooling reaches its limits, because outdoor can no longer be sufficiently cooled. Menerga, with its Adconair Adiabatic^{zeroGWP}, has developed a system that uses an additional cooling stage to sufficiently cool the air on such days – without the use of additional climate-control units.

A DREAM TEAM FOR ROOM COOLING

Menerga has proven that effective room climate control is possible without compression refrigeration systems.

By adding a second cooling stage to the proven adiabatic cooling system, peak loads are handled during the few days in the year when this is necessary. The second cooling stage is switched on when required. It consists of a plate heat exchanger that is integrated in the air handling unit and that can – in accordance with the principle of dewpoint cooling – cool the air even further, down to the dewpoint of the outdoor air.



FACTS, PLEASE!



1st place in the 2nd category

Energy-Efficient Refrigerating and Room Climate-Control Systems with Indirect Cooling

Project

Hybrid adiabatic evaporative cooling

Working fluid

Water

Reduction in electrical power consumption

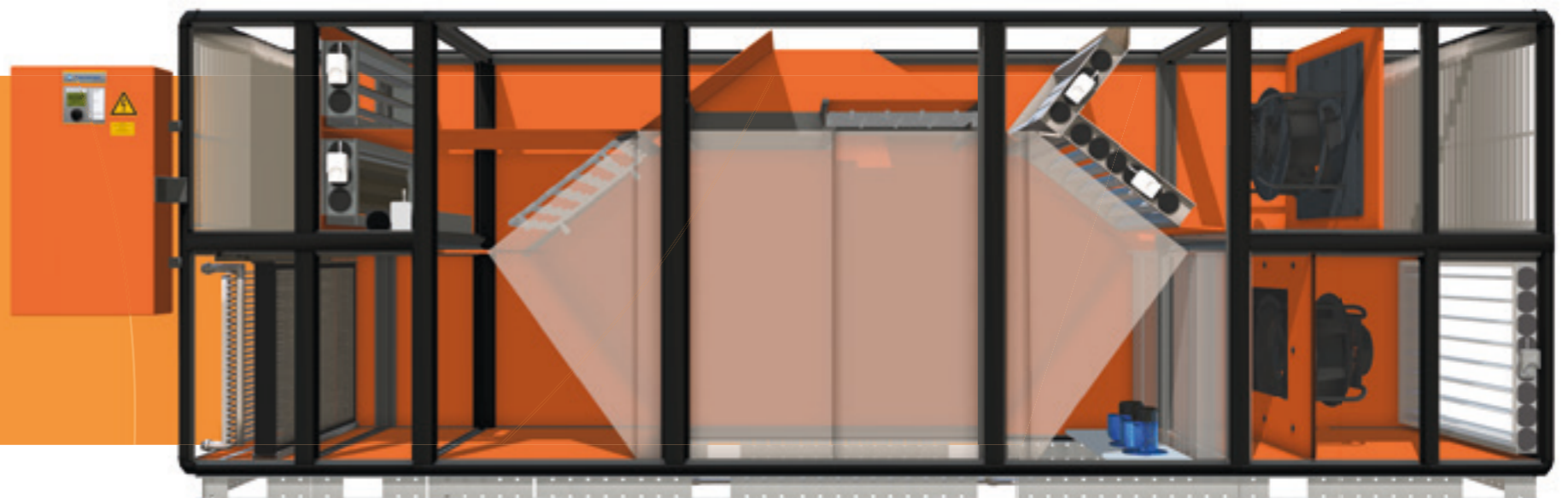
4,400 kWh/a

Reduction in emissions

**2.5 t/year
i.e. 93 %**

„The development of a system that produces cooled air without the use of climate-changing refrigerants, is in our view a step in the right direction. The future demands re-thinking and alternatives to classical refrigeration.“

Jan-Philip Wagner, Sales Director, Menerga GmbH



About us

MENERGA - MINIMAL ENERGY APPLICATION

Menerga has been developing and producing innovative ventilation and air conditioning technology for diverse fields of application since 1980.

We can safely claim that our technology is the leader in all areas, and that we set the bench mark for efficiency and effectiveness. Our philosophy, „Creating a good indoor climate – through **Minimal ENERGY Application**“, is something we

have succeeded in every single day, since the company was founded.

We are proud that Menerga was one of the first companies, that focused on energy efficiency from the beginning. And for this focus we found a lot of unusual, but very interesting paths.

OUR MARKETS

We are creating a good indoor climate!

Menerga solutions can be used in almost all parts of the world, where perfect conditions for temperature and climate are required.

Our application areas are mainly divided into five market segments: Hygiene, Industry, Precision, Data Center and Pool. Menerga offers you the the optimal air handling solution for your special requirements.



FACTS, PLEASE!

Founded
1980
in Mülheim an der Ruhr

Presences
Europe-wide
(sales & service)

Over
40,000
installed units
worldwide

More than
25 years of experience
in adiabatic

Approx.
230 engineers
in research & development
groupwide

Since
2013
part of the
Systemair group

Service Precision Industry Pool Data Center Industry
Data Center Pool Data Center Service **Pool**
Industry Service Data Center Data Center
Precision Industry Hygiene Precision

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