



Güntner Info

GFD

V-shape coil
drycooler

GVD

V-shape coil
condenser

also available with
HydroSpray® system

75 kW – 2 MW



**8 additional basic models
for container transport!**

Customized solutions for every application

Maximum capacity range

- Capacity range from 75 kW to 2 MW
- More than 5,700 unit variants available

Suitable for all fan control types

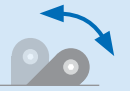
- Step control (GMM step)
- Phase cut controller (GMM phase cut)
- Frequency converter (GMM sincon®)
- EC fans with Güntner Motor Management (GMM EC)
- Wired at factory

High efficiency fans

- Fans with optimal ventilation and sound characteristics
- Available in AC or EC technology
- Maintenance-free fans with long service life
- Excellent energy efficiency class

Transportation by crane without cross beams

- Simple transportation by crane with two movable crane lugs
- Quick and easy positioning
- Optimal load distribution
- High torsional stiffness



Minimum footprint

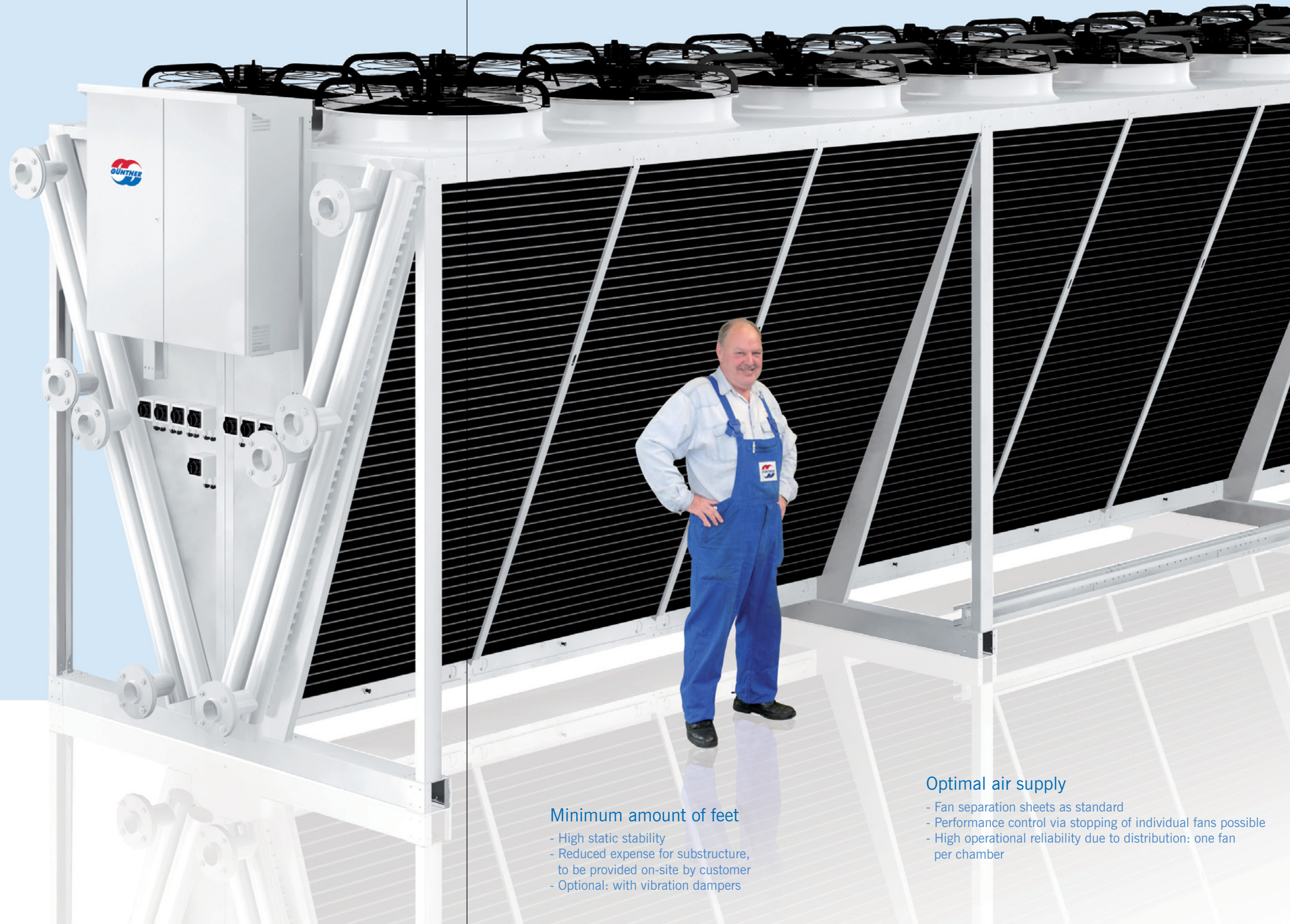
- High power density due to maximum unit height
- Reduced costs for transport
- Reduced amount of fans

Minimum amount of feet

- High static stability
- Reduced expense for substructure, to be provided on-site by customer
- Optional: with vibration dampers

Optimal air supply

- Fan separation sheets as standard
- Performance control via stopping of individual fans possible
- High operational reliability due to distribution: one fan per chamber



Optimal transportation

- 8 basic models for truck shipment
- 8 basic models for container shipment
- Optional guide rails for container loading

Various combinations possible

- Various material combinations
- Different tube materials and tube geometries selectable
- Different pipe circuiting possible
- Different fin spacings available

Competence for unique system solutions

The GFD/GVD series consists of modules, so that the units can be used for low as well as for high capacities. The units are available as drycoolers or condensers.

Due to the different models, the units can be precisely adapted to specific requirements. The result is a ready-to-operate solution that will more than satisfy your expectations concerning material combination, performance, sound requirements or controllers pre-wired at factory.

Güntner HydroSpray®-System

The Güntner HydroSpray® system is available in Basic and Professional versions.



Cleaning orifice

- Cleaning drain as standard
- Easy to open, no tools needed
- Water from cleaning can drain unimpededly

High operational reliability and enhanced leakage protection

- Proven Güntner floating coil principle
- Coil rests on floating bearing
- No contact to separation or front plates
- No strain on fluid-carrying tubes

Special features of the GFD / GVD

40 % higher performance

- Up to 2 MW per unit
- Increased power density due to larger heat exchangers
- Certified by Eurovent

30 % less footprint

- Less space required
- Minimum amount of feet
- Less effort on-site for substructure

20 % higher fan efficiency

- Larger bare coil per fan
- Motor Management for EC fans
- High fan efficiency due to optimal air supply



Certified performance reliability

As member of the Eurovent certification program, we guarantee the performance of our products. For the certification, all series of the participating companies are tested and approved by specifically authorized laboratories. With units certified by Eurovent you can rely upon the fact that the indicated performance will effectively be achieved.



For certain.



Knowledge, experience & know-how provided by a competent supplier

The GFD/GVD is a V-shape heat exchanger that is available as drycooler or as condenser.

The GFD/GVD consists of 8 + 8 basic models for a large variety of units, thus an optimized solution can be provided for every application situation and every kind of shipment. For satisfying the high demands of our customers.

	<div>GFD</div> <div></div>	<div>GVD</div> <div></div>
Variants	2x2 – 2x9 fans	2x2 – 2x9 fans
Application range	Heat dissipation into the air; outdoor installation	Refrigerant condensation with air; outdoor installation
Power spectrum in kW	75 – 1700	125 – 2000
Refrigerant	Water glycol mixture	For all refrigerants, except NH ₃ *
Air flow direction	Horizontal air aspiration (from two sides); vertical air discharge	Horizontal air aspiration (from two sides); vertical air discharge
Quality standard	ISO 9001	ISO 9001
Dimensions (in mm)	from L 3284, B 2300, H 2850 to L 12139, B 2300, H 2850	from L 3284, B 2300, H 2850 to L 12139, B 2300, H 2850
Weight in kg	1774 – 6098	1672 – 5690

*as special equipment with stainless steel tubes also for NH₃

Special features of the GFD/GVD container version

Dimensions optimised for container transport

Large range of unit variants

High power density



Crane transport without cross beam with only two crane lugs

Broad power range

Optional guide rail, factory mounted

Additional 8 basic models for container transport

When it comes to international projects, it is important that the transport be as cost-efficient and uncomplicated as possible. For this reason, the units of the GFD/GVD series are now also available as serial products with dimensions optimised for the transportation in containers. These variants offer the same broad range of unit types as the GFD/GVD versions for transportation by truck.

All units of the container version have the exact width and height to fit perfectly into a container. In their basic version, they are designed for fork lift transport; optionally, however, they can be fitted with a factory-mounted guide rail for perfectly easy loading and unloading into and out of the container.

The V-coil units offer a high power density with a minimum footprint. Although the number of legs is minimal, the units have high static stability. Due to the impressive torsional stiffness, the units can be transported by crane without using a cross-beam. Two factory-mounted crane lugs ensure that lifting and positioning the unit by crane is easy and safe.

GFD/GVD for container transport	
Variants	2 x 2 – 2 x 9 fans
Application range	Heat dissipation into the air; outdoor installation
Power spectrum in kW	70 – 1930
Refrigerant/Fluid	Water / glycol mixture; all refrigerants except NH ₃ *
Air flow direction	Horizontal air aspiration (from two sides); vertical air discharge
Quality standard	ISO 9001
Dimensions (in mm)	From L 2634, B 2300, H 2532 To L 11489, B 2300, H 2532
Weight in kg	1116 – 6315

* as special equipment with stainless steel tubes also for NH₃

Fans and fan control

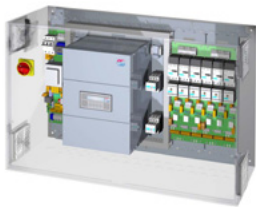
– ErP-ready even today!

Use of AC and EC fans

The GFD / GVD is equipped with high efficiency, direct drive axial fans. Motor, impeller, nozzle and protection guard form an entity with optimal ventilation and sound insulation characteristics. These fans are available as axial fans in two technologies: with AC motors or optionally with EC motors. All fans are wired at factory. The parameters of the EC fans are set at factory, so that they are ready for operation.

The ErP Directive forms part of the Ecodesign Directive. It is relevant for fans insofar that the Directive stipulates minimum efficiency requirements that have to be met as of January 1st, 2013. These requirements will become even more strict in 2015. Güntner has already replaced the majority of fans so that even today, we are ErP-ready.

	AC (alternating current)	EC (electronically commutated)
Diameter	800 mm, 900 mm	800 mm, 900 mm
Protection class	IP 54, wired at factory	IP 54, wired at factory
Type	Three phase current 50 or 60 Hz	Alternating current and three phase current, pre-set parameters, ready for operation, 50 and 60 Hz
Continuous control	- Phase cut controller GMM phase cut - Frequency converter with all-pole sine filter GMM sincon®	Güntner Motor Management GMM
Step control	Standard: Step controller GMM step <i>Controllers of other manufacturers can also be used. For frequency control, an all-pole sine filter has to be installed.</i>	



Switch cabinets and control concepts:

Each GVD / GFD can be supplied with the corresponding switch cabinet, the switch cabinet can be delivered with or without Güntner controller. You can choose between standard switch cabinets and customized switch cabinets. All switch cabinets are designed, built and tested at Güntner. Together with you, we design and provide a switch cabinet and control concept that is precisely adapted to your specific application.

These switch cabinet concepts are optimally adjusted to the requirements. Depending on their size, they can be mounted directly to the heat exchanger. If direct mounting is not possible, the switch cabinets are delivered separately with the unit. On request, Güntner provides connection and startup of the switch cabinets on-site by our service personnel.

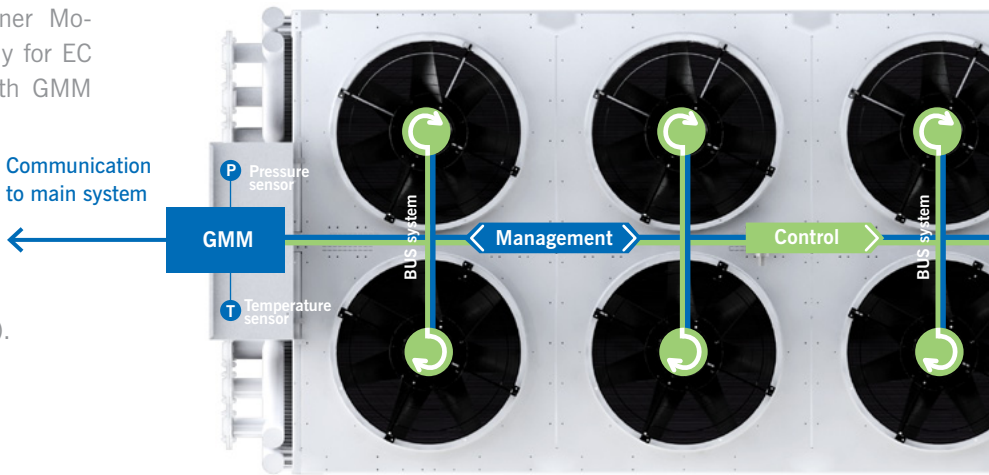
EC motors – technology of the future!



Compared to conventional systems, it is possible to save energy by using EC fans with the GMM. EC motors are equipped with optimized power electronics, especially developed and designed for these motors. Compared to AC motors, the motors of EC fans have no winding in the rotor, but a permanent magnet instead. Due to this fact, there are no induction losses or slip losses in the rotor. Especially for speed controlled applications, the EC technology offers a larger variety of benefits.

EC fans + GMM = optimized energy efficiency

Güntner Controls developed the Güntner Motor Management system GMM especially for EC fans. Only the combination EC fan with GMM creates an intelligent control system for an energetically optimal operation. The effort for installation of switch cabinets and wiring is reduced considerably. With the optional bus interface, main systems can be integrated (e.g. energy management, remote maintenance, etc.).



You would like to know more about the Güntner Motor Management?
Ask for our GMM knowledge brochure!
Contact: sales@guentner.de

Improved performance through spraying

Spraying coils with water can significantly improve the performance of finned heat exchangers. Especially in refrigerating plants implementing free-cooling (e.g. for the cooling of server racks) it is possible to realise considerable energy savings by using a water spray system.

It is possible to improve the COP by up to 40 % through using a spraying system in a refrigerating plant when there are high ambient temperatures and the spraying is used to lower the condensing temperature.

Your benefits in using a spray system

Improving the operational safety of the refrigerating plant	Unexpected temperature peaks during summertime are counteracted by the spray system and thus cannot lead to a plant failure.
Lowering of the fluid temperature	<p>With spraying, the temperature of the cooling fluid can be lowered significantly. Thus, it is possible to prolong the use the operating times for free-cooling.</p> <p>Alternatively, sprayed systems can also be used for processes requiring temperature levels that otherwise can only be reached with compression refrigerating plants.</p>
Lowering of investment costs	<p>Due to the increased performance effected by the spraying system, it is possible to use smaller drycoolers / condensers while maintaining the same fluid temperature.</p> <p>Alternatively, it is possible to use smaller refrigerating machines while maintaining the original size of the drycoolers / condensers.</p>
Saving operating costs	<p>If smaller drycoolers / condensers are used, energy costs for the fans' actuation may be saved.</p> <p>It is more reasonable, however, to maintain the unit size for the drycoolers / condensers and lower the fluid or condensing temperature through spraying, thus increasing the plant's COP.</p>



Güntner HydroSpray® – The intelligent system

Two versions of the Güntner HydroSpray® system are available; Basic and Professional.
The appropriate version has to be selected depending on the application case and the installation site.

	Basic	Professional
Number of spraying hours	Up to 300 h/a	Up to 1,000 h/a
Section Cycling	No	Yes
Softening	Yes	Yes
Demineralization	No	Yes
Pressure boosting	Optional	Yes
UV sterilization	Optional	Optional
Available up to unit size	2 x 9 fans	2 x 9 fans

Güntner HydroSpray®-System Basic

The simple system for a multitude of applications

With the Basic system, the spraying is switched on when a defined switching point is exceeded. All fan chambers are sprayed simultaneously. The system is recommended for applications in which the spraying time does not exceed 300 h/a.

- The Basic spray system is the most appropriate solution to:
- cover peak loads occurring during summer
 - use a smaller unit and thus save investment costs
 - minimize the footprint

Güntner HydroSpray®-System Professional

The intelligent system with Section Cycling

The Section Cycling is an adaptative sectional spraying of the unit. Each fan chamber forms a section; the nozzle for each section is controlled individually by the system. For this reason, there is no abrupt and massive increase of performance when the system is switched on, but the performance is increased in steps as the individual sections are switched on. With this approach, a sharp decline in the condensing pressure is avoided; the maximum saving in the amount of costly treated water is achieved.

- The Professional spray system is the most appropriate solution to:
- lower the medium temperature for extended periods of time
 - use in sprayed systems in the areas of air conditioning or process cooling where low switching temperatures are used
 - achieve optimized control and minimize the use of treated water

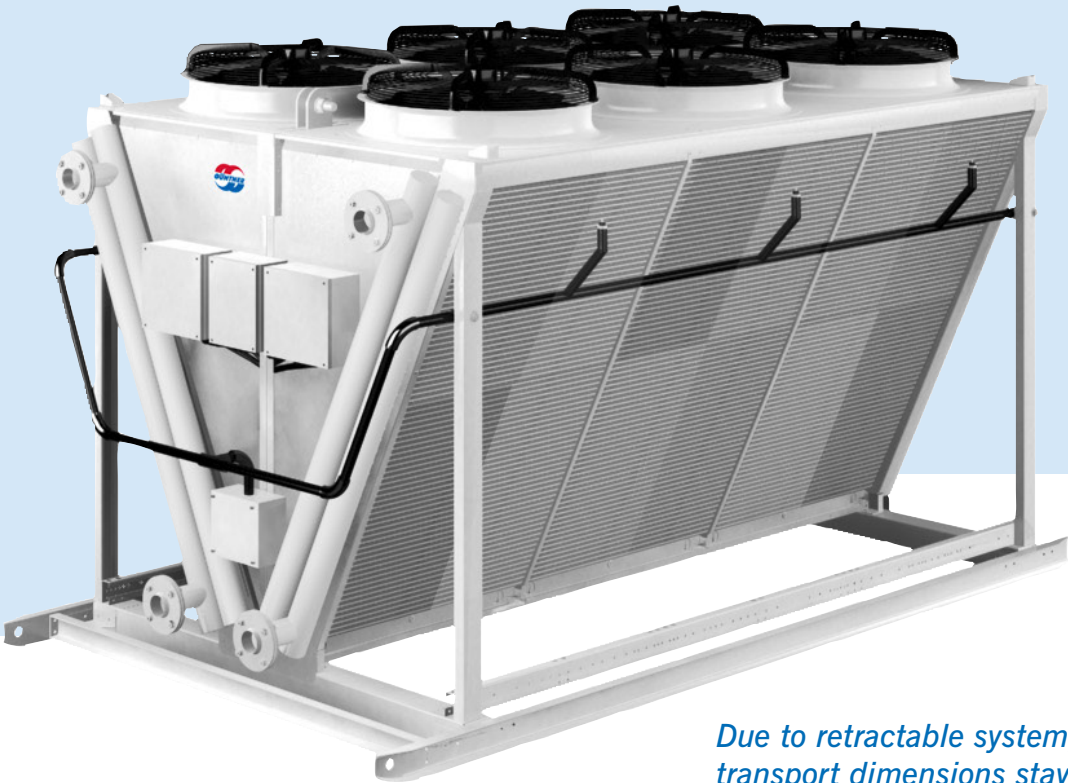
Special features of the HydroSpray® system

Water consumption only
50 % of common systems

Up to 1,000 h/a
of spraying

Scale-resistant
flat spray nozzles

Automatic water
suction pump



Due to retractable system,
transport dimensions stay
unaffected

Hydro Management controller
pre-installed and wired at factory:
you just connect power and
water outlets

Amount of water adjustable
in up to 9 steps

Low operating costs:
No chemical additives,
no high-pressure pump

Calculation based
on climate data

Güntner Hydro Management – GHM spray

For our HydroSpray® spraying system, we developed a controller that offers unique features and advantages.

The controller GHM spray controls the water spraying depending on the performance required of the heat exchanger and the gauged temperatures and pressure. The heat exchanger’s performance is thus enhanced. Necessary information, e.g. fan speed, are read out via bus communication or transferred by a digital signal. There are two different systems:

Basic System

The GHM spray basic offers one step spraying. This system controls the spraying of the heat exchanger depending on different parameters (e.g. pressure or temperature). The system is used to increase the heat exchanger’s performance at peak load times.

Professional System

The GHM spray professional can cover up to nine sections. This means that the heat exchanger is sprayed according to sections, thus considerably reducing water consumption. Moreover, the service life of the heat exchanger is prolonged by the so-called Section Cycling feature.

Water treatment

Due to their construction and material combination, air-cooled finned heat exchangers are optimized for operation with dry air. During spraying and the evaporation of water, lime scales start to form, leading to incrustations. The minerals dissolved in the water (salts, among other things) may lead to several corrosion effects. The percentages of calcium carbonate and minerals dissolved in the water can be very diverse and depend on the location. For this reason, the untreated water’s composition has to be analyzed individually for each location in a project.

In order to ensure the undisturbed operation of sprayed drycoolers / condenser in the longterm, we defined the appropriate requirements for the quality of water. For cases in which the duration of the spraying is quite short, in most cases it is sufficient to use a simple water softening plant.

If, however, the objective consists in minimizing energy costs and maximizing the duration of the spraying to up to 1,000 hours, it is necessary to also implement a demineralization plant based on the reverse osmosis principle in addition to the softening plant.

Comparison of systems having the same heat exchanger surface area



	Dry type cooler		HydroSpray® Basic without Section Cycling		HydroSpray® Professional with Section Cycling
Performance	● ● ○ ○		● ● ● ●		● ● ● ●
Heat exchanger surface	● ● ● ●		● ● ● ●		● ● ● ●
Number of spraying hours	○ ○ ○ ○		● ● ○ ○		● ● ● ●
Investment	● ○ ○ ○		● ● ● ○		● ● ● ●
Water consumption	○ ○ ○ ○		● ● ● ●		● ● ○ ○
Operating costs	● ○ ○ ○		● ● ○ ○		● ● ● ●

○ ○ ○ ○ low ● ● ● ● very high

Our competence for your benefit!

Application-specific consulting

Our specialists are at your disposal as contact persons and are ready to give detailed advice anytime. They design the unit according to your requirements for optimal adaptation to your application or develop a complete concept for a ready-to-operate solution.



Fans

We use high efficiency, direct drive fans for continuous control that are two-plane balanced according to DIN ISO 1940 part 1, i.e. they comply with the balance quality Q 6,3. The fans are maintenance-free and have an extended service life. With Güntner units, you are ErP-ready today!



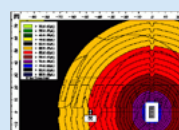
Leakage protection

Due to Güntner's tried and tested floating coil principle, the heat exchanger coil can expand without affecting the fluid-carrying tubes; in consequence the tubes are not in direct contact with casing parts (front plates/separation plates). The heat exchanger coil rests on floating bearing and thus is protected from leakages.



Sound requirements

Extensive test series in the company-owned laboratory ensure that, already during unit design with the Güntner Product Calculator, fans optimized to the sound requirements of your installation are selected.



GPC – Güntner Product Calculator

For a precise thermodynamic design we recommend to use our calculation software Güntner Product Calculator.

The software also allows for precise, simple design of the switch cabinet with control components, corresponding to your application.



You do not have the Güntner Product Calculator?

Download the GPC from the Güntner Website or request a CD!
www.guentner.eu



Güntner Controls

Güntner Controls is an individual department at Güntner supplying performant and high quality controllers and switch cabinets. Our experts develop project-specific solutions to satisfy highest requirements in all sectors. We provide a switch cabinet solution for your individual application – suitable for EC and AC fans. With us, everything stays under control!



Service After Sales

Our Service After Sales supports you in case of problems and answers your questions. If necessary, our colleagues can be promptly on-site to take care of your concerns. Our employees of Service After Sales are not only experts in refrigeration engineering, they are also qualified in further specific fields, i.e. as certified welders for different tube wall thicknesses and materials.



For further information, please contact our sales department:
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