Güntner

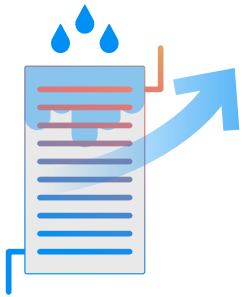
NOT A DROP OF COOLING WATER WASTED

THE SUSTAINABLE ADIABATIC COOLING SOLUTION

USE UP TO 70 PERCENT LESS WATER AND KEEP IT CLEAN WITH GÜNTNER HIGH DENSITY ADIABATIC DRY COOLERS AND CONDENSERS.

THE TRUE COST OF EVAPORATIVE COOLING

Evaporative cooling towers' low initial investment belies their long-term economic and environmental cost.

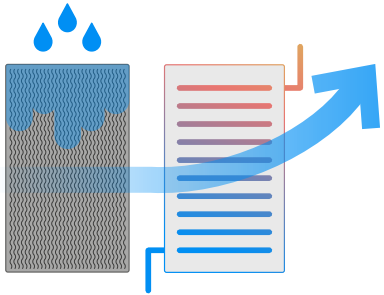


Evaporative cooling towers are widely used in industrial refrigeration, energy and process cooling systems – in the food and beverage industry, data centres, manufacturing, and power generation, to name only a few examples. This is mainly due to their relatively low initial investment costs. But in the long run, evaporative cooling is actually quite costly both for businesses and the environment.

By definition, evaporative cooling requires large amounts of water. This water must be disinfected and treated with chemicals on a regular basis to prevent bacterial infestation and moisture damage. As a result, businesses that use cooling towers pay heavy water (treatment) bills while depleting and polluting water reserves. Most of this is in fact unnecessary as the same cooling effect can usually be achieved completely without chemicals and, outside of load and heat peaks, evaporation. Fortunately, in this case "unnecessary" also means "avoidable".

THE SUSTAINABLE ALTERNATIVE: ADIABATIC COOLING SOLUTIONS

How can the water waste and pollution associated with cooling towers be avoided? One might think the answer is to only use them for extra cooling and rely on dry coolers whenever the load and ambient temperature are low enough. While this would require much less water, it wouldn't dispense with the need for treating it chemically. Besides, the cooling solution's physical footprint would be greatly increased.



A much better solution combining the benefits of dry and evaporative cooling is an adiabatic cooling solution. An adiabatic dry cooler or condenser is a hybrid device that operates dry in normal conditions.

At peak loads and very high temperatures, an evaporative pre-cooling system installed in front of the heat exchanger(s) is activated to provide additional cooling capacity. Unlike a cooling tower, this pre-cooling system does not involve constantly warm, wet surfaces as potential breeding grounds for bacteria, so the little water it uses can remain untreated and clean.

Advances in adiabatic cooling design have made it possible to offer all this in a relatively compact device. Only slightly larger than a cooling tower, a modern adiabatic dry cooler or condenser minimises water consumption, requires only little maintenance and no expensive chemical water treatment. This keeps its running costs and environmental impact low, which makes it an investment that quickly pays off both economically and ecologically.

HIGH DENSITY

Combining dry and evaporative cooling in a hybrid system, High Density adiabatic dry coolers and condensers offer superior efficiency without the water waste and pollution associated with traditional cooling towers.

High Density adiabatic dry coolers and condensers combine dry-cooling heat exchangers with hydroBLU™, Güntner's pre-cooling system based on humidification pads, in one compact device. As long as the temperature in the cooling system does not exceed a pre-set threshold, hydroBLU™ remains inactive and no cooling water is used. Once the threshold is passed due to a peak in load or ambient temperature, humidification of the pads is activated and dynamically adjusted by the intelligent control modules GHM and GMMnext. The resulting evaporation chills the air passing through the pads just enough to provide the required level of extra cooling.

By keeping cooling water consumption to the absolute minimum, High Density adiabatic dry coolers and condensers use up to 70 percent less water than comparable cooling towers. As the humidification pads dry during normal operation, no disinfection or other expensive chemical water treatment is necessary to ensure hygiene and efficient operation. Avoiding maintenance work, water waste and pollution in this way can easily amount to significant annual savings.

EXPLORE OUR APPLICATIONS

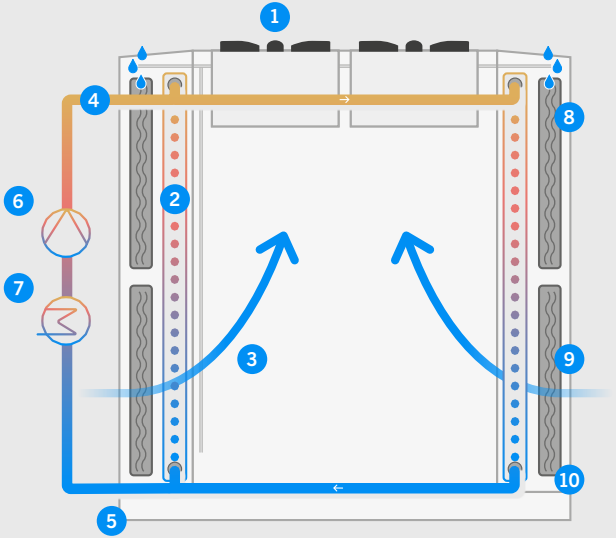
Dry cooler

The High Density adiabatic dry cooler is a more cost and resource-efficient alternative to cooling towers in industries such as data processing, manufacturing, and power generation. It can also be used for HVAC applications.

Condenser

The High Density adiabatic condenser is a more cost and resource-efficient alternative to cooling towers in industrial refrigeration systems, for example in the food and beverage industry.

TECHNICAL DETAILS



1 Fan unit
2 Heat exchanger
3 Air flow
4 Supply
5 Return
6 Primary circuit pump
7 Heat source
8 Wetting water inlet
9 hydroBLU™
10 Wetting water outlet

HIGH DENSITY			
	Refrigerant	**Nominal capacity**	**Pressure stages**
Dry Cooler	Fluid	2,500 – 10,800 MBH	16 bar
Condenser	NH_3	750 – 7,900 MBH	32 bar
	HFC	850 – 9,000 MBH	32 bar

DIMENSIONS		
Length	**Width**	**Height**
11’ 9” – 43’ 5”	11’ 9”	16’ 6”

FANS	
	4 – 22 fans
Ø 36”	✓

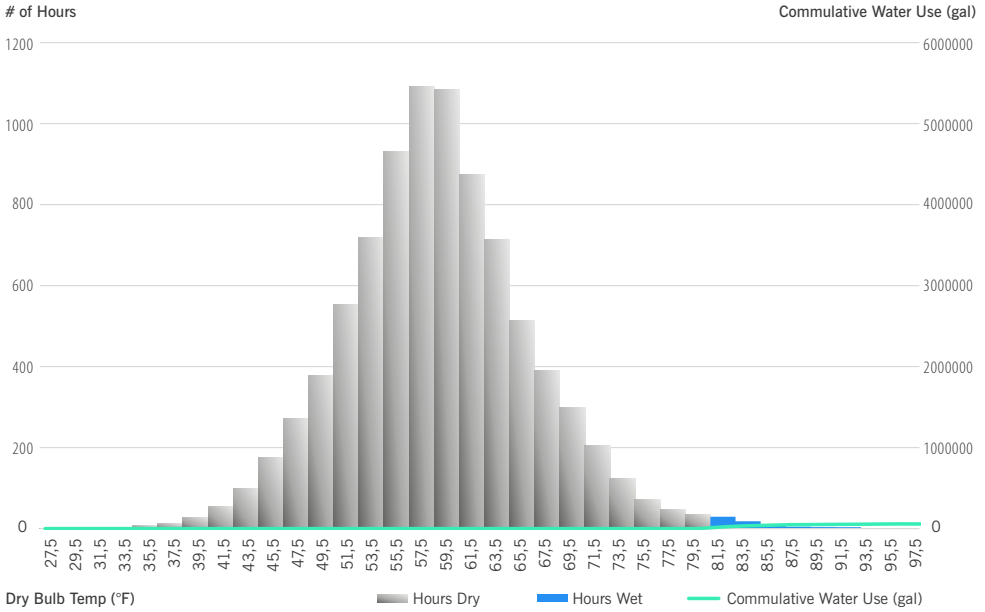
MATERIALS				
	Casing	**Fin**	**Frame**	**Tube**
Aluminium		✓		
Aluminium - epoxy resin coating		(✓)		
Copper				✓
Galvanized steel	✓		✓	
Stainless steel	(✓)			(✓)

✓ Standard (✓) Optional

CASE STUDY
SAN FRANCISCO

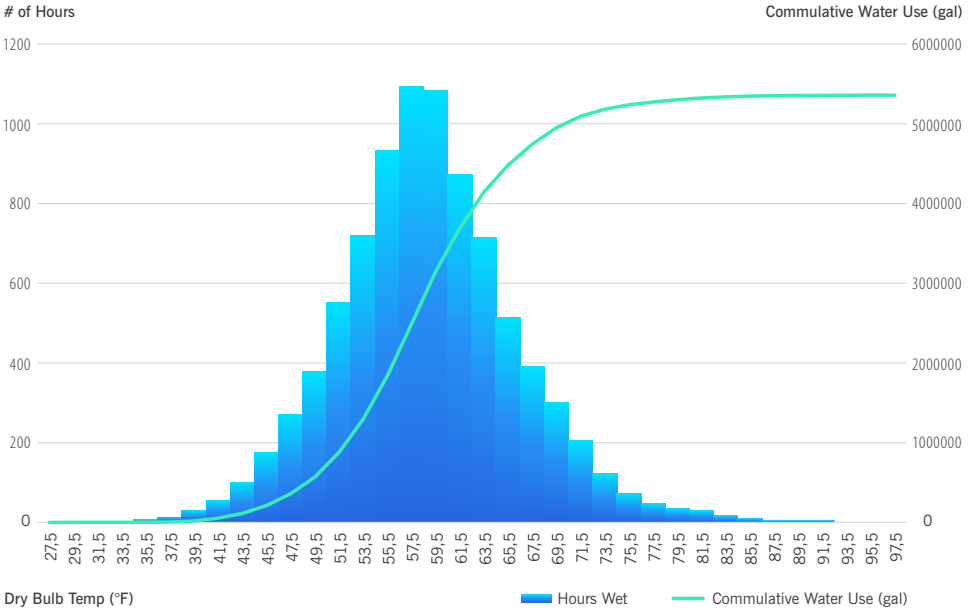
ADIABATIC COOLING
HIGH DENSITY

ANNUAL USAGE



EVAPORATIVE COOLING

ANNUAL USAGE



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