

# Gas Turbine Evaporative Coolers (GTEC)



**Cool Down - Power Up!**



# The Heat Is On!

As the global demand for energy rises, the role that gas turbines play in energy production will be more and more important. Gas turbines are convenient, modular and flexible, and are suitable for continuous duty, standby and for peaking duty. They can make an excellent contribution in addressing the global demand for an increased energy baseload capacity. Gas turbine technology works according to the laws of physics, so rising ambient temperatures will have a negative effect on gas turbine power output. Munters has a cure for those 'summertime blues'....

Our well-established and tested technologies counter the effects of ambient temperature on gas turbine output. These technologies can be applied to newbuilds as well as being retrofitted. Knowing which one will work best for you requires Munters extensive experience in how humidity, temperature and air interact. Not only the desired cooling needs to be provided cost-effectively, the technology needs to be flexible and without adverse downstream effects such as pressure loss or corrosion.

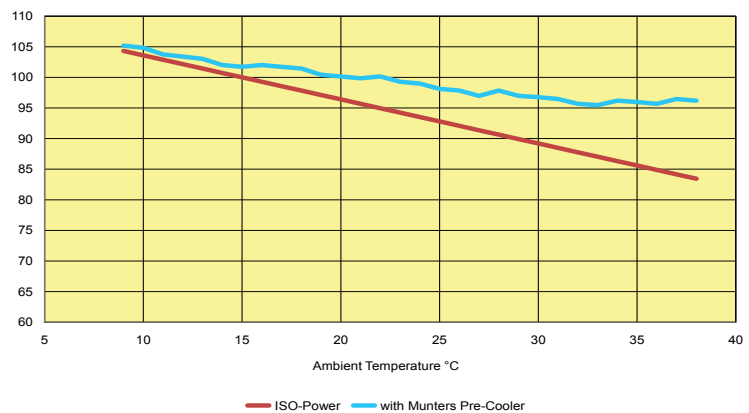
## Get it right - first time

Get it right and you can ignore the temperature rise. Get it right and you can increase power output eliminating the need to invest in new or additional gas turbine power generation. Get it right and you can ensure your gas turbines always operate effectively under optimal operating conditions, so they don't work so hard, potentially extending their service life and minimizing maintenance. Get it right and you will also save cost on filter replacement and reduced blade erosion.

## Which technology is right for you?

When you are looking to pre-cool the air to your gas turbines, you can do so using structured media, fogging technologies or chillers. Each has its advantages but these are not the same from plant to plant, or from country to country. The one common factor is the effect that pre-cooling will have on your bottom line.

**Output of a Gas Turbine with and without Cooler  
(Averaged according to DIN 4710)**



## The benefits of pre-cooling for gas turbines

- Ensure turbines operate efficiently whatever the climate
- Predictable power output at all times
- Higher output of existing installation
- Run your turbines with optimal efficiency
- Easy retrofit and installation
- Enhanced fuel efficiency

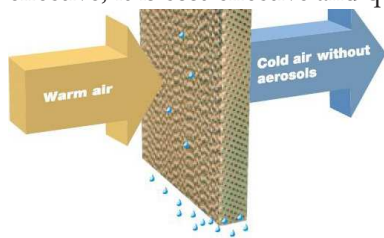
**...with Munters, cooling performance is guaranteed**





# A Structured Approach To Temperature Control

Munters has a long and extremely extensive experience in pioneering structured media solutions for evaporative cooling. Our systems are used every day, all over the world, not just with gas turbines, but in air conditioning applications, in horticultural applications and in agricultural applications. The concept is extremely effective, it is cost-effective and quick and easy to



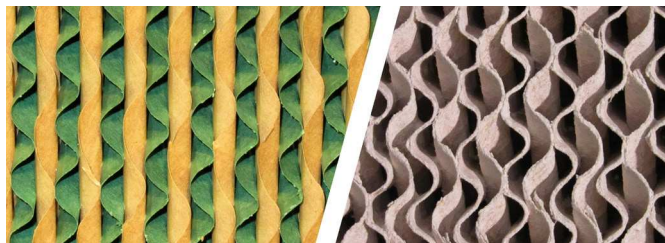
implement. Water is distributed downwards through a cooling media upstream of the gas turbine inlet at a controlled rate. The inlet air passes through the media (specifically designed to minimize

pressure loss) and the water is evaporated to a cold vapour, chilling the air that passes to the turbine and increasing power output as well as the operating efficiency.

## Ingeniously simple, simply ingenious

Despite the simplicity of the concept of structured media evaporative cooling, the choice of material, the precise angle of the vanes controlling the air flow through it as well as the water distribution and collection systems will affect efficiency of the cooling, the performance of the turbine and the life of the media.

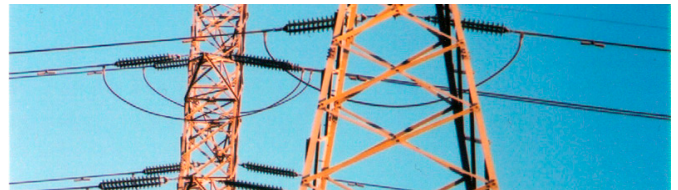
Munters design and supply complete turn-key systems and give the cooling performance to realise your power improvements. Our systems are purpose-built of stainless and/or galvanized steel with the choice of two structured medias. Where water supply or quality may be problematic, Munters can advise and supply, for example, water treatment systems. Maintenance is minimal and service life of the humidifying media is



typically 6 - 8 years. In terms of servicing, structured media come as close to 'fit and forget' as you could wish.

## Munters Evaporative Coolers

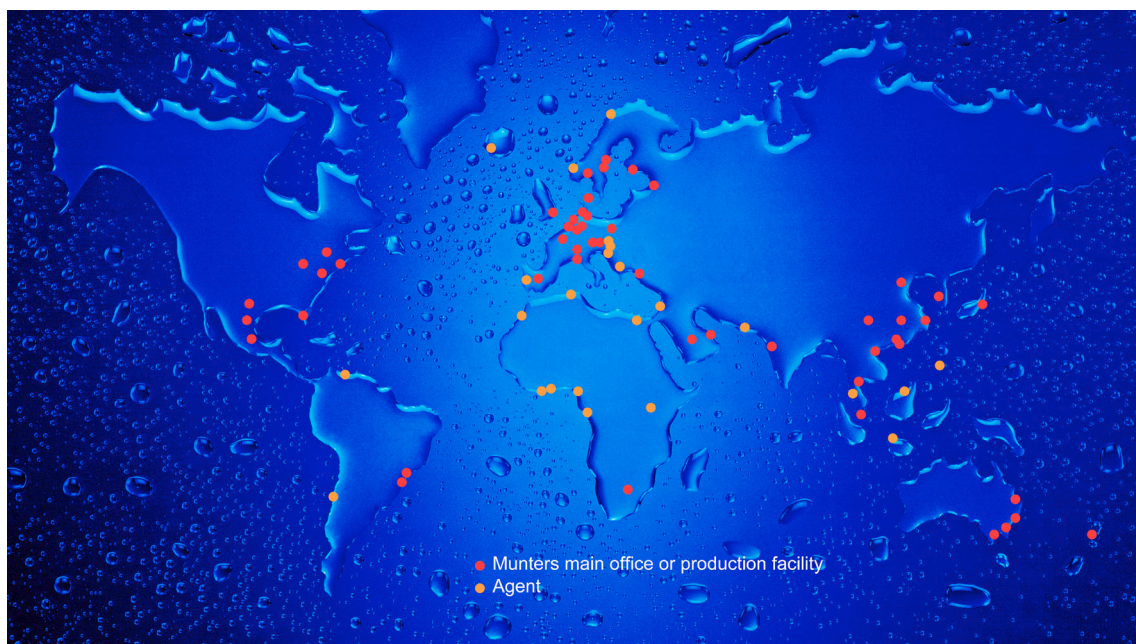
- Cost-effective and easy to install
- Guaranteed cooling performance to increase turbine output
- Short payback
- Low operating costs
- Low pressure drop
- Filter and cleaning effect - removal of particles from inlet air
- Complete turn-key system on request
- Automatic operation with remote start-up/shut-down option



## Munters - Intelligent Air Treatment

Munters is the company to go to when looking for inlet pre-cooling solutions. Our 60+ years experience is based on ongoing R & D. Details of all existing installations create the database that provides base data for further development.





### **An international name, where the customer comes first**

Munters, part of Nordic Capital, has offices in 30 countries and over 2,200 employees in many branches around the world. We are global leaders in energy efficient air treatment for comfort, process and environmental protection with over 300,000 air treatment systems installed worldwide.

Munters shares ideas within its international network, giving the Group an outstanding reputation as a reliable, fast-acting and customer-orientated expert in air conditioning.

Munters philosophy of customer satisfaction is central to our decision-making. When developing and manufacturing our systems, we see happy customers as our number one objective. And this is what our employees strive to ensure every day.

[www.munters.com/evapcooling](http://www.munters.com/evapcooling)

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