

# GAS TURBINE EVAPORATIVE COOLING (GTEC)



Cool Down - Power Up!

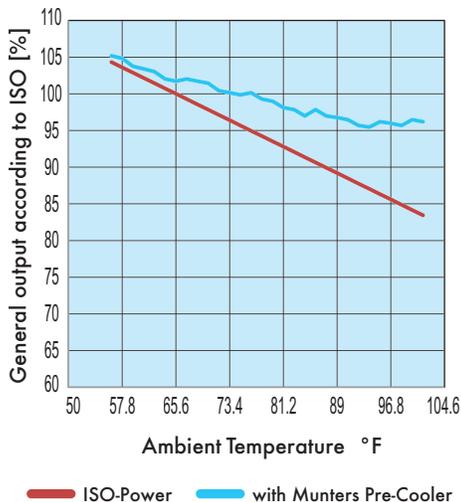




## The Heat is On!

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.

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



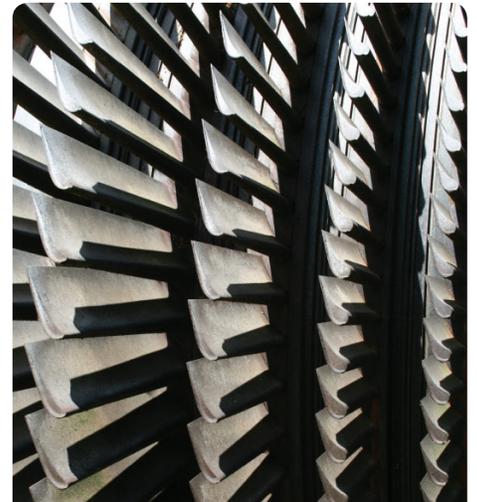
Our well-established and tested technologies counter the effects of ambient temperature on gas turbine output. These technologies can be applied to newbuilds as well as being retrofitted. Knowing which one will work best for you requires Munters extensive experience in how humidity, temperature and air interact. Not only does the desired cooling need 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 the 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?

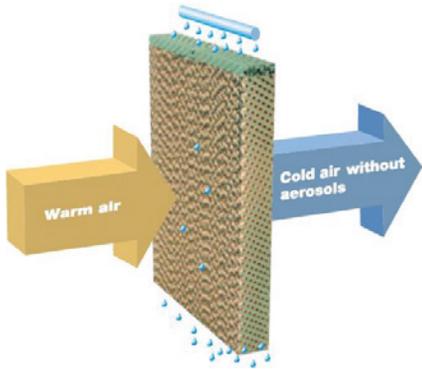
When you are looking to pre-cool the air to your gas turbines, you can do so using structured media, fogging technologies or chillers. Each has its advantages but these are not the same from plant to plant, or from country to country. In most cases, Munters structured media solutions will have the best effect on your bottom line.



# A Structured Approach to Temperature Control

Munters has long and extremely extensive experience in pioneering structured media solutions for evaporative cooling. Our systems are used every day, all over the world. And not just with gas turbines, but also in air conditioning, horticultural and agricultural applications. The concept is extremely cost-effective, 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 designs and supplies complete turn-key systems and gives the cooling performance to realize your power improvements. Our systems are purpose-built of stainless and/or



CELdek®

GLASdek®  
Fire Rated UL®900 and  
ULC-S111 Class 1



Munters evaporative cooling system applied to a horizontal filter house.

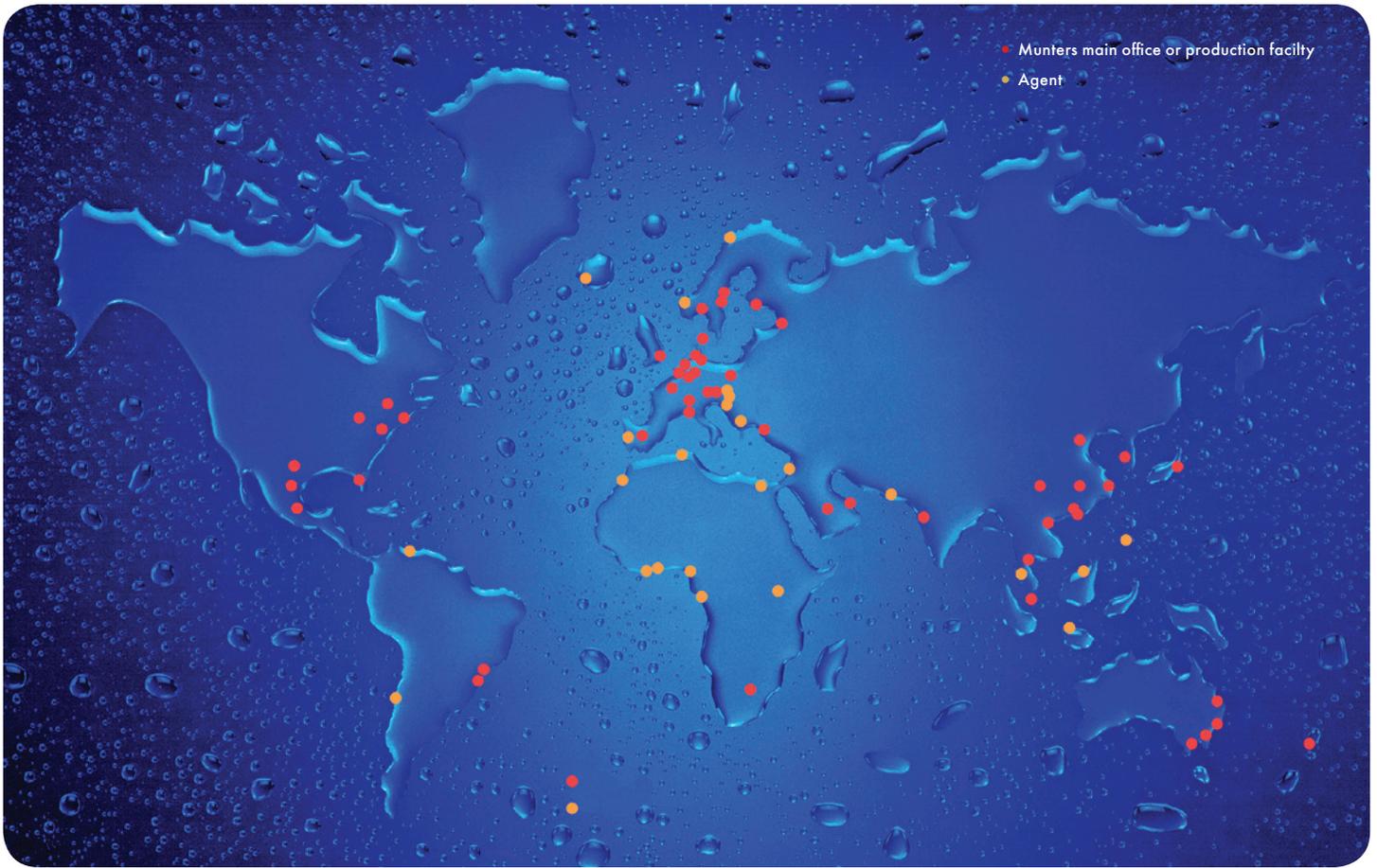
galvanized steel with the choice of two structured medias. Where water supply or quality may be problematic, Munters can advise and supply, for example, water treatment systems. Maintenance is minimal and service life of the humidifying media is typically 6 - 8 years. In terms of servicing, structured media comes 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 65+ years experience is based on ongoing R & D. Details of all existing installations create the database that provides base data for further development.



## Munters is a global leader in energy efficient air treatment solutions.

Munters manufactures engineered products that can economically control humidity and temperature, provide energy recovery, and/or utilize direct or indirect evaporative cooling for comfort, process and environmental protection.

With permanent or temporary solutions, Munters offers a wide variety of options to meet specific climate, application and budget requirements.

Munters has net sales approaching \$1 billion USD with more than 20 manufacturing facilities across the globe and sales offices in over 30 countries.

Munters employs approximately 4,300 people worldwide.

For more information see [www.munters.com](http://www.munters.com)

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