VDL Industrial Products

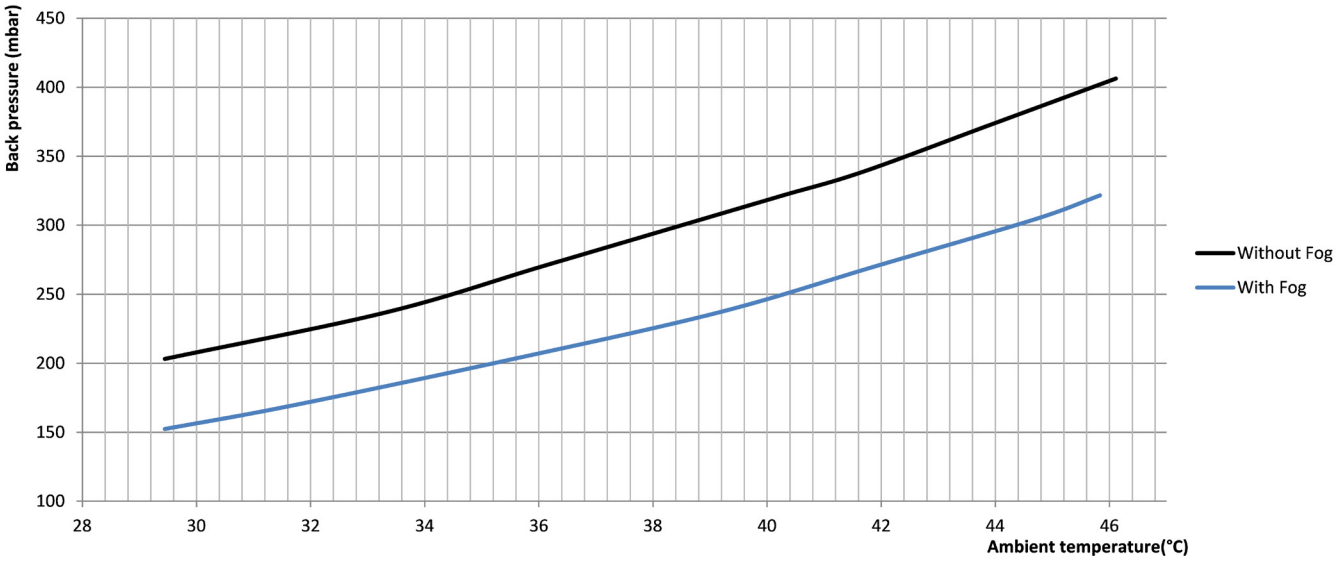
Part of your solution

UMID for Air Cooled Condensors

The VDL UMID system is a fogging system with high-quality patented nozzles that can be adapted to any specific application. For example, complete systems for poultry farming, horticulture and industry are put together and delivered worldwide.

Adiabatic cooling principle

Adiabatic or evaporative cooling is based on a physical principle. By generating a fog from liquid (water) it evaporates into the air. Evaporation by changes in temperature requires energy that is extracted from this air. You undoubtedly have experienced this effect when coming out of a pool. Although it may be relatively warm, this still feels very cooling as the water extracts energy (heat) from your body in order to evaporate. That's why people sweat when it is hot, regulating our body temperature is an adiabatic cooling process. The drier the air, the better adiabatic cooling by evaporation functions.

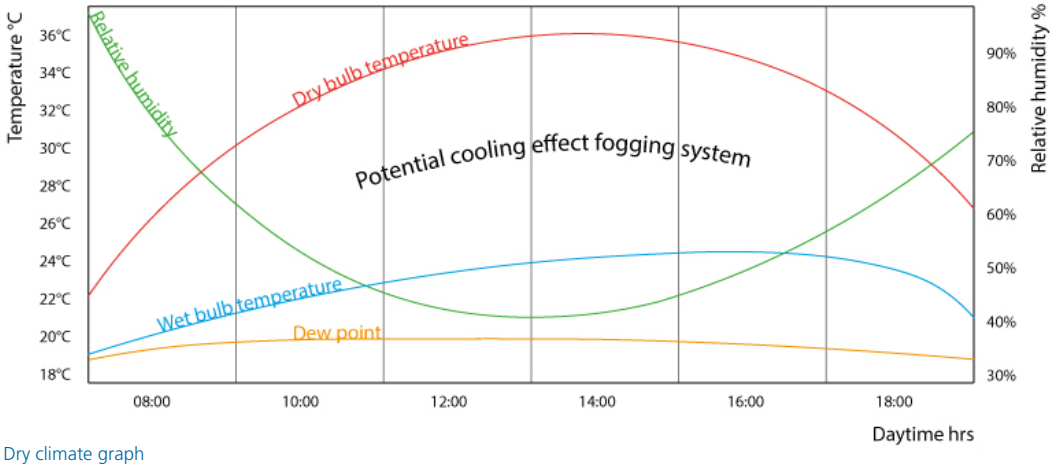


Condensers graph

UMID for Air Cooled Condensors

Combined cycle power plants with ACC (Air Cooled Condensors)

Thermal Power plants like combined cycle power plants and waste incineration plants, generate heat. Steam turbines use the exhaust heat to make steam in order to produce electricity. An air cooled condenser (ACC) turns the steam back into liquid water so that it can be used again. It consists of finned tubes, sloped in a A-frame structure, where the steam is lead through. An axial ambient air stream outside removes the heat and so the condensation occurs.
The condensation efficiency of the ACC can be boosted by pre-cooling this airflow. The temperature difference between the air, delivered by the axial fans, and the finned tubes together with the air mass flow rate, influences the ACC efficiency and thus the power plant.
There is a number of ACC that have a potential better performance by improving the airflow. This begins by using a high quality fogging system and leading the airflow efficiently without disturbances like cross-winds.



Dry climate graph

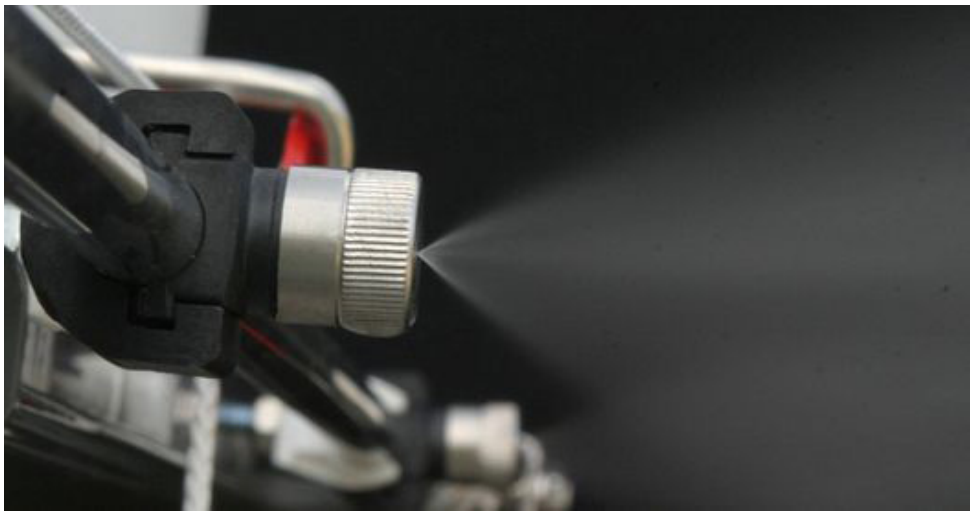
UMID principle, the nozzle is the key!

The UMID system works with a unique patented nozzle design. Fogging system whose nozzles produce too large or inhomogeneous (uneven) droplets work less efficiently.
So the nozzle is the key. The UMID nozzle is based on the Torndo principle, whereby water is put into a rotating movement with a very high rotating speed. The high kinetic energy while exiting make the droplets spread very finely and homogeneously. This high precision manufactured nozzle guarantees an optimal spray pattern tailored to your requirements. After all, the fine fog needs to evaporate in the air and also before it reaches the condenser fins.
The aim is to effectively extract heat (energy) from the air by increasing the relative humidity using an optimal exchange surface of the microscopic water droplets.

Clogged nozzles will hinder the process. That's why VDL is persuaded that the nozzles are that important.

The rotation in the VDL UMID nozzle reaches an extremely high speed and thus provides the finest homogeneous atomization at the lowest possible pressure.
The high-quality materials and precision technology guarantee a long and largely maintenance-free use. Unlike conventional nozzles, the VDL's unique design prevents the blockage of the spray channel.
The disk in the nozzle protects against wear and tear, which can be caused by contaminants or hard water, among other things. This guarantees a long life with minimal maintenance costs. The best part is that this unique nozzle design can operate with a lower power consumption compared to other systems. This means that the pump unit requires less energy and with that you have your first profit!

UMID for Air Cooled Condensors



VDL UMID nozzles range with flow rates 3l/5l/8l/20l basic capacity per hour.

Nozzle chamber : stainless steel 316L
Nozzle body : Grivory HTV-5HV1

Benefits VDL UMID fogging system for air cooled condensors:

- Low energy consumption compared to other systems
- Unique patented nozzle design gives the highest efficiency
- Reducing turbine back pressure
- Minimum water waste
- Lowering the air temperature to 10°C
- 100% leak proof stainless steel piping with TÜV approval for pressure
- Tailor-made delivery by VDL IP engineering
- Complete skid construction

VDL UMID fogging systems are used for:

- Dust and odour control
- Humidification
- Adiabatic cooling
- Disinfection
- Special effects

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