



ADIABATIC COOLING

Process cooling of air-cooled refrigeration systems

Direct room humidification can be used for both room air conditioning and process cooling. Automotive supplier HELLA in the city of Recklinghausen utilises the principle of adiabatic cooling with an additional air humidification system.

A high-pressure nozzle system on the roofs of the production halls cools the ambient air specifically around the refrigeration machines, ensuring trouble-free operation of the hall cooling system, including in summer.



Automotive supplier HELLA operates in segments including lighting technology and vehicle electronics

Air humidification, dehumidification and evaporative cooling

 **condair**

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PROCESS COOLING OF AIR-COOLED REFRIGERATION SYSTEMS

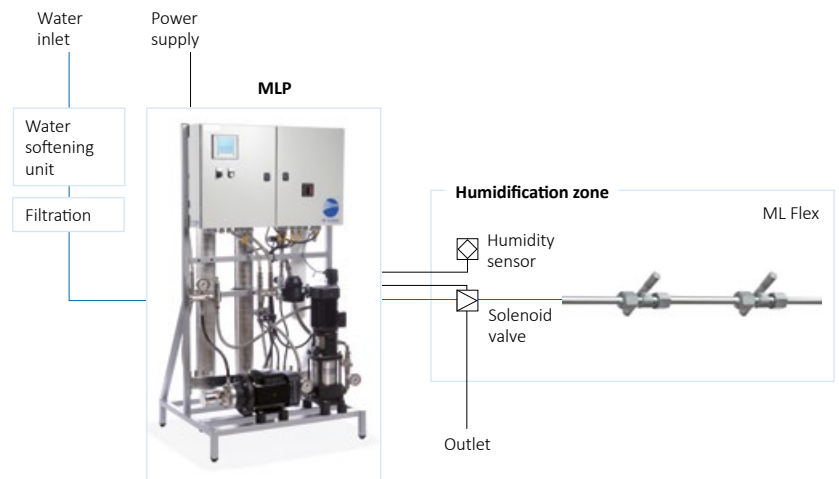
Additional process cooling

Air-cooled refrigeration systems on the roofs are used as chillers for circulation cooling of HELLA's production halls. A connected water circuit circulates cold water, absorbing process heat from the halls and returning it to the refrigerant in the liquid cooler at higher temperatures. The compressed refrigerant releases the heat into the air and the water is cooled again in a closed circuit. "In our recent hot summers, there were frequent failures of the systems, as the heat on the roofs prevented the refrigerant from being sufficiently liquefied in the condensers. In 2021, as recommended by Condair Systems, we installed an additional humidification system exclusively for process cooling of the refrigeration systems on the roofs. Since then, the cooling system has been running smoothly, also in summer," explains Thomas Hering, Head of Technical Service at HELLA.

Efficient and robust

The installed humidification system, Condair's ML Flex System, works with a high-pressure pump and specifically cools the ambient air around the refrigeration machine using a line of stainless steel nozzles. 100 litres of water from a robust high-pressure nozzle system absorbs around 70 kW of heat while using only 0.6 kW of energy, keeping the production halls cool as the adiabatic cooling effect prevents the refrigerant from being overly compressed, even in summer.

Schematic diagram



Fact file	
Humidification system:	Condair ML Flex
Pure water/high-pressure system:	2 Condair MLP 300 high-pressure pump and water treatment units 70 Condair ML Flex stainless steel nozzles
Spaces:	2 hall roofs (outside)
In-service date:	2021



Condair ML Flex high-pressure nozzle system



Condair MLP 300 high-pressure pump and water treatment unit

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