

THE CHALLENGE

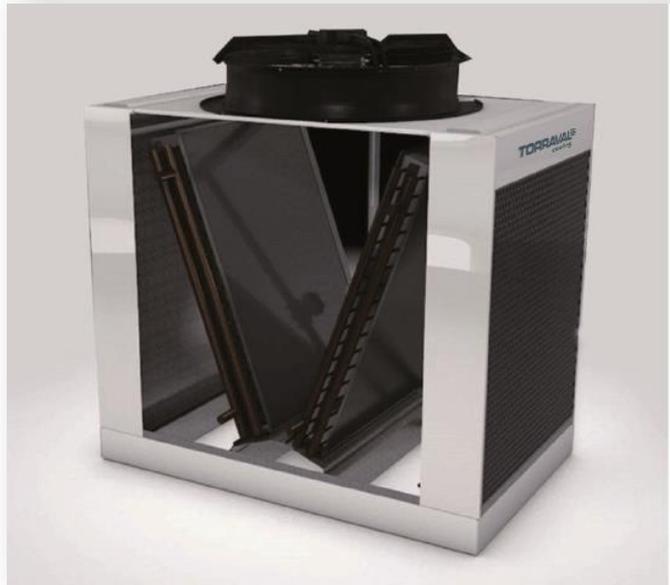
They request us a solution for the cooling needs of an industrial equipment, specifically sensitive to operating temperatures and consequently to the associated cooling system temperature control.

Due to security, maintenance and environmental related issues, the ownership requests the examination of a potential solution in **adiabatic cooling**.

THE SOLUTION

In this project, together with the engineering and the ownership, has been opted for a **PAD-V adiabatic cooler**. This unit consists in a cooler base on air with an adiabatic pre-refrigeration in the same way that increases the performance and efficiency of the heat transfer process.

The cooler is automatically managed by a PLC control panel supplied and scheduled from plant in accordance with a specific operating mode optimized for this concrete installation.



PAD-V adiabatic cooler: two operation modes depending on environmental conditions

- **Dry mode:** Up to a pre-set ambient temperature, the outside air is aspirate and directed to a finned coil. The humidification procedure is disabled, there isn't current water and the wetting pack turns dry and the circuit of the recirculation pump is disconnected.

The thermal sensors, in the output of the cooling fluid and inside the machine, modulate the speed of the fan in order to optimize energy consumption.

- **Adiabatic mode:** From a predefined temperature on, the external air is introduced and goes through the wetting pack (protected inside the machine) and it's correctly damped, through so short cycles with tap water, which has been previously loaded to activate the adiabatic cooling procedure.

THE RESULT

The adiabatically cooled air (therefore, in a lower temperature than the external air) goes to the finned battery, which increases the cooler efficiency in the hottest period of the year.

Due to the special coating applied to the adiabatic packages, design to retain water and **increase efficiency**, they may carry out extremely brief humidifying cycles. There is no necessity of continuous wetting cycles; also, the water excess recovers.

The temperature sensors, in the output of the cooling fluid and downstream the humidification system, manage the wetting cycles by necessity: this means **minimize the energy consumption** of fans and the pump, as well as **reduce the presence of water** in circulation.

The **PAD-V adiabatic cooler** is totally configurable and can be adjust by the customer in accordance with the needs of the system.



CUSTOMER BENEFITS

- Real water and energy savings
- Without water treatment (no risk of Legionella)
- No emission of aerosols to the atmosphere
- Operation flexibility
- Compact design and easy installation
- Fast depreciation
- Minimum maintenance
- Without contamination of the primary circuit
- Respectful with the environment

