

THINK EVAPORATIVE TODAY, SAVE COOLING TOMORROW

A comprehensive
study of the CO₂
saving potential
**OF EVAPORATIVE
COOLING.**



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EU CLIMATE TARGETS

To achieve EU climate change goals, highly efficient technology is vital!



What the evaporative cooling industry saves **TODAY**

- Evaporative Cooling equipment installed in EU per year*: 3.900 units (average)
- Total heat rejection installed base in kW in EU per year*: 3.600.000 kW (average)
- Total fan power installed in kW in EU per year*: 66.000 kW (average)

* Source: Eurovent Market Intelligence



What the evaporative cooling industry can save **TOMORROW**
56.000 tons of CO₂ saving per year*

Average number of air-cooled chillers (cooling capacity > 1.000 kW) installed in EU per year**

530 units = 700.000.000 kWh on average per year

Average CO₂ emission saving by converting the installed base of air-cooled chillers into water-cooled chillers:

- Industrial application: 15,5%
- HVAC application: 16%

*Estimation based on the number of the installed air-cooled chiller converted into water-cooled chillers.

**Source: Eurovent Market Intelligence".

HEAT REJECTION SYSTEMS COMPARISON & CO₂ SAVING

Mechanical refrigeration systems are frequently used for industrial cooling, food processing, and air conditioning.

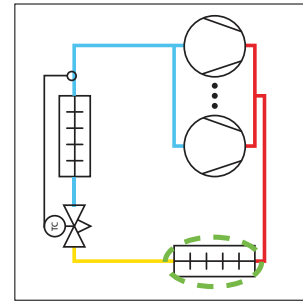
The ecological footprint of such systems greatly depends on the technology used to remove the condensation heat.

Eurovent has conducted an extensive study for a variety of load profiles, climate conditions, and control strategies.

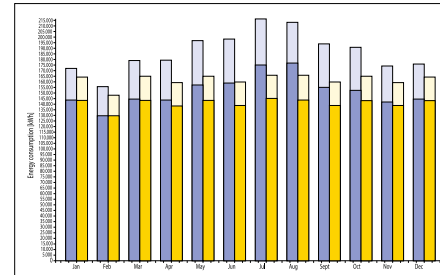
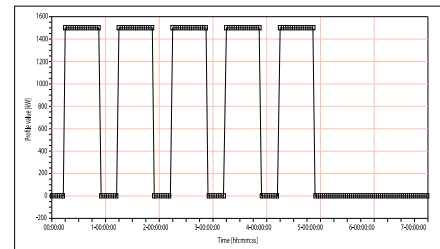
One year of operation was simulated for each system; the same yearly load profile and weather conditions were used in all simulations.

Each simulation was performed on an hourly basis by performing one steady state simulation for each hour in the year. In each hour, the load was known from an hourly load profile for the entire year.

The result of this study is that the refrigeration system using wet cooling towers is the clear winner when it comes to a year-round CO₂ footprint.

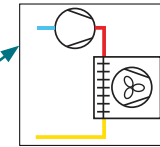


Industrial application

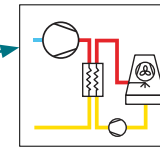


■ Air cooled system compressor ■ Air cooled system fans and pumps
■ Cooling tower system fans and pumps ■ Cooling tower system compressor

Average CO₂ saving:15,5%

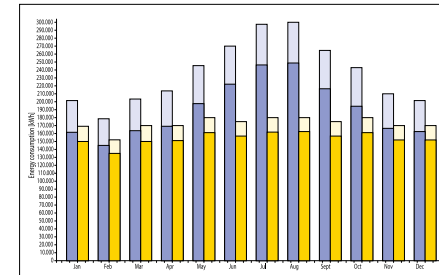
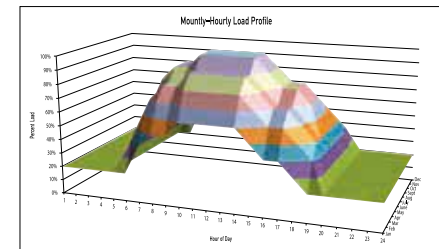


An air-cooled process must be intended as a process in which air passes over a coil or channel containing fluid; the heat is transferred from the coil directly to the fluid.



A water-cooled process must be intended as a process that utilises a spray system to pass water over coils or fill media to reject heat to the atmosphere through evaporation. The spray water itself or the fluid contained in the coil can then be used by a cooling system.

HVAC application



■ Air cooled system compressor ■ Air cooled system fans and pumps
■ Cooling tower system fans and pumps ■ Cooling tower system compressor

Average CO₂ saving:16%

What do 56.000 saved tons of CO₂ per year represent?

#Greenhouse gas emissions from **10.800*** passenger vehicles driven for one year



#CO₂ emissions from **electricity use of 8.800*** homes for one year



#CO₂ emissions from **118.000*** consumed barrels of oil



#Carbon sequestered by **24.000*** hectares of forests



* <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>



WE ARE EUROPE'S INDUSTRY ASSOCIATION FOR INDOOR CLIMATE (HVAC), PROCESS COOLING, AND FOOD COLD CHAIN TECHNOLOGIES – THINKING 'BEYOND HVACR'

Eurovent is the voice of the European HVACR industry, representing over 100 companies directly and more than 1.000 indirectly through our 16 national associations. The majority are small and medium-sized companies that manufacture indoor climate, process cooling, and cold chain technologies across more than 350 manufacturing sites in Europe. They generate a combined annual turnover of more than 30 billion EUR and employ over 150.000 Europeans in good quality tech jobs.

Eurovent pools technical and market expertise from across the HVACR manufacturing base and channels it into EU policy and standardisation processes. This work focuses on industry-critical issues: healthy indoor environments, product sustainability, heating decarbonisation, the refrigerant transition, digitalisation, and European competitiveness. The aim is to reduce regulatory fragmentation and enable manufacturers to anticipate requirements and steer product and market development.

Eurovent Certification verifies product performance through independent, third-party testing and awards the globally recognised Eurovent Certified Performance mark, serving as a trusted reference for the market.

Eurovent Market Intelligence compiles aggregated EMEA-wide market data, providing insight into market size, structure, and trends across HVACR segments.

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