# central.cooling

## CENTRAL WATER COOLING SYSTEMS

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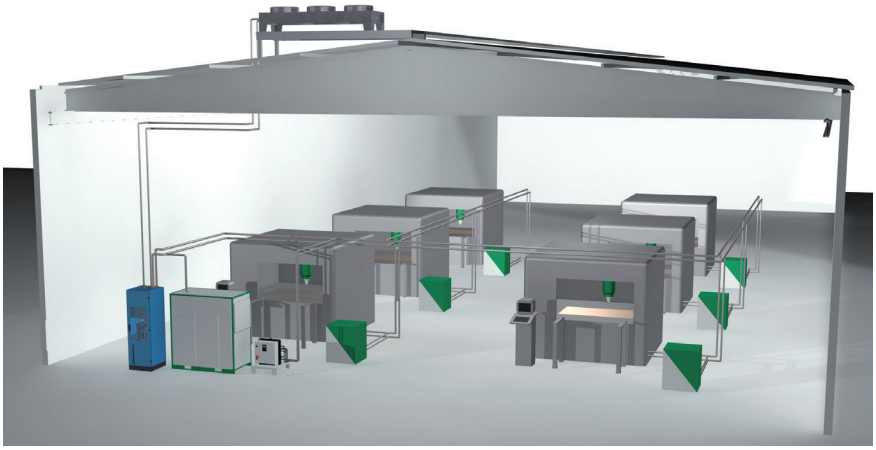
- STABLE ROOM CLIMATE AND CONSISTENT QUALITY
- REDUCED AIR MOVEMENT AND DUST TRANSPORT
- SIGNIFICANTLY LOWER NOISE LEVEL AND REDUCED ENERGY COSTS
- PROTECTION AGAINST DIRT IN SWITCH CABINET COOLING UNIT



*A central water cooling system insulates the heat and prevents climatic fluctuations in the production area.*

## ELIMINATE SOURCES OF ERROR AND REDUCE ENERGY COSTS

**Air-cooled cooling units** in production destabilize the climate of the production hall, in the form of fluctuations in the temperature and humidity as well as air movement, caused by the heat emission to the ambient air.

The consequences are essentially precision problems due to temperature fluctuations, electrostatic charge or corrosion tendencies due to fluctuations in humidity, partially considerable dust movements and deposits due to increased air movement.

These negative effects, whether individually or in combination, ultimately affect the stability of production processes or the quality of manufactured products and often require costly countermeasures or rectification.

**A central water cooling system provides a remedy**, counteracts the negative effects and offers significant additional savings in energy costs through better efficiency compared to individual units.

## CENTRAL WATER COOLING SYSTMS – THE EFFECTIVE ALTERNATIVE

In the last few years, central water cooling has established itself as a standard in more and more industrial production processes due to the advantages mentioned.

Compared to heat removal by air, water can simply absorb the waste heat from individual, decentralized cooling units and remove it from the production area. Compared to air, water as heat transfer medium requires significantly smaller pipe cross sections to transfer large capacities. This also leads to interesting savings with regard to the installation costs and any necessary ventilation and air conditioning technology.

In principle, the cooling process is selected according to the requirements of the units and processes to be cooled as well as the climatic conditions at the installation site.

Usually, chillers are used for special applications that require constant low water temperatures. The combination with a so-called „free cooling" is an effective alternative. Depending on the time of the year, this relieves or replaces compressor refrigeration, using cool outdoor air, and is characterized by particularly low operating costs and high reliability.

Alternatively to free cooling, heat recovery for heating purposes can also be implemented and thus contribute to energy cost savings.

**The effective way to higher productivity:**

- higher productivity due to stable climatic conditions
- no overloading of existing ventilation and air conditioning systems
- significantly reduced dust distribution due to lower air movement
- Reduced maintenance and cleaning costs for sensitive components of the production facilities
- higher energy efficiency through free cooling or heat recovery
- healthier working conditions
- short-term ROI due to savings in total operating costs

› EFFICIENT USE OF COOL OUTSIDE TEMPERATURES
› INTELLIGENT TRANSITION BETWEEN FREE-COOLING AND COMPRESSOR-RERIGERATION
› 100 % FREE COOLING UP TO 60 % OF THE ANNUAL OPERATING TIME

## NEW TECHNOLOGY AND PROCESS

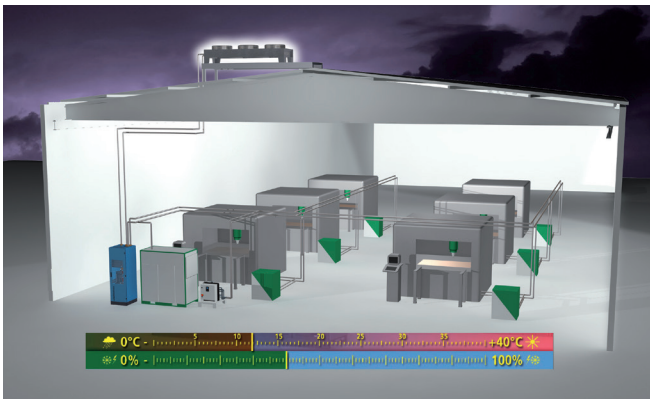
**Reduce energy costs and conserve resources**

**Free Cooling**

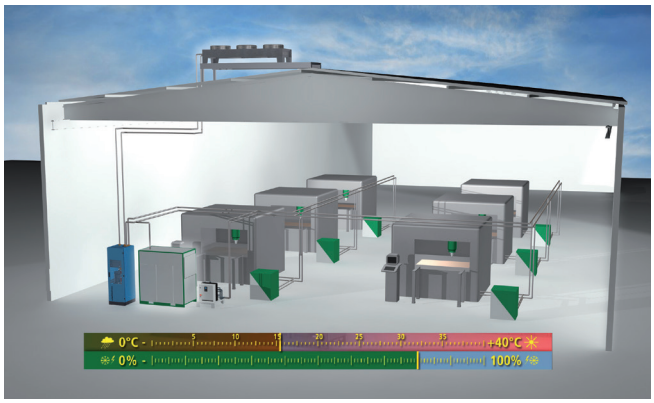
On the basis of water-cooled individual units or a central system with the appropriate free-cooling option and an external freecooler (air/water heat exchanger), low outside air temperatures are used to cool the central cooling circuit and the connected individual units „directly".

The free cooling function starts at external air temperatures below the setpoint of the process to be cooled and takes on more and more of the compressor refrigeration as the outside air temperature continues to decrease until the compressors shut down completely.

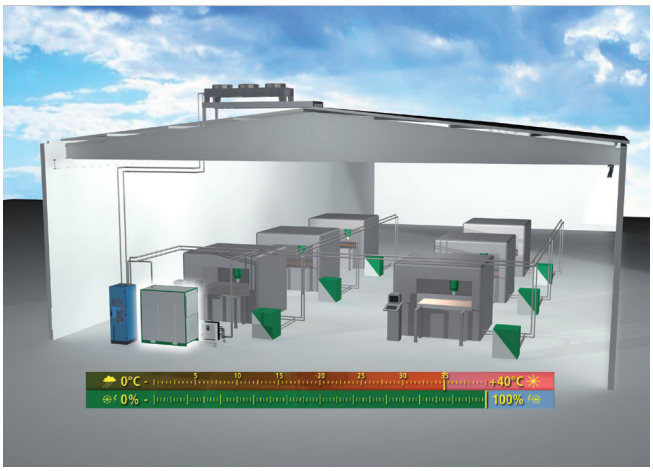
So an installation in Berlin with a process temperature of 20 °C can operate exclusively with free cooling for 60 % of the time. Therefore energy is saved very efficiently, as a refrigeration unit is not required.



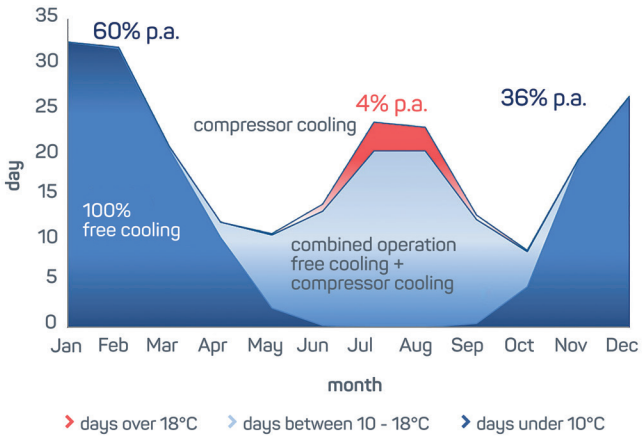

› *Significantly low outside temperatures allow cooling exclusively via the free cooler.*



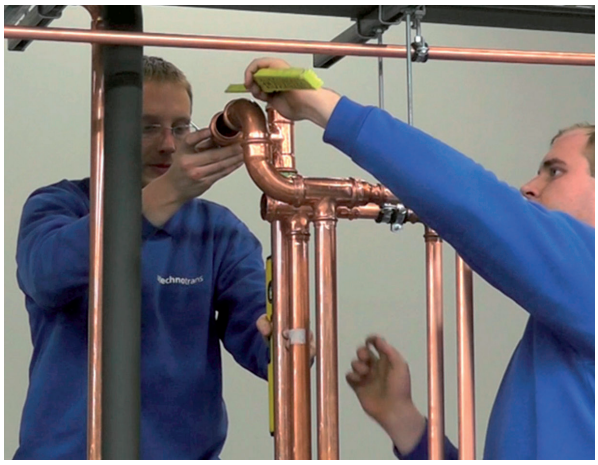

› *With rising temperatures, the cooling unit and the free cooling system are used efficiently in combination.*




› *The refigeration unit only operates without free-cooling when the outside temperatures are very high.*




› *60 % of the year the outside air temperature in Germany is under 10 °C.*

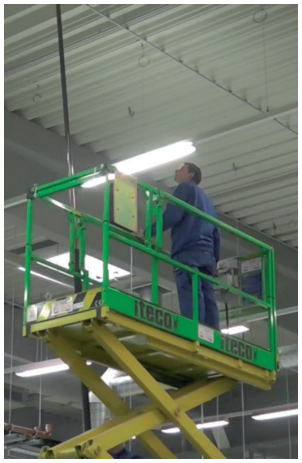


› *arrangement of the pipework*

› *positioning of the free-cooler on a roof*

## ADVANTAGES AT A GLANCE:

- COST REDUCTION THROUGH SIMPLE BUT EFFECTIVE USE OF NATURAL COOLING (OUTSIDE AIR)
- HEAT REDUCTION AT THE PRODUCTION SITE BY REMOVAL OF THE PROCESS HEAT
- PROCESS STABILITY THROUGH CONSTANT AMBIENT CONDITIONS (TEMPERATURE, REDUCED AIR MOVEMENTS), THEREFORE REDUCED MACHINE DOWNTIMES
- LESS SPACE REQUIRED DUE TO CENTRAL INSTALLATION OF THE COOLING COMPONENTS
- REDUCTION OF INCOMING AIR OR EXHAUST AIR PROBLEMS
- BETTER WORKING CONDITIONS THROUGH NOISE REDUCTION
- ENVIRONMENTALLY FRIENDLY DUE TO ENERGY SAVING
- AN OPERATING COST COMPARISON BETWEEN CONVENTIONAL COOLING SYSTEMS AND A CENTRAL WATER COOLING SYSTEM WITH FREE-COOLER RESULTS IN AN AMORTIZATION TIME OF OUR SYSTEM WITHIN 1 TO 2 YEARS, DEPENDING ON THE INDIVIDUAL AND CLIMATIC PARAMETERS
- THESE CLAIMS REGARDING COST-EFFECTIVENESS ARE CONFIRMED BY EXPERIENCE GAINED IN THE FIELD



## CENTRAL WATER COOLING WITH FREE-COOLER

**All from one source! technotrans delivers and assembles!**

› turnkey installationen

› individual development and implementation of the project

› professional assembly and commissioning of the system

› regular maintenance of installed systems

Until today, more than 2000 **technotrans** central cooling systems have been installed in various industrial sectors worldwide, thereof 1035 in Germany, 104 in Austria, 101 in Great Britain, 97 in France, 63 in Italy, 172 in The Netherlands, 293 in the rest of Europe, 45 in Asia, 84 in the USA and 9 in Africa.



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