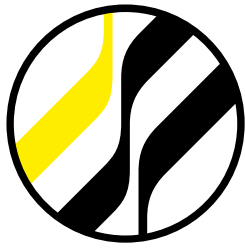


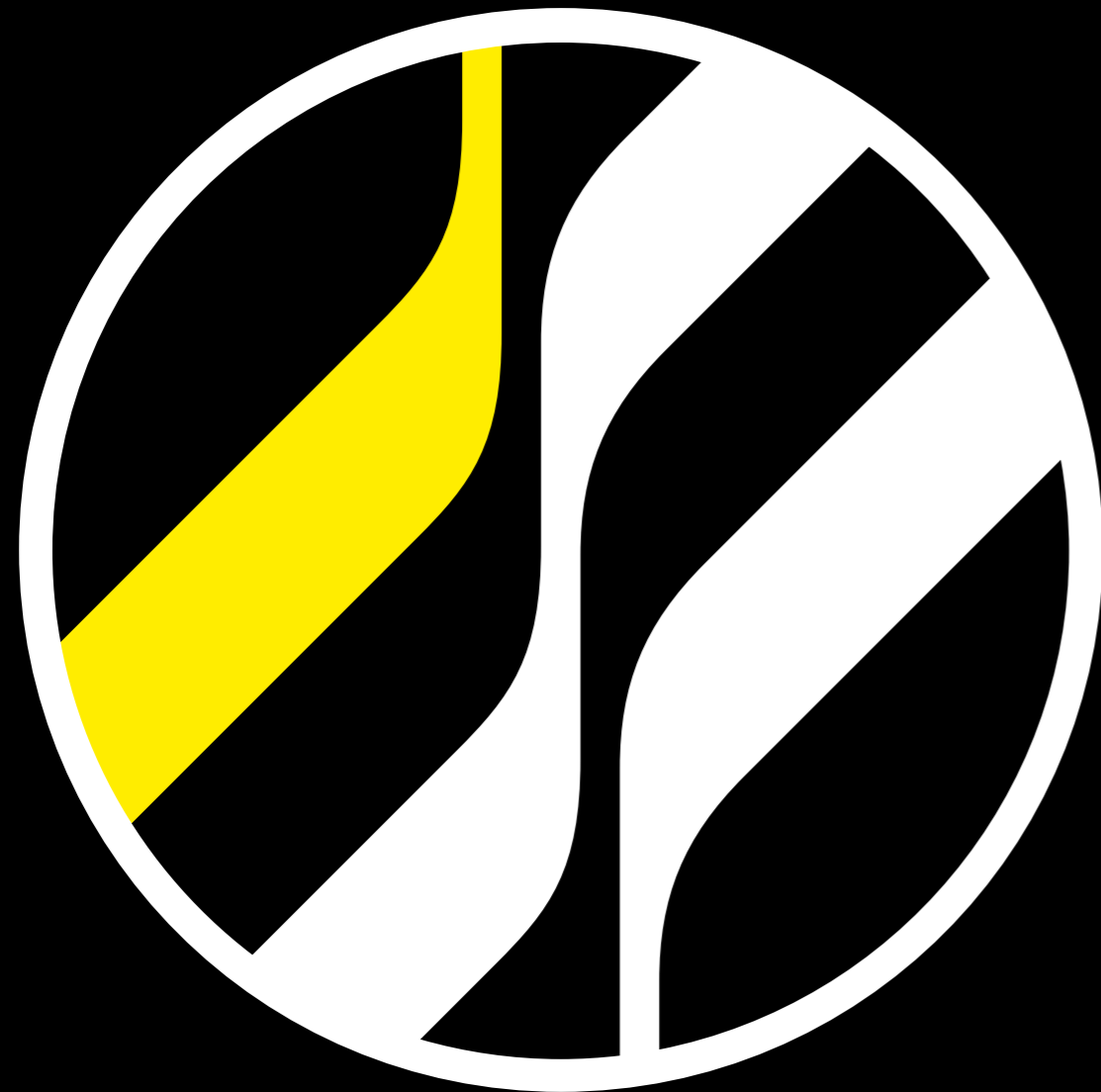
Kelvion



COUNTERFLOW COOLING TOWERS

POLACEL XE - XT - XL - XM SERIES





WE ARE KELVION – THE NEW BRAND IN HEAT EXCHANGE

GEA Heat Exchangers has changed: another new standalone company has been created out of the former Heat Exchanger Division of the GEA Group AG. The name Kelvion is new, but we continue as global experts in heat exchange. As always, we remain committed to earning your trust.

You'll still recognize us. We continue to develop our products, manufacture them with precision and distribute globally. We continue to offer one of the world's largest heat exchanger product portfolios: Plate heat exchangers, shell & tube heat exchangers, finned tube heat exchangers, modular cooling towers and refrigeration heat exchangers for a wide range of applications.

We operate in global markets for power generation, oil and gas, chemistry, marine applications, climate and environment, and food and beverages. From us, you can expect products with outstanding levels of efficiency, safety, and sustainability. More importantly, we care about your business, like close, trusted partners.

Customers rely on us to understand their needs, boost their performance, and deliver products that always get the job done. We compete for the toughest deals, in the harshest environments. But we're not too big to care. We're Kelvion – ready to take on the challenges of heat exchange. www.kelvion.com

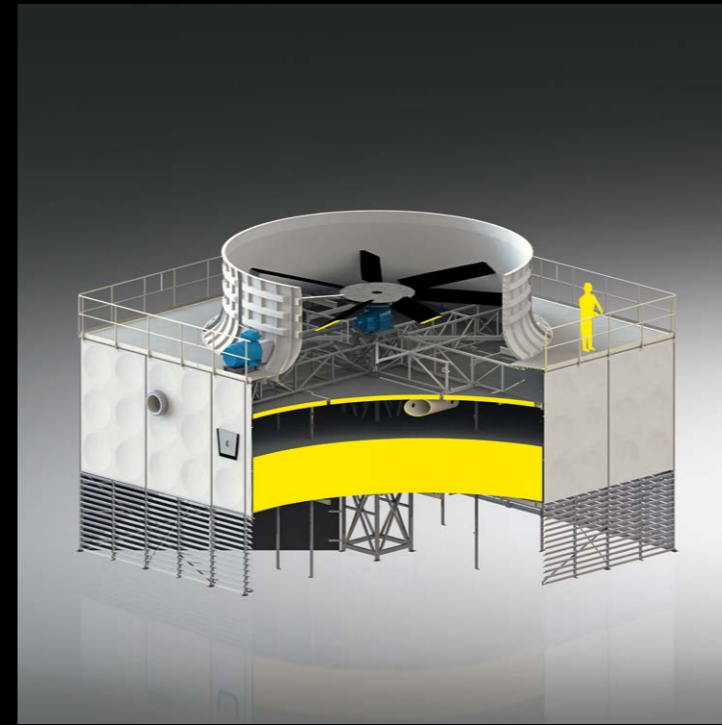
Experts in Heat Exchange.

CUSTOM-MADE OUT OF STANDARD COMPONENTS



Characteristics:

- Over 40 years of experience in the development, design, production, installation and maintenance of cooling towers
- Modular products available for all popular sizes
- Extreme durability through the usage high quality materials like stainless steel, glass fiber reinforced plastics and thermoplastics like polypropylene
- Over 500 models in both counter and cross flow certified in the thermal rating program of the Cooling Technology Institute (CTI)
- Customizable to your demands by our own sales engineers



POLACEL CROSSFLOW COOLING TOWERS XE-XT-XL-XM

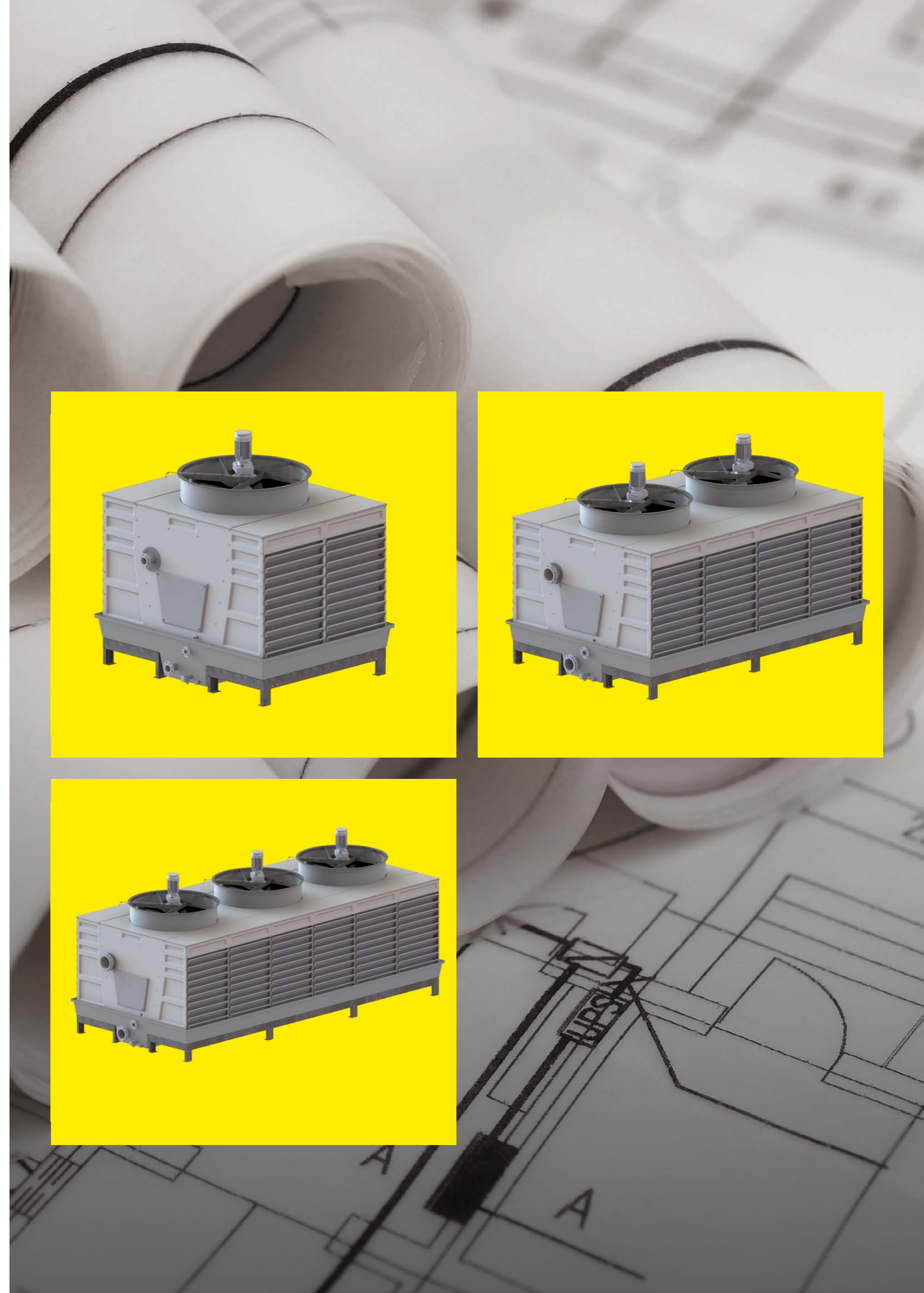
Kelvion designs, manufactures and maintains cooling towers for process and climate cooling. Our energy-efficient and environmentally cooling water generators stand out because of the complete quality policy we employ.



The Polacel Crossflow cooling tower is quiet and economical, and has a high cooling capacity. The modular system can be easily adjusted to suit cooling requirements and the space available. The cooling towers have optimal performance and run problem-free. The considerable savings in water usage (95%+), and the exceptionally low noise level make the economical Polacel Crossflow cooling towers the best choice for both man and the environment.

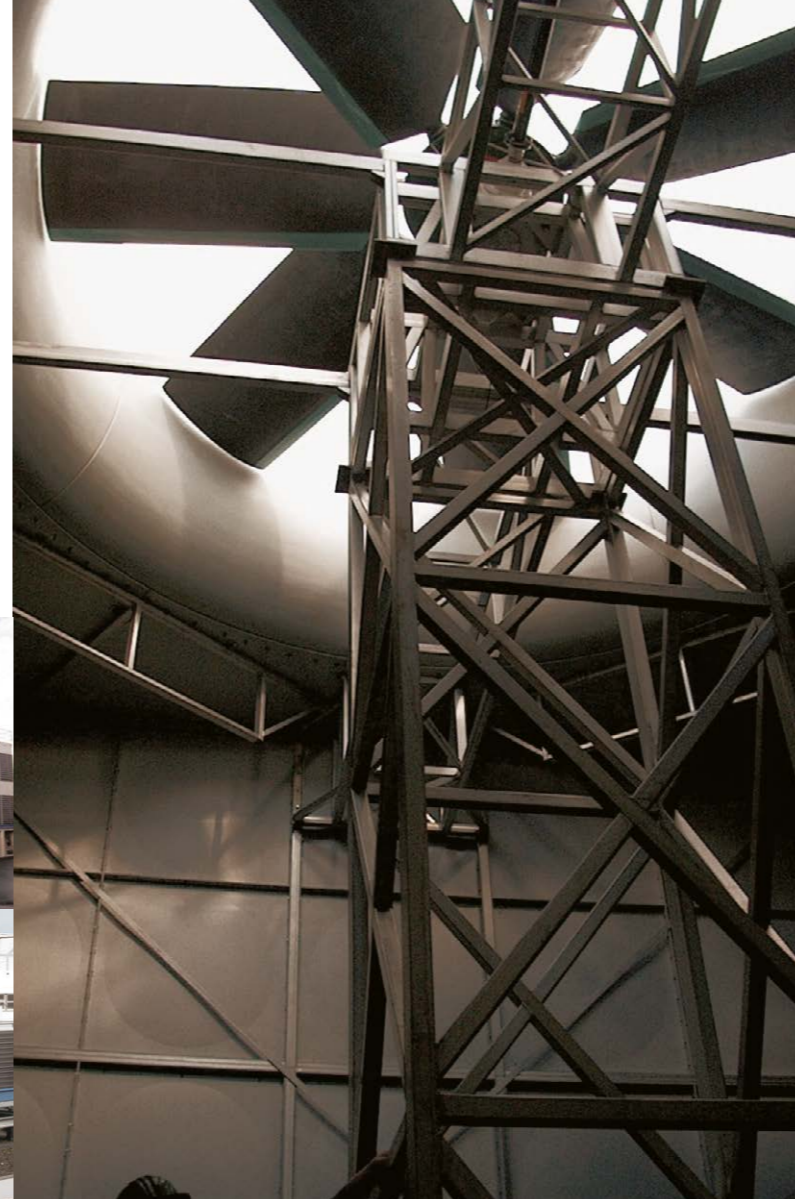
The Effect of Crossflow

Using the Crossflow principle, warm water flowing down through a cooling unit is cooled by air drawn upwards by a fan. Evaporation and direct heat exchange cause the temperature to fall rapidly. Compared to counterflow cooling towers, induced draught Polacel Crossflow cooling towers are much quieter and smaller. The performance figures are next to perfect.



MEASURING COOLING PERFORMANCE: THE WET BULB

The wet bulb temperature is in fact the lowest temperature that can be achieved by air cooling in any given situation. This temperature is measured by wrapping a glass thermometer in a cotton cover that has been soaked in water, and placing it in a stream of air. The water will evaporate and extract heat (sweating during physical exercise performs the same function and makes a 'cooling tower' out of our skin). The wet bulb temperature is therefore lower than the ambient temperature. Cooling towers try to achieve this minimum temperature the most economic and efficient way possible. The Polacel Crossflow cooling tower range achieves this and successfully balances cooling performance with low power consumption (low cost) and low noise.



Kelvion engineering

Other prominent distinguishing features of the Polacel Crossflow design are:

- The design of the fan section and the larger fan ensure lower energy consumption and result in an important reduction in noise.
- A Polacel Crossflow cooling tower with a large axial fan uses around 70% less energy than a counterflow cooling tower with a centrifugal fan.
- Using a geared motor to drive the fan, the cooling capacity can easily be adjusted as required.
- The pressure-less water distribution system is energyefficient, and the water pan is easy to clean.
- The cooling units are mounted in such a way as to make cooling per unit possible. The advantages of this technique are savings of energy, the ability to adjust the capacity, and the easy access for maintenance. Capacity can also be adjusted by regulating the water flow. (The water distribution system and the cooling units can be adjusted to suit the amount of water used.)
- The air inlet louvres create ideal air inflow and minimize water loss caused by splashing.
- The design takes into account the possible need for variation in capacity, operation during maintenance, and other features the client may require.
- Clients can choose from four standard models in the Polacel Crossflow range, each model with different air speeds.

MADE-TO-MEASURE COMES AS STANDARD

When choosing a cooling tower, the four most important factors are: the cooling water temperatures (inlet and outlet), the wet bulb temperature, the noise emissions, and the water requirements. Kelvion assesses the specific requirements together with the client, and uses this assessment to develop a suitable design. The expandable modular system is flexible enough to solve all kinds of capacity demands as 'standard'. However, for the customer with special needs, the Polacel engineers will build a tailor-made solution.

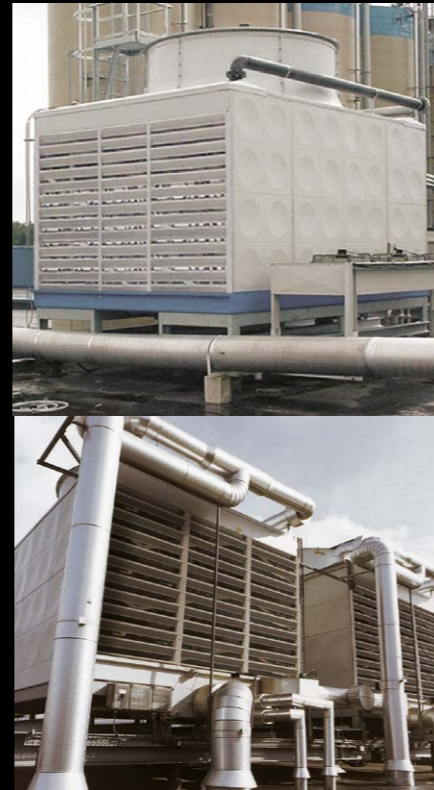
NOISE AND OTHER ENVIRONMENTAL CONSIDERATIONS

Cooling towers are usually mounted outdoors, often on a roof and in the middle of a residential area. That is why any noise caused by the fan, falling water, the electric motor and the gearing could pose a potential problem. In order to reduce noise levels, Kelvion has created a number of important features. Larger fans (lower speed, less noise, greater efficiency), pressure-less water distribution, cooling units that run down into the water tank, and other noise-reducing measures all combat the various problem areas. Kelvion makes detailed calculations to show exactly what, and how much, noise the cooling tower will make. Kelvion can also make advance calculations for all the requirements that are placed on cooling towers by noise regulations and environmental permits.



NOISE REDUCTION

Mostly cooling towers are standing on a roof or at the edge of the site. The noise produced by the cooling tower such as the fan, falling water and the electrical motor or geared motor can be a problem. Polacel has put a number of developments into practice that reduces the noise nuisance. Larger fans (lower speed, less noise and higher efficiency) floating silencers to reduce the noise of splashing water. There are also other noise reducing measures that combat the different sources of noise. Polacel makes calculations for all cooling towers in relation to the requirements laid down in environmental permits.



Structural qualities

The advanced design engineering has also resulted in a number of special structural advantages:

- Only a minimum number of support points are necessary as a result of the self-supporting foundations and the high internal rigidity.
- Where possible, the cooling tower is fully portable and installed ready-to-go.
- The Polacel frost-proof polyester water pan can withstand sub-zero temperatures. Essential for free-cooling applications.
- Due to their low profile, Polacel Crossflow cooling towers present fewer aesthetic problems.
- The expandable modular system has virtually no limitations in terms of shape and size.
- All structural design principles are analysed and tested in advance using dynamic calculations and computer studies.



The security of quality

Kelvion designs and manufactures cooling towers with long lifetimes and minimal maintenance needs. This is achieved through the materials used - stainless steel combined with glass fibre and plastic - the sound design and the experience of our engineers. The result is a cooling tower that is low maintenance, energy efficient and able to supply constant excellent problem-free performance.

Advice and service

Polacel builds cooling modules that meet precise specifications. Our sales engineers give advice, analyze your wishes and take personal responsibility for delivery so that your order is completely in line with your instructions.

Polacel own service organization specializes in cooling tower maintenance. Irrespective of brand or version, the maintenance specialists know all the ins and outs of the whole technical area and are involved in the latest developments.

Polacel has broad experience in cooling tower maintenance. We work in accordance with the requirements described by ISO, VCA, VDMA, CTI and Eurovent. The technicians can carry out the maintenance needed in virtually every location and in practically any time frame.