

Green cooling towers

What to Consider When Selecting Green Cooling Towers

When considering the "greenness" of your cooling tower selection, you should investigate several green facets that will impact the environment and your bottom line.

With the examination of every product as to its "greenness," it has finally come to the ubiquitous cooling tower sitting atop just about every manufacturing and process facility — pharmaceutical processing, food and beverage processing, metalworking, plastics manufacturing and pulp and paper processing — to name a few.

Greenness, of course, has several facets. And, while the more advanced cooling towers are made of recyclable HDPE plastic cooling towers that will last for many decades, recyclability becomes a moot point. A more realistic examination of cooling tower greenness will deliberate improved sustainability, greater energy efficiency, added water conservation and smaller carbon footprint — plus some cost ramifications involved in achieving such green goals.

While conventional cooling towers, often constructed with basins lined with sheet metal cladding, are environmental-challenging and maintenance-intensive — hence costly to operate — the alternative of using cooling towers with molded seamless plastic is immediately beneficial to both the environment and the bottom line.

While the traditional, galvanized metal-clad cooling

towers have done a good job at cooling process water, they have also been highly prone to corrosion and, therefore, frequent cleaning, re-coating and replacement. Additionally, metal cooling towers require extra caution when using water treatment chemicals to maintain continuous proper water chemistry to prevent accelerated loss of galvanizing leading to costly downtime and early replacement.

With the increasing concerns about meeting green standards and also improving ROI on capital equipment expenditures, there are some criteria you should consider when evaluating your next cooling tower purchase:

Sustainability

In the broad sense, sustainability refers to the "carrying" capacity of the ecosystem in terms of resource consumption, including the ability — economically and environmentally — to meet present demands and yet still provide for future generations. With that definition in mind, the ultimate in cooling tower sustainability is a model that can outlast the building it services.

Traditional metal towers, which last only a few years in many applications, confront owners with environmental and economic issues including increased chemical use, higher maintenance costs, replacement costs and disposal requirements. Conversely, unparalleled lifespan has been achieved by plastic cooling tower models that feature a seamless, molded HDPE (high-density polyethylene) shell.

Green by Design

Engineered HDPE plastic design allows seamless-shell water towers the most aggressive water treatment options available. This can allow



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users to run at higher cycles of concentration, thereby saving make-up water. These water and chemical savings can be very large and help solve water issues, as well as save on operating costs.

With improved thermal performance, the counterflow designs have less of an environmental impact than crossflow designs. Counterflow designs have much less water splash than crossflow models, especially during high winds or when fans are off at low-load or low wet-bulb conditions.

Cooling towers of this design also keep water totally enclosed and free from sunlight, thereby lessening the occasion for biological growth — which requires less harsh water treatment chemicals. Counterflow models also can incorporate the industry's best drift eliminators at .001 percent or even an optional .0005 percent of the recirculating flow.

Energy Efficiency

While the cost of electric power to drive cooling tower fans may seem incidental to process costs, they can also add up. Some manufacturers use direct-drive motors to power their cooling fans. With no pulleys, bearings and belts, direct-drive motors are more efficient, and provide substantial savings in energy costs, while also delivering more

horsepower. When modular towers are incorporated into a multi-cell configuration, direct-drive tower motors or complete cells can be shut-off independent of others when supported processes are not operating or the heat load is low. The efficiency of the high performance design, which runs on less horsepower than comparable standard models, is reflected in the savings of electricity usage.



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