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Edition 5.8, August

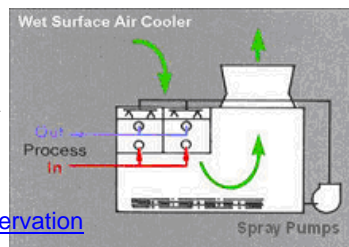
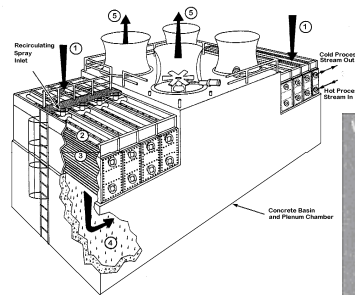


**LINKS**

- [API Heat Transfer](#)
- [Carbone of America](#)
- [Cooling Technology, Inc.](#)
- [Delta T Heat Exchangers](#)
- [Des Champs Labs \(Munters\)](#)
- [Gaumer Process Heaters](#)
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**Process Cooling Water Conservation**

Water quality and availability are becoming important considerations for industry in Canada. Limited cooling water often limits expansion or drives up the price of projects. A Wet Surface Air Cooler (WSAC™) presents an alternative to dry coolers when process cooling water is limited. A WSAC can typically achieve lower temperatures than dry air coolers and can often use poor quality water or waste water as the cooling medium.



[Closing the Loop on Water Conservation](#)

**Wet / Dry Air Coolers**

The Canadian climate provides a unique design situation for cooling systems. The swing in design ambient air temperature between summer and winter creates a challenge for specifying and sizing a cooling system. In a time where industry is encouraged to conserve water and energy, operating a cooling system year round in Canada that was designed for a summer ambient air temperature seems like a missed opportunity.

Generically, there are several ways to provide cooling to a process, the most common industrial cooling systems being; direct once through cooling water, direct air-cooled (dry air cooling), evaporative air-cooled heat exchanger, cooling tower / heat exchanger closed loop system or a chiller system. By combining two of these systems we can design a cooling system that is suited to operate in our climate with the benefit being reduced operating costs.



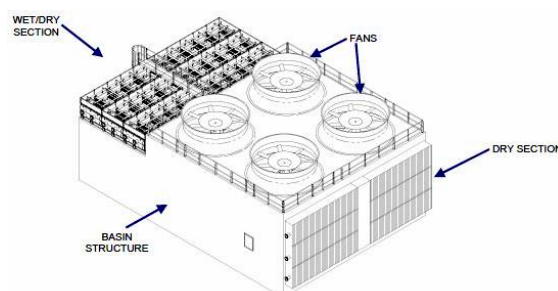
Dry type Air-Cooled Heat Exchanger

Evaporative coolers or Wet Surface Air Coolers (WSAC®) are applied in situations where a fluid needs to be cooled to a temperature lower than a dry air-cooler can achieve considering the design ambient dry bulb temperature. The dry bulb temperature typically specified to size the dry air-cooled heat exchanger is the hottest temperature reached in the summer. In Ontario the peak summer temperatures are only realistically achieved during a few months of the year and during those months only hours per day is this temperature reached. In our climate a WSAC® sized for summer wet bulb and dry bulb conditions will be significantly oversized for winter operation under the same cooling load. For example, a WSAC® designed to operate to a specific summer wet bulb and dry bulb temperature can quite possibly be designed to operate dry when the dry bulb temperature drops below 15c and meet the required heat load. This dual operation design results in a larger up front cost but savings of energy demand and water treatment improve the payback.



West Surface Air cooler (WSAC®)

Another innovative variation is the **Wet/Dry Air Coolers**. This design has two separate sets of coolers; one set operates dry and the other set operates either wet or dry. This set up allows the system to operate; exclusively dry in the winter, exclusively evaporative during peak temperature times and a combination of wet and dry in other months. One obvious advantages of a Wet / Dry Aircooler is the significant water savings which, aside from the environmental benefits translates to energy and chemical treatment savings. Even during times the cooler is operated wet there is a reduction of make up water requirement and of blowdown over conventional cooling towers. Added efficiency is gained from the fact that the fans are used for both wet operation or dry operation.



- [More Details on Wet/Dry Coolers](#)
- [More Details on Air-Cooled Heat Exchangers](#)
- [More Details on WSAC's®](#)

**Gas to Gas Heat Recovery**

Many industrial processes exhaust hot gas to the atmosphere. Current energy costs and environmental regulations make these exhaust gases an opportunity for energy savings. Many utilities and governments now provide financial incentives to reduce energy consumption.

Pre-Engineered industrial systems to suit most gas to gas heat recovery applications are available to recover exhaust heat to be recycled or to be used elsewhere. Pre-Engineered exchangers take advantage of proven designs while still providing the size flexibility to meet the custom applications.

Common applications for heat recovery are;



- Gas Turbines
- Commercial laundry services
- Glass manufacturing
- Industrial ovens
- Paint / Powder Coating Lines
- Printing Processes
- Food and Pharmaceuticals
- Combustion air preheat

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