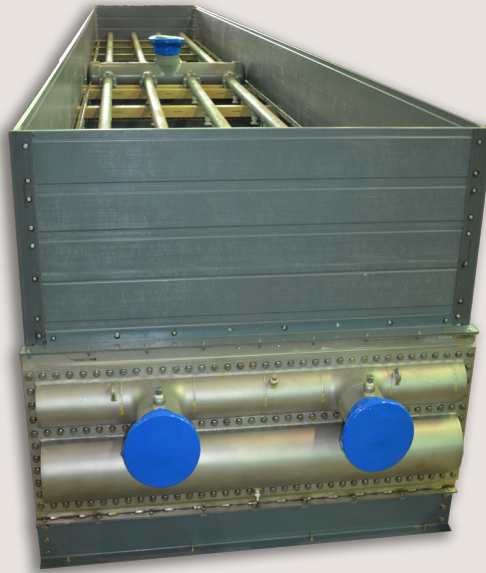




## Poor water and extreme environment applications

### Niagara Wet Surface Air Coolers (WSAC®) application study



#### The challenge

Many industries could benefit by using sea water or poor quality water for process cooling. These water sources cause fouling and corrosion making them virtually unusable for cooling. In addition, sea water typically compromises the integrity of metal cooling structures.

#### The solution

Install an Alfa Laval Niagara FRP Wet Surface Air Cooler (WSAC®). The WSAC is engineered to use alternative water sources such as sea water, brackish water, and wastewater in the most extreme environments.

#### Advantages

- For use with poor quality make up water
- Deluging spray with overlapping pattern

- Non-corrosive materials of construction
  - Pultruded FRP casing & structure
  - High alloy tube bundles
- Tube bundle construction options
  - Straight thru cleanable or serpentine

#### What is a WSAC?

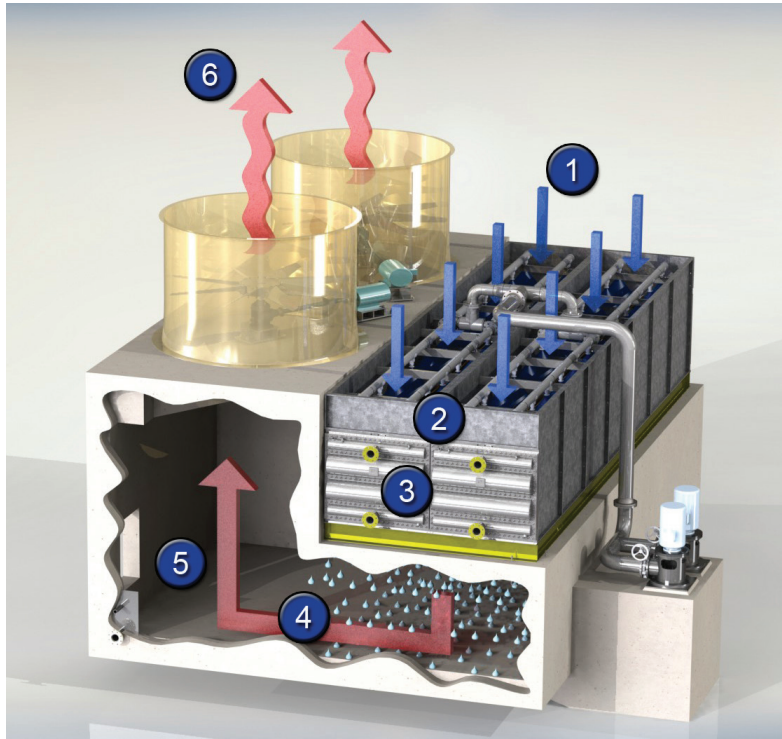
Alfa Laval Niagara Wet Surface Air Coolers (WSAC®) are efficient closed-loop, evaporative cooling systems designed for the power, process, wastewater, natural gas and petrochemical industries.

These fluid cooling and vapor condensing systems are optimized for industrial applications where rugged designs, and cost-effective, efficient closed-loop cooling and condensing duties are required.

## Niagara WSAC® - How it works

The closed-loop design ensures that the process liquid, vapor or gas flows through the inside of the heat exchanger tubes, with the cooling air and the spray water flow in the same direction on the outside of the tubes.

1. Air is induced downward over tube bundles
2. Water flows downward along with the air
3. Heat from the process stream is released to the cascading water
4. Vaporization transfers heat from cascading water to the air stream
5. The air stream is forced to turn 180° providing maximum free water removal
6. Fans discharge air vertically at a high velocity to minimize recirculation



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