



Alfa Laval HYAC provides efficient and reliable cooling in US municipal wastewater plant



Top performance, high operational reliability and minimal environmental impact were key selection criteria when one of the largest wastewater treatment agencies in the US invested in a new cooling system for a set of pump drives. After thoroughly investigating several possible solutions, the agency chose to install two Alfa Laval HYAC hybrid air coolers.

One of the largest wastewater treatment plants in the USA

The wastewater plant, located in the Midwestern United States, is one of the largest in the country. It is a central part of a network of plants that treats sewage and stormwater from one of the most populated cities in the US.

The plant serves an area of roughly 300 square miles and a population of approximately 1,000,000. The region experiences cold winters, and the flow of raw water fluctuates heavily over the year due to snowmelt.

To minimize the risk of flooding and sewer overflows, the wastewater treatment agency has built a system of tunnels and reservoirs that act as buffers during periods with heavy loads.

Water-cooled pump drives

The raw wastewater is pumped up to the treatment plant from one of these tunnels, 300 ft below ground.

The pumps are controlled by variable frequency drives (VFDs) placed in an underground space. The VFDs develop substantial amounts of heat and require liquid cooling to operate.

For the last four decades the plant has used two Alfa Laval wet surface air coolers (WSAC), placed at ground level, to cool the water/glycol mixture used for cooling the VFDs. The WSAC units have operated very reliably and required minimal maintenance.

Tough requirements

While planning a revamp of the pumping system, the customer investigated the possibilities to upgrade the VFD cooling system.

The plant engineers had a long list of requirements regarding capacity, equipment dimensions, operating reliability, compliance with plant standards, etc. Several suppliers were evaluated during a thorough bidding process, but only Alfa Laval was able to fulfil all demands.

The customer is actively working to reduce its environmental footprint, and the low energy and water consumption of an Alfa Laval HYAC system were important factors for the outcome of the selection process.

Fully customized cooling system

The customer’s and Alfa Laval’s engineering teams initiated a close cooperation to ensure an optimum solution. The final system consisted of two completely tailored Alfa Laval HYAC cooling systems with a range of special features:

- The spray water storage tank and pumps are placed indoors for freeze protection and easy maintenance.
- Finned tubes for maximum cooling capacity on limited footprint.
- Hybrid cooling, i.e. dry cooling during cold winter months and wet cooling during warmer periods.
- Specific brands of pumps and control systems to comply with the customer’s standard.
- Additional possibilities for remote control.
- Customized safety precautions for site personnel.

The customer has ordered two systems for full redundancy in case one needs to be shut down for maintenance.

Fast facts

The plant

A municipal wastewater plant in the Midwestern USA.

The challenge

To upgrade an existing cooling system. The customer had a long list of requirements on performance, operating reliability, compliance with plant standards, personnel safety, etc. and Alfa Laval was the only company that could fulfil them.

The solution

To install two Alfa Laval HYACs.

The benefits

- Higher thermal performance.
- Easier operation.
- Maximum operating reliability.



WetSurface

Maximum cooling efficiency and lowest possible outlet temperature.



FlexWater

Can operate on recycled water of low quality such as blowdown water.



HybridCool

Combined wet and dry bulb cooling for minimized water consumption.

Learn more about Alfa Laval HYAC cooling systems at www.alfalaval.com/hyac.

How to contact Alfa Laval

Up-to-date Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com

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