



High pressure compressed gas cooler

Niagara Wet Surface Air Coolers (WSAC®) case study



Midstream natural gas processor

Location: Southwest Texas

Application: Compressed natural gas cooling

The challenge

A midstream gas processor needed to cool highly compressed natural gas before pipeline transmission to downstream facilities. The gas needed to be cooled to the lowest possible temperature in a very warm, arid climate.

The solution

An Alfa Laval Niagara Wet Surface Air Cooler was engineered, designed, and manufactured to cool the natural gas stream effectively and efficiently to 95°F even in the most extreme outdoor conditions. Also, the WSAC system required less compressor horsepower, reducing cost and lowering plant carbon footprint.

Advantages

- Ability to achieve lowest possible gas temperature in an arid desert environment

- Pressure vessel designed for 1,200 psig
- ASME Sect. VIII, Div. 1 U-Stamp
- HDGAF steel tube bundle
- Lower compressor horsepower
- All stainless steel structure for corrosion & erosion resistance
- Class 1, Div. 2, Group D Explosion Proof
- Modular design for ease of installation
- Thermal capacity controlled by VFD

What is a WSAC?

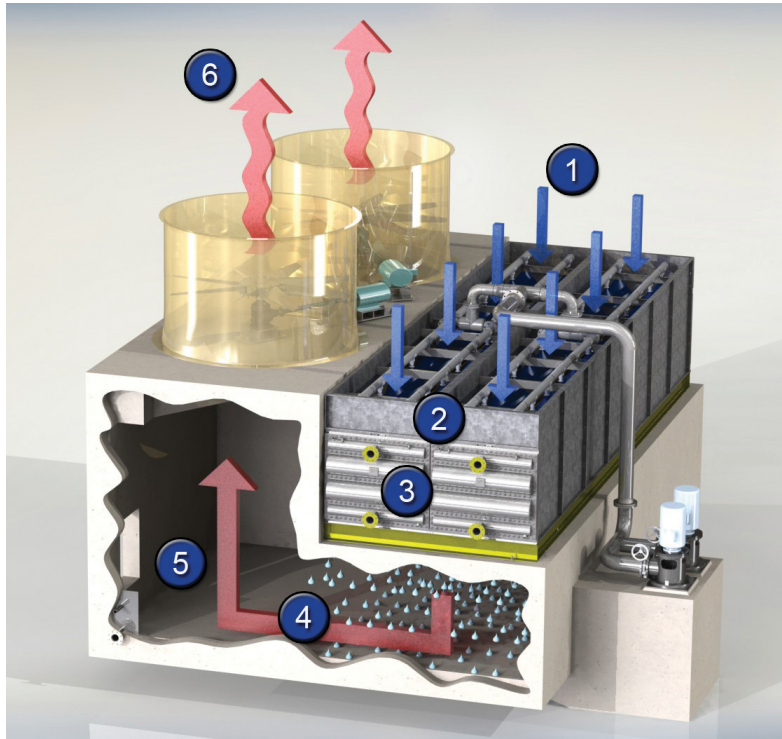
Alfa Laval Niagara Wet Surface Air Coolers (WSAC®) are efficient closed-loop, evaporative cooling systems designed for the power, process, wastewater, natural gas and petrochemical industries.

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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Alfa Laval reserves the right to change specifications without prior notification.

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