

# Hudson Combin-aire™

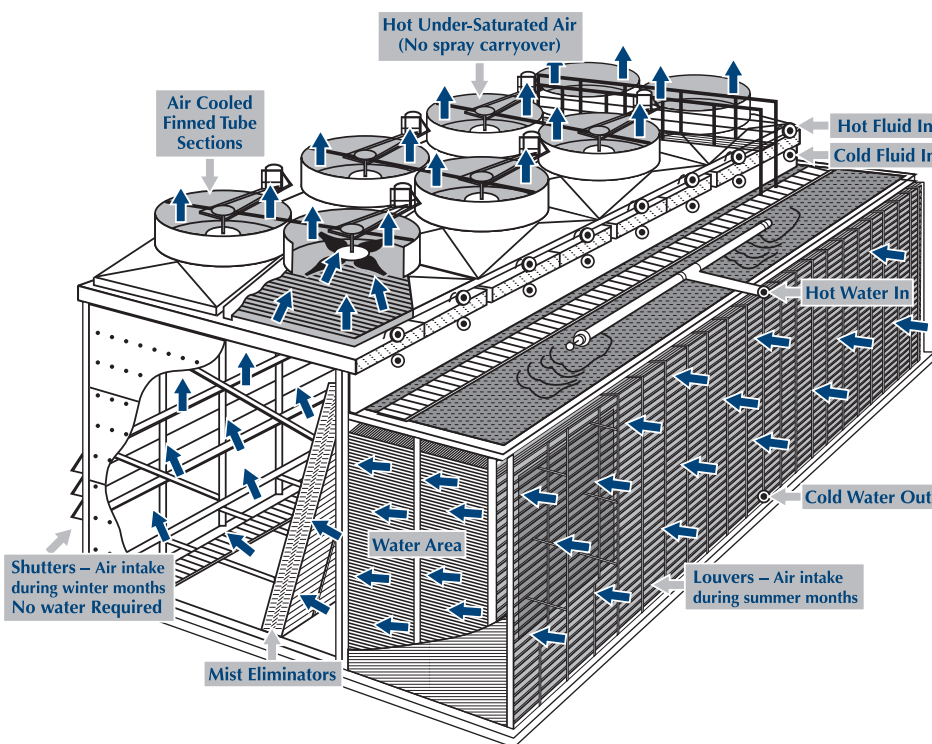
## Air-Cooled Heat Exchanger Performance Enhancement Service

In recent years Hudson's Fin-Fan™ and Solo-aire™ cooling in which only air is used as a cooling medium has been installed by the world's largest refineries. In recent cases of three separate 40,000 barrel complete refineries in locations where unlimited water is accessible, Hudson Fin-Fan™ and Solo-aire™ are used for all process cooling.

So that air could be used for cooling those process streams requiring lower terminal temperatures than obtainable with ambient summer air temperatures, Hudson developed and in 1949 installed the first Combin-aire™ cooling unit. Since that time Combin-aire™ have proven their worth in installations for over 80 services in major refineries, chemical plants and gas processing plants in the United States, the Middle East, Europe, Mexico and South America.

## *Combin-aire*

Cooling with Combin-aire™ to overcome the occasional limitation of high ambient temperatures has the following advantages:



- Absolute minimum water consumption consistent with attainment of low terminal process stream temperatures.
- Water circulation may be made automatically responsive to air temperature with no water circulated except at high ambient temperature.
- No water treatment necessary. Salt water or brackish water may be used.
- No spray carryover or condensation. After passing across the fin-tube elements the heated air leaving the Combin-aire™ at elevated temperature is undersaturated with water vapor and cannot precipitate condensate or carry water spray.

- Minimum piping. Combin-aire™ may be installed immediately adjacent to other process equipment.
- Clean air to fin-tube units. During the hot season air is washed, removing dust, sand and insects.



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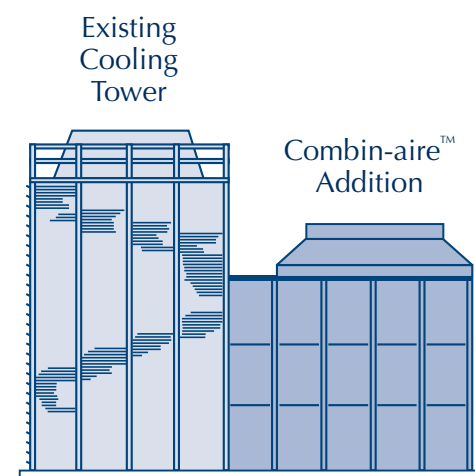
In Combin-aire™ cooling, high temperature ambient air is first pre-cooled by direct contact with water, the cool air then becoming the low temperature cooling medium for fin-tube elements. Cooling of air, and subsequent use of the cooled air for fin-tube cooling of process streams, are effected in one integrated structure — the Combin-aire™.

When Combin-aire™ are installed as adjuncts to cooling systems using existing shell and tube or other water cooled equipment the cooled water from the bottom of the Combin-aire™ may be used in such equipment. The Combin-aire™ then takes on the additional function of a water cooling tower with, however, the advantages over conventional cooling towers of dual use of both air and water and elimination of water spray carryover and condensate precipitation.

Under a wide range of atmospheric operating conditions Combin-aire™ units have amply fulfilled performance and mechanical specifications. Before proceeding with a new process unit or revamping or adding to present cooling systems let Hudson give objective assistance in determining the most economic balance in the use of air cooling, Combin-aire™ cooling and water cooling.

## Converting Cooling Towers into Combin-aire™ Units

Presently installed cooling towers may be used as the basis for Combin-aire™ cooling by installing structure with fin-tube elements being drawn across the water near the bottom of the cooling tower, the capacity of the cooling tower, and cooling the air for use in the fin-tube elements.



Combin-aire™ is protected by U.S. Patents, Patents pending and copyrights.

For more information on this or any other product, please contact:

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