

Basics of ACHEs Software

This software is designed to familiarize users with the types, components, and features of air-cooled heat exchangers. It includes a calculator that will provide "ball park" estimates of your project.

** (Pricing data updated 2nd quarter of 2015)

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Sample Screen Shots:

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Description of Air-Cooled Heat Exchangers

Forced Draft

1. Tube bundle 4. Plenum 7. Inlet bell
2. Nozzle 5. Fan 8. Drive Assembly
3. Header 6. Fan ring 9. Column support

An ACHE is a device for rejecting heat from a fluid directly to ambient air. This is in contrast to rejecting heat to water and then rejecting it to air, as with a shell-and-tube heat exchanger and a wet cooling tower system.

The obvious advantage of an ACHE is that it does not require water, which means that plants requiring large cooling capacities need not be located near a supply of cooling water.

An ACHE may be as small as an automobile radiator or large enough to reject the heat of turbine exhaust steam condensation from a 1,200 MW power plant -- which would require 42 modules, each 90 feet wide by 180 feet long and served by two 60-foot diameter fans driven by 500 horsepower motors.

COMPONENTS

An ACHE consists of the following components (see displayed figure):

- * One or more bundles of heat transfer surface.
- * An air-moving device, such as a fan or stack.
- * Unless it is natural draft, a driver and power transmission to mechanically rotate the fan.

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Input for ACHE Size and Price Estimate

1. Input Project Description

Title:

Item Number:

2. Select Units

English Metric

3. Select Type of Service and Hot Fluid

Service:

Condensing Gas Cooling Liquid Cooling

Hot Tube Side Fluid:

Overall Bare Tube Heat Transfer Coefficient:

to Btu/(Hr-SqFt-F), Used

4. Select Fan Draft

Forced Induced

5. Input Hot Fluid Parameters

Heat Duty, Million Btu/Hr

Inlet Temperature, °F

Outlet Temperature, °F

6. Input ACHE Parameters

Inlet Air Temperature, °F

Tube Length, Feet

Number of Tube Rows:

Tubes and Headers:

Price Multiplication Factor:

Calculate

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