



Air Cooler Fluid Coolers– Applications & Performance

The air cooled fluid cooler is basically an extension design of an air cooled condenser on the roof or ground. A unit with a coil (usually laying flat) with prop fans above it. In an air cooled condenser application, the coil is removing the total heat of rejection required to have an A/C or refrigeration system to work properly. In a fluid cooler application, the coil handles either water or a glycol & water mixture to remove the heat from another source.

There are two major applications of air cooled fluid coolers and they are the removal of heat from a source that has a desired leaving fluid temperature at least five degrees above the ambient temperature required during operation. (Example: Cool 150 GPM of water and 30% propylene glycol from 110 degrees F to 100 degrees F when the ambient air outside will reach as high as 95 degrees F.)

The other application is called "free cooling" which is deceptive because it should be known as "reduced expense cooling". This is all about using cold ambient air during winter, spring and fall to reduce the cost of the cooling fluid. In other words, lets say that you have a process and you need to run a compressor-chiller to cool water for this process. If the outdoor ambient temperature falls below the required leaving fluid temperature by five degrees, then you can shut off the chiller, and thus, divert the water (glycol) to an air cooled fluid cooler and cool the process water this way. (Example: Cool 150 GPM of water from 55 to 45 deg. F using a chiller) When the ambient air in winter is as low as 40 deg. F, then the chiller can be shut down and water diverted up to the fluid cooler for cooling. The operational costs usually are 75% lower and the payback is usually in 2-3 years on average.

Units need to be constructed of heavy structural galvanized steel and can also be fabricated in all aluminum. Aluminum is used for certain environments and can reduce the overall weight of the unit as well. Most units have 30" or less diameter and direct drive with a maximum of 1140 RPM for noise control.

Fluid Coolers: Did You Know?

Did you know ?

USA Coil & Air build single fan to twelve fan units in standard 4-5 weeks. We can even expedite units in 3 weeks!

Did You know ?

USA Coil & Air is the only fluid cooler manufacturer that can provide it's "sentry guard coil design" on its units. This is a coil that is guaranteed to not have any freeze damage and allows the selection of the unit to have far less glycol percentage since the coil is built with sentry guard design. See USA website for designs and how they work.

Did You know ?

We are aware that these units are large, weigh a lot, and are almost always rigged in place. We make sure units are delivered on flat beds and that quality communications take place between USA Coil and the consignee on the job site.

Trivia Answers:

What are the top (5) Internet countries in the world?

5. India 4. Germany 3. Japan
2. China 1. USA

What are the top (5) tourist countries in the world?

5. Italy 4. China 3. USA
2. Spain 1. France

(Continued)

Most units require fan cycling with aquastat that allows for reduced load or lower ambient air operation. Any unit is designed for the closest ambient air temperature to the desired leaving fluid temperature. When the ambient air falls in temperature (further away from desired leaving fluid temp.) then the unit needs to be able to operate by fan cycling (fans shutting off until the required leaving fluid temp. is obtained).

Other accessories that are normally required are as follows:

- Mounted fused or non-fused disconnect switch
- Motor fusing
- Control Circuit Toggle Switches
- Upgrade in coils construction including heavier tube wall, fin thickness, or stainless steel casings
- Epoxy coating on coils or entire unit if in salt laden or industrial atmosphere
- Units with horizontal discharge or extended legs

Fluid Coolers have a usage in the removal of heat for many systems needing this type of unit vs. a cooling tower or for reduced operational cost. It is important that the specifying source and manufacturer design units meet the maximum conditions place in controls for reduced loads and builds the units to last in the environments.

Many of you may already be USA Coil & Air customers and we thank you for your current and past business. If you are not a customer yet, we hope you will be in the very near future. We believe that this newsletter will give you keen insight into our equipment, typical applications and will answer service questions as well. We hope you enjoy.

Did you Know ?

We fabricate coils in our standard 4 to 5 weeks year-round and then also offer our 5 and 10 working day shipment program. We can also build coils in 2 or 3 working days as well as expedite coatings for environmental condition.

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Thank you for allowing us to share with you. We'd be happy to answer any questions you may have from the services we offer to general product info.

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