

How Cottonwood Filter Screens Increase Operational Efficiency on Condenser Coils Systems

There Is More to The Story Than Meets the Eye

To the casual observer, Cottonwood Filter Screens look like a common mesh screen that simply stops airborne debris at its point of entry into mechanical systems – This is the “intuitive aspect” of the product however, the benefits of their construction and use go well beyond keeping debris out of condenser coils. What isn’t as intuitive is how they contribute to increasing cooling efficiency, driving down energy cost and simplifying the maintenance process.

To understand how they work to optimize efficiency it first requires an understanding of how condenser coils become fouled – there’s an intuitive aspect to condenser coil fouling but it’s not necessarily what you think; they don’t usually foul due to small particulate such as dust, dirt, sand and pollen because this type of debris is small enough to flow through the coils under flow of air and out the exhaust – rather, coil fouling is typically caused by larger debris (cottonwood seed, leaves, insects, grass clippings, mulch, etc.) which gets wedged or snagged between the coils such that all debris no matter the size



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coming in behind it, builds up on top of it, eventually leading to a fouled coil condition. With this in mind, now let's look at the difference between Standard Efficiency and High Efficiency Micro-channel coils and the impact of fouling. With the market demanding high efficiency cooling equipment, OEM's have increasingly been shipping micro-channel equipment vs. the Standard efficiency coils – Why? because users understand that the energy savings will more than offset the higher initial investment price over the service life of the equipment.



Are You Really Capturing the Energy – It's Not as Easy as You Think

Keeping any condenser coil clean is the single most important thing one can do to ensure optimal cooling performance – a fouled condenser coil no matter its efficiency design, simply won't work well and will eventually fail, so keeping condenser coils clean is crucial. Now let's look at the fouling impact on Standard Efficiency vs. High efficiency condenser coils - Standard Efficiency Coils with 12 – 15 fins per inch will have more space between each fin, while the High Efficiency coils with 15 – 20+ fins per inch will have less space between them – so if you stop and think for a moment of the condenser coils being a filter – which



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coil would be a better filter – the Standard Efficiency or the High Efficiency coil? If you said the High Efficiency or, Micro-channel coil you would be correct; because the high efficiency coil will trap more debris than the standard efficiency, it tends to foul-out sooner between maintenance cycles and run longer in a fouled condition; The irony of this is that the very equipment that has the ability to deliver an energy savings can actually become an energy hog.



To capture the savings promised of high efficiency coil systems - there are only two things that users can do – either increase the cleaning cycles (*which carries an increase in maintenance cost and also increases the chances for irreversible coil / fin damage*) or, protect them from airborne debris. Using Cottonwood Filter Screens will largely eliminate conventional coil cleaning by relocating the fouling away from the coil to the outside of the unit where it can be quickly and easily cleaned and where rain and wind can aid in keeping them clean.

Whether one elects to increase the cleaning cycle or use Cottonwood Filter Screens to protect the condenser coils, one thing is clear, quarterly maintenance cycles don't usually provide adequate attention to unprotected high efficiency coils if expecting to realize the full energy saving benefit, especially during the spring summer and fall. If operational efficiency and energy savings is truly important to an operation and you or a customer is currently using or considering purchase of high efficiency condenser

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coils, then Cottonwood Filter Screens are the safest and most efficient approach for protecting the coils and should be an integral part of the equipment maintenance strategy.

About Cottonwood Filter Screens

Available in various filter grades and mounting options for all makes and models of equipment, Cottonwood filter screens are made from a specially engineered mesh which is designed for high volume, high velocity air movement systems with extraordinary low impact on static pressure. They feature UV & Flame Resistance, have a “rip stop” characteristic and include a non-stick surface for quick and easy cleaning using a broom, brush, leaf blower or garden hose – even rain will rinse them clean.



Randy Simmons, President of Air Solution Company – the leading manufacturer of Cottonwood Filter Screens, Hail Guards and Weather Guards for the HVAC Industry.

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