

# Exploring the wonderful world of antimicrobial coils

ALL-COPPER coils have long been recognised for their superior corrosion resistance. Previously they had been made using conventional copper tubes with diameters of 9.52mm in applications such as hospital intensive care units and air-conditioners on mass-transit.

Today, several leading coil makers are beginning to use MicroGroove tubes coils for commercial applications. Indeed, a leading coil manufacturer now is offering an all-copper heat exchanger made with small diameter copper tubes as well copper fins.

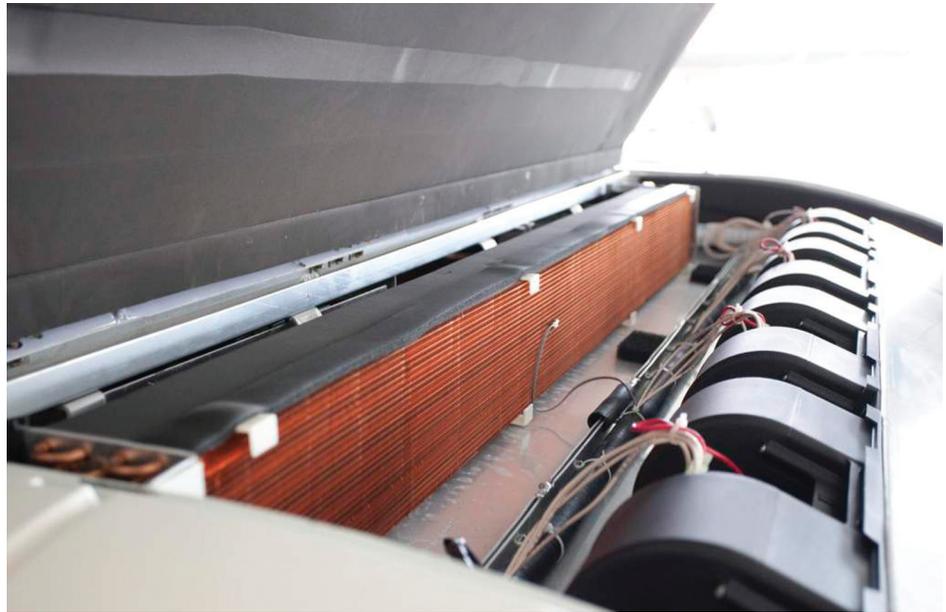
This is great news from the perspective of the end-user because the higher heat transfer inside the smaller diameter tubes is well matched by the heat transfer properties of the copper fins outside the tubes. The antimicrobial properties of the copper fins increase the efficiency even further.

It makes sense to use copper fins in a wide range of applications – the reduced need for fin material keeps material costs and system weights low.

## The power of antimicrobial

Recent laboratory testing sponsored by the Copper Alliance has proven that copper, along with many copper alloys, contains antimicrobial properties. This antimicrobial phenomenon has implications not only for touch surfaces, but also for HVAC components such as heat exchangers used in air conditioners, refrigeration systems and air handlers.

Results based on this research have received official endorsement through the US Environmental Protection Agency's (EPA) 'Treated Article Exemption' registration for copper alloys in HVAC applications. First granted in September 2010, this registration allows copper HVAC components to make product protection claims in the US. These products can claim to suppress the growth of bacteria, mould



and mildew that reduce system efficiency and cause product deterioration or foul odours.

The copper tubes and copper fins used in heat exchangers are nearly 100% copper, which means the antimicrobial properties are at their highest for all-copper coils.

Bacteria can thrive on materials such as aluminium or stainless steel, which have no measured antimicrobial properties. Bacteria can form layers on these materials and become a substrate for further growth of microorganisms.

However, on copper surfaces, the growth of bacteria, mould and mildew is quickly suppressed making the surface cleaner and easier to maintain.

## Copper in action

The City of Shanghai is leading the way with the deployment of antimicrobial copper HVAC systems in an area where everyone

appreciates the necessity of long-lasting and high performance air conditioning – on its buses.

Evaporator coils with aluminium fins were replaced by units with copper fins. The city wanted to determine whether the new units did in fact eliminate bacterial, fungal and viral growths. They also wanted to see in action whether or not the surfaces remained cleaner for longer and if that resulted in expanded service life and improved air quality.

The Shanghai Municipal Center for Disease Control and Prevention (SCDC) undertook testing between 2010 and 2012 to answer these questions. Buses operating under similar conditions were fitted with coils made with either copper or aluminium fins, and the level of contamination on each was monitored.

It was found that microbial levels on the copper surfaces were significantly lower than those on the aluminium, which concurs with a recently-published US study investigating the same subject in a laboratory environment.

## All-Copper Heat Exchangers

Along with judicious use of filters and regular maintenance, all-copper coils can be kept clean, conduct heat and resist corrosion better when compared to other types of coil materials. The musty smells and bad odours sometimes associated with air conditioning equipment can be avoided. Heat transfer efficiency is higher for a clean heat exchanger compared to one with fins and tubes that are contaminated, so energy savings become another benefit of an all-copper coil.

## Balticare restructures in Europe

BALTIMORE Aircoil has reorganised its European sister and service company Balticare. Each country is now led by a country manager that will steer a BAC Balticare team of sales persons, representatives and service technicians.

By reorganising the Balticare sales organisation this way, BAC and Balticare Europe guarantee a fast, consistent and reliable response to all cooling tower and condenser needs. New country managers have unrivalled experience in the cooling business and

are fully committed to take personal responsibility for customer satisfaction.

The team of country managers will be headed by Hervé Ciocca, general manager BAC Balticare Europe. He has been with BAC Balticare for several years in various positions in the sales departments of both BAC and Balticare. The local Balticare offices will continue to provide local sales and service assistance.

The country managers for the UK and Ireland is Mark Davies.