Nothing Succeeds Like Success

Use of Smaller-Diameter Copper Tubes Grows

When a company first conceives of using smaller diameter copper tubes, the challenges may appear daunting. Yet the rewards can be great. Here are three companies that successfully made the transition to smaller-diameter copper tubes.

The cutaway drawing shows 5 mm copper tubes in an outdoor condenser. (Courtesy of Goodman.)

Goodman SmartCoil

Goodman announced its new SmartCoil™ technology in 2008. In this case, the coils were made of aluminum fins and 5-mm copper tubing. Rusty Tharp was one of the team members involved in the development of SmartCoil products when the project began in 2007. He currently is the Director of Regulatory Affairs, Goodman Manufacturing Company, a member of the Daikin group.

"Many new manufacturing methods were pioneered in the development of the first coils with 5-mm copper tubes," explained Tharp. "Five millimeter copper tubes are now used by Goodman for central air conditioners in the 1.5 ton to 15 ton capacity range. Our copper supplier willingly worked with us to facilitate the transition to smaller diameter copper tubes. Finding the optimal mix of performance and product size is important to being a competitive player in the HVAC market, which is why Goodman has chosen 5-mm SmartCoil condenser coils as the foundation for our cooling products."

Condenser coils made from 5-mm diameter copper tubing are manufactured in Houston, Texas and Fayetteville, Tennessee. According to Tharp, the key benefits for the customer are reduced refrigerant volume, energy efficiency, compactness and ease of maintenance.

LU-VE MINICHANNEL

Another early adopter of smaller diameter copper tubes is the LU-VE Group, an industry leader in developing more compact products with higher performance than earlier technology. Thanks to the work of the LU-VE Group Research and Development Laboratory, the brand new technology of the MINICHANNEL® coil is now available: It is a miniaturized solution with 5-mm diameter copper tubes and louvered aluminum fins.

The MINICHANNEL coil is the basis for a new line of condensers, collectively dubbed the NanoGiant® condensers. The air-cooled condensers are suitable for a wide range of refrigeration and air conditioning applications in a variety of residential and commercial buildings. Full specifications can be found in a multilingual NanoGiant brochure-catalog from the LU-VE Group.

As the technical director responsible for new product development at LU-VE, Stefano Filippini says, "The extraordinary performance of the NanoGiant heat exchangers is due to the optimum combination of special profile aluminum fins and high-efficiency 5-mm diameter copper tubes with internal grooves." According to Filippini, the coils are made in a consolidated production process that provides maximum flexibility and reliability.

Super Radiator Coils

Super Radiator Coils is pioneering the use of smaller diameter copper tubes in commercial and industrial equipment.

According to Matt Holland, Vice President of Operations at SRC in Richmond, Virginia, MicroGroove Technology offers several compelling benefits such as design flexibility, size and weight reduction, and improved efficiencies. Copper coils using MicroGroove offer a combination of features unavailable using other materials technologies, including conventional-size round tubes or brazed-aluminum flat tubes.

The company has the ability to make coils with tube lengths up to six or eight feet in length and formed easily. "We gained a lot of experience over the last three years of development with MicroGroove," says Holland. "We have tested heat exchangers made with MicroGroove technology in our world-class wind tunnel facility in Richmond, Virginia, and we have found our customers like the results." SRC is actively working with several manufacturers to incorporate this technology into their products.

Looking Ahead

What does the future hold for even smaller-diameter copper tubes in heat exchanger design and manufacturing?

"If further improvements can be discovered with regard to optimization of heat transfer, less refrigerant use and more compact sized units, we plan to actively explore all options," says Tharp.

Whatever the future brings, it is a good time to be in product development in the ACR industry. The next big thing in ACR might be made from small tubes. Will MicroGroove tubes be the key to your success? Join our discussion group on LinkedIn and let us know what you think.

the microgroove™ advantage

IT'S A GAME CHANGER

MicroGroove™ technology is changing the game of air conditioning and refrigeration (ACR) OEM product design.

OEMs are going back to their drawing boards. They are designing ACR products with high energy-efficiency, while minimizing materials usage and reducing refrigerant volume.

The resulting ACR products are smaller and lighter yet can be produced using familiar manufacturing methods.

It's a whole new game!

For more information, or to join a free webinar, visit **www.microgroove.net.**

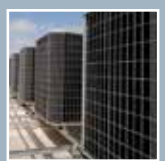
Join us on LinkedIn via microgroove.net

2014 AHR EXPO
Booth 5803

Cu International Copper Association
Copper Alliance








Available from a range of suppliers.
For more information visit:
www.microgroove.net