

Wieland

The Game Changer



microgroove[®]

Wieland Thermal Solutions[®]
PROVIDING EFFICIENCY

microgroove® – high-efficiency inner-grooved tube

The game changer in the design and manufacture of ACR products!



ECONOMICAL, ECO-FRIENDLY INNER-GROOVED COPPER TUBES

Smaller, grooved tubes with specially enhanced inner surfaces make smaller, more efficient heat exchanger coils possible ... and hence ACR units with high energy-efficiency.

Heat exchanger coils made with this new technology of high-efficiency tubes weigh less and take up less space. They use less refrigerant than other copper- or aluminium solutions.

ACR products based on small diameter high-efficiency copper tubes are already changing the game.

The Technology

Demands for reduced raw materials costs and the use of environmentally friendlier refrigerants have been and still are the impetus for heat exchanger designs for state-of-the-art ACR products.

Why Less is More

The aim of any tube development must be to increase the heat transfer on the refrigerant side. The smallest amount of heat transfer occurs in the centre of the tube. The larger the tube size, the higher the increase in size of the area with minimal heat transfer. Enhancement of surface area and minimisation of tube outside diameter is the solution because smaller diameter tubes allow for higher heat-transfer efficiency and the refrigerant flow is closer to the tube wall as the tube diameter decreases.

The result is a higher heat-transfer coefficient: smaller tubes, in combination with a specially developed surface enhancement, are more efficient and can thus save tube and fin mass compared to a heat exchanger design based on larger diameter tubes.

Overall Benefits of Smaller Diameter High-Efficiency Tubes

Energy efficiency and reduced overall system size can be achieved at a lower material cost with smaller diameter high-efficiency tubes. Also, smaller diameter tubes can operate at higher pressures e.g. CO₂ applications.

Copper tube offers other advantages, such as high corrosion resistance, durability, superior properties and proven and familiar manufacturing methods.

