

# REFRIGERANT CONDENSER COIL SPECIFICATION



**MAIOCCO & ASSOCIATES**  
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## 1.0 DESIGN PRESSURES AND TEMPERATURES

Coils shall be designed to withstand 250 psi maximum operating pressures and a maximum temperature of 300°F for standard duty copper tube coils with standard headers. Higher limits are available, depending on coil construction and / or materials used.

## 1.2 FACTORY TESTING REQUIREMENTS

Coils are to be pressurized and then completely submerged in warm water containing special wetting and final cleaning agents for leak testing and tested with a minimum of 315 psi air pressure for standard copper tube coils. A hydrostatic leak test is available upon request. Certified hydrostatic leak test and Certificate of Conformance also available upon request. Coils must display a tag with the inspector's identification as proof of testing. After testing, coils are to receive a 5 lb. Nitrogen charge assuring the coil as received remains leak free and clear of internal contamination.

## 1.2 FACTORY TESTING REQUIREMENTS

Coils shall be submerged in water and tested with a minimum of 315 psi air pressure for standard copper tube coils and 125 psi for cleanable coils with removable heads. A 500 psig hydrostatic and shock test is required for high pressure cupronickel construction. Coils must display a tag with the inspector's identification as proof of testing.

## 1.3 FINS

Coils shall be of plate fin type construction providing uniform support for all coil tubes. Coils are to be manufactured with die-formed aluminum, copper, cupro-nickel, stainless steel or carbon steel fins with self-spacing collars, which completely cover the entire tube surface. Any manufacturer not capable of offering the full range of these materials shall be considered as unacceptable.

Fin corrugations available shall include: Flat, Rippled and "Hi-F" Sine Wave for coils built with .625" OD tubes and utilizing a 1.5" equilateral tube pattern; Flat, Rippled and "Hi-F" Sine Wave for coils built with .50" OD tubes and utilizing a 1.25" equilateral tube pattern; "Hi-F" Sine Wave for coils built with .50" OD tubes and utilizing a 1.5" equilateral tube pattern; Rippled and "Hi-F" Sine Wave for coils built with .375" OD tubing and utilizing a 1.0" equilateral tube pattern; "Hi-F" Sine Wave for coils built with .375" OD tubes and utilizing a 1.25" equilateral tube pattern. Manufacturers not capable of producing the full range of these fin surface styles, corrugations and tube patterns shall be considered as unacceptable.

Standard fin thickness' available shall include: .0060" +/- 5% for aluminum and copper; .0075" +/- 5% for aluminum, copper, and cupro-nickel, carbon steel and stainless steel; .0095" +/- 5% for aluminum, copper, carbon steel and stainless steel; .016" +/- 5% for aluminum and copper. Manufacturers not capable of providing the full range of these fins thicknesses shall be considered as unacceptable.

Fins are to be formed with full collar on all of available materials, corrugation styles, tube diameters and tube patterns. Manufacturers unable of providing full collars on the full range of fin offerings shall be considered as unacceptable.

Fin spacing available shall include: 4-14 fins / inch on coils supplied with .625" OD tubing; 6-14 fins / inch on coils supplied with .50" OD tubing; 4-20 fins / inch on coils supplied with .375" OD tubing. Manufacturers with tooling not capable of providing full collar, die formed fins, accurately space with a tolerance of +/- 4% and not offering the full range fin spacing for the appropriate tube diameter shall be considered as unacceptable.

## 1.4 TUBING

Tubing and return bends shall be fabricated from UNS 12200 seamless copper conforming to ASTM B75 for standard pressure and temperature applications. Elevated duty and special application construction tube cores shall be available in seamless 90/10 Cupro-Nickel Alloy #706, Stainless Steel ASTM #A249 grade 304L or 316L and Carbon Steel ASTM #A214 welded or #A179 seamless.

Core tubes (excluding hot dipped galvanized steel coils) shall be mechanically expanded to form an interference fit within the fin collars. Expansion shall not decrease the tube wall thickness.



SPECIFICATIONS