

## 1-0. GENERAL

Coilmaster fluid coils are intended for use with water, glycol, or other appropriate heat transfer fluids. Coils are to be designed to maximize performance under specified conditions with minimal air-side pressure drop.

### 1-1. CERTIFICATION

All water coils designed with 1/2" or 5/8" tubes are to be AHRI performance certified and shall bear the AHRI symbol. Coils outside the scope of AHRI's standard rating conditions or the manufacturer's certification program will be acceptable since the manufacturer is a current member of the AHRI coil certification program, and coils will be rated in accordance with AHRI Standard 410.

### 1-2. TUBES

Tubes and return bends shall be constructed from seamless UNS C12200 copper conforming to ASTM B224 and ASTM E527. Properties shall be O50 light annealed, with a maximum grain size of 0.040 mm.

Tubes are to be mechanically expanded into fins (secondary surface) for maximum heat transfer. Materials are to be 3/8" diameter x (0.014, 0.022) wall thickness, 1/2" diameter x (0.016, 0.025) wall thickness, or 5/8" diameter x (0.020, 0.025, 0.035, 0.049) wall thickness.

### 1-3. FINS

Secondary surface (fins) shall be of the plate-fin design using aluminum or copper, with die-formed collars. Fin design to be flat, waffle, or sine-wave in a staggered tube pattern to meet performance requirements.

Collars will hold fin spacing at specified density, and cover the entire tube surface. Aluminum properties are to be Alloy 1100 per ASTM B209, with O (soft) temper; copper is to be Alloy 11000 per ASTM B152-06 with soft (anneal) temper. Fins are to be free of oils and oxidation.

### 1-4. HEADERS

Headers are to be constructed of seamless UNS C12200, Type L (drawn) copper material sized to match specified connection size. Type K (drawn) copper headers and Schedule 40 steel headers shall be offered as optional materials.

Headers are to have finished integral spin-closed ends designed to withstand test pressure. 1/4" vents and drains are to be provided for all fluid coils unless specified otherwise.

## 1-5. CONNECTIONS

Connection material shall be copper, or Schedule 40 steel or red brass pipe. The type of connection is to be sweat type, MPT or FPT, grooved, or flanged as required.

### 1-6. CASING

Coil casing material shall be of G90 galvanized steel, 16 gauge minimum. Heavier material, stainless steel, copper, or aluminum casings are to be provided as required.

Intermediate tube supports are to be provided on all coils 50" and longer fin length. Coil casings on top and bottom of coils are to have double-flange construction, allowing for vertical stacking of coils.

### 1-7. BRAZING

All coils are to be brazed with minimum 5% silver content (BCup-3) filler material to insure joint integrity. Low-fuming, flux-coated bronze braze-weld material is to be used for ferrous to non-ferrous joints.

### 1-8. PRESSURE TESTING

Coils shall be tested at 550 psig using dry nitrogen, submerged under water. Dual-operator verification shall determine that all coils are leak-free.

### 1-9. FREEZE DAMAGE PROTECTION

Fluid coils shall be available with Cooney Freeze Block by Coilmaster as an option for freeze damage protection. Freeze Block technology utilizes intermediate expansion headers at each tube pass through the coil by brazing headers to return bends. Each expansion header will have a corresponding in-line, brass bar-stock relief valve installed that will open to relieve pressure.

This occurs when expansion of the internal fluid reaches a maximum pressure, or the valve senses a minimum internal water or external air temperature. Valves are designed to reseal after discharging to prevent flooding after thawing of coil.

### 1-10. OPERATING PRESSURES AND TEMPERATURES

Fluid coils shall be designed to withstand 250° F maximum operating fluid temperature, and 300 psig maximum operating pressure.

### 1-11. INSTALLATION

Coils are to be installed according to manufacturer's instructions and applicable piping codes.