Fluid Coils Guide Specifications

**1-0. General**

Coil Company 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. All coils shall be constructed with plate fins and seamless tube construction as shown on plans and specifications.

**1-1. Certification**

All water coils designed with 1/2” or 5/8” tubes are to be AHRI performance certified and bear the AHRI symbol. Coils outside the scope of the 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 0.040mm.

Seamless tubes are to be mechanically expanded into plate fins to form an everlasting bond between primary and secondary surfaces.

 **Standard:**

 3/8” diameter x (0.014, 0.022) wall thickness

 1/2” diameter x (0.016, 0.025) wall thickness

 5/8” diameter x (0.020, 0.025, 0.035, 0.049) wall thickness

 **Optional Tube Materials – O.D. options vary:**

Stainless Steel

Cupro-Nickel

Carbon Steel

**1-3. Fins**

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

**Standard:**

Aluminum fin with 3/8” O.D. tube - .005” fin thickness (.006”, .0075” optional)

Aluminum fin with 1/2” O.D. tube - .006” fin thickness (.0075”, .010” optional)

Aluminum fin with 5/8” O.D. tube - .006” fin thickness (.0075”, .010” optional)

**Optional Fin Materials:**

Copper

Stainless Steel

Collars will hold fin spacing at specific 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 1100 per ASTM B152-06 with soft (anneal) temper. Fins are to be free of oils and oxidation.

**1-4. Headers**

Headers are constructed of seamless UNS C12200, Type L copper material sized to match specified connection size. Headers are to have finished integral spin-closed ends designed to withstand test pressure. 1/4” vents and drains are provided for al fluid coils unless specified otherwise.

**Optional Materials:**

Type K copper headers

Schedule 40 steel headers

**1-5. Connections**

Connection material can be copper, 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 16-gauge, G90 galvanized steel. Heavier gauge and stainless-steel casings are available as required to meet specification. Intermediate tube supports are to be provided on all coils 50” and longer in fin length. Coil casings on top and bottom of coils are to have double-flanged construction, allowing for vertical stacking of coils.

**Standard:**

16 Gauge Galvanized Steel

**Optional Casing Materials:**

14 Gauge Galvanized Steel

304 Stainless Steel

316 Stainless Steel

Aluminum

Copper

**1-7. Brazing**

All coils are to be brazed with minimum 5% silver content (BCup-3) filler material to insure joint 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 comprised of round tubes shall be tested at 550 PSIG using dry nitrogen while submerged under water. Dual-operator verification determines that all coils are leak-free.

Sectional and cleanable coils designed with removeable sections shall be leak tested at two times the recommended operating pressure, or 150 PSIG.

**1-9. Operating Pressure and Temperatures**

Fluid coils shall be designed for 250°F maximum temperature for single phase fluids and up to 300 PSIG maximum operating pressure.

**1-10. Installation**

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

Contact **Coil Company** [**www.coilcompany.com**](http://www.coilcompany.com) **610-251-0257** for specifications concerning other materials of construction.