

SECTION 23 82 16
AIR COILS

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This Section specifies heating and cooling coils for air handling units and duct applications.

1.2 RELATED WORK

- A. Section 23 05 11, COMMON WORK RESULTS FOR HVAC.

1.3 QUALITY ASSURANCE

- A. Refer to paragraph, QUALITY ASSURANCE, Section 23 05 11, COMMON WORK RESULTS FOR HVAC.
- B. Unless specifically exempted by these specifications, heating and cooling coils shall be tested, rated, and certified in accordance with AHRI Standard 410 and shall bear the AHRI certification label.

1.4 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Manufacturer's Literature and Data for Heating and Cooling Coils: Submit type, size, arrangements and performance details. Present application ratings in the form of tables, charts or curves.
- C. Provide installation, operating and maintenance instructions.

1.5 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. Air Conditioning, Heating and Refrigeration Institute (AHRI):
AHRI 410-02.....Forced-Circulation Air-Cooling Air-Heating
Coils.
- C. American Society for Testing and Materials (ASTM):
B75/75M-02.....Seamless Copper Tube (Metric)
- D. National Fire Protection Association (NFPA):
70-08.....National Electric Code
- E. National Electric Manufacturers Association (NEMA):
250-08.....Enclosures for Electrical Equipment (1,000 Volts
Maximum)
- F. Underwriters Laboratories, Inc. (UL):
1996-2004.....Electric Duct Heaters
- G. National Electrical Manufacturer's Association (NEMA):
70-2008.....National Electrical Code

PART 2 - PRODUCTS

2.1 DIRECT EXPANSION COOLING COILS

- A. Conform to ASTM B75 and AHRI 410.
- B. Tubes: Minimum 16 mm (0.625 inch) tube diameter; Seamless copper tubing.
- C. Fins: 0.1397 mm (0.0055 inch) aluminum or 0.1143 mm (0.0045 inch) copper mechanically bonded or soldered or helically wound around tubing. Fin spacing of 2.6 through 4.7 fins per cm (80 through 144 fins per foot).
- D. Headers: Copper, welded steel or cast iron. Provide seamless copper tubing or resistance welded steel tube for volatile refrigerant coils.
- E. "U" Bends, Where Used: Machine die-formed, silver brazed to tube ends.
- F. Coil Casing: 1.6 mm (16 gage) galvanized steel with tube supports at 1200 mm (48 inch) maximum spacing. Construct casing to eliminate air bypass and moisture carry-over. Provide duct connection flanges.
- G. Pressures kPa (PSIG):

Pressure	Refrigerant Coil
Test	2070 (300)
Working	1725 (250)

- H. Protection: Unless protected by the coil casing, provide cardboard, plywood, or plastic material at the factory to protect tube and finned surfaces during shipping and construction activities.
- I. Vents and Drain: Coils that are not vented or drainable by the piping system shall have capped vent/drain connections extended through coil casing.
- J. Designed for HFC-410A.

2.6 ELECTRIC HEATING COILS

- A. Standards: Electric coils shall meet the requirements of the National Electric Code (NEC) and UL 1996.
- B. General: Aluminized steel frame, spot welded. Duct mounted units may be flanged or slip-in design with built-in terminal box completely factory wired to terminals. Control panels for coils in air handling units may be built-in or remote in NEMA 1 enclosure.
- C. Coils: Open type, 80 percent nickel, 20 percent chromium resistance wire, insulated by floating ceramic bushings and supported in aluminized steel brackets spaced on 100 mm (4-inch) maximum centers. Coils shall be mechanically crimped in stainless steel terminals which are insulated from the frame with high temperature molded phenolic bushings.
- D. Over Temperature Protection:
 - 1. Primary system: Automatic reset thermal cutout.

2. Secondary system: Load-carrying manual reset thermal cutout factory wired in series with each heater stage.

E. Overcurrent Protection: Comply with UL and NEC.

F. Contactors: Disconnecting magnetic type, (when required), except for duct mounted reheat coils contractors shall be disconnecting mercury type.

G. Airflow Interlock: Diaphragm operated differential airflow pressure switch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Follow coil manufacturer's instructions for handling, cleaning, installation and piping connections.

B. Comb fins, if damaged. Eliminate air bypass or leakage at coil sections.

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