

SECTION 23 6313
AIR COOLED REFRIGERANT CONDENSERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Manufactured units.
- B. Casing.
- C. Condenser coils.
- D. Fans and motors.

1.02 RELATED REQUIREMENTS

- A. Section 03 3000 - Cast-in-Place Concrete: Equipment bases.
- B. Section 23 0513 - Common Motor Requirements for HVAC Equipment.
- C. Section 23 0548 - Vibration and Seismic Controls for HVAC Piping and Equipment.
- D. Section 23 2300 - Refrigerant Piping.
- E. Section 26 2717 - Equipment Wiring: Electrical characteristics and wiring connections.

1.03 REFERENCE STANDARDS

- A. AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008.
- B. ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.
- C. ASHRAE Std 20 - Methods of Testing for Rating Remote Mechanical-Draft Air-Cooled Refrigerant Condensers; 1997 (R2006), with Errata 2014.
- D. ASHRAE Std 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings; 2013, Including All Addenda.
- E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum); 2014.
- F. NEMA MG 1 - Motors and Generators; 2014.
- G. UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide rated capacities, weights, accessories, electrical requirements, and wiring diagrams.
- C. Shop Drawings: Indicate components, assembly, dimensions, weights and loading, required clearances, and location and size of field connections. Include schematic layouts showing condenser, refrigeration compressors, cooling coils, refrigerant piping and accessories required for complete system.
- D. Manufacturer's Instructions: Submit manufacturer's complete installation instructions.
- E. Sustainable Design Documentation: Submit manufacturer's product data on refrigerant used, showing compliance with specified requirements.
- F. Operation and Maintenance Data: Include start-up instructions, maintenance instructions, parts lists, controls, and accessories.
- G. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.

- B. Installer Qualifications: Company specializing in performing the work of this section with minimum 3 years of experience.
- C. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with manufacturer's installation instruction for rigging, unloading and transporting units.
- B. Protect units on site from physical damage. Protect coils.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Carrier, a part of UTC Building and Industrial Systems, a unit of United Technologies Corp; _____: www.carrier.com.
- B. Trane, a brand of Ingersoll Rand; _____: www.trane.com.
- C. York International Corporation/Johnson Controls, Inc; _____: www.york.com.
- D. Substitutions: See Section 01 6000 - Product Requirements.

2.02 PERFORMANCE REQUIREMENTS

2.03 MANUFACTURED UNITS

- A. Provide packaged, factory assembled, pre-wired unit, suitable for outdoor use consisting of casing, condensing coil and fans, integral sub-cooling coil liquid accumulator.
- B. Construction and Ratings: In accordance with AHRI 210/240 and UL 207. Testing shall be in accordance with ASHRAE Std 20.
- C. Performance Ratings: Energy Efficient Rating (EER)/Coefficient of Performance (COP) not less than prescribed by ASHRAE Std 90.1, in combination with compressor units.

2.04 CASING

- A. House components in welded steel frame with steel panels with weather resistant, baked enamel finish.
- B. Mount starters, disconnects, and controls in weatherproof panel provided with full opening access doors. Provide mechanical interlock to disconnect power when door is opened.
- C. Provide removable access doors or panels with quick fasteners.

2.05 CONDENSER COILS

- A. Coils: Aluminum fins mechanically bonded to seamless copper tubing. Provide sub-cooling circuits. Air test under water to 425 psig, and vacuum dehydrate. Seal with holding charge of nitrogen.

2.06 FANS AND MOTORS

- A. Vertical discharge direct driven propeller type condenser fans with fan guard on discharge, equipped with roller or ball bearings with grease fittings extended to outside of casing.
- B. Weatherproof motors suitable for outdoor use, single phase permanent split capacitor or 3 phase, with permanent lubricated ball bearings and built-in current and thermal overload protection; refer to Section 23 0513.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide for connection to electrical service. Refer to Section 26 2717.
- C. Provide connection to refrigeration piping system. Refer to Section 23 2300. Comply with ASHRAE Std 15.
- D. Provide cooling season start-up, winter season shut-down service, for first year of operation.

- E. Shut-down system if initial start-up and testing takes place in winter and machines are to remain inoperative. Repeat start-up and testing operation at beginning of first cooling season.

END OF SECTION 23 6313

