

SECTION 23 67 00 - AIR COOLED CONDENSING UNITS

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide labor, materials, equipment and services as required for the complete installation designed in Contract Documents.

1.2 SUBMITTALS

- A. Air-cooled condensing unit, complete with accessories.
- B. Complete wiring and piping diagrams, showing all piping and control interconnection.

1.3 GENERAL REQUIREMENTS

- A. Equipment Manufacturer shall be responsible for the following:
 - 1. Furnish complete installation Drawings, templates, wiring diagrams and instruction manuals for the equipment. Manufacturer's "Installation Instructions" and "Start-up and Service Instruction" and catalog for wiring and piping shall become a part of the Contract Documents.
 - 2. Provide additional copies of above data for O&M Manual.
 - 3. Provide refrigerant piping diagram prior to installation showing exact location and arrangement of piping thermostats, flow switches, gauges, thermometers and insertion wells required.
 - 4. Supervise and check installation for compliance with manufacturer's recommendations.
 - 5. Furnish Rubber-in-shear vibration mounting equipment to prevent transmission of machine vibration to the building structure per project details.
 - 6. Complete start-up for each unit shall be performed under the direction of the manufacturers authorized representative.
- B. Contractor Shall:
 - 1. Provide piping, valves and accessories to connect the condensing units to their respective units, including miscellaneous devices to make a complete and operable refrigeration system.
 - 2. Provide one year, 24-hour service and guarantee, from date of final acceptance.
- C. Electrical Wiring:

1. Division 16 shall provide power wiring to condensing unit.
 2. Division 23 shall provide control wiring interlocks at units and interlocks to air handling units as required.
- D. Start-Up, Testing and Instructions:
1. Provide complete installation, testing, wiring, start-up, and instructions to Owner's Representative's.

PART 2 - PRODUCTS

2.1 AIR-COOLED CONDENSING UNITS

- A. General:
1. Factory assembled air-cooled condensing units with galvanized steel casings and baked enamel finish. Units selected for operation in conjunction with respective air handling units.
 2. Units constructed in accordance with ANSI B9.1 and NEC.
 3. Unit performance shall be certified in accordance with ARI Standard 460, latest edition.
 4. Condensing unit capacities as scheduled.
- B. Compressors:
1. Condensing unit with internally isolated refrigeration compressor provided with overload and inherent winding thermostat protection, and crankcase heaters.
 2. Five year compressor parts warranty from date of shipment.
- C. Condenser Coils:
1. Condenser coils of aluminum fins mechanically bonded to seamless copper tubing, pressure tested for 425 psi working pressure.
 2. Tubes cleaned, dehydrated, sealed and leak tested at 150 psig.
- D. Refrigeration Circuits:
1. Refrigeration circuits with sub-cooling coils, service valves gauge ports, and dryers.
- E. Controls:
1. High and low pressure cut-outs incorporating automatic reset, pressure

operated unloader, remote control transformer, and positive acting timer to prevent short cycling of compressor, gauge panel.

2. Condenser fan control shall permit operation of the system to -10° Low Ambient Operation

F. Condenser Fans And Motors:

1. Direct driven propeller fans, vertical discharge, with fan guards.
2. Motors resiliently mounted and pre-lubricated, with built-in overload protection and equipped with corrosion protected fan shafts.
3. Fans statically and dynamically balanced, steel or aluminum blades and zinc plated steel hubs.

G. Casings:

1. Zinc-coated steel, phosphatized casings coated with epoxy resin primer and finished with baked enamel.
2. Equipped with unit mounting rails and drain holes.
3. Spring isolators between unit and roof supports.

H. Design Equipment: Daikin

- I. Make: American Standard, Carrier, Daikin, Lennox, Trane, or approved equal
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2.2 REFRIGERATION ACCESSORIES

A. Filter Dryers:

1. Liquid lines dryer ahead of solenoid valves in each system.
2. Replaceable cartridge type.
3. Make: Ansul, McIntire, Mueller, Sporlan.

B. Sight Glass:

1. In each liquid line close to evaporator, after filter dryer.
2. Make: Ansul Super Dry-Ey, Henry; with elements to act as moisture indicator; Sporlan.

C. Thermal Expansion Valve:

1. In each liquid line at the evaporator coil.

2. Make: Sporlan.
- D. Solenoid Valve:
1. In each liquid line at the evaporator coil ahead of the expansion valve.
 2. Make: Alco, Sporlan.
- E. Shut-Off Valves:
1. To isolate equipment components, packless type.
 2. Make: Henry, Mueller, Superior.
- F. Charging Valve:
1. Locate and install at a point to facilitate charging of the system.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Connect services to the unit where called for, in complete accordance with the Manufacturer's Installation Instructions. Furnish Division 16 with wiring diagrams and electrical data to permit power wiring connections to the unit. Provide control wiring serving air handling unit associated condensing unit, and the auxiliary control panel in accordance with Section "Electric Wiring." Charge system with Refrigerant after leak testing, and in accordance with Manufacturer's Installation Instructions. Provide roof equipment support rails 4 in. concrete pad

END OF SECTION