Mechanical Specifications

Condensing Units

General
Units shall be assembled on sturdy steel mounting/lifting rails and shall be weather proofed. Units shall include hermetic scroll compressors, plate fin condenser coils, fans and motors, controls and holding charge of nitrogen. Operating range shall be between 115°F and 50°F in cooling as standard from the factory. Units shall be UL 1995 listed, certified and rated in accordance with ARI Standard 340/360 or 365.

Casing
Unit casing shall be constructed of zinc coated heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized and finished with a weather-resistant baked enamel finish. Units surface shall be tested 500 hours in salt spray test. Units shall have removable end panels which allow access to all major components and controls.

Refrigeration System – Single Compressor
TTA090A, TTA120A units shall have a single refrigeration circuit. Each refrigeration circuit has an integral subcooling circuit. A refrigeration filter drier shall be provided as standard. The TTA090A, TTA120A units shall have both a liquid line and suction gas line service valve with gauge port.

TTA090A, TTA120A units shall have a direct-drive hermetic scroll compressor with centrifugal oil pump and provide positive lubrication to all moving parts. Motor shall be suction gas-cooled and have a voltage utilization range of plus or minus 10 percent of unit nameplate voltage. Crankcase heater, discharge line thermostat, internal temperature and current-sensitive motor overloads shall be included for maximum protection. Scroll compressor shall provide inherently low vibration and noise by having no suction and discharge valves. External high and low pressure cutout devices shall be provided. Evaporator defrost control provided in indoor blower coil shall prevent compressor slugging by temporarily interrupting compressor operation when low evaporator coil temperatures are encountered.

Refrigeration System – Dual Compressor
TTA120B, TTA150B, TTA180B, TTA240B units shall have two separate and independent refrigeration circuits. Each refrigeration circuit shall have an integral subcooling circuit. A refrigeration filter drier shall be provided as standard. Units shall have both a liquid line and suction gas line service valve with gauge port.

TTA120B, TTA150B, TTA180B, and TTA240B units shall have two Trane direct-drive hermetic scroll compressors with centrifugal oil pump and provide positive lubrication to all moving parts. Motor shall be suction gas-cooled and have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Crankcase heater, discharge line thermostat, internal temperature and current-sensitive motor overloads shall be included for maximum protection. Scroll compressor shall provide inherently low vibration and noise by having no suction and discharge valves. External high and low pressure cutout devices shall be provided. Evaporator defrost control provided in indoor blower coil shall prevent compressor slugging by temporarily interrupting compressor operation when low evaporator coil temperatures are encountered.

Refrigeration System – Dual Manifolded Compressors
TTA 120C and TTA180C units shall have a single refrigeration circuit with an integral subcooling circuit. A refrigeration filter drier shall be provided as standard. Units shall have both a liquid line and suction gas line service valve with gauge port.

The units shall have two scroll compressors manifolded together. Motor shall be suction gas-cooled and shall have a voltage utilization range of plus or minus 10 percent of nameplate voltage. Crankcase heater, discharge line thermostat, internal temperature and current-sensitive motor overloads shall be included for maximum protection. Scroll type compressor shall provide inherently low vibration and noise by having no suction and discharge valves. External high and low pressure cutout devices shall be provided. Evaporator defrost control provided in the indoor blower coil shall prevent compressor slugging by temporarily interrupting compressor operation when low evaporator coil temperatures are encountered.

Condenser Coil
Coils shall be internally finned or smooth bore 3/8" copper tubes mechanically bonded to configured aluminum plate fin as standard. Factory pressure and leak tested to 420 psig air pressure. Metal grilles with PVC coating for coil protection is optional.

Condenser Fan And Motor(s)
Direct-drive, statically and dynamically balanced 26 or 28 inch propeller fan(s) with aluminum blades and electro-coated steel hubs shall be used in draw-through vertical discharge position. Either permanently lubricated totally enclosed or open construction motors shall be provided and shall have built in current and thermal overload protection. Motor(s) shall have either ball or sleeve bearing type.
Mechanical Specifications
Condensing Units

Controls
Condensing units shall be completely factory wired with necessary controls and contactor pressure lugs or terminal block for power wiring. Unit shall provide an external location for mounting a fused disconnect device. A choice of microprocessor or electromechanical controls shall be available. The 24-volt electro-mechanical control circuit shall include control transformer and contactor pressure lugs for power wiring. Units shall have single point power entry as standard.

The microprocessor controls shall provide for all 24-volt control functions. The resident control algorithms shall make all heating, cooling and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures. The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized microprocessor shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

Time delay timers shall be provided to help prevent compressors in dual compressor units from simultaneous start-up. An anti-short cycle timer shall be available as an optional accessory.

Zone Sensor
This field installed control shall be provided to interface with the Micro equipped units and shall be available in either manual, automatic programmable with night setback, with system malfunction lights, or remote sensor options.

Thermostat
Two stage heating and cooling operation or one stage heating and cooling shall be available for field installation in either manual or automatic changeover. Automatic programmable electronic with night setback shall also be available.

LonTalk® Communication Interface
This factory or field installed option shall be provided to allow the unit to communicate as a Tracer™ LCI-R device or directly with generic LonTalk Network Building Automation System Controls.

Low Ambient Operation
Standard units shall start and operate to approximately 50°F when matched with air handlers and coils. Optional head pressure control accessory permits operation to 0°F.

FACTORY INSTALLED ACCESSORIES
Black Epoxy Coated Condenser Coil — This option is designed to provide corrosion protection of air cooled condenser coils for seacoast application. The black epoxy coil protection is a factory applied thermoset vinyl coating, bonded to normal aluminum fin stock. The uniform thickness of the bonded vinyl layer exhibits excellent corrosion protection in salt spray tests performed in accordance with ASTM B177.

Accessories
Low Ambient Head Pressure Control — Shall modulate the RPM of unit outdoor fan motor in response to outdoor ambient temperature and discharge line pressure. Accessory provides unit cooling operation to outdoor temperatures of 0°F.

Vibration Isolation Packages — Shall reduce transmission of noise and vibration to building structures, equipment and adjacent spaces. Packages shall be available in either neoprene-in-shear or spring-flex types.

Hot Gas Bypass Kit — Shall be available to provide capacity modulation.

Time Delay Relay — Shall prevent compressors in dual compressor unit from coming on line simultaneously. Timer shall be 24-volt, 60 cycle, with four minute timing period.

Anti-Short-Cycle Timer — Shall prevent rapid on-off compressor cycling in light load conditions by not allowing compressor to operate for 5-7 minutes upon shutdown. Shall consist of a solid state timing device, 24-volt, 60 cycle with either 5 or 7 minute fixed-off timing period.

Condenser Coil Guard — Metal grille with PVC coating shall be provided to alleviate coil damage.
Air handler units shall be completely factory assembled including coil, condensate drain pan, fan motor(s), filters and controls in an insulated casing that can be applied in either vertical or horizontal configuration. Units shall be rated and tested in accordance with ARI standard 210/240, 340/360. Units shall be UL listed and labeled in accordance with UL 46S/1995 for indoor blower coil units.

Casing
Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized and finished with a weather-resistant baked enamel finish. Casing shall be completely insulated with cleanable, foil faced, fire-retardant, permanent, odorless glass fiber material. All insulation edges shall be either captured or sealed. Knockouts shall be provided for unit electrical power and refrigerant piping connections. Captive screws shall be standard on all access panels.

Refrigeration System
The TWE060A, TWE090A, TWE120A units shall have a single refrigeration circuit and the TWE060B, TWE090B, TWE120B, TWE180B, TWE240B units shall have dual refrigeration circuits. Each refrigeration circuit is controlled by a factory-installed thermal expansion valve.

Evaporator Coil
Configured aluminum fin surface shall be mechanically bonded to 3/8" internally enhanced copper tubing and factory pressure and leak tested at 375 psig. Coil is arranged for draw-through airflow and shall provide a double sloped condensate drain pan constructed of PVC plastic. The drain pan shall be removable for cleaning. The condensate drain pan can be installed in any of four positions allowing for vertical or horizontal application and providing external connections on either side of the unit.

Evaporator Fan
Double inlet, double width, forward curved, centrifugal-type fan(s) with adjustable belt drive shall be standard. Thermal overload protection shall be standard on motor. Fan and motor bearings shall be permanently lubricated. Oversized motors shall be available as an option for high static application. All indoor fan motors meet the U.S. Energy Policy Act of 1992 (EPACT).

Controls
Magnetic evaporator fan contactor, low voltage terminal strip, check valve(s), and single point power entry shall be included. All necessary controls shall be factory-installed and wired. Evaporator defrost control shall be included to prevent compressor slugging by temporarily interrupting compressor operation when low evaporator coil temperatures are encountered.

Filters
One inch, throw-away filters shall be standard on TWE060A,TWE060B, TWE090A, TWE090B, TWE120A AND TWE120B model air handlers. Filters shall be accessible from the side coil access panel. Filter rack can be field converted to two inch capability. Two inch, throw-away filters shall be standard on TWE180B and TWE240B models.

ACCESSORIES
Hydronic Heat Coils — One row steam and two row hot water coils shall be available for mounting on the discharge outlet of the air handler. Coils shall be shipped completely factory assembled within a heavy gauge sheet metal casing, finished with enamel to match the blower coil unit. Coils shall be applied in either vertical or horizontal airflow configurations.

Electric Heaters — UL and CSA approved electric heat modules shall be available for installation directly on fan discharge. Electric Heaters shall be available in a wide range of capacities with one or two stage control, single-point electric power connection and terminal strip connections. Electric heater elements shall be constructed of heavy-duty nickel chromium elements internally wye connected on 480/600 volt, three phase and delta connected on 208/240 volt, three phase. Each 208/240 volt heater shall have pilot duty with secondary backup fuse links for automatic reset of high limit controls. Each 480/600 volt heater shall have automatic line break high limit controls.

Evaporator Coils — Shall be completely factory assembled including the expansion valves and drain pans. The TXE120B coil shall be dual refrigerant circuits. Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized and finished with an enamel finish. Casing shall be completely insulated with foil faced, fire-retardant, permanent, odorless glass fiber material. The coils shall be convertible to either vertical and/or horizontal airflow configuration. Aluminum fin surface shall be mechanically bonded to 3/8" OD copper tubing. Coils shall be factory pressure and leak tested.

Discharge Plenums and Grilles — Accessory discharge plenums shall be available for vertical, free discharge applications. Plenums shall be constructed of heavy-gauge, zinc coated galvanized steel finished with baked enamel to match the air handler unit. Grilles shall be satin finished aluminum and have four-way adjustable louver.

Return Air Grilles — Accessory return air grille shall be provided for vertical front, free return applications. Grilles shall be installed in place of the front lower side panel. Grille shall be satin finished aluminum with non-adjustable louver.

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Mechanical Specifications
Air Handlers

Mounting Subbase — Available for vertical floor mount configurations. Subbase shall be constructed of heavy gauge, zinc coated galvanized steel with baked enamel finish to match air handler unit. Subbase is required in the vertical air flow application for condensate drain trapping and when isolators are required.

Vibration Isolators — Shall reduce transmission of noise and vibration to building structures, equipment and adjacent spaces. Packages shall be available in either neoprene-in shear or spring-flex types in floor or suspended mountings.

Oversized Motors — Field installed oversized motors shall be available for high static pressure applications.

Control Options

Standard Indoor Thermostats — Two stage heating and cooling operation or one stage heating and cooling thermostats shall be available in either manual or automatic changeover.

Programmable Electronic Night Setback Thermostat — Shall provide heating setback and cooling setup with 7-day programming capability.

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Stocking Location Webb/Mason

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