PACKAGED TERMINAL COOLING UNIT WITH HEAT PUMP OR ELECTRIC HEATING

HVAC Guide Specifications

Size Range: Cooling: 6,900 to 15,100 Btuh
Heating: 6,000 to 14,100 Btuh Heat Pump
6,400 to 17,000 Btuh Electric

Carrier Model Numbers:

52PC Premier Series, Cooling Only

52PE Premier Series, Cooling with Electric Heat

52PQ Premier Series, Heat Pump with Electric Heat

52CE Comfort Series, Cooling with Electric Heat

52CQ Comfort Series, Heat Pump with Electric Heat

Part 1 — General

1.01 SYSTEM DESCRIPTION

Single piece, thru-the-wall electrically controlled unit using hermetic rotary compressor for cooling and heat pump or electric resistance heat, as shown on the contract drawings.

A. Insulated Polymer Wall Sleeve:

Wall sleeve shall provide excellent thermal insulation, be textured to hide scratches and prevent shine, will have superior outdoor noise absorption and shall be corrosion free for the life of the product. The Wall Sleeve must have dimensions of 42 in. width x 16 in. height x $14^{7}/_{8}$ in. depth and be shipped with a rear weather barrier installed.

B. Wall Sleeve Molding:

Molding shall trim the wall sleeve to the existing wall, to hide wall imperfections and irregularities in the wall opening.

C. Outdoor Polymer Louvered Grille:

Outdoor grille shall resist corrosion, breakage and match the color specified on drawing schedule and specifications.

D. Subbase:

Subbase will support the wall sleeve when it extends into the room more than 4 inches. Subbase must come from the factory pre-assembled, with a built in receptacle (size as specified on drawing schedule and specifications) or with factory installed hardwire, pre-sized for an exact fit to the unit.

1.02 QUALITY ASSURANCE

System shall be approved and certified by UL and UL, Canada. Chassis capacity and efficiency performance shall be certified in accordance with ARI standard 310/380. Chassis shall meet ASHRAE Standard 90.1 for minimum energy efficiency.

1.03 DELIVERY, STORAGE, AND HANDLING

A. The packaging of the chassis shall be sufficient to protect the chassis from damage during shipment via an enclosed truck. Chassis must also be able to withstand an impact force of 10 g's and a random continuous force of 1g, during shipping.

B. Chassis, wall sleeves, and grilles shall be shipped in separate cartons. Universal handling instructions shall be defined and visible on the carton, from front, back and sides.

C. Chassis shall be capable of withstanding temperatures from –40 F to 155 F, at 5 to 95 percent RH, non-condensing, during shipment and storage, without component failure.

D. Unit shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory-assembled, single-piece heating and/or cooling unit. Contained within the unit enclosure shall be compressor, coils, fans and fan motor, heating means, controls, all wiring and piping, and a full refrigerant charge (R-22).

Packaged Terminal Air Conditioners shall be of the sizes and capacities as shown on the contract drawing schedule and in the specifications.

B. Chassis:

The chassis shall be a factory-assembled, single-piece heating and/or cooling unit, that is simple to install and operate. Just slide the chassis into a wall sleeve, plug it into an outlet, and operate after installation. The chassis dimensions shall not exceed 42 in. wide and 16 in. high with room cabinet in place. The chassis shall consist of the following functional sections and components:

1. Operating Characteristics:

   Chassis shall be capable of starting and running at 115 F ambient outdoor temperature per maximum load criteria of ARI Standard 310/380.

2. Electrical:

   Chassis shall be equipped with a 58 in. power cord for 208/230 v models or a 15 in. power cord for 265 v models. The chassis current draw shall be specified on the chassis nameplate and match electrical requirements specified on the Contract drawing schedule and specifications. The power cord plug configuration shall conform to NEMA standards and the rating shall support the current draw of the electric resistance heater.

   For 265 v installations, UL codes require the use of an electrical equipped subbase for power cord usage or hardwire conduit for non-corded installations.

C. Airflow System:

The airflow system shall consist of one permanent split-capacitor, direct-drive permanently lubricated, two-speed fan motor for the indoor and outdoor fans. The outdoor fan shall be a dynamically balanced, corrosion resistant polymer multi-blade axial flow design, with integrated slinger ring. The indoor fan shall be a dynamically balanced, polymer, reverse curve blower wheel, to assure uniform

air distribution. The Fan Motor shall be of an enclosed design to reduce the effects of moisture and corrosion.

D. Compressor and Refrigerant:

The rotary-type Compressor shall be fully hermetic with internal and external vibration isolation. The refrigeration system will be sealed and contain a full refrigerant charge (R-22).

E. Coils:

Condenser and evaporator coils to be constructed of high-efficiency, 11 element lance sine wave enhanced aluminum fins and $^{3}/_{8}$-in. seamless axial grooved copper tubing, necessary to achieve EER and COP rating, as specified on the chassis name plate.

F. Factory-Installed Electric Heater:

The factory-installed, open coil type, electric heater is standard in heat/cool and heat pump chassis. The electric heater shall contain both an automatic reset and a one-shot over temperature protection device. The heating capacity of the electric heater shall be as identified on the Contract drawing schedule and in the specifications.

G. Controls:

All standard models shall be equipped with electro-mechanical controls to simplify the serviceability of the unit.

1. The chassis shall have standard controls, accessible and covered by a hinged door. The mode selection control shall consist of a mechanical rotary selector switch, which provides OFF, FAN ONLY, HEAT or COOL operations. The temperature selection control shall be an adjustable thermostat with upper and lower limits.
2. All standard models shall have a continuous/ fan cycle selector switch located behind the front panel. It shall allow the selection of continuous fan operation for maximum comfort or cycle operation (fan only runs with cooling or heating operation) for maximum energy savings.
3. All standard models shall have a Temperature Limiter control located behind the front panel. The temperature limiter allows a room temperature range to be set, to avoid extreme temperature settings, to maximize energy savings.
4. Emergency Heat Switch (Heat Pump Models Only) shall disable the compressor in heating mode and only allow the use of electric heat during heating cycles. The Emergency Heat switch is active at all outdoor ambient temperatures.
5. Wall thermostat chassis (RC and RP models) shall come from the factory ready for wall thermostat installation, including a blank out plate in place of the control knobs. No field-installed kits or wire harnesses shall be required.
6. Wall thermostat chassis (RC and RP models) shall have a user selectable fan speed control switch, on the control panel, to optimize fan speed for maximum comfort.

H. Safeties:

Compressor shall have automatic reset, over temperature and over current protection. The fan motor shall have an inherent, automatic reset over temperature protection. The electric heater shall have two over temperature protectors.

I. Front Panel (supplied with chassis):

Front panel shall be constructed of a polymer material to resist breakage and corrosion. It shall have a front louvered surface with integrated control door and air filters. The air filters shall be easily accessible without removing the front panel from the chassis.

J. Anti-Theft Control Knobs:

All chassis knobs shall resist breakage and corrosion. They shall be mounted on to the control box section and captured behind the front panel, to prevent unauthorized removal.

K. Bi-Directional Discharge Grille:

Bi-directional polymer discharge grille shall resist corrosion and breakage. It shall be easily set to direct air at 40 degrees from horizontal or 80 degrees from horizontal. This non-metallic discharge grille shall be cool to the touch during the heating cycle.

L. Ventilation:

The chassis shall have a manual adjustable fresh air vent with a concealed manual control. The vent control shall allow a maximum of 50 cfm of fresh air to be drawn into the room when the indoor fan is operating and the door is open. The ventilation air can be increased to approximately 95 cfm by adding the Booster Ventilation accessory kit (see section Q.13)

M. High-Efficiency Condensate Removal System:

The chassis shall have a condensate removal system consisting of a condensate suction port, to draw and atomize condensate, and a slinger ring integrated in the outdoor fan, to disperse condensate onto the condenser coil to be evaporated.

N. Snow Baffle:

The chassis shall contain a snow baffle to prevent melting snow from freezing and potentially damaging the outdoor fan.

O. Corrosion Protection (CP and RP Models Only):

Chassis with Corrosion Protection (CP,RP) shall be used for coastal or corrosive environments, to prolong the life of the product. Minimum requirements are:

1. All outdoor-exposed sheet metal parts shall be coated with a polyester powder coat paint.
2. Compressor and outdoor-fan motor finish shall be capable of withstanding 500 hours of salt spray testing per ASTM B-117.
3. Compressor mounting screws shall be Sermagard coated.
4. Outdoor coil fin stock shall be coated and able to withstand 1000 hours of salt spray testing per ASTM B-117.
5. Outdoor coil tube sheets shall be made of 316L stainless steel.

P. LATERAL DUCT SYSTEM (optional):

The lateral duct system shall allow one system to heat or cool two adjacent rooms, with up to a maximum of 30% of the discharge air being diverted to the adjoining room (a return air path must be provided from the adjoining room). The lateral duct kit consists of two main components, the plenum and the extension duct. In addition, the Kit includes an adjustable chassis discharge air grille, adjustable wall register and decorative wall molding for duct extension.

The Lateral Duct system shall be adaptable for either right or left side ducting, with a maximum duct extension of 4 feet. The duct run must be straight and horizontal; no bends or turns.

Q. Accessories:

1. Insulated Polymer Wall Sleeve (P/N: SLEEVE-INSUL-1PK) shall be made from a molded polymer, with factory-installed Styrofoam insulation and a minimum flammability rating of UL94-5V. The sleeve surface shall be textured to prevent shine and hide scratches.
2. Deep Wall Metal Wall Sleeve (up to 28-in.) (P/N: SLEEVE-EXTxx-1PK) shall be a one-piece, extended wall sleeve, with factory installed insulation and deep wall baffles integrated.
3. Architectural grille (P/N: GRILLE-PLA-xxxxx or GRILLE-ALU-xxxxx) shall be polymeric for long durable life or painted aluminum for a superior color match to the building.
4. Subbase (P/N: SUBBASE-xxxV-xxA) shall be pre-assembled from the factory and UL listed. Subbase options include:

   Non-electrical subbase: The non-electrical subbase shall be pre-assembled and provides mechanical support and requires no wiring.

   Electrical subbase: The electrical subbase shall be pre-assembled with factory-installed electrical junction box containing a receptacle for corded units.

   Hardwired subbase: The hardwired electrical subbase shall be pre-assembled with factory installed electrical junction box containing 19 in. of flexible conduit (for a perfect fit to the unit) and all mating connections.
5. Hardwire kit (P/N: HARDWIRE-KIT) shall provide a permanent connection to the unit. The hardwire kit mounts on the front right side of the unit and shall have 36 in. of flexible steel conduit and a Molex connector for easy connect/disconnect.
6. Condensate Drain (P/N: DRAIN-KIT-4PK) This universal drain kit shall be used internally or externally to route excess condensate to a drainage system. It can be field-installed on any Carrier wall sleeve. The drain kit shall be attached to the exterior right or left side of the wall sleeve for external draining or may be mounted to the bottom of the wall sleeve for internal draining.
7. Lateral Duct (P/N: LATERAL-DUCT) The kit shall include an adapter plenum, extension duct, wall register and wall molding. The lateral duct system allows one system to heat or cool two adjacent rooms, by directing up to 30% of the airflow to the adjacent room. See section 4.0 for detailed specification.
8. Energy management (P/N: EM-KIT) The kit shall allow individual units to be turned on and off from a remote location or by a motion sensing device. This kit interfaces to most energy management systems.
9. Lateral Air deflector (P/N: DEFLECTOR-1PK) Shall allow right or left air distribution from the chassis. Lateral air deflectors are recommended for units mounted in a corner or off-center in a room.
10. Security door (P/N: SECURITY-DOOR) The key-locking security door kit shall prevent unauthorized access to the unit's heating and cooling controls and prevents tampering with units in public locations and institutions. The security door shall include two matching keys and keys shall be common to all Carrier Security Door kits.
11. Wall Thermostats (P/N: TSTATCCBxx01-B) The digital wall thermostat shall operate with 24 VAC, be non-programmable, easy-to-use and provide maximum guest comfort.
12. Sleeve Molding (P/N: SLEEVE-MOLDING) shall trim the wall sleeve to the existing wall to hide wall joints and irregularities due to the sleeve opening.
13. Power Fresh Air Vent (P/N: PWR-VENT-DOORxxx) The Power Fresh Air Vent kit shall provide approximately 95 cfm of outdoor air for ventilation into the room. The kit shall have an automatically door that opens when the fan is on and closes when the fan is off.