



PCC SERIES

100% OUTSIDE AIR
ELECTRIC COOLING GAS HEATING
MAKEUP AIR UNITS



Application

PCC Series packaged units are designed to cool and heat 100% outside air year round for makeup air and ventilation applications. As outdoor air can be hot and humid, the airflow must be reduced to less than half the CFM per ton of a conventional air conditioner. This reduced airflow assures proper moisture removal and prevents carry over from increased condensate produced at higher wet bulb temperatures. At lower ambient temperatures, the supply air is heated and the outlet temperature is maintained by indirect fired gas heat as needed.

These units may be roof mounted on the optional factory supplied roof curb (PCCR), slab mounted or installed on post and rails (PCCH). Outside air is drawn into the outside air intake located on the end of the unit through metal mesh filters before entering the evaporator coil and heat exchanger.

Every unit is charged with refrigerant and run tested in both cooling and heating modes before shipment.

Units are certified by Electrical Testing Laboratories (E.T.L.), under ANSI/UL 1995. The furnace designs are certified by American Gas Association (A.G.A.), under ANSI Z83 and the Canadian Gas Association (C.G.A.) under CAN/CGA-2.8.

Standard Design Features

Heavy Duty Cabinet. All models are constructed of G-90 Galvanized steel. Bases are minimum 16 gauge, corner posts minimum 18 gauge, access panels are minimum 20 gauge and top pans are 18 gauge minimum. The interior of the indoor air side is thermally insulated with 1 inch thick fiberglass with an R value of 4.2. Insulation surface exposed to the air stream is finished with an acrylic coating that is resistant to air erosion and microbial growth. This coating combined with the dual density construction enhances the acoustical characteristic.

Durable Tar Base. One quarter inch hot asphalt coating prevents rain from reaching steel on the interior of the base bottom. No base rustout.

Electro-deposition Acrylic Paint Finish. All exterior cabinet parts are cleaned and zinc-phosphate coated in a seven stage pre-treatment system, then painted in a cationic electro-deposition paint system; the parts are then baked for a minimum of eighteen minutes at 400°F to give them the most durable paint finish with a minimum of 1 mil film thickness.

Stainless Steel Hardware. Exterior hardware (nuts, bolts, screws, washers) is stainless steel to prevent or minimize rust and corrosion.

Compressor. High efficiency scroll, and serviceable disc semi-hermetic compressors have been selected for their refrigeration reliability in these units. Compressor mountings are designed to minimize vibration and piping stress. Semi-hermetics utilize special waffle pad isolator and washers. All compressors have hot gas bypass capacity reduction: semi-hermetic compressors also have cylinder unloading.

Compressor Protection. All compressors have crankcase heaters and the motors are equipped with internal overheat-overload protection. The serviceable semi-hermetic compressors are also equipped with isolation valves and oil pressure failure protection.

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Size	Nominal Cooling (MBH)	Heating (MBH) Min	Input Max
071	70.6	100	125
101	101.1	100	175
141	135.3	150	225
181	180.8	150	300
201	201.7	150	350
271	271.2	150	400
361	339.0	150	400

Standard Design Features Continued

Coils. The condenser and evaporator coils are aluminum plate-finned formed on multiple rows of seamless copper tubing arranged in a staggered tube configuration. The tubes are mechanically expanded, firmly bonding the tube to the shoulder of each fin.

Insulated Condensate Drain Pan. The condensate drain pan is fabricated from G-90 steel, painted in the electro-deposition paint system, and overcoated with an asphalt based mastic. The bottom is then insulated with 1" fiberglass insulation. The drain pan is furnished with dual 3/4" or 7/8" F.P.T. (threaded) drain fittings exposed to the exterior of the cabinet.

Condenser Air Fan and Motor. The condenser air fan is of the propeller type, electronically balanced and direct-driven by a 1075 rpm PSC fan motor. The inherent protected motor has sealed ball bearings that do not require lubrication. The outdoor air is discharged through a vinyl coated fan guard. This directs all sounds upward eliminating the effects of wind direction and minimizing condenser airflow sound projection.

Blower and Motor. A forward curved, statically and dynamically balanced DIDW centrifugal blower is used for the indoor air. The blower and housing are galvanized steel. The blower wheel is mounted on a solid steel shaft supported by sealed ball bearings. The shaft is driven by adjustable belt drive sheaves connected to a 1725 rpm motor with sealed ball bearings. The sealed bearings on both the blower shaft and motor do not require lubrication. Motors through 3 horsepower are internally protected (auto reset) and motors 5 horsepower and larger are externally protected (manual reset).

Refrigerant Circuit. Included in the refrigerant circuit is a accumulator, filter-drier, high pressure safety control (manual-reset), low pressure safety control/loss of charge protector (auto-reset), dual gauge connections for high and low pressure readings, sight glass-moisture indicator, and thermo-expansion valve. The expansion valve has adjustable superheat and distributors to meter the refrigerant evenly to the evaporator refrigerant circuits.

Furnace. Indirect gas fired heat section is 80% thermally efficient. All units are equipped for natural gas and include an integral power vent system which provides metered combustion air, dilutes flue products, and eliminates the need for a vent cap. Combustion air intake and flue outlet locations are on same side of unit. Each unit has all the required limit and safety controls including a venter pressure switch which verifies power vent flow prior to allowing operation of 24 volt gas valve.

Stainless Steel Heat Exchanger. The heat exchanger is made from 409 stainless steel with venturi-design tubes. The die-formed burners are also constructed of 409 stainless steel and include flared ports with a stainless steel insert.

Intermittent Spark Pilot. Automatic lighting of pilot is achieved through an electronic spark on a call for heat. Pilot gas flow is shut off between heating cycles.

Gas Heat Section Operation. On a call from a two-stage, unit mounted ductstat, the gas heat section will fire at 50% or 100% of full input rate.

Electric Controls. Internally wired controls include the compressor anti-short cycle timer, fan, blower and compressor motor contactors or starters mounted in sheet metal control panel. The 24 volt control circuit includes a transformer and low voltage terminal board.

DX Cooling Section Operations. Unit operation is controlled on a signal from factory installed or remote mounted controller. Control voltage must be sensed by the controller to enable all functions. Evaporator blower motor runs continuously as signaled by the user defined operating schedule. The compressor starts when the outside air temperature is above the adjustable setpoint. In the cooling mode the leaving air temperature will be maintained by hot gas bypass and/or unloading the compressor. This is accomplished through suction-pressure sensing, thus tracking the outside air variations. In the heating mode the leaving air temperature will be maintained by a modulating gas regulator on the leaving air setpoint.

Filters. One inch, cleanable, metal mesh filters are installed in the filter rack. Note: Pleated or other filter media that is subject to moisture damage is not recommended.

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