CV60H3 Heat Pump General Specification Guide

DESIGN REQUIREMENTS

The system shall be a self-contained single packaged vertical unit (SPVU) fully factory assembled, wired, charged, and run tested prior to shipment. The unit shall be provided with a variable speed compressor for cooling and heating to provide comfort and reduced noise in occupied spaces. System shall be ETL or UL listed in accordance with UL60335-1 and UL60335-2-40. System shall be listed by California Energy Commission under Appliance Efficiency Regulation Title 20.

PERFORMANCE

The HVAC system shall be AIRSYS heat pump model CV60H3A, a 3-ton nominal variable capacity system with maximum capacity of 4-ton. The HVAC shall be designed to meet cooling demands with a maximum outdoor temperature of 127°F while maintaining indoor temperature on greater than 72°F. The HVAC provides heating with a minimum outdoor temperature of -40°F, or -20°F if configured without electric heater, while maintaining indoor temperature no less than 75°F. The HVAC system shall have an indoor operating sound level that does not exceed 40dBA when measured 10 feet in front of the return and 5 feet above the floor. Energy efficiency shall be at minimum **17.0 IPLV** for cooling and **3.3 COP** for heating. Energy efficiency rating shall be tested and certified by to AHRI 390.

STANDARD FEATURES

CONTROL AND SOFTWARE: Unit shall be single packaged and include all necessary sensors, drivers, and software to drive all functions of the variable speed heat pump in conjunction with a basic 2-stage heat pump thermostat.

FRAME AND CABINET: The Frame shall be protected from environmental corrosion using the corrosion inhibiting paint/finish and hot-dipped galvanized steel as base material. Cabinet shall be thermally insulated and lined with closed cell insulation foam.

INDOOR FAN: The indoor fan shall be forward supply, centrifugal type. It shall be factory painted and have galvanized steel casing to protect against corrosion. The drive shall be electronically communicated and variable speed. The fan shall incorporate a soft start function to minimize sudden current draw and noise. The fan shall be wired with quick disconnect to allow quick field replacement. The fan shall have monitoring circuitry that includes overcurrent protection, over temperature protection, phase loss protection, and locked rotor protection.

OUTDOOR FAN: The outdoor fan shall be draw through, axial type, with sickled blades for reduced noise. The blades shall be coated in polypropylene plastic to protect against the environment. The fan shall include plastic coated steel guard grille to protect against accidental contact. The drive shall be electronically communicated and variable speed. The fans shall incorporate a soft start function to minimize sudden current draw and noise. The fans shall have monitoring circuitry that include overcurrent protection, over temperature protection, phase loss protection, and locked rotor protection.

FILTRATION: The Filter chamber shall be an integral part of the HVAC. It shall be easily accessible from the exterior of the unit The filter chamber shall be field adjustable to accommodate 1", 2", and 4" filters. An initial set of filters shall be installed in the unit from the factory or distributor. It shall have a minimum MERV rating of 8 and be 2 inches deep.

REFRIGERATION SYSTEM: The system shall include a variable speed compressor. The variable speed compressor shall operate in conjunction with a VFD that changes the rotational speed of the compressor to achieve capacity unloading. The compressor shall have a soft-start function to reduce locked rotor amps and starting noise. The compressor shall include overload/overtemp protection. A noise isolation jacket shall be installed on the compressor to reduce compressor noise. The heat pump shall be fully factory charged with R410A refrigerant. Design refrigerant quantity shall be marked on product nameplate to allow field charging. Both coils shall be factory tested for a leak test and pressure. Both coils shall be factory coated to deter corrosion.

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STANDARD FEATURES - CONTINUED

COMMERCIAL ROOM VENTILATOR (CRV): The CRV shall be designed to allow fresh air from the outside to enter indoor in order to improve air quality. The ventilation air volume of the CRV shall be field adjustable, with maximum CFM no less than 450 CFM in order to meet AHRI/ASHRAE 60.1 ventilation standards. The CRV shall be spring loaded close. Factory or field installed.

OPTIONAL FEATURES

4" MERV 13 FILTER

ELECTRICAL HEATER (4, 6, 8, 10kW): The electrical heater shall be a Positive Temperature Coefficient (PTC) type heater that is self-regulating. The heater shall automatically reduce current draw when temperature is too high to minimize the risk of overheating and fire. It shall be rated for [4] [6] [8] [10] kW heating capacity. Factory or field installed.

ENERGY RECOVERY VENTILATOR (ERV): The ERV shall be designed to allow fresh air from the outside to enter indoor in order to improve air quality, while reducing the extra heating or cooling load from the introduced outside air. The ventilation air volume of the ERV shall be field adjustable, with maximum CFM no less than 450 CFM in order to meet AHRI/ASHRAE 60.1 ventilation standards. Factory or field installed.

CURB ADAPTOR: The curb adapter shall be constructed from galvanized steel, powder coated to match unit color. The curb adapter shall be designed to space the heat pump unit off from the wall and be able to bear the entire weight of the unit. The adapter shall have cable entrance for wiring. The adapter shall be designed with a separable and reversable return air panel to allow different return air positions.

CURB ADAPTOR TOP EXTENSION: The top extension shall be constructed from galvanized steel, powder coated to match unit color. The extension shall be designed to deliver supply air above the height of the heat pump itself. Air shall be discharged horizontally from the front of the extension.

TOP DISCHARGE ADAPTOR: The top discharge adaptor panel shall be constructed from galvanized steel, powder coated to match unit cover. The adapter shall be designed to replace the existing top panel of the heat pump and change supply air direction from front supply to top supply.

QUALITY ASSURANCE AND WARRANTY

The manufacturer shall define and manage a quality control process necessary to ensure that the product conforms to safety, performance, quality, and reliability requirements. Installation and commissioning shall be performed by an installer experienced in performing commercial HVAC installations. The product shall include a manufacturer's warranty that warrants that its products will be free from defects in materials and workmanship for a period of **60** months after date of installation.

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