PACKAGED HEAT PUMPS



CHP20(R ELITE 12[™] ("R" Models) CHP20(R)V-261-311-410-461-510-650 PACKAGED UNITS – HEAT PUMPS *23,800 to 60,000 Btuh (7.0 to 17.6 kW) Cooling Capacity *22,800 to 61,000 Btuh (6.7 to 17.9 kW) Heating Capacity 12,600 to 85,300 Btuh (3.7 to 25.0 kW) Optional Electric Heat *ARI Standard 210/240 Ratings

(7.0 To 17.6 kW) Bulletin #210068 April 1995 Supersedes August 1994

(2 To 5 Ton)





Rooftop Installation With Economizer and Combination Supply and Return Air System



Rooftop Installation With Horizontal Economizer

Equipment Warranty – The compressor has a limited warranty for a full 10 years in residential applications and 5 years in non-residential applications. All other covered components have a limited warranty for five years in residential applications and 1 year in non-residential applications. Refer to Lennox Equipment Limited Warranty furnished with the equipment for details.

Cabinet - Rugged cabinet is constructed of heavy gauge galvanized steel and completely insulated with thick fiberglass insulation. Prepainted steel cabinets have an outside paint finish of mildly textured enamel with a primer coat on all unpainted inside surfaces. Large removable cabinet panels allow service access. Supply and return air openings have flanges for ease of duct connection. Control box with factory installed controls is conveniently located for service access. A low voltage terminal strip is furnished and factory installed with CHP20V non "R" models. Electrical inlets are furnished for entry into the cabinet. Indoor coil drain pan is constructed of corrosion resistant painted galvanized steel and is equipped with a galvanized pipe (mpt) drain outlet. Coil guards are furnished on all CHP20RV models. Lifting brackets are factory installed on all models.

Refrigeration System - Complete factory sealed refrigeration system consists of: compressor, outdoor coil and fan, indoor coil and blower, high pressure switch (manual reset), reversing valve, suction and liquid line service gauge ports and full operating charge of refrigerant. All models have a check and expansion valve and thermometer well. CHP20V non "R" models have factory installed loss of charge switch.

NEW CUTAWAY POSITION ONLY

CHP20RV Basic Unit

Application - Lennox single package CHP20(R)V heat pump units are designed for outdoor rooftop or ground level installations in residential or light commercial applications. Units are capable of delivering bottom (down-flo) or side (horizontal) handling of supply and return air. CHP20(R)V models are available in six model sizes, single phase voltage (CHP20(R)V-261-311-411-461-511-651) and three phase voltage (CHP20V-413-513-653) with 23,800 to 60,000 Btuh (7.0 to 17.6 kW) cooling capacity and 22,800 to 61,000 Btuh (6.7 to 17.9 kW) heating capacity. **NOTE** — **"R" models are not available in Canada**.

The CHP20V-410-510-650 non "R" single and three phase voltage models are available with a choice of thermostat and related controls which include: electro-mechanical, W973, T7300 and W7400. In addition a factory installed commercial controls platform consisting of: control system and economizer wiring harness is furnished as standard. The commercial controls platform and related control systems are not available on the CHP20RV models.

Optional accessories include: supplemental electric heaters, outdoor coil guards (CHP20V non "R" models), down-flo filter adaptor kit (CHP20RV models), roof mounting frames, stand-off mounting kit, down-flo or horizontal economizer dampers with modulating or 3 position damper motor (CHP20V non "R" models), step-down or flush ceiling supply and return air diffusers and manual outdoor air dampers. See Optional Accessories tables.

Approvals - Units have been tested in the Lennox Research Laboratory environmental test room and rated according to Department of Energy (DOE) test procedures and in accordance with ARI Standard 210/240-89. In addition, units are tested and listed by Underwriter's Laboratories and have been sound rated in the Lennox reverberant sound test room in accordance with ARI Standard 270-84. DOE covered products are rated under 65,000 Btuh (19.0 kW) with single and three phase power input. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L., C.S.A., NEC and CEC. Optional electric heaters are U.L. and C.S.A. listed and rated and tested according to DOE test procedures and Federal Trade Commission (FTC) labeling regulations. Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

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NOTE - Due to Lennox' ongoing committment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.

FEATURES (Continued)

Copeland® Compliant Scroll Compressor — High efficiency compressor features durability, steady uniform suction flow, constant discharge flow, high volumetric efficiency, quiet operation and the ability to start under any system load. Use of the scroll compressor eliminates the need for accumulator, start capacitor and start relay. The compliant scroll type compressor is a simple compression concept design consisting of two involute spiral coils matched together to create a series of

crescent-shaped gas pockets between them. During compression, one scroll remains stationary while the other is allowed to orbit, not rotate, around the fixed one. As this motion occurs, gas is drawn into the outer pocket sealing off the open passage. As the spiral movement continues, the pockets between the scrolls are pushed to the center of the scrolls while simultaneously being reduced in volume. When the pocket reaches the center, the gas is now at high pressure and is forced out of a port located in the center of the fixed scroll. During compression, several pockets are being compressed simultaneously resulting in a smooth nearly continuous compression cycle. Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes

efficiency. The scroll compressor is tolerant to the effects of liquid slugging and contaminants. Should this occur, the scrolls separate and allow the liquid or contaminants to be worked to the center and discharged. Low gas pulses during compression minimize operational sound level. Motor is inherently protected from excessive current and temperature. Compressor is installed on resilient rubber mounts, assuring vibration free operation.

Copper Tube/Enhanced Fin Indoor and Outdoor Coils – Extra large surface area and circuiting of Lennox designed coils provide maximum cooling efficiency, excellent heat transfer and low air resistance. Coils are constructed of precisely spaced ripple-edged aluminum fins fitted to durable copper tubes. Fins are equipped with collars that grip tubing for maximum contact area. Lanced fins provide maximum exposure of fin surface to air stream. Flared shoulder tubing connections and silver soldering provide tight, leakproof joints. Long life copper tubing is easy to field service. Coil is thoroughly factory tested under high pressure to insure leakproof construction. Indoor coils feature rifled copper tubing for superior refrigerant flow resulting in maximum heat transfer.

Defrost Control — A solid state clock timer defrost control provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor "on" time at outdoor temperature below $45^{\circ}F$ (7°C). A thermostat mounted on the outdoor coil determines when the defrost cycle is required and also when to terminate a cycle.

Blower — Units are equipped with direct drive centrifugal blower precisely matched to the unit for maximum efficiency and minimum noise level. Blower is statically and dynamically balanced as an assembly before being installed in the unit. Multiple speed VSM motor is resiliently mounted. Three switches (continuous blower, electric heating speed and heat pump cooling/heating speed) on motor control blower speed. Six different positions on each switch allow a variety of blower speeds. See blower performance tables.

BDC1 Blower Control — Electronic blower control interfaces the VSM motor with the thermostat. Control allows blower to operate at three of the six speeds available. Control is factory installed in the unit control box. The BDC1 control has three diagnostic indicator LED's (ON/ OFF - HEAT - HI/LOW) to assist in servicing.

Efficient Outdoor Coil Fan — Direct drive fan draws air through the outdoor coil and discharges it vertically, up and away from the building. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air movement through the coil results in high refrigerant cooling capacity. Permanently lubricated, inherently protected, PSC motor is totally enclosed for maximum protection from rain, dust and corrosion. All models are equipped with a corrosion resistant PVC coated steel wire fan guard.

Commercial Controls Platform (CHP20V Non "R" Models) – A commercial controls platform is furnished and factory installed on the CHP20V non "R" single and three phase voltage models. This control platform consists of: control system and economizer wiring harness with jack plug connections. The wiring harness facilitates installation of the control system and economizer dampers. A choice of several systems are available, see page 4.

Air Filters (Furnished on CHP20V Non "R" Models Only) – Cleanable polyurethane one inch (25 mm) thick filter and filter rack is furnished for field installation in CHP20V non "R" models for down-flo applications. Filter rack will accept up to two inch (51 mm) thick filter. For horizontal applications without economizer, filter must be field installed in return air duct. DF16 Down-Flo Filter Adaptor is available for CHP20RV models and must be ordered extra.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Supplemental Electric Heat (Optional) – Additive electric heaters field install internal to the unit cabinet and are available in several Kw sizes, see Electric Heat Data tables. Heaters are factory assembled with controls installed and wired. Low voltage wiring only requires plug-in field connection. Helix wound nichrome heating elements are exposed directly in the air stream resulting in instant heat transfer, low element temperatures and long service life.

ECH16R heating elements are equipped with accurately located individual limit controls with fixed temperature off setting and automatic reset. Elements also have supplemental thermal cutoff safety fuses providing positive protection in case of excessive temperatures. Cutoff fuses are mounted external to the element face plate for quick and easy replacement. Heaters are also equipped with a thermal relay sequencer to bring the elements on and off line, in sequence, with a time delay between each element. Sequencer also initiates and terminates blower operation.

ECH16 heating elements are equipped with accurately located individual limit controls with fixed temperature off setting and automatic reset. Elements also have supplemental secondary limits providing positive protection in case of excessive temperatures. Secondary limits are mounted external to the element face plate for quick and easy replacement. Fuse block is also furnished. ECH16-20 and 25 Kw (208/240v-3ph) electric heaters are equipped with a thermal relay sequencer to bring the heating elements on and off line, in sequence, with a time delay between each element. Sequencer also initiates and terminates blower operation. Heating control relay(s) is furnished as standard. Heater control box and access cover are constructed of heavy gauge galvanized steel.

Outdoor Thermostat Kit (Optional) — An outdoor thermostat can be used to lock out some of the electric heating elements on ECH16-15, 20 and 25 Kw (208/240v-1ph) optional electric heaters. Outdoor thermostat maintains the heating load on the low power input as long as possible before allowing the full power load to come on the line. Thermostat kit LB-29740BA (56A87) and mounting box M-1595 (31461) must be ordered extra.

'R' Series Electric Heat Single Point Power Source Sub-Fuse Box (Optional) — Available for use with ECH16R electric heaters. Used in conjunction with ECH16 fuse box for single point power source applications. Field installs internal to the unit cabinet. Fuses are furnished with box. Box is constructed of galvanized steel with prepunched mounting holes and electrical inlet and outlet holes. Box cover is hinged for easy access. Three boxes are available, shipping weight 4 lbs. (2 kg) See Electric Heat Data tables for usage.

Unit Single Point Power Source Sub-Fuse Box (Optional) — Field installs internal to the unit cabinet. Provides sub-fusing to the unit. Used in conjunction with the ECH16 electric heat control box or the ECH16R electric heat single point power source sub-fuse box, for single point power source applications. Fuses are furnished with box. Constructed of galvanized steel with prepunched mounting holes and electrical inlet and outlet holes. Box cover is hinged for easy access. Ten boxes are available, shipping weight 5 lbs. (2 kg) See Electric Heat Data tables for usage.

Thermostat (Optional) — Thermostat is not furnished and must be ordered extra. CHP20RV models require a standard heat pump thermostat. See Thermostats bulletin in Accessories section and Lennox Price Book. For thermostat and related controls for the CHP20V non "R" single and three phase voltage models see page 4.

Low Ambient Kit (Optional) — Units will operate satisfactorily in the cooling mode down to $45^{\circ}F$ ($7^{\circ}C$) outdoor air temperature without any additional controls. For cases where operation of the unit in the cooling mode is required at low ambients, a Low Ambient Control Kit LB-57113BM (**27J00**) can be added in the field, enabling it to operate properly down to $30^{\circ}F$ ($-1^{\circ}C$).

Timed-Off Control (Optional) — Timed-off control LB-50709BA **(32F21)** is available for field installation. Prevents compressor shortcycling and also allows time for suction and discharge pressure to equalize on all models, permitting the compressor to start in an unloaded condition. Automatic reset control provides a time delay between compressor shutoff and start-up.

Outdoor Coil Guards (Optional For CHP20V Non "R" Models) – PVC coated steel wire coil guards are available and must be ordered extra. CHP20V-410 require 2 per unit, LB-82199CF **(47J23)**. CHP20V-510-650 models require 3 per unit, LB-82199CG **(47J24)**. Correct number of guards are furnished per order number. Coil guards are furnished as standard with CHP20RV models.

RMF16 Roof Mounting Frame (Optional) – Roof mounting frame mates to the unit and provides a weather sealed rooftop installation. Shipped knocked down for ease of shipping and handling, it is easily field assembled. A wood nailer strip is secured to the frame sides to facilitate flashing. Design is approved by the U.S. National Roofing Contractor's Association. RMF16-41 may be used with all sizes of CHP20(R)V models with slight overhang on the CHP20(R)V-461-510 & -650 models. RMF16-65 frame exactly matches the CHP20(R)V-461-510 & -650 models.

Unit Stand-Off Mounting Kit (Optional) – Field installed kit **(38H18)** elevates horizontal application units above the mounting surface away from damaging moisture. Includes six high impact polystyrene stand-off mounts. Stand-offs are easily attached to unit and mounting surface. See dimension drawings. Kit must be ordered extra.

REMD16 Economizer (Optional for CHP20V Non "R" Models Only) -Economizer field installs directly in CHP20V unit cabinets. See dimension drawings. Economizer consists of: cabinet constructed of heavy gauge steel with a baked-on enamel paint finish, outdoor air intake hood, combination outdoor air and recirculated air dampers with pressure operated gravity exhaust air damper. Formed damper blades rotate smoothly in nylon bearings and are gasketed for a tight seal. The economizer dampers and controls are shipped factory assembled, adjusted and cycled and only require plug-in connection. The positioning of the outdoor and recirculated air dampers is accomplished by a 24 volt three position spring return damper motor with adjustable minimum position switch and controlled by the room thermostat, electronic discharge air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows 0 to 100% outdoor air to be used for "free cooling" when outdoor temperature and humidity are acceptable. Indoor filter for economizer is not furnished. REMD16 utilizes existing filter supplied with CHP20V units. Filter rack will accept up to two-inch (51 mm) thick filter. See Air Resistance table, page 21 for resistance data of two-inch (51 mm) pleated non-woven cotton fabric or two-inch (51 mm) fiberglass media filter. Removable exhaust air hood allows access to filter. Outdoor air intake hood is field installed. A cleanable aluminum mesh frame filter in the outdoor air hood provides extra air filtering and bird screen protection.

REMD16M Economizer (Optional) – The REMD16M economizer damper section is identical to the REMD16 model except it is equipped with a fully modulating spring return damper motor. See Specifications table.

EMDH16 Horizontal Economizer (Optional for CHP20V Non "R" Models Only) - The horizontal economizer section is shipped factory assembled, adjusted and cycled. Field installs on the unit and only requires plug-in connection. The economizer section consists of: heavy gauge steel cabinet with baked-on enamel paint finish, fully insulated with thick fiberglass insulation and recirculated air and outdoor air dampers. Formed damper blades rotate smoothly in nylon bearings and are gasketed for tight seal. The positioning of the outdoor and recirculated air dampers is accomplished by a 24 volt three position spring return damper motor with adjustable minimum position switch and controlled by the room thermostat, electronic discharge air sensor and solid-state adjustable outdoor air enthalpy control. The enthalpy controls allows 0 to 100% outdoor air to be used for "free cooling" when outdoor humidity and temperature are acceptable. A one-inch (25 mm) thick frame type disposable filter is furnished. Filter rack will accept up to two-inch (51 mm) thick filter. Removable panel allows easy access to filter. A cleanable aluminum mesh frame filter in the outdoor air hood provides extra air filtering and bird screen protection.

EMDH16M Economizer (Optional) — The EMDH16M horizontal economizer damper section is identical to the EMDH16 model except it is equipped with a fully modulating spring return damper motor. See Specifications table.

GEDH16-65 Gravity Exhaust Dampers (Optional) — Available for use with EMDH16 horizontal economizer assembly. Pressure operated assembly **(23H06)** field installs in the return air duct adjacent to the economizer assembly. Exhaust dampers also have bird screen.

Differential Enthalpy Control (Optional) — A solid-state return air enthalpy sensor **(54G44)** is available to be used in conjunction with the outdoor air enthalpy control to determine which air has the lowest enthalpy. The air with the lowest enthalpy will be selected. Return air enthalpy sensor field installs in the REMD16 or EMDH16 economizer damper section and must be ordered extra.

OAD16 Manual Minimum Fresh Air Damper (Optional) — Built-in damper assembly is furnished in cabinet panel that field interchanges with existing blower access panel. Manually operated sliding damper allows entry of a fixed amount (0-25%) of outdoor air into the system. See dimension drawing. An outdoor air hood with cleanable filter media is also provided.

DF16 Down-Flo Filter Adaptor Kit (Optional for CHP20RV Models Only) – Heavy gauge steel filter rails field install on down-flo return air opening. One-inch (25 mm) thick cleanable frame type filter is furnished as standard. Filter rails are designed to accept up to two-inch (51 mm) thick filter. See Air Resistance table, page 21 for resistance data of two-inch (51 mm) pleated non-woven cotton fabric or twoinch (51 mm) fiberglass media filter. Filter access is accomplished by removing unit blower access panel. See Optional Accessories table for filter size.

Roof Curb Power Entry Kit (Optional) — Field installed kit is available for power entry to the unit through the roof mounting frame. Kit contains 40-inch (1.0 m) length of armored conduit and necessary installing hardware. Knockouts in end of roof mounting frame are provided for ease of installation. See dimension drawing. Two kits are required, one for low voltage and one for high voltage. Kits must be ordered extra. Three conduit sizes are available. Order Kit No. **(18H70)** 1/2-in. (13 mm) **(18H71)** 1-in. (25 mm) **(18H72)** 1-1/2-in. (38 mm).

RTD9-65 Combination Ceiling Supply and Return Diffuser (Optional) – RTD9-65 step-down mount diffuser (**27G87**) extends slightly below ceiling level when installed and discharges conditioned air out through grilles on all four sides. Aluminum grilles are fitted with double deflection louvers for precise directional control of air flow. Return air enters through the large center grille. Assembly also includes insulated diffuser box with connection collars for round duct connection, hanging rings for suspending and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings. Must be ordered extra. See Optional Accessories tables.

FD9-65 Combination Ceiling Supply and Return Diffuser (Optional) – FD9-65 flush mount diffuser (**27G86**) installs almost flush with the ceiling level and discharges conditioned air out through fixed blade louvers on all four sides. Fixed blade louvers insure that air flow will be evenly distributed. Return air enters through large center grille. Assembly also includes insulated diffuser box with connection collars for round duct connection, support hanger eyelets at the top corners for secure installation and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings. Must be ordered extra. See Optional Accessories tables.

SRT16 Supply and Return Transitions (Optional) — Transitions (15H02) field install in the roof mounting frame and provide segregated and simple duct connections to supply and return diffuser. Completely insulated galvanized steel transitions have collars for round duct connection. Round duct from the transitions to the diffuser is not furnished and must be provided by the installer. Transitions are completely factory assembled and easily field install in the roof mounting frame with minimum costs and labor requirement. Must be ordered extra. See Optional Accessories tables.

OPTIONAL TEMPERATURE CONTROL SELECTION (Non "R" Models Only)

Optional Electro-Mechanical Thermostat and Control System - The thermostat and related controls of this system must be ordered extra for field installation. Two stage heat and two stage cool thermostat (13F06) with dual temperature selector levers. Uses subbase (13F17) with manual system switch (Off-Heat-Auto-Cool) and fan switch (Auto-On) or emergency heat subbase and relay kit (49G09) with manual system switch (Off-Emergency Heat-Heat-Auto-Cool), fan switch (Auto-On) and red emergency heat indicator LED. Also available is a non-switching subbase (13F16). SP11 Remote Status Panel (12F83) or SSP11 Remote Switching Status Panel (12F84) is available for observing and controlling unit operation from the conditioned area. SSP11 Relay Kit (41G39) is required for switching functions of the Switching Status Panel. Kit must be ordered extra and field installed. For nite operation the following are available. Single stage heating thermostat (13F12) and non-switching subbase (13F16). For applications without the economizer a Nite Kit (39G74), containing a plug-in relay, is required to override the operation of day thermostat. Two time clocks are available for the system. Automatic 7 day time clock (43G98) programs a weekly schedule. Any day or days can be omitted. Each day of the week is clearly separated from every other day. Day and nite periods are distinctly marked. When the settings have been made the clock will turn the system on and off. Spaced in 2 hour increments and equipped with battery back-up in case of power outage. 24 hour nite setback time clock (43G99) automatically programs the system to keep conditioned area at a more conservative temperature level (nite setback thermostat setting) during a period of vacancy. Spaced in 15 minute increments and equipped with battery back-up in case of power outage. Also available is a Warm Up Kit (39G77) which holds the economizer outdoor air dampers closed during nite heat operation and morning warm up. See Flow Chart on page 5.

Optional W7400 Control System - Control system must be ordered extra for field installation. Control Module (74G11) controls the operation of the economizer dampers and the stages of heating and cooling. Controlling input signals are setpoint, space temperature sensor and time-of-day scheduling from the thermostat. The control module balances the space temperature signal against the number of stages operating for system output. System output is measured and updated by monitoring the actual space temperature deviation from set point, and the rate of change of the space temperature. The control module field installs in the unit or in a remote panel located within the conditioned area. Two thermostats are available for the system. A room thermostat (36G62) with integral sensor that installs in the conditioned space or a remote thermostat (36G64) that installs outside the conditioned space with a Room Temperature Sensor (58C92) in the conditioned area or a Return Air Temperature Sensor (27C40) in the return air duct of the unit. Both thermostats are equipped with touch sensitive keyboard, automatic switching from heat to cool, no anticipator, zero droop, indicator lights, hour/day programming, override capabilities, time readout, stage status indicators, battery back-up and wiring wallplate. W7400 Plug-In Relay (furnished with the control module) provides separate set points for the economizer dampers and DX cooling. SP11 Remote Status Panel (12F83) is available for checking unit operation within the conditioned area. See Flow Chart on page 6.

Optional W973 Control System - Control system must be ordered extra for field installation. Logic Panel (39G76) controls the operation of the economizer dampers and the stages of cooling and heating in response to a signal from the thermostat. To maintain stable temperatures the logic panel balances the conditioned space thermostat demand against the system output. System output is measured by a discharge sensor (furnished with the logic panel) located in the discharge air duct of the unit. The combined demand and output signals from the sensor determines economizer damper position and number of cooling or heating stages energized. The logic panel field installs in the unit or in a remote panel located within the conditioned space. W973 Plug-In Relay (furnished with the logic panel) is required to adapt the control system to the unit. Two thermostats are available for the system. Dual set point room thermostat (25C52) or transmitter (25C51) with a choice of remote sensors. Both have separate heating-cooling locking set points concealed under the cover and do not have indicating thermometer. The room thermostat has integral sensor and installs in the conditioned space. The transmitter installs outside the conditioned space with a Room Temperature Sensor (58C92) in the conditioned area or a Return Air Temperature Sensor (27C40) in the return air duct of the unit. Thermostat and transmitter are furnished with a wiring wallplate. Also available is switching subbase (58C94) with system selector switch (Cool-Auto-Heat-Emergency Heat) and fan switch (On-Auto-Off). SP11 Remote Status Panel (12F83) or SSP11 Remote Switching Status Panel

(12F84) is available for observing and controlling unit operation from the conditioned area. Two time clocks are available for the system. Automatic 7 day time clock (43G98) programs a weekly schedule. Any day or days can be omitted. Each day of the week is clearly separated from every other day. Day and nite periods are distinctly marked. When the settings have been made the clock will turn the system on and off. Spaced in 2 hour increments and equipped with battery back-up in case of power outage. 24 hour nite setback time clock (43G99) automatically programs the system to keep the conditioned area at a more conservative temperature level (nite set back thermostat setting) during a period of vacancy. Spaced in 15 minute increments and equipped with battery back-up in case of power outage. Also available is a Warm Up Kit (39G77) which holds the economizer outdoor air dampers closed during nite heat operation and warm up. See Flow Chart on page 5.

Optional T7300 Thermostat and Control System - The thermostat and related controls of this system must be ordered extra for field installation. T7300 programmable thermostat (81G59) has internal or optional remote temperature sensing, touch sensitive keyboard, automatic switching from heat to cool, °F or °C temperature readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time readout, stage status indicators, operational mode readout and battery back-up. T7300 thermostat has a choice of subbases. Switching subbase (81G60) features selectable output staging up to two heat and two cool, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On) and two status LED's for monitoring various equipment operation. Switching subbase (13H76) features selectable output staging up to three heat and two cool, indicator LED's, manual system switch (Auto-Cool-Off-Heat-Emergency Heat) (Heat Pump Only) and fan switch (Auto-On). Both subbases also features an auxiliary relay output which controls economizer operation during occupied and unoccupied periods. Also available is a Room Temperature Sensor (58C92) or Room Temperature Sensor with 3-hour override and setpoint adjustment (86G67) for installation in the conditioned area and a Return Air Temperature Sensor (27C40) for installation in the return air duct of the unit. SP11 Status Panel (12F83) is available for checking unit operation from within the conditioned area. See Flow Chart on page 6.

SP11 Remote Status Panel (Optional) – The operation of the unit can be checked on the Remote Status Panel (12F83) located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "Filter". The Cool Mode signal light is green when lit and indicates cooling operation. Heat Mode light is green and reflects heating operation. Compressor 1 light is green when operating and will turn red if there is an operational malfunction. Compressor 2 light is not required and should be disregarded. The No Heat and Filter lights will show red and indicate a requirement for service. Additional controls are required for use with the Status Panel and must be specified when ordering. Filter Switch Kit (97C85) is used with the Filter light. Status Panel Readout Relay Relay Kit (14F92) is required to interface status panel with unit operation. Current Sensing Relay (29F79) is required for operation of No Heat light with electric heat.

SSP11 Remote Switching Status Panel (Optional) - The operation of the unit can be controlled and observed on the Switching Status panel (12F84) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "Filter". The Cool Mode signal light is green when lit and indicates economizer damper operation or DX cooling operation for units without the economizer. Heat Mode light is green and reflects heating operation. Compressor 1 light is green when operating and will turn red if there is an operational malfunction. Compressor 2 light is not required and should be disregarded. The No Heat and Filter lights will show red and indicates a requirement for service. Additionally, panel is equipped with a system selector switch (Off - Heat - Auto - Cool - Emergency Heat) (Heat Pump Only), fan switch (Auto - On) and after hours timer. Fan switch provides a choice of intermittent (Auto) or continuous (On) blower operation. Manually operated after hours timer (0 to 12 hours) overrides night setback controls providing normal operation for time period set. A momentary push button switch is used to initiate the timer period. The following field installed controls are required for use with the status panel and must be ordered extra. Filter Switch Kit (97C85) is required for operation of the filter light. Status Panel Readout Relay Kit (14F92) is required to interface status panel with unit operation. Current Sensing Relay (29F79) is required for operation of No Heat light with electric heat.

CONTROL SYSTEM SELECTION FLOWCHARTS — Non "R" Models Only



(27C40)

OPTIONAL ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM

CONTROL SYSTEM SELECTION FLOWCHARTS — Non "R" Models Only

SPECIFICATIONS - CHP20(R)V-261-311-411-413

	Model No		CHP20RV-261	CHP20RV-311	CHP20RV-411 CHP20V-411 CHP20V-413	
	Cooling Capac	ity — Btuh (kW)	23,800 (7.0)	29,600 (8.7)	34,200 (10.0)	
*ARI	Total unit watts	3	2270	2725	3310	
Ratings	SEER (Btuh/Wa	atts)	12.55	12.35	12.10	
	EER (Btuh/Wat	ts)	10.50	10.90	10.40	
	Total Capacity	— Btuh (kW)	22,800 (6.7)	28,400 (8.3)	34,200 (10.0)	
*ARI Certified	Total unit watts	3	1970	2415	2975	
High Temperature Heating Ratings	C.O.P		3.46	3.50	3.22	
	**HSPF - Reg	ion IV (Region V)	7.20 (6.05)	7.25 (6.20)	7.05 (6.20)	
* ADL Cortified	Total Capacity	— Btuh (kW)	13,200 (3.9)	16,200 (4.7)	20,400 (6.0)	
Low Temperature	Total unit watts	3	1785	2195	2690	
Heating Ratings	C.O.P		2.16	2.18	2.22	
★Sound Rating Nur	mber (bels)		8.0	8.0	8.0	
Refrigerant Charge	(HCFC-22)		5 lbs. 0 oz. (2.27 kg)	5 lbs. 10 oz. (2.55 kg)	6 lbs. 8 oz. (2.95 kg)	
Indoor Coil	Blower wheel n — in. (mm)	ominal diameter x width	10 x 7 (254 x 178)	10 x 7 (254 x 178)	10 x 7 (254 x 178)	
Diowei	Motor output -	– hp (W)	1/2 (373)	1/2 (373)	1/2 (373)	
	Net face area -	– sq. ft. (m²)	3.2 (0.30)	4.1 (0.38)	4.1 (0.38)	
Indoor Coil	Tube diameter	— in. (mm) & No. of rows	3/8 (9.5) — 3	3/8 (9.5) — 3	3/8 (9.5) — 3	
	Fins per inch (r	n)	15 (591)	15 (591)	15 (591)	
	Net face area	Outer coil	8.6 (0.80)	8.6 (0.80)	8.6 (0.80)	
Outdoor	— sq. ft. (m²)	Inner coil	5.3 (0.49)	8.3 (0.77)	8.3 (0.77)	
Coil	Tube diameter	— in. (mm) & no. of rows	3/8 (9.5) — 1.6	3/8 (9.5) — 2	3/8 (9.5) — 2	
	Fins per inch (r	n)	20 (787)	20 (787)	20 (787)	
	Diameter – in.	(mm) & No. of blades	20 (508) — 4	20 (508) — 4	20 (508) — 4	
Outdoor	Air Volume —	cfm (L/s)	2350 (1110)	2200 (1040)	2200 (1040)	
Fan(s)	Motor output -	– hp (W)	1/6 (124)	1/6 (124)	1/6 (124)	
	Motor watts		220	220	220	
Condensate drain s	ize mpt — in. (m	ım)	3/4 (19)	3/4 (19)	3/4 (19)	
•No. & size of filter	s — in. (mm)		●Not Fu	irnished	•(1) 16 x 25 x 1 (406 x 635 x 25) (polyurethane)	
Net weight of basic	unit — Ibs. (kg)		338 (153)	352 (160)	355 (161)	
Shipping weight of	basic unit – Ibs	s. (kg) (1 Package)	402 (182)	416 (189)	419 (190)	
Electrical characteri	istics (60 hz)		208/230v–1ph	208/230v–1ph	208/230v–1ph or 3 ph	
†Commercial Contr	ols Platform				Furnished and Factory Installed (non "R" models only)	

(non in models only)
Sound Rating Number in accordance with ARI Standard 270.
*Rated in accordance with ARI Standard 210/240.
Cooling Ratings – 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) we entering indoor coil air.
High Temperature Heating Ratings – 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
Low Temperature Heating Ratings – 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
**Heating Seasonal Performance Factor.
†Furnished as standard on CHP20V non "R" models only. Consists of: factory installed controls system and economizer wiring harness.
•Filters are not furnished with CHP20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table. Filters are furnished with CHP20V non "R" models.

SPECIFICATIONS - CHP20(R)V-461-511-513-651-653

	Model No	o.	CHP20RV-461	CHP20RV-511 CHP20V-511 CHP20V-513	CHP20RV-651 CHP20V-651 CHP20V-653			
	Cooling Capao	city — Btuh (kW)	44,000 (12.9)	49,000 (14.4)	60,000 (17.6)			
*ARI	Total unit wat	S	4010	4535	5930			
Ratings	SEER (Btuh/W	'atts)	12.55	12.60	12.00			
	EER (Btuh/Wa	tts)	10.90	10.80	10.10			
	Total Capacity	— Btuh (kW)	41,500 (12.2)	49,000 (14.4)	61,000 (17.9)			
*ARI Certified	Total unit wat	:S	3785	4335	6005			
Heating Ratings	C.O.P		3.26	3.30	3.00			
	**HSPF - Re	gion IV (Region V)	7.55 (6.75)	7.45 (6.45)	7.20 (6.55)			
*ADI Contified	Total Capacity	— Btuh (kW)	26,600 (7.8)	31,200 (9.1)	39,600 (11.6)			
Low Temperature	Total unit wat	s	3450	3940	5230			
Heating Ratings	C.O.P		2.26	2.32	2.22			
★Sound Rating N	umber (bels)		8.2	8.2	8.4			
Refrigerant Charg	e (HCFC-22)		9 lbs. 12 oz. (4.42 kg)	10 lbs. 8 oz. (4.76 kg)	10 lbs. 8 oz. (4.76 kg)			
Indoor Coil	Blower wheel — in. (mm)	nominal diameter x width	11 x 8 (279 x 203)	11 x 8 (279 x 203)	11 x 8 (279 x 203)			
Blower	Motor output	— hp (W)	1 (746)	1 (746)	1 (746)			
	Net face area	— sq. ft. (m ²)	5.8 (0.54)	5.8 (0.54)	5.8 (0.54)			
Indoor Coil	 — in. (mm) Motor output — hp (W) Net face area — sq. ft. (m²) Tube diameter — in. (mm) & No. of rows 		3/8 (9.5) — 3	3/8 (9.5) — 3	3/8 (9.5) — 3			
	Fins per inch (m)	15 (591)	15 (591)	15 (591)			
	Net face area	Outer coil	14.3 (1.33)	14.3 (1.33)	14.3 (1.33)			
Outdoor	— sq. ft. (m ²)	Inner coil	9.9 (0.92)	13.8 (1.28)	13.8 (1.28)			
Coil	Tube diameter	— in. (mm) & no. of rows	3/8 (9.5) — 1.7	3/8 (9.5) — 2	3/8 (9.5) — 2			
	Fins per inch (m)	20 (787)	20 (787)	20 (787)			
	Diameter – ir	n. (mm) & No. of blades	24 (610) — 4	24 (610) — 4	24 (610) — 3			
Outdoor	Air Volume —	cfm (L/s)	3600 (1700)	3600 (1700)	4000 (1890)			
Fan(s)	Motor output	— hp (W)	1/4 (187)	1/4 (187)	1/3 (249)			
	Motor watts		340	340	430			
Condensate drain	size mpt — in.	(mm)	3/4 (19)	3/4 (19)	3/4 (19)			
•No. & size of filte	ers — in. (mm)		 Not Furnished 	(1) 20 x 25 x 1 ((polyun	508 x 635 x 25) ethane)			
Net weight of bas	Net weight of basic unit — Ibs. (kg)			537 (244)	545 (247)			
Shipping weight of basic unit — Ibs. (kg) (1 Package)			565 (256)	593 (269)	601 (273)			
Electrical characte	eristics (60 hz)		208/230v–1ph	208/230v-1	ph or 3 ph			
†Commercial Con	trols Platform		Furnished an	ed and Factory Installed (non "R" models only)				

*Sound Rating Number in accordance with ARI Standard 270.
*Rated in accordance with ARI Standard 210/240.
Cooling Ratings – 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°C) wb entering indoor coil air.
High Temperature Heating Ratings – 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
Low Temperature Heating Ratings – 47°F (8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
Low Temperature Heating Ratings – 47°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
Low Temperature Heating Ratings – 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.
*Heating Seasonal Performance Factor.
†Furnished as standard on CHP20 non "R" models only. Consists of: factory installed controls system and economizer wiring harness.
•Filters are not furnished with CHP20RV models. Down-flo applications require DF16 Down-flo Filter Kit, see Accessories Table. Filters are furnished with CHP20V non "R" models.

OPTIONAL ACCESSORIES — CHP20V-410-510-650 Non "R" Models (Must Be Ordered Extra)

	Unit Mo	del No.	CHP20V-411 CHP20V-413	CHP20V-511 CHP20V-513	CHP20V-651 CHP20V-653					
		Output — Btuh (kW)	19,000 (5.6)							
	ECHION-5	*A.F.U.E.	99.0%							
	ECH16R-7	Output — Btuh (kW)	26,000 (7.6)	27,00	0 (7.9)					
	ECH16-7	*A.F.U.E.	99.0%	99.	0%					
Flectric	ECH16R-10	Output — Btuh (kW)	36,000 (10.5)	37,000) (10.8)					
Heat	ECH16-10	*A.F.U.E.	99.0%	99.	0%					
and		Output — Btuh (kW)	53,000 (15.6)	54,000) (15.8)					
Ratings	ECH 10-15	*A.F.U.E.	99.0%	99.	0%					
	F0110.00	Output – Btuh (kW)	70,000 (20.5)	71,000	71,000 (20.8)					
	ECH10-20	*A.F.U.E.	99.0%	99.	0%					
		Output – Btuh (kW)		88,000) (25.8)					
	ECH10-25	*A.F.U.E.		99.	0%					
Outd	oor	Thermostat Kit	LB-29	740BA (56A87)						
Thermos	stat Kit	Mounting Box	M-	1595 (31461)						
Outdoor Coil Gu	iards		LB-82199CF (47J23)	LB-821990	CG (47J24)					
Outdoor Air Dar	npers (Manual) — (Net Weight)	OAD16-41 (12 lbs.) (5 kg)	OAD16-65 (1	2 lbs.) (5 kg)					
filter media size	— in. (mm)		(15H00) 5 x 17 x 1 (127 x 432) x 25)	101) 3 x 432) x 25)						
Roof Curb Powe	er Entry Kit (co	nduit size) — in. (mm)	1/2 in. (12 mm) (18H70) 1 in. (2	5 mm) (18H71) 1-1/2 ir	n. (38 mm) (18H72)					
	- (11.)		RMF16-41 (75 lbs.) (34 ka)	RMF16-41 (75 lbs	s.) (34 kg) (73H79)					
Roof Mounting	Frame — (Net	Weight)	(73H79)	or s.) (39 kg) (73H81)						
Stand-off Moun	ting Kit		(38H18) contains six stand-offs							
	Madal Na	3 position — (Net Weight)	REMD16-41 (41 lbs.) (19 kg) (58H73)	REMD16-65 (6 (58)	66 lbs.) (30 kg) 175)					
Economizer Dampers with	Woder No.	Modulating — (Net Weight)	REMD16M-41 (41 lbs.) (19 kg) (58H72)	REMD16M-65 (58	(66 lbs.) (30 kg) 174)					
haust	No. and size	Indoor	●(1) 16 x 25 x 1 (406 x 635 x 25)	●(1) 20 x 25 x 1	(508 x 635 x 25)					
	of filters in. (mm)	Outdoor	(1) 13-3/4 x 25 x 1 (349 x 635 x 25) (aluminum mesh)	(1) 17-3/4 x 25 x (aluminu	1 (451 x 635 x 25) im mesh)					
	Madal No	3 position — (Net Weight)	EMDH16-41 (110 lbs.) (50 kg) (14H97)	EMDH16-65 (1 (14	30 lbs.) (59 kg) 198)					
Horizontal	Woder No.	Modulating — (Net Weight)	EMDH16M-41 (110 lbs.) (50 kg) (23H03)	EMDH16M-65((23)	130 lbs.) (59 kg) -102)					
Dampers	No. and size	Indoor	(1) 20 x 25 x 1 (517 x 620635 x 25) (fiberglass)	(2) 14 x 25 x 1 ((fiber	(356 x 635 x 25) glass)					
	in. (mm)	Outdoor	(1) 8 x 24 x 1 (203 x 620 x 25) (aluminum mesh)	(1) 8 x 28 x 1 (: (aluminu	203 x 711 x 25) Im mesh)					
Gravity Exhaust	Dampers — (N	Net Weight)	GEDH16-65 (4 lbs.) (2 kg) (23H06) use with EMDH16							
Differential Enth	alpy Control		(54G44) use with REMD16 or EMDH16							
Low Ambient Co	ontrol Kit		LB-57113BM (27J00)							
Timed-Off Contr	ol		LB-50	0709BA (32F21)						
Ceiling Supply	Step-Down		RTD9-65 (67	7 lbs.) (30 kg) (27G87)						
and Return Air Diffusers	Flush		FD9-65 (37	lbs.) (17 kg) (27G86)						
(Net Weight)	Transition		SRT16-65 (20 lbs.) (9 kg) (15H02)							

*Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations. Indoor filter is not furnished with economizer. REMD16 utilizes filter furnished with CHP20V unit.

OPTIONAL	ACCESS	ORIES — CHP20RV	V-261-311-411-461-511-651 (Must Be Ordered Extra)									
	Unit Mod	el No.	CHP20RV-261	CHP20RV-311	CHP20RV-411	CHP20RV-461	CHP20RV-511	CHP20RV-651				
		Output — Btuh (kW)	19,000 (5.6)	19,000 (5.6)	19,000 (5.6)							
	ECH16R-5	*A.F.U.E.	99.0%	99.0%	99.0%							
	ECH16R-7	Output — Btuh (kW)	26,000 (7.6)	27,000 (7.9)	26,000 (7.6)		27,000 (7.9)					
	ECH16-7	*A.F.U.E.	99.0%	99.0%	99.0%		99.0%					
	ECH16R-10	Output — Btuh (kW)	36,000 (10.5)	37,000 (10.8)	36,000 (10.5)		37,000 (10.8)					
Electric Heat	ECH16-10	*A.F.U.E.	99.0%	99.0%	99.0%		99.0%					
and Ratings		Output — Btuh (kW)	53,000 (15.6)	54,000 (15.8)	53,000 (15.6)		54,000 (15.8)					
	ECH 10-15	*A.F.U.E.	99.0%	99.0%	99.0%		99.0%					
		Output — Btuh (kW)			70,000 (20.5)	71,000 (20.8)						
	*A.F.U.E				99.0%		99.0%					
	50140.05	Output — Btuh (kW)					88,000 (25.8)					
	ECH16-25	*A.F.U.E.					99.0%					
Outdo	or	Thermostat Kit			LB-29740E	3A (56A87)						
Thermost	at Kit	Mounting Box			M-1595	(31461)						
Stand-Off Moun	iting Kit				(38H18) contair	ns six stand-offs	S					
Outdoor Air Dar filter media size	mpers (Manu — in. (mm)	ual) — (Net Weight)	OAD16-4 5 x 1	11 (12 lbs.) (5 kg 7 x 1 (127 x 432) (15H00) x 25)	OAD16-6 8 x 17	5 (12 lbs.) (5 kg 7 x 1 (203 x 432) (15H01) x 25)				
Roof Curb Powe	er Entry Kit (d	conduit size)	1/2 in	. (38 mm) (18H	70) 1 in. (25 mr	n) (18H71) 1-1/2	2 in. (38 mm) (1	8H72)				
Roof Mounting	Frame — (Ne	et Weight)	RMF16-4	1 (75 lbs.) (34 kç	g) (73H79)	RMF16-41 (RMF16-65	(75 lbs.) (34 kg) 5 (86 lbs.) (39 kç	(73H79) or 3) (73H81)				
	Model No.			DF16-41 (21H5 9))	[DF16-65 (21H60)				
Adaptor Kit	No. & size	of filters — in. (mm)	(406 x 6	(1) 16 x 25 x 1 635 x 25) (polyu	rethane)	(1) 20 x	25 x 1 (508 x 6 (polyurethane)	35 x 25)				
Colling Supply	Step-Down			F	TD9-65 (67 lbs.) (30 kg) (27G8	7)					
and Return Air Diffusers	Flush				FD9-65 (37 lbs.)	(17 kg) (27G86	;)					
(Net Weight)	Transition			S	GRT16-65 (20 lb	s.) (9 kg) (15H0	2)					
Low Ambient Co	ontrol Kit		LB-57113BM (27J00)									

*Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations.

ELECTRICAL DATA — CHP20(R)V-261-311-411-461-511-651 — SINGLE PHASE VOLTAGE

	Model No.	CHP20RV-261	CHP20RV-311	CHP20(R)V-411	CHP20RV-461	CHP20(R)V-511	CHP20(R)V-651
Line voltage dat	a (60 Hz — 1 phase)	208/230v	208/230v	208/230v	208/230v	208/230v	208/230v
Comprospore	Rated load amps	11.6	13.5	16.1	19.9	23.7	28.9
Compressors	Locked rotor amps	62.5	76.0	88.0	107.0	129.0	169.0
Outdoor Coil Full load amps		1.1	1.1	1.1	2.3	2.3	2.3
Outdoor Coil Fan Motor	Locked rotor amps	2.2	2.2	2.2	4.4	4.4	4.8
Indoor Coil Blower Motor		6.0	6.0	6.0	8.2	8.2	8.2
**Recommended	d maximum fuse size (amps)	30	35	40	50	60	70
*Minimum Circu	uit Ampacity	22.0	24.0	28.0	36.0	41.0	47.0
Unit power facto	or	.97	.91	.94	.89	.91	.99

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

NOTE – Extremes of operating range are plus and minus 10% of line voltage. **Where current does not exceed 100 amps, HACR type circuit breaker may be used in place of fuse.

ELECTRICAL DATA - CHP20V-413-513-653 - THREE PHASE VOLTAGE

	Model No.	CHP20V-413	CHP20V-513	CHP20V-653
Line voltage data	a (60 Hz — 3 phase)	208/230v	208/230v	208/230v
Comprosore	Rated load amps	10.3	13.5	17.3
Compressors	Locked rotor amps	77.0	99.0	123.0
Outdoor Coil	Full load amps	1.1	2.3	2.3
Fan Motor	Locked rotor amps	2.2	4.4	4.8
Indoor Coil Blower Motor (1 phase)	Full load amps	6.0	8.2	8.2
**Recommended	maximum fuse size (amps)	30	40	45
*Minimum Circu	it Ampacity	20.0	28.0	33.0
Unit power facto	r	.80	.87	.86

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. NOTE – Extremes of operating range are plus and minus 10% of line voltage. **Where current does not exceed 100 amps, HACR type circuit breaker may be used in place of fuse.

†Motor rated at 230 volts. Full load amps shown are for step-down transformer output.

FIELD WIRING – CHP20RV MODELS

SINGLE PACKAGE UNIT

A - Five Wire Low Voltage (Electro-mechanical)

Six Wire Low Voltage (Electronic)

B - Two Wire Power (See Electrical Data Table)

- Field Wiring Not Furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

OPTIONAL CONTROL SYSTEMS FIELD WIRING - NON "R" MODELS ONLY

W973 CONTROL SYSTEM

- A Two or three wire power (See Electrical Data Table)
- Seven wire low voltage DC only R
 - _ Five wire low voltage - DC only - with SSP11 Switching Status Panel
 - Eight wire low voltage DC only with switching subbase
- Two wire low voltage AC only with switching subbase
 Two wire low voltage DC only С
- D
- F Eleven wire low voltage — AC only
- F Two wire low voltage AC only G Two wire low voltage AC only
- H Fifteen wire low voltage AC only J

 \bigcirc

(F)

(D

E)

OPTIONAL

TIME

CLOCK

OPTIONAL

THERMOSTAT

(D

OPTIONAL

REMOTE SWITCHING

STATUS PANEL

- Two wire low voltage DC only
 - AC Alternating current
- DC Direct current NOTE - Run separate harness for AC and DC.
- AC voltage interferes with DC signals.
 - Field wiring not furnished -

OPTIONAL

NITE

THERMOSTAT

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

(B)

DISCONNECT

SWITCH

(by others)

OPTIONAL

REMOTE

STATUS PANEL

C

ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM

SINGLE

PACKAGE

UNIT

- B Six wire low voltage
- Five wire low voltage with SSP11 Switching Status Panel Ten wire low voltage - with Emergency Heat Switching Subbase
- C Eleven wire low voltage
- D Two wire low voltage
- E Two wire low voltage
 - Eighteen wire low voltage
 - Field wiring not furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

W7400 CONTROL SYSTEM

F

OPTIONAL REMOTE OPTIONAL THERMOSTAT MPERATURE SENSOR A - Two or three wire power (See Electrical Data Table) **(B)** B — Two wire low voltage (C)C - Four wire low voltage SINGLE PACKAGE D — Eleven wire low voltage - Field wiring not furnished - \mathbf{D} (A) NOTE - All wiring must conform to NEC or CEC and local electrical codes. DISCONNECT OPTIONAL REMOTE SWITCH STATUS PANEL (by others)

T7300 THERMOSTAT CONTROL SYSTEM

- A Two or three wire power (See Electrical Data Table)
- B Nine wire low voltage
- C Two wire low voltage
 - Seven wire low voltage (Room Sensor with override)
- D Eleven wire low voltage

- Field wiring not furnished -

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

ELECTRIC HEAT DATA — CHP20R-261-311

							Optional Sin	gle Point Pow	er Source Boxes
Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
			208	22.5	3.7	12,600			44.1
	ECH16R-5 (31H46)	1 step	220	23.9	4.2	14,300	ECH16R-		45.4
	(4 lbs.) (2kg)	(1 phase)	230	24.9	4.6	15,700	(31H26)		46.4
Single Package Unit Model No. CHP20RV-261 CHP20RV-311 CHP20RV-311			240	26.0	5.0	17,100			47.5
			208	31.6	5.3	18,100			53.1
	ECH16R-7 (31H47)	1 step	220	33.5	5.9	20,100	ECH16R-		54.9
	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	21,800	(31H25)		56.5
CHP20RV-261			240	36.5	7.0	23,900		ECH16-261	58.0
CHF 2011-201			208	45.1	7.5	25,600		(31H10)	66.6
	ECH16R-10 (31H48)	1 step	220	47.8	8.4	28,700	ECH16R- 26/65-10		69.2
	(5 lbs.) (2kg)	(1 phase)	230	50.0	9.2	31,400	(31H24)		71.4
			240	52.1	10.0	34,100			73.6
			208	67.8	11.3	38,600			89.2
CHP20RV-261	ECH16-15 (31H27)	1 step	220	71.6	12.6	43,000			93.1
	(18 lbs.) (8kg)	(1 phase)	230	74.9	13.8	47,100			96.4
			240	78.1	15.0	51,200			99.6
			208	22.5	3.7	12,600			46.6
	ECH16R-5 (31H46)	1 step	220	23.9	4.2	14,300	ECH16R- 26/41-5		47.9
	(4 lbs.) (2kg)	(1 phase)	230	24.9	4.6	15,700	(31H26)		48.9
			240	26.0	5.0	17,100			50.0
			208	31.6	5.3	18,100			55.6
	ECH16R-7 (31H47)	1 step	220	33.5	5.9	20,100	ECH16R- 26/65-7		57.4
	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	21,800	(31H25)		59.0
CHP20R\/_311			240	36.5	7.0	23,900		ECH16-311	60.5
CI II 20110-511			208	45.1	7.5	25,600		(31H11)	69.1
	ECH16R-10 (31H48)	1 step	220	47.8	8.4	28,700	ECH16R- 26/65-10		71.7
	(5 lbs.) (2kg)	(1 phase)	230	50.0	9.2	31,400	(31H24)		73.9
			240	52.1	10.0	34,100			76.1
			208	67.8	11.3	38,600			91.7
	ECH16-15 (31H27)	1 step	220	71.6	12.6	43,000			95.6
	(18 lbs.) (8kg)	(1 phase)	230	74.9	13.8	47,100			98.9
			240 78.1 15.0 51,200				102.1		

ELECTRIC HEAT DATA — CHP20(R)V-411-413

Single	Electric			Heater Only	Electric	Electric	Optional S	ingle Point Pow	ver Source Boxes
Package Unit Model No.	Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	*Minimum Circuit Ampacity	Heat kW Input	Heat Btuh Input	Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
			208	22.5	3.7	12,600			49.9
	ECH16R-5 (31H46)	1 step	220	23.9	4.2	14,300	ECH16R- 26/41-5		51.1
	(4 lbs.) (2kg)	(1 phase)	230	24.9	4.6	Effectric Imput Heater Sub-Fuse Sub-Fuse Box Tetal Unit 8 Sub-Fuse Box Tetal Unit 8 Hammun Circuit Ampacity 12,600 49.9 14,300 ECH16R- 26/41-5 (31H26) 49.9 17,100 ECH16R- 26/65-7 (31H26) 53.2 20,100 ECH16R- 26/65-7 (31H26) 58.9 20,100 ECH16R- 26/65-7 (31H26) 63.7 23,900 ECH16R- 26/65-7 (31H26) 63.7 34,100 ECH16R- 26/65-7 (31H26) 63.7 34,100 ECH16R- 26/65-7 (31H26) 72.4 34,000 ECH16R- 26/65-7 72.4 43,000 95.0 47,100 102.2 57,300 117.5 57,300 122.7 62,800 83.3 14,300 83.3 14,300 83.2 20,100 83.2 20,100 33.3 21,800 ECH16-413 (31H15) 39.3 <	52.2		
			240	26.0	5.0	17,100		ter Sub.Fuse Total Unit & Flectric Heat Minum Circuit Ampacity 6R- 1-5 49.9 6R- 5-7 51.1 52.2 53.2 6R- 5-7 58.9 6R- 5-7 60.7 62.2 63.7 68- 5-7 72.4 68- 5-7 63.7 69.0 98.9 77.2 79.4 95.0 98.9 102.2 105.4 105.4 117.5 102.2 105.4 105.4 117.5 122.7 127.1 131.4 33.3 33.9 33.9 131.4 33.9 35.0 38.2 35.0 38.2 35.0 38.2 35.0 38.2 35.0 38.2 36.0 40.1 41.0 40.1 41.0 46.0 47.5 50.1 63.2 65.1 65.1 65.1	
Single Package Model No. &			208	31.6	5.3	18,100			58.9
	ECH16R-7 (31H47)	1 step	220	33.5	5.9	20,100	ECH16R- 26/65-7		60.7
	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	21,800	(31H25)		62.2
			240	36.5	7.0	23,900			63.7
			208	45.1	7.5	25,600			72.4
CHP20(B)\/_411	ECH16R-10 (31H48)	1 step	220	47.8	8.4	28,700	ECH16R- 26/65-10	ECH16-411	75.0
CI II 20(11) V-411	(5 lbs.) (2kg)	(1 phase)	230	50.0	9.2	31,400	(31H24)	(31H12)	77.2
			240	52.1	10.0	34,100			79.4
			208	67.8	11.3	38,600			95.0
	ECH16-15 (31H27)	1 step	220	71.6	12.6	43,000	1		98.9
	(18 lbs.) (8kg)	(1 phase)	230	74.9	13.8	47,100			102.2
			240	78.1	15.0	51,200	1		105.4
			208	90.3	15.0	51,200			117.5
	ECH16-20 (31H28)	1 step	220	95.5	16.8	57,300			122.7
	(19 lbs.) (9kg)	(1 phase)	230	99.8	18.4	62,800			127.1
			240	104.1	20.0	68,300			131.4
			208	13.0	3.7	12,600			33.3
	208/230v	1 step	220	13.8	4.2	14,300	1	ECH16-413	33.9
	(19 lbs.) (9kg)	(3 phase)	230	14.4	4.6	15,700		(31H15)	34.5
	(31H28) (19 lbs.) (9kg) 1 step (1 phase) 22 23 ECH16-5 208/230v (31H30) (19 lbs.) (9kg) 20 ECH16-5 208/230v (31H30) (19 lbs.) (9kg) 20 20 22 ECH16-5 208/230v (31H30) (19 lbs.) (9kg) 1 step (3 phase) 23 23 ECH16-5 23 ECH16-5 208/230v (3 phase) 23 24	240	15.0	5.0	17,100			35.0	
	50140.7		208	18.3	5.3	18,100			38.2
	208/230v (21H21)	1 step	220	19.3	5.9	20,100		ECH16-413	39.3
	(19 lbs.)	(3 phase)	230	20.1	6.4	21,800		(31H15)	40.1
	(okg)		240	21.0	7.0	23,900			41.0
	ECU10.10		208	26.1	7.5	25,600			46.0
	208/230v	1 step	220	27.6	8.4	28,700		ECH16-413	47.5
CHF20V-413	(19 lbs.)	(3 phase)	230	28.9	9.2	31,400		(31H15)	48.8
	(3kg)		240	30.1	10.0	34,100			50.1
	50140.45		208	39.1	11.3	38,600			59.1
	ECH16-15 208/230v	1 step	220	41.4	12.6	43,000		ECH16-413	61.4
	(19 lbs.)	(3 phase)	230	43.2	13.8	47,100	1	(31H15)	63.2
	(3K <u>9</u>)		240	45.1	15.0	51,200	1		65.1
	E0140.00		208	52.1	15.0	51,200			72.1
	ECH16-20 208/230v	2 steps (3 phase)	220	55.1	16.8	57,300	1	ECH16-413	75.1
	(22 lbs.)		230	57.6	18.4	62,800	1	(31H15)	77.6
	(22 lbs.) (10kg)		240 60.1 20.0 68,300		1		80.1		

ELECTRIC	HEAT DATA	<u>— СНР20</u>							
Single	Electric	No. of		Heater Only	Electric	Electric	Optional Si	ngle Point Pov	ver Source Boxes
Package Unit Model No.	Heater Model No. & Net Weight	Steps & Phase	Volts Input	*Minimum Circuit Ampacity	Heat kW Input	Heat Btuh Input	Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
			208	31.6	5.3	18,100			67.0
	ECH16R-7 (31H47)	1 step	220 33.5 5.9 20,100 ECH16R-					68.8	
	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	21,800	26/65-7 (31H25)		70.4
			240 36.5 7.0 23,900				71.9		
CHP20RV-461			208 45.1 7.5 25,600				80.5		
	ECH16R-10 (31H48) (5 lbs.) (2kg)	1 step	220	47.8	8.4	28,700	ECH16R-	ECH16-511 (31H13)	83.1
		(1 phase)	230	50.0	9.2	31,400	26/65-10 (31H24)		85.3
			240	52.1	10.0	34,100			87.5
	ECH16-15 (31H27) (18 lbs.) (8kg)		208	67.8	11.3	38,600			103.1
		1 step (1 phase)	220	71.6	12.6	43,000			107.0
			230	74.9	13.8	47,100			110.3
			240	78.1	15.0	51,200			113.5
			208	90.3	15.0	51,200			125.6
	ECH16-20 (31H28)	1 step	220	95.5	16.8	57,300			130.8
	(19 lbs.) (9kg)	(1 phase)	230	99.8	18.4	62,800			135.2
			240	104.1	20.0	68,300			139.5
			208	112.9	18.8	64,200			148.3
	ECH16-25 (31H29)	1 step	220	119.4	21.0	71,700			154.8
	(31H29) (19 lbs.) ((9kg)	1 step (1 phase)	230	124.9	23.0	78,500			160.2
			240	130.3	25.0	85,300			165.6

ELECTRIC I	Electric Electric Electric Optional Single Point Power Source Boxes													
Single	Electric	No. of	Valta	Heater Only	Electric	Electric	Optional S	ingle Point Pov	ver Source Boxes					
Package Unit Model No.	Heater Model No. & Net Weight	Steps & Phase	Input	*Minimum Circuit Ampacity	Heat kW Input	Heat Btuh Input	Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Min. Cir. Amp.					
			208	31.6	5.3	18,100			71.8					
	ECH16R-7 (31H47)	1 step	220	33.5	5.9	20,100	ECH16R-		73.6					
ELECTRIC HEAT DA Single Package Unit Model No. Electric Heater Model We & Net We & Net We ECH16R (31H47 (5 lbs. (2kg)) ECH16R- (31H48) (5 lbs) (2kg) CHP20(R)V-511 ECH16- (31H27 (18 lbs. (8kg)) ECH16- (31H28) (9kg) ECH16- (31H29) (19 lbs. (9kg) ECH16- 208/23C (31H31) (19 lbs. (9kg) ECH16- 208/23C (31H34) (19 lbs. (9kg) ECH16- 208/23C (31H34) (10 kg) ECH16- 208/23C (31H34) (10 kg)	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	21,800	(31H25)		75.1					
		$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	76.6											
			208	45.1	7.5	25,600			85.3					
	ECH16R-10 (31H48)	1 step	220	47.8	8.4	28,700	ECH16R- 26/65-10		87.9					
	(5 lbs) (2kg)	(1 phase)	230	50.0	9.2	31,400	(31H24)		90.1					
			240	52.1	10.0	34,100			92.3					
CHP20(R)V-511			208	67.8	11.3	38,600			107.9					
CHP20(B)V-511	ECH16-15 (31H27) (19.lba)	1 step	220	71.6	12.6	43,000		ECH16-511	111.8					
	(18 lbs.) (8kg)	(1 phase)	230	74.9	13.8	47,100		(31H13)	115.1					
			240	78.1	15.0	51,200			118.3					
			208	90.3	15.0	51,200			130.4					
	ECH16-20 (31H28)	1 step	220	95.5	16.8	57,300			135.6					
	(19 lbs.) (9kg)	(1 phase)	230	99.8	18.4	62,800			140.0					
			240	104.1	20.0	68,300			144.3					
			208	112.9	18.8	64,200			153.0					
	ECH16-25 (31H29) (19 lbs.) (9kg)	1 step	220	119.4	21.0	71,700			159.5					
		(1 phase)	230	124.9	23.0	78,500			165.0					
			240	130.3	25.0	85,300			170.4					
	ECH16-7		208	18.3	5.3	18,100			45.6					
	208/230v (31H31)	1 step	220	19.3	5.9	20,100		ECH16-513	46.7					
	(19 lbs.) (9kg)	(3 phase)	230	20.1	6.4	21,800		(31H16)	47.5					
	(* 3)		240	21.0	7.0	23,900			48.4					
	FCH16-10		208	26.1	7.5	25,600			53.4					
	208/230v (31H32)	1 step	220	27.6	8.4	28,700		ECH16-513	54.9					
	(19 lbs.) (9kg)	(3 phase)	230	28.9	9.2	31,400		(31110)	56.2					
	_		240	30.1	10.0	34,100			57.5					
	FCH16-15		208	39.1	11.3	38,600			66.5					
CHP20V-513	208/230v (31H33)	1 step	220	41.4	12.6	43,000		ECH16-513	68.8					
	(19 lbs.) (9kg)	(3 phase)	230	43.2	13.8	47,100		(31H16)	70.6					
			240	45.1	15.0	51,200			72.5					
	ECH16-20		208	52.1	15.0	51,200			79.5					
	208/230v (31H34)	2 steps	220	55.1	16.8	57,300		ECH16-513	82.5					
	(22 lbs.) (10kg)	(3 phase)	230	57.6	18.4	62,800		(31H16)	85.0					
			240	60.1	20.0	68,300			87.5					
	FCH16-25		208	65.1	18.8	64,200			92.5					
	208/230v (31H35)	2 steps	220	68.9	21.0	71,700		ECH16-513	96.3					
	(31H35) (22 lbs.) (10kg)	2 steps (3 phase)	230	72.0	22.9	78,100		(31H16)	99.4					
					240	75.1	25.0	85,300			102.5			

ELECTRIC I	HEAT DATA -	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $							
Single	ECH16-15 (31H29) (19 lbs.) (2kg) (5 lbs.) (2kg) (19 lbs.) (9kg) (19 lbs.) (9kg) (19 lbs.) (9kg) ECH16-25 (31H29) (19 lbs.) (9kg) ECH16-7 208/230v (31H31) (19 lbs.) (9kg) ECH16-15 208/230v (31H32) (19 lbs.) (9kg) ECH16-15 208/230v (31H33) (19 lbs.) (9kg) ECH16-15 208/230v (31H33) (19 lbs.) (9kg) ECH16-25 208/230v (31H33) (19 lbs.) (10kg) ECH16-25 208/230v (31H34) (22 lbs.) (10kg)	No. of	Volte	Heater Only	Electric	Electric	Optional S	ingle Point Pow	ver Source Boxes
Model No.	Model No. & Net Weight	Steps & Phase	Input	Circuit Ampacity	kŴ Input	Btuh Input	Heater Sub-Fuse Box	Unit Sub-Fuse Box	Iotal Unit & Electric Heat *Min. Cir. Amp.
			208	31.6	5.3	18,100			78.1
	$ \begin{array}{ $	79.9							
	(5 lbs.) (2kg)	(1 phase)	230	35.0	6.4	Instruct In			
			240	36.5	7.0	23,900		Single Point Power Source Boxes Sub-Fuse Box Total Unit & Electric Heat *Min. Cir. Amp. 78.1 79.9 81.5 83.0 91.6 94.2 96.4 98.6 114.3 118.2 98.6 114.3 118.2 96.4 98.6 114.3 118.2 114.3 121.4 124.6 136.8 142.0 146.3 150.6 159.4 165.9 171.4 176.8 50.4 51.5 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 53.2 <	
			208	PH2:B3: Unit Electric Market in the probability of the probability o					
	Electric Model No. Electric Model No. No. ef Model No. Optional Single State Area State Area State Area State Area State Area State Area State Area State Ar		94.2						
	(5 lbs.) (2kg)	(1 phase)	230	50.0	9.2	31,400	(31H24)		96.4
			240	52.1	10.0	34,100			98.6
			208	67.8	11.3	38,600			114.3
	ECH16-15 (31H27)	1 step	220	71.6	12.6	43,000		ECH16-651	118.2
CHP20(R)V-651	(18 lbs.) (8kg)	(1 phase)	230	74.9	13.8	47,100		(31H14)	121.4
			240	78.1	15.0	51,200			124.6
			208	90.3	15.0	51,200			136.8
	ECH16-20 (31H28)	1 step	220	95.5	16.8	57,300			142.0
	(19 lbs.) (9kg)	(1 phase)	230	99.8	18.4	62,800			146.3
			240	104.1	20.0	68,300			150.6
			208	112.9	18.8	64,200			159.4
	ECH16-25 (31H29)	1 step (1 phase)	220	119.4	21.0	71,700			165.9
	(19 lbs.) (9kg)		230	124.9	23.0	78,500			171.4
			240	130.3	25.0	85,300			176.8
	FCU10.7		208	18.3	5.3	18,100			50.4
	208/230v (21H31)	1 step	220	19.3	5.9	20,100		ECH16-653	51.5
	ECH16-7 208/230v (31H31) (19 lbs.) (9kg) 1 step (3 phase) 230 240 1 220 1 230 230 240 1 220 1 230 230 240	20.1	6.4	21,800		(31H17)	52.3		
	(0.9)	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	53.2						
			208	26.1	7.5	25,600			58.2
	208/230v	1 step	220	27.6	8.4	28,700		ECH16-653	59.7
	(19 lbs.) (9kg)	(3 phase)	230	28.9	9.2	31,400		(31H17)	61.0
	(okg)		240	30.1	10.0	34,100			62.2
			208	39.1	11.3	38,600			71.2
	ECH16-15 208/230v	1 step	220	41.4	12.6	43,000		ECH16-653	73.5
CHP20V-053	(19 lbs.)	(3 phase)	230	43.2	13.8	47,100		(31H17)	75.3
	(okg)		240	45.1	15.0	51,200			77.2
			208	52.1	15.0	51,200			84.2
	ECH16-20 208/230v	2 steps	220	55.1	16.8	57,300		ECH16-653	87.2
	(31H34) (22 lbs.) (10kg)	(3 phase)	230	57.6	18.4	62,800		(31H17)	89.7
	(TOKG)		240	60.1	20.0	68,300	1		92.2
			208	65.1	18.8	64,200			97.3
	ECH16-25 208/230v	2 steps (3 phase)	220	68.9	21.0	71,700		FCH16-653	101.1
	(31H35) (22 lbs.)		230	72.0	22.9	78,100	1	(31H17)	104.2
	(TUKG)		240	75.1	25.0	85,300	1		107.3

COOLING AND HEATING RATINGS

NOTE — For Temperatures and Capacities not shown in tables, see bulletin — Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section. CHP20RV-261 COOLING CAPACITY

											Outdoor	Air T	emp	eratur	re Ent	ering Ou	tdoor Co	oil								
Enter-	Т	otal		85	[°] F (29°	C)				9	5°F (35°	C)				10	05°F (41°	°C)				11	15°F (46	°C)		
ing Wet Bulb Temper-	Vo	Air lume	Ca Ca	Total poling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ilb	Total Cooling Capacity		Com- pressor Motor	S T Ra Dr	ensit o Tot tio (S y Bu	ole :al S/T) Ib	T Co Ca	lotal poling pacity	Com- pressor Motor	S T Ra D	ensik o Tot tio (S ry Bu	ole :al S/T) Ilb	T Co Ca	otal ooling pacity	Com- pressor Motor	Se To Rat	ensib Tota tio (S ry Bu	le al /T) Ib
ature	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24℃	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24℃	80°F 27°C	85°F 29°C
CO°E	330	700	6.8	23,200	1700	.74	.88	.99	6.6	22,400	1910	.75	.90	1.00	6.3	21,600	2140	.76	.91	1.00	6.1	20,800	2400	.78	.93	1.00
(17.2°C)	375	800	7.0	23,800	1700	.77	.92	1.00	6.7	23,000	1910	.79	.94	1.00	6.5	22,100	2150	.80	.96	1.00	6.2	21,300	2410	.82	.97	1.00
(17.2 0)	425	900	7.1	24,300	1700	.81	.96	1.00	6.9	23,500	1920	.82	.98	1.00	6.7	22,700	2160	.84	.99	1.00	6.4	21,900	2420	.85	1.00	1.00
67°E	330	700	7.3	24,800	1710	.58	.71	.85	7.0	23,900	1920	.58	.73	.86	6.7	23,000	2160	.59	.74	.88	6.5	22,100	2420	.60	.75	.90
(19 4°C)	375	800	7.4	25,300	1710	.60	.75	.89	7.2	24,400	1930	.60	.76	.91	6.9	23,500	2170	.61	.78	.93	6.6	22,500	2430	.62	.79	.94
(10.4 0)	425	900	7.5	25,700	1710	.62	.78	.93	7.2	24,700	1930	.62	.80	.95	7.0	23,800	2170	.63	.81	.96	6.7	22,900	2440	.64	.83	.98
71 ∘ ⊑	330	700	7.8	26,500	1720	.43	.56	.69	7.5	25,600	1940	.43	.57	.70	7.2	24,700	2180	.43	.57	.71	6.9	23,700	2450	.44	.58	.73
(21.7°C)	375	800	7.9	27,000	1730	.44	.58	.72	7.6	26,000	1940	.44	.59	.74	7.4	25,100	2190	.44	.60	.75	7.1	24,100	2450	.45	.61	.77
, 0,	425	900	8.0	27,400	1730	.44	.60	.76	7.7	26,400	1950	.45	.61	.77	7.4	25,400	2190	.45	.62	.79	7.2	24,500	2460	.45	.63	.80
NOTE -	All v	alues a	are gi	ross capa	acities a	nd do	o not	inclu	de in	door coi	l blower	moto	or he	at de	ductio	on.										

CHP20RV-311 COOLING CAPACITY

										(Outdoor	Air T	empe	eratur	e Ent	ering Ou	tdoor Co	oil								
Enter-	Т	otal		85	[°] F (29°C	C)				9	5°F (35°	C)				10)5°F (41°	°C)				1	15°F (46	°C)		
ing Wet Bulb Temper-	Vol	Air Iume	Cc Ca	lotal poling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ilb	T Co Caj	otal oling pacity	Com- pressor Motor	S T Ra Dr	ensib o Tot tio (S y Bul	ole al S/T) Ib	T Co Ca	lotal poling pacity	Com- pressor Motor	S Ta Ra D	ensib o Tot tio (S ry Bu	le al 5/T) Ib	T Co Ca	otal ooling pacity	Com- pressor Motor	Se Te Rat	ensib o Tota tio (S ry Bu	le al a/T) Ib
ature	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27℃	85°F 29℃	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C
CO°E	425	900	8.4	28,800	2050	.76	.90	1.00	8.1	27,700	2290	.77	.92	1.00	7.8	26,600	2580	.78	.94	1.00	7.5	25,500	2900	.80	.96	1.00
(17.2°C)	470	1000	8.6	29,300	2050	.78	.94	1.00	8.3	28,300	2300	.80	.95	1.00	8.0	27,200	2580	.81	.97	1.00	7.6	26,000	2910	.83	.99	1.00
(17.2 0)	520	1100	8.7	29,800	2060	.81	.97	1.00	8.4	28,800	2300	.83	.98	1.00	8.1	27,700	2590	.84	1.00	1.00	7.8	26,600	2920	.86	1.00	1.00
67°E	425	900	9.0	30,600	2060	.59	.73	.87	8.6	29,400	2310	.59	.74	.89	8.3	28,200	2600	.60	.76	.91	7.9	26,900	2930	.61	.78	.93
(19 4°C)	470	1000	9.1	31,000	2070	.60	.76	.91	8.7	29,800	2320	.61	.77	.92	8.4	28,600	2600	.62	.79	.94	8.0	27,300	2930	.63	.81	.96
(10.4 0)	520	1100	9.2	31,400	2070	.62	.79	.94	8.9	30,200	2320	.63	.80	.96	8.5	29,000	2610	.64	.82	.97	8.1	27,600	2940	.65	.84	.99
71 0 5	425	900	9.6	32,600	2080	.43	.57	.71	9.2	31,400	2330	.43	.58	.72	8.8	30,100	2620	.44	.59	.73	8.4	28,800	2950	.44	.60	.75
(21 7°C)	470	1000	9.7	33,100	2080	.44	.59	.74	9.3	31,800	2340	.44	.60	.75	8.9	30,500	2620	.45	.61	.77	8.5	29,100	2960	.45	.62	.79
(27 0)	520	1100	9.8	33,400	2080	.44	.61	.76	9.4	32,100	2340	.45	.62	.78	9.0	30,800	2630	.45	.63	.80	8.6	29,400	2960	.46	.64	.82

All values are gross capacities and do not include indoor coil blower motor heat deduction.

CHP20RV-261 HEATING CAPACITY

1							Air Tem	peratur	e Entering	Outdoor C	oil					
Air Vo	r Coll		65°F (18°	C)		45°F (7°C	.)		25°F (-4°(C)		5°F (-15°(0		-15°F (-28	°C)
70°F (21°C	db db db)	T He Ca	Fotal eating pacity	Comp. Motor Watts	He Ca	lotal eating pacity	Comp. Motor Watts	He Ca	lotal eating pacity	Comp. Motor Watts	- He Ca	Fotal eating pacity	Comp. Motor Watts	T He Ca	lotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
330	700	8.4	28,800	1820	6.2	21,000	1655	3.9	13,300	1530	2.8	9700	1315	1.4	4700	1010
375	800	8.6	29,300	1740	6.3	21,500	1570	4.0	13,800	1445	3.0	10,200	1235	1.5	5200	925
425	900	8.7	29,700	1685	6.4	21,900	1520	4.2	14,200	1395	3.1	10,600	1180	1.6	5600	875
NOTE -	Heating of	capacitie	es include t	the effect o	f defros	t cycles in t	the temper	ature ra	nge where	they occur	r.					

CHP20RV-311 HE/	ATTING CAPACITY

lu de s							Air Tem	peratur	e Entering	Outdoor Co	oil					
	or Coll		65°F (18°	C)		45°F (7°C)		25°F (-4°	0)		5°F (-15°()		-15°F (-28	°C)
70°F (21°C	F db C db)	T He Ca	Fotal eating pacity	Comp. Motor Watts	He	Fotal eating pacity	Comp. Motor Watts	H Ca	Total eating ipacity	Comp. Motor Watts	H Ca	Fotal eating pacity	Comp. Motor Watts	1 He Ca	Fotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
425	900	10.6	36,000	2200	7.7	26,200	1980	4.8	16,300	1805	3.5	12,100	1550	1.8	6000	1185
470	1000	10.7	36,400	2135	7.8	26,600	1915	4.9	16,700	1740	3.7	12,500	1485	1.9	6400	1115
520	1100	10.8	36,700	2080	7.9	27,000	1860	5.0	17,100	1685	3.8	12,900	1430	2.0	6700	1060

NOTE - Heating capacities include the effect of defrost cycles in the temperature range where they occur.

CHP20RV-261 HEATING PERFORMANCE at 800 cfm (375 L/s) Indoor Coil Air Volume

	(0.0 = 0)			
*Outdoor T	emperature	Compressor Motor	Total C	Dutput
°F	°C	Watts Input	Btuh	kW
65	18	1740	29,300	8.6
60	16	1695	27,500	8.1
55	13	1655	25,700	7.5
50	10	1615	23,900	7.0
47	8	1590	22,900	6.7
45	7	1570	21,500	6.3
40	4	1525	18,000	5.3
35	2	1480	14,500	4.2
30	-1	1465	14,200	4.2
25	-4	1445	13,800	4.0
20	-7	1425	13,400	3.9
17	-8	1415	13,200	3.9
15	-9	1385	12,700	3.7
10	-12	1310	11,500	3.4
5	-15	1235	10,200	3.0
0	-18	1155	9000	2.6
-5	-21	1080	7700	2.3
-10	-23	1005	6500	1.9
-15	-26	925	5200	1.5
-20	-29	850	4000	1.2

CHP20RV-311 HEATING PERFORMANCE at 1000 cfm (470 L/s) Indoor Coil Air Volume

*Outdoor T	emperature	Compressor Motor	Total C	Dutput
°F	°C	Watts Input	Btuh	kW
65	18	2135	36,400	10.7
60	16	2080	34,200	10.0
55	13	2025	32,000	9.4
50	10	1975	29,800	8.7
47	8	1940	28,500	8.4
45	7	1915	26,600	7.8
40	4	1850	22,000	6.4
35	2	1785	17,400	5.1
30	-1	1760	17,100	5.0
25	-4	1740	16,700	4.9
20	-7	1720	16,400	4.8
17	-8	1710	16,200	4.7
15	-9	1670	15,600	4.6
10	-12	1580	14,100	4.1
5	-15	1485	12,500	3.7
0	-18	1395	11,000	3.2
-5	-21	1300	9500	2.8
-10	-23	1210	7900	2.3
-15	-26	1115	6400	1.9
-20	-29	1025	4900	1.4

*Outdoor temperature 70% relative humidity. Indoor temperature 70°F(21°C). - 18 –

*Outdoor temperature 70% relative humidity. Indoor temperature 70°F (21°C).

COOLING AND HEATING RATINGS

NOTE — For Temperatures and Capacities not shown in tables, see bulletin — Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section. CHP20(R)V-411-413 COOLING CAPACITY

										(Outdoor	Air T	empe	eratur	e Ent	ering Ou	tdoor Co	oil								
Enter-	Тс	otal		85	°F (29°	C)				9	5°F (35°	C)				1(05°F (41°	°C)				1'	15°F (46	°C)		
ing Wet Bulb Temper-	/ Vol	Air lume	Co Ca	lotal poling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ilb	T Co Ca	otal oling pacity	Com- pressor Motor	S T Ra Dr	ensib o Tot tio (S y Bul	ole al S/T) Ib	T Cc Ca	lotal coling pacity	Com- pressor Motor	S T Ra D	ensik o Tot tio (S ry Bu	ole al S/T) Ilb	T Co Caj	otal oling pacity	Com- pressor Motor	Se To Rat	ensib o Tota io (S ry Bu	le al /T) Ib
	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29℃	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27℃	85°F 29°C
c⊃∘⊏	470	1000	10.0	34,200	2430	.74	.88	.99	9.6	32,900	2740	.75	.90	1.00	9.3	31,600	3100	.77	.92	1.00	8.9	30,200	3510	.78	.94	1.00
(17.2°C)	520	1100	10.2	34,700	2430	.76	.91	1.00	9.8	33,400	2750	.78	.93	1.00	9.4	32,100	3100	.79	.95	1.00	9.0	30,700	3510	.81	.97	1.00
(17.2 0)	565	1200	10.3	35,200	2440	.79	.94	1.00	9.9	33,900	2750	.80	.96	1.00	9.6	32,600	3110	.82	.97	1.00	9.1	31,200	3520	.84	.99	1.00
67°E	470	1000	10.6	36,300	2450	.58	.72	.85	10.2	34,900	2770	.58	.73	.87	9.8	33,400	3130	.59	.74	.89	9.3	31,900	3540	.60	.76	.91
(19 4°C)	520	1100	10.8	36,700	2460	.59	.74	.88	10.3	35,300	2770	.60	.75	.90	9.9	33,900	3130	.61	.77	.92	9.5	32,300	3540	.62	.79	.94
(10.4 0/	565	1200	10.9	37,100	2460	.61	.77	.91	10.5	35,700	2780	.61	.78	.93	10.0	34,200	3130	.62	.80	.95	9.6	32,700	3550	.64	.82	.97
71 ∘ ⊑	470	1000	11.3	38,600	2480	.43	.56	.69	10.9	37,200	2790	.43	.57	.70	10.4	35,600	3160	.43	.58	.72	10.0	34,100	3570	.44	.59	.74
(21.7°C)	520	1100	11.5	39,100	2480	.43	.58	.72	11.0	37,600	2800	.44	.58	.73	10.6	36,000	3160	.44	.59	.75	10.1	34,400	3580	.44	.61	.76
(=, 0,	565	1200	11.6	39,500	2490	.44	.59	.74	11.1	38,000	2800	.44	.60	.76	10.7	36,400	3170	.45	.61	.77	10.2	34,700	3580	.45	.62	.79
NOTE -	All v	alues a	are gr	oss capa	acities a	nd do	o not	inclu	de in	door coi	blower	moto	or he	at de	ductio	on.										

CHP20RV-461 COOLING CAPACITY

										(Outdoor	Air T	empe	eratur	e Ent	ering Ou	tdoor Co	oil								
Enter-	Тс	otal		85	°F (29°	C)				9	5°F (35°	C)				10	05°F (41°	°C)				1'	I5°F (46	°C)		
ing Wet Bulb Temper-	/ Vol	Air ume	Co Ca	Fotal poling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ib	T Co Caj	otal oling pacity	Com- pressor Motor	S Ta Rat Dr	ensik o Tot tio (S y Bu	ole :al S/T) Ib	1 Cc Ca	lotal poling pacity	Com- pressor Motor	S Ta Rat	ensib o Tot tio (S ry Bu	ole al S/T) Ib	T Co Caj	otal oling pacity	Com- pressor Motor	Se To Rat D	ensib o Tota tio (S ry Bu	le al /T) Ib
ature	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C
CO°E	565	1200	12.6	43,000	2900	.74	.88	.99	12.2	41,500	3230	.75	.90	1.00	11.7	39,900	3620	.76	.91	1.00	11.2	38,200	4070	.78	.93	1.00
(17.2°C)	660	1400	13.0	44,200	2910	.78	.93	1.00	12.5	42,600	3240	.79	.95	1.00	12.0	41,000	3630	.81	.96	1.00	11.5	39,300	4080	.82	.98	1.00
(17.2 0)	755	1600	13.2	45,200	2920	.82	.97	1.00	12.8	43,700	3260	.83	.99	1.00	12.3	42,100	3650	.85	1.00	1.00	11.9	40,500	4100	.87	1.00	1.00
67°E	565	1200	13.4	45,700	2930	.58	.71	.85	12.9	44,100	3260	.58	.72	.86	12.4	42,400	3650	.59	.74	.88	11.9	40,500	4100	.60	.75	.90
(19.4°C)	660	1400	13.7	46,700	2940	.60	.75	.90	13.2	45,100	3280	.61	.77	.92	12.7	43,300	3660	.62	.78	.93	12.1	41,400	4110	.63	.80	.95
(755	1600	14.0	47,600	2950	.62	.79	.95	13.5	45,900	3280	.63	.81	.96	12.9	44,000	3670	.64	.83	.98	12.3	42,100	4120	.66	.85	.99
71°⊑	565	1200	14.3	48,900	2960	.43	.56	.69	13.8	47,100	3300	.43	.57	.70	13.3	45,300	3690	.43	.57	.71	12.7	43,300	4140	.44	.58	.73
(21.7°C)	660	1400	14.6	49,800	2980	.44	.58	.73	14.1	48,100	3310	.44	.59	.74	13.5	46,100	3700	.44	.60	.76	12.9	44,100	4150	.45	.61	.78
(2, 0,	755	1600	14.8	50,600	2990	.45	.61	.77	14.3	48,800	3320	.45	.62	.79	13.7	46,800	3710	.45	.63	.80	13.1	44,700	4160	.46	.64	.82
NOTE -	All v	alues a	are gr	oss capa	acities a	nd do	o not	inclu	de in	door coi	blower	moto	or he	at de	ductio	on.										

CHP20(R)V-411-413 HEATING CAPACITY

Indee							Air Tem	peratur	e Entering	Outdoor C	oil					
Air Vo	rumo		65°F (18°	C)		45°F (7°C	;)		25°F (-4°(C)		5°F (-15°C	C)		-15°F (-28	°C)
70°F (21°C	70°F db (21°C db)		lotal eating pacity	Comp. Motor Watts	T He Ca	lotal eating pacity	Comp. Motor Watts	He Ca	Fotal eating pacity	Comp. Motor Watts	He Ca	lotal eating pacity	Comp. Motor Watts	T He Ca	lotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
470	1000	12.3	41,800	2700	9.5	32,400	2470	6.9	23,400	2270	4.5	15,300	1920	2.2	7600	1465
520	1100	12.3	42,100	2610	9.6	32,700	2380	7.0	23,800	2180	4.6	15,600	1835	2.3	8000	1380
565	1200	12.5	42,500	2545	9.7	33,200	2315	7.1	24,200	2115	4.7	16,000	1765	2.5	8400	1310
NOTE -	Heating of	capacitie	es include t	he effect o	f defros	t cycles in t	the temper	ature ra	nge where	they occur						

CHP20RV-461 HEATING CAPACITY

·							Air Tem	peratur	e Entering	Outdoor Co	oil					
	or Coil		65°F (18°	C)		45°F (7°C	C)	ĺ –	25°F (-4°	C)		5°F (-15°(C)		-15°F (-28°	°C)
70°l (21°C	= db C db)	He Ca	Fotal eating pacity	Comp. Motor Watts	T He Ca	lotal eating pacity	Comp. Motor Watts	He Ca	Total eating ipacity	Comp. Motor Watts	H Ca	Total eating ipacity	Comp. Motor Watts	T He Ca	lotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
565	1200	14.8	50,500	3300	11.1	37,900	2965	7.7	26,300	2690	5.6	19,000	2435	2.6	8900	1875
660	1400	15.3	52,100	3110	11.6	39,500	2775	8.2	27,900	2500	6.1	20,700	2245	3.1	10,500	1685
755	1600	15.3	52,300	3010	11.6	39,700	2675	8.2	28,100	2400	6.1	20.800	2145	3.1	10.700	1585

NOTE - Heating capacities include the effect of defrost cycles in the temperature range where they occur.

CHP20(R)V-411-413 HEATING PERFORMANCE at 1100 cfm (520 L/s) Indoor Coil Air Volume

			-	
*Outdoor T	emperature	Compressor Motor	Total C	Dutput
°F	°C	Watts Input	Btuh	kW
65	18	2610	42,100	12.3
60	16	2555	39,800	11.7
55	13	2495	37,400	11.0
50	10	2435	35,100	10.3
47	8	2400	33,700	9.9
45	7	2380	32,700	9.6
40	4	2325	30,500	8.9
35	2	2270	28,200	8.3
30	-1	2225	26,000	7.6
25	-4	2180	23,800	7.0
20	-7	2135	21,500	6.3
17	-8	2105	20,200	5.9
15	-9	2060	19,400	5.7
10	-12	1945	17,500	5.1
5	-15	1835	15,600	4.6
0	-18	1720	13,700	4.0
-5	-21	1605	11,800	3.5
-10	-23	1490	9900	2.9
-15	-26	1380	8000	2.3
-20	-29	1265	6100	1.8

*Outdoor temperature 70% relative humidity. Indoor temperature 70°F(21°C).

CHP20RV-461 HEATING PERFORMANCE at 1400 cfm (660 L/s) Indoor Coil Air Volume

*Outdoor T	emperature	Compressor Motor	Total C	Dutput
°F	°C	Watts Input	Btuh	kW
65	18	3110	52,100	15.3
60	16	3040	49,100	14.4
55	13	2965	46,200	13.5
50	10	2895	43,300	12.7
47	8	2850	41,500	12.2
45	7	2775	39,500	11.6
40	4	2590	34,400	10.1
35	2	2405	29,300	8.6
30	-1	2455	28,600	8.4
25	-4	2500	27,900	8.2
20	-7	2550	27,200	8.0
17	-8	2580	26,700	7.8
15	-9	2525	25,700	7.5
10	-12	2385	23,200	6.8
5	-15	2245	20,700	6.1
0	-18	2105	18,100	5.3
-5	-21	1965	15,600	4.6
-10	-23	1825	13,100	3.8
-15	-26	1685	10,500	3.1
-20	-29	1545	8000	2.3

COOLING AND HEATING RATINGS

NOTE – For Temperatures and Capacities not shown in tables, see bulletin – Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data section. CHP20(R)V-511-513 COOLING CAPACITY

											Outdoor	Air T	empe	eratu	re Ent	ering Ou	tdoor Co	oil								
Enter-	Τ	otal		85	5°F (29°C	C)				9	5°F (35°	C)				1()5°F (41°	°C)				1'	15°F (46	°C)		
ing Wet Bulb Temper-	Vo	Air Iume	T Cc Ca	lotal ooling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ib	Total Cooling Capacity Wa		Com- pressor Motor	S T Ra Dr	ensik o Tot tio (S y Bu	ole :al S/T) Ib	T Co Ca	lotal poling pacity	Com- pressor Motor	S T Ra D	ensib o Tot tio (S ry Bu	le al s/T) lb	T Co Ca	otal oling pacity	Com- pressor Motor	Se Te Rat	ansib 5 Tota tio (S ry Bu	le al /T) Ilb
	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24℃	80°F 27°C	85°F 29℃	kW	Btuh	Input	75°F 24℃	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24℃	80°F 27°C	85°F 29°C
62°E	660	1400	14.2	48,500	3080	.74	.89	1.00	13.7	46,800	3430	.76	.90	1.00	13.2	45,000	3820	.77	.92	1.00	12.6	43,000	4270	.78	.94	1.00
(17.2°C)	755	1600	14.5	49,600	3090	.78	.93	1.00	14.0	47,900	3440	.79	.94	1.00	13.5	46,000	3840	.81	.96	1.00	12.9	44,100	4280	.82	.98	1.00
(17.2 0)	850	1800	14.8	50,600	3110	.81	.96	1.00	14.3	48,900	3450	.83	.98	1.00	13.8	47,000	3850	.84	.99	1.00	13.2	45,200	4300	.86	1.00	1.00
67°E	660	1400	15.1	51,500	3120	.58	.72	.85	14.5	49,600	3460	.59	.73	.87	14.0	47,600	3860	.59	.75	.89	13.3	45,500	4310	.60	.76	.91
(19.4°C)	755	1600	15.4	52,400	3130	.60	.75	.90	14.8	50,500	3480	.61	.77	.92	14.2	48,500	3880	.62	.78	.93	13.6	46,300	4320	.63	.80	.95
(850	1800	15.6	53,200	3140	.62	.79	.94	15.0	51,200	3480	.63	.80	.95	14.4	49,200	3880	.64	.82	.97	13.7	46,900	4330	.65	.84	.99
71 ∘ ⊑	660	1400	16.1	54,800	3160	.43	.56	.69	15.5	52,800	3510	.43	.57	.71	14.9	50,700	3910	.44	.58	.72	14.2	48,500	4360	.44	.59	.74
(21.7°C)	755	1600	16.3	55,700	3170	.44	.58	.73	15.7	53,700	3520	.44	.59	.74	15.1	51,500	3920	.44	.60	.76	14.4	49,200	4370	.45	.62	.78
(2 0,	850	1800	16.6	56,500	3180	.45	.61	.77	15.9	54,400	3530	.45	.62	.78	15.3	52,100	3930	.45	.63	.80	14.6	49,800	4380	.46	.64	.82
NOTE -	DTE – All values are gross capacities and do not include indoor coil blower motor heat deduction.																									

CHP20(R)V-651-653 COOLING CAPACITY

											Outdoor	Air T	empe	eratur	e Ent	ering Ou	tdoor Co	oil								
Enter-	Т	otal		85	5°F (29°C	C)				9	5°F (35°	C)				10)5°F (41°	°C)				11	15°F (46	°C)		
ing Wet Bulb Temper-	Vol	Air Iume	1 Cc Ca	otal ooling pacity	Com- pressor Motor	S T Ra D	ensit o Tot tio (S ry Bu	ole tal S/T) Ib	T Co Cap	Total Cooling Capacity Cooling Com- pressor Motor Watts		S T Ra Dr	ensib o Tot tio (S y Bul	le al 5/T) b	T Cc Ca	lotal ooling pacity	Com- pressor Motor	S T Ra D	ensik o Tot tio (S ry Bu	ole :al S/T) Ilb	T Co Caj	otal oling pacity	Com- pressor Motor	Se Te Rat	ensib o Tota tio (S ry Bu	le al /T) Ib
ature	L/s	cfm	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29℃	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C	kW	Btuh	Input	75°F 24°C	80°F 27°C	85°F 29°C
CO°E	755	1600	17.5	59,700	4300	.72	.85	.96	16.9	57,700	4860	.72	.86	.97	16.3	55,500	5500	.74	.88	.99	15.6	53,100	6220	.75	.89	1.00
(17.2°C)	850	1800	17.8	60,900	4320	.74	.88	.99	17.2	58,800	4880	.75	.89	1.00	16.6	56,600	5520	.76	.91	1.00	15.9	54,200	6250	.78	.93	1.00
(17.2 0)	945	2000	18.2	62,000	4330	.77	.91	1.00	17.5	59,800	4890	.78	.93	1.00	16.9	57,600	5540	.79	.94	1.00	16.2	55,200	6270	.81	.96	1.00
67°E	755	1600	18.6	63,400	4350	.56	.69	.81	17.9	61,200	4920	.57	.70	.83	17.2	58,800	5560	.57	.71	.84	16.5	56,300	6300	.58	.73	.86
(19.4°C)	850	1800	18.9	64,500	4360	.58	.72	.85	18.2	62,200	4930	.58	.73	.86	17.5	59,800	5580	.59	.74	.88	16.8	57,200	6320	.60	.76	.90
(10.4 0)	945	2000	19.2	65,400	4380	.59	.74	.88	18.5	63,000	4950	.60	.76	.90	17.8	60,600	5600	.61	.77	.92	17.0	57,900	6340	.62	.79	.94
71 0 5	755	1600	19.8	67,500	4410	.42	.54	.66	19.1	65,100	4980	.43	.55	.67	18.3	62,600	5640	.43	.56	.69	17.6	60,000	6390	.43	.57	.70
(21.7°C)	850	1800	20.1	68,500	4430	.43	.56	.69	19.4	66,200	5000	.43	.57	.70	18.6	63,600	5660	.43	.58	.72	17.8	60,800	6410	.44	.59	.73
(21.7 0)	945	2000	20.3	69,400	4440	.43	.58	.72	19.6	67,000	5010	.44	.59	.73	18.9	64,400	5670	.44	.60	.75	18.0	61,500	6430	.44	.61	.77
	ΔILV	alues a	ire ar	oss can	acities a	nd do	not	inclu	de ind	door coi	blower	moto	nr he	at de	ductio	h										

JIE – All values are gross capacities and do not include indoor coll blower motor neat deduction.

CHP20(R)V-511-513 HEATING CAPACITY

1					_		Air Tem	peratur	e Entering	Outdoor C	oil					
Air Vo	rColl		65°F (18°	C)		45°F (7°C	C)		25°F (-4°	C)		5°F (-15°(C)		-15°F (-28	°C)
70°F (21°C	70°F db (21°C db)		Fotal eating ipacity	Comp. Motor Watts	Total Heating Capacity		Comp. Motor Watts	He Ca	Fotal eating pacity	Comp. Motor Watts	- He Ca	Fotal eating pacity	Comp. Motor Watts	He Ca	Fotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
660	1400	17.7	60,500	4035	13.4	45,600	3655	9.3	31,800	3370	6.9	23,400	2895	3.4	11,600	2230
755	1600	17.9	61,200	3825	13.6	46,300	3450	9.5	32,500	3165	7.1	24,100	2685	3.6	12,300	2020
850 1800 18.1 61,900 3680 13.8 47,100 3300 9.8 33,300 3015 7.3 24,800 2540 3.8 13,000 1870 1																
NOTE -	NOTE — Heating capacities include the effect of defrost cycles in the temperature range where they occur.															

CHP20(R)V-651-653 HEATING CAPACITY

la de e							Air Tem	peratur	e Entering	Outdoor C	oil					
	or Coll		65°F (18°	C)	45°F (7°C)			25°F (-4°	C)		5°F (-15°	C)		-15°F (-28	° C)	
70°F db (21°C db)		Total Heating Capacity		Comp. Motor Watts	He Ca	Total Comp. Heating Motor Capacity Watts		H Ca	Total eating ipacity	Comp. Motor Watts	H Ca	Total eating Ipacity	Comp. Motor Watts	- He Ca	lotal eating pacity	Comp. Motor Watts
L/s	cfm	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input	kW	Btuh	Input
755	1600	22.1	75,300	5775	16.7	57,000	5120	11.7	39,900	4505	8.7	29,800	3910	4.3	14,800	3010
850	1800	22.3	76,100	5490	17.0	57,900	4830	11.9	40,700	4220	9.0	30,600	3620	4.6	15,600	2720
945	2000	22.5	76,900	5265	17.2	58,700	4610	12.2	41,600	3995	9.2	31,400	3400	4.8	16,400	2500

NOTE - Heating capacities include the effect of defrost cycles in the temperature range where they occur.

CHP20(R)V-511-513 HEATING PERFORMANCE at 1600 cfm (755 L/s) Indoor Coil Air Volume

*Outdoor Te	emperature	Compressor Motor	Total C	Dutput
°F	°C	Watts Input	Btuh	kW
65	18	3825	61,200	17.9
60	16	3730	57,800	16.9
55	13	3635	54,300	15.9
50	10	3540	50,800	14.9
47	8	3485	48,800	14.3
45	7	3450	46,300	13.6
40	4	3355	40,300	11.8
35	2	3260	34,200	10.0
30	-1	3210	33,400	9.8
25	-4	3165	32,500	9.5
20	-7	3115	31,700	9.3
17	-8	3085	31,200	9.1
15	-9	3020	30,000	8.8
10	-12	2855	27,100	7.9
5	-15	2685	24,100	7.1
0	-18	2520	21,200	6.2
-5	-21	2350	18,200	5.3
-10	-23	2185	15,300	4.5
-15	-26	2020	12,300	3.6
-20	-29	1850	9400	2.8

CHP20(R)V-651-653 HEATING PERFORMANCE at 1800 cfm (850 L/s) Indoor Coil Air Volume

*Outdoor T	emperature	Compressor Motor	Total C	Dutput								
°F	°C	Watts Input	Btuh	kW								
65	18	5490	76,100	22.3								
60	16	5335	71,900	21.1								
55	13	5185	67,700	19.8								
50	10	5030	63,500	18.6								
47	8	4940	61,000	17.9								
45	7	4830	57,900	17.0								
40	4	4560	50,000	14.7								
35	2	4290	42,200	12.4								
30	-1	4255	41,500	12.2								
25	-4	4220	40,700	11.9								
20	-7	4180	40,000	11.7								
17	-8	4160	39,600	11.6								
15	-9	4070	38,100	11.2								
10	-12	3845	34,400	10.1								
5	-15	3620	30,600	9.0								
0	-18	3395	26,900	7.9								
-5	-21	3170	23,100	6.8								
-10	-23	2945	19,400	5.7								
-15	-26	2720	15,600	4.6								
-20	-29	2495	11,900	3.5								

*Outdoor temperature 70% relative humidity. Indoor temperature 70°F(21°C).

– 20 –

*Outdoor temperature 70% relative humidity. Indoor temperature 70°F (21°C).

CHP20(R)V-261-311-411-413 BLOWER PERFORMANCE 0 thru 1.0 in. w.g. (0 Through 250 Pa) External Static Pressure

FACTORY BLOWER MOTOR SWITCH POSITIONS

 Switch 1
 Switch 2
 Switch 3

 CHP20RV-261
 1
 1
 1

Switches on	Eurotion	Air	Speed Selector Positions on VSM Motor Switches									
VSM Motor	Function	Volume	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6				
Switch 1	Continuous Blower	cfm	400	500	600	700	800	900				
Switch I	Continuous Biower	L/s	190	235	285	330	380	425				
Switch 2	Electric Heat	cfm	800	900	1050	1125	1200	1250				
ownen z	Speed	L/s	380	425	495	530	565	590				
Switch 3	Heat Pump Cooling/	cfm	800	900	1050	1125	1200	1250				
	Heating Speed	L/s	380	425	495	530	565	590				

NOTE – The effect of static pressure is included in the air volumes listed.

CHP20(R)V-461-511-513-651-653 BLOWER PERFORMANCE 0 thru 1.0 in. w.g. (0 Through 250 Pa) External Static Pressure FACTORY BLOWER MOTOR SWITCH POSITIONS

 Switch 1
 Switch 2
 Switch 3

 CHP20RV-461
 1
 3
 3

 CHP20(R)-510
 3
 4
 4

 CHP20(R)-650
 5
 3
 5

Switches on	Function	Air	Speed Selector Positions on VSM Motor Switches										
VSM Motor	Function	Volume	Position 1	Position 2	Position 3	Position 4	Position 5	Position 6					
Switch 1	Continuous Blower	cfm	700	800	1000	1200	1300	1400					
	Continuous biower	L/s	330	380	470	565	615	660					
Switch 2	Electric Heat	cfm	1250	1350	1500	1600	1800	2000					
Switch 2	Speed	L/s	590	635	710	755	850	945					
Switch 3	Heat Pump Cooling/	cfm	1250	1350	1500	1600	1800	2000					
	Heating Speed	L/s	590	635	710	755	850	945					

NOTE - The effect of static pressure is included in the air volumes listed.

ACCESSORY BLOWER DATA

FILTER AND ACCESSORY AIR RESISTANCE

				-	Total	Air Resistan	ce — inches v	water gau	ge (Pa)		
Unit	Ai Volu	ir Ime	1″(25mm) Filter	REMD (r	016 Down-Flo Eco non "R" models (onomizer only)	EMDH16 Ho Economizer (orizontal non "R")	DF16 Dow ("I	/n-Flo Filter A R" models on	daptor Kit y)
No.			With CHP20V	1.000	With Optional	With Optional	With	1.000	With	With Optional	With Optional
	cfm	L/s	non "R" Units	Less Filter	Pleated Polyester 2"(51mm) Filter	Fiberglass 2"(51mm) Filter	Furnished 1"(25mm) Filter	Less Filter	Furnished 1"(25mm) Filter	Pleated 2"(51mm) Filter	Fiberglass 2″(51mm) Filter
CHP20BV-261	800	380	.15 (37)	.05 (12)	.27 (67)	.13 (32)	.18 (45)	.10 (25)	.15 (37)	.27 (67)	.13 (32)
CHP20RV-201 CHP20RV-311 CHP20(R)V-410	1000	470	.18 (45)	.06 (15)	.34 (85)	.18 (45)	.26 (65)	.15 (37)	.18 (45)	.34 (85)	.18 (45)
CI II 20(11/V-410	1200	565	.21 (52)	.09 (22)	.42 (104)	.24 (60)	.35 (87)	.21 (52)	.21 (52)	.42 (104)	.24 (60)
	1400	660	.13 (32)	.04 (10)	.33 (82)	.22 (55)	.25 (62)	.15 (37)	.13 (32)	.29 (72)	.17 (42)
CHP20RV-461 CHP20(R)V-510 CHP20(R)V-650	1600	755	.15 (37)	.05 (12)	.40 (99)	.27 (67)	.30 (75)	.17 (42)	.15 (37)	.35 (87)	.22 (55)
	1800	850	.17 (42)	.06 (15)	.48 (119)	.33 (82)	.35 (87)	.19 (47)	.17 (42)	.42 (104)	.27 (67)
	2000	945	.20 (50)	.08 (20)	.56 (139)	.39 (97)	.40 (99)	.22 (55)	.20 (50)	49 (122)	.32 (80)

NOTE – Electric heaters have no appreciable air resistance.

ACCESSORY BLOWER DATA

			DIFFUSER AI	R RESISTANCE		
Unit	A	ir		Total Air Resistance –	inches water gauge (Pa)	
Model	Volu	ume		RTD9-65 Diffuser		FD9-65
NO.	cfm	L/s	2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	Diffuser
	800	380	.15 (37)	.13 (32)	.11 (27)	.11 (27)
CHP20RV-311 CHP20(P)V 410	1000	470	.19 (47)	.16 (40)	.14 (35)	.14 (35)
CHF20(N)V-410	1200	565	.25 (62)	.20 (50)	.17 (42)	.17 (42)
	1400	660	.33 (82)	.25 (62)	.19 (47)	.19 (47)
CHP20RV-461 CHP20(R)V-510 CHP20(R)V-650	1600	755	.43 (107)	.32 (80)	.24 (60)	.24 (60)
	1800	850	.56 (139)	.40 (90)	.30 (75)	.30 (75)
	2000	945	.73 (182)	.50 (124)	.36 (90)	.36 (90)

NOTE – Electric heat has no appreciable air resistance.

RTD9-65 STEP-DOWN CEILING DIFFUSER AIR THROW DATA

Grille Vanes	A	ir	*Effectiv	ve Throw — f	it. (m)
Grille Vanes	cfm	L/s	Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down
	600	285	21 (6.5)	20 (6.0)	14 (4.5)
	800	380	22 (6.5)	21 (6.5)	15 (4.5)
	1000	470	24 (7.5)	22 (6.5)	16 (5.0)
	1200	565	25 (7.5)	23 (7.0)	17 (5.0)
2 Ends	1400	660	27 (8.0)	25 (7.5)	18 (5.5)
Open	1600	755	29 (9.0)	26 (8.0)	19 (6.0)
	1800	850	31 (9.5)	27 (8.0)	20 (6.0)
	2000	945	33 (10.0)	28 (8.5)	21 (6.5)
	2200	1040	35 (10.5)	30 (9.0)	22 (6.5)
	2400	1135	38 (11.5)	34 (10.5)	23 (7.0)
	600	285	15 (4.5)	14 (4.5)	8 (2.5)
	800	380	16 (5.0)	15 (4.5)	9 (2.5)
	1000	470	17 (5.0)	16 (5.0)	10 (3.0)
	1200	565	18 (5.5)	17 (5.0)	11 (3.5)
1 Side	1400	660	19 (6.0)	18 (5.5)	12 (3.5)
Open	1600	755	20 (6.0)	18 (5.5)	12 (3.5)
	1800	850	21 (6.5)	19 (6.0)	13 (4.0)
	2000	945	23 (7.0)	20 (6.0)	14 (4.5)
	2200	1040	25 (7.5)	22 (6.5)	16 (5.0)
	2400	1135	27 (8.0)	24 (7.5)	17 (5.0)
	600	285	11 (3.5)	10 (3.0)	7 (2.0)
	800	380	12 (3.5)	11 (3.5)	8 (2.5)
	1000	470	13 (4.0)	12 (3.5)	8 (2.5)
All	1200	565	14 (4.5)	13 (4.0)	9 (2.5)
Sides	1400	660	15 (4.5)	14 (4.5)	9 (2.5)
Ends	1600	755	16 (5.0)	14 (4.5)	10 (3.0)
Open	1800	850	17 (5.0)	15 (4.5)	10 (3.0)
	2000	945	18 (5.5)	16 (5.0)	11 (3.5)
	2200	1040	19 (60)	17 (5.0)	12 (3.5)
	2400	1135	20 (6.0)	18 (5.5)	12 (3.5)

FD9-65 FLUSH CEILING DIFFUSER AIR THROW DATA

Air Vo	olume	*Effective Throw – ft. (m)				
cfm	L/s	Ellective fillow – It. (iii)				
600	285	7 (2.0)				
800	380	8 (2.5)				
1000	470	8 (2.5)				
1200	565	9 (2.5)				
1400	660	9 (2.5)				
1600	755	10 (3.0)				
1800	850	11 (3.5)				
2000	945	12 (3.5)				
2200	1040	12 (3.5)				
2400	1135	13 (4.0)				

*Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft. (15m) per minute.

WET INDOOR COIL AIR RESISTANCE

Model	Air Vo	olume	Air Resistance				
No.	cfm L/s		in. w.g.	Pa			
CHP20RV-261 CHP20RV-311 CHP20(R)V-410	800	380	.07	17			
	1000	470	.08	20			
	1200	565	.09	22			
	1400	660	.12	30			
CHP20RV-461	1600	755	.13	32			
CHP20(R)V-510	1800	850	.14	.35			
	2000	945	.15	.37			
	1600	755	.11	.27			
CHP20(R)V-650	1800	850	.12	.30			
	2000	945	.13	.32			

*Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft (15m). per minute.

GUIDE SPECIFICATIONS

Prepared for the guidance of architects, consulting engineers and mechanical contractors.

General — Furnish and install a single package heat pump unit complete with automatic controls. The single package unit shall be a standard product of a firm regularly engaged in the manufacture of heating-cooling equipment. The manufacturer shall have parts and service available throughout the United States and Canada.

The installed weight shall not be more than lbs. (kg) Entire unit shall have a width of not more than inches (mm), a depth of not more than inches (mm) and an overall height of not more than inches (mm). The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections. In addition, manufacturer shall test operate system at the factory before shipment.

Approvals – All electrical components shall have U.L. and C.S.A. Listing. All wiring shall be in compliance with NEC and CEC.

Equipment Warranty – Compressor shall have a limited warranty for a full five years. All other components shall have a limited warranty for one year. Refer to the Lennox Equipment Limited Warranty included with the unit for details.

Air Distribution — Equipment shall be capable of bottom or side (horizontal) handling of conditioned air. All air distribution ducts shall be fiberglass or ga. galvanized steel insulated with inch thick lb./ft.³ (kg/m³) density fiberglass or equivalent.

DX Cooling System — The total certified cooling capacity shall not be less than Btuh (kW) with an indoor coil air volume of cfm (L/s), an entering wet bulb air temperature of °F (° C), an entering dry bulb air temperature of °F (° C) and an outdoor coil entering temperature of °F (° C). The compressor power input shall not exceed Kw at these conditions.

Heating System — The total certified heating capacity shall not be less than.....Btuh (kW) with an indoor coil air volume ofcfm (L/s), an entering wet bulb air temperature of° F (° C), an entering dry bulb temperature of° F (° C) and an outdoor coil entering air temperature of° F (° C). The total compressor power input shall not exceed Kw at the above conditions.

The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested. Coil face area shall be not less than sq. ft. (m^2) (indoor coil) and sq. ft. (m^2) (outdoor coil). Optional coil guard(s) shall be available.

The scroll compressor shall be resiliently mounted, have internal current and temperature protection. The refrigeration system shall have suction and liquid line service gauge ports, high pressure switch, check and expansion valve and full refrigerant charge. CHP20V non "R" models shall have loss of charge switch. Control options shall consist of thermostat and low ambient control. Shall be rated in accordance with ARI Standard 210/240-89 and DOE test procedures.

Supplemental Electric Heaters – The certified total heating capacity output shall be Btuh with kw input at volts power supply.

Optional electric heaters shall be field installed. Heating elements shall be nichrome bare wire exposed directly to the air stream. ECH16R safety devices shall consist of limit controls and thermal cutoff safety fuses. ECH16 safety devices shall consist of limit controls and fuse block. ECH16-20 and 25 Kw (208/240v-3ph) heaters shall have thermal time delay relay to bring elements on and off in sequence with a time delay between each element. Heaters shall be U.L. and C.S.A. listed. Optional heater sub-fuse box shall be available for ECH16R electric heaters for single point power supply applications.

Cabinet — Shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Cabinet panels where conditioned air is handled shall be fully insulated to prevent sweating and minimize sound. Openings shall be provided for power connection entry. Supply and return air openings shall be flanged. Indoor coil condensate drain extended outside cabinet shall be provided. CHP20V-410-510-650 non "R" models shall have low voltage terminal strip. Lifting brackets shall be factory installed on all models. **Service Access** – All components, wiring and inspection areas shall be completely accessible through removable panels.

Air Movers — Centrifugal conditioned air blower shall be direct driven by a multi-speed motor and be capable of delivering cfm (L/s) at an external static pressure of inches water gauge (Pa) requiring not more than bhp (W) and rpm. Blower shall be statically and dynamically balanced.

Propeller type condenser fan shall be direct driven by a hp (W) motor. Fan motor shall be permanently lubricated and inherently protected. Fan shall have a safety guard.

OPTIONAL ACCESSORIES

Roof Mounting Frame — Furnish and install a steel roof mounting frame for bottom discharge and return air duct connection. It shall mate to the bottom perimeter of the equipment. When flashed into the roof it shall make a unit mounting curb and provide weatherproof duct connection and entry into the conditioned area. Flashing shall be the responsibility of a roofing contractor. Frame design shall be approved by U.S. National Roofing Contractors Association.

Economizer Dampers — Furnish and install complete with controls an air mixing damper assembly including outdoor air and recirculated air dampers. REMD16 shall include pressure operated gravity exhaust dampers. The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling. Damper motor shall be 24 volt three position or fully modulating spring return. Controls shall include electronic discharge air sensor, minimum position switch, and solid-state adjustable enthalpy control. Control option available shall consist of differential enthalpy control (return air sensor).

Horizontal Gravity Exhaust Dampers — Pressure operated dampers shall install in return air duct for horizontal applications. Damper blades shall ride in nylon bearings and be gasketed for tight seal and quiet operation.

Outdoor Air Damper Section — Optional manual outdoor dampers shall be available to provide outdoor air requirements of up to 25%. Damper section field installs external to the unit. Shall be equipped with filter for extra air filtering and bird screen protection.

Down-Flo Filter Adaptor — Optional filter adaptor shall field install in CHP20RV unit to provide filtering for basic unit in down-flo applications. Shall include air filter.

Stand-Off Mounting Kit — Optional kit shall be available to elevate unit above mounting surface in horizontal applications.

Roof Curb Power Entry Kit — Optional kit shall provide power entry to the unit through the roof mounting frame.

Ceiling Diffusers — Furnish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser. It shall be capable of not less than ft. (m) radius of effective throw. Supply and return transitions shall be available, for field installation in the roof mounting frame, to provide duct connection to the diffuser.

Single Point Power Source Unit Sub-Fuse Box — Optional box shall field install internal to the unit and provide single point power source connection and sub-fusing for unit. Shall be of galvanized steel with mounting holes, electrical inlets and hinged cover.

Remote Status Panel — Shall be available for installation within the conditioned area to observe equipment operation. The panel shall include signal lights for Cool Mode, Heat Mode, Compressor 1, Compressor 2, No Heat and Filter.

Remote Switching Status Panel — Shall be available for installation within the conditioned area to control and observe equipment operation. The panel shall include signal lights for Cool Mode, Heat Mode, Compressor 1, Compressor 2, No Heat and Filter. System selector switch and fan switch shall provide operational mode and blower operation. After hours timer switch shall override night setback controls and provide normal operation for time period set.

Control Systems — Shall provide a selection of thermostats and related controls to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

ACCESSORY DIMENSIONS — inches (mm)

AA

CHP20V-410-510-650 NON "R" UNITS WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME

CORNER WEIGHTS – IDS. (Kg)											
Model No.	A	Α	В	В	C	С	D	i I			
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg			
CHP20V-410	141	64	120	55	99	45	117	53	1		
CHP20V-510	205	93	174	79	142	64	168	76	i I		
CHP20V-650	207	94	176	80	144	65	170	77	i I		

(1---)

BB

CENTER OF GRAVITY - in. (mm) EE FF Model No. inch mm inch mm CHP20V-410 29 737 27-3/8 695 CHP20V-510 40-5/16 1024 23-5/16 592 CHP20V-650 39-3/16 995 23-7/16 595

Model No.		Α		В		С				E		F	*	G	*	Ή		l
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP20V-410	46	1168	60	1524	23	584	21-3/4	552	16-1/8	410	3/4	19						
CHP20V-510-650	52	1321	72-1/2	1842	29	737	27-3/4	705	20-1/4	514	1-1/2	38	7	178	16	406	3-1/2	89
*Dimensions reflect usage with RMF16-41 mounting frame.																		

INSTALLATION CLEARANCES — inches (mm)

CHP20V-410-510-650 UNITS WITH REMD16 ECONOMIZER

 Entire perimeter of unit requires support when elevated above mounting surface.

ACCESSORY DIMENSIONS — inches (mm)

CHP20V-410-510-650 NON "R" UNITS WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION AND GEDH16-65 GRAVITY EXHAUST DAMPER

INSTALLATION CLEARANCES — inches (mm)

CHP20V-410-510-650 UNITS WITH EMDH16 ECONOMIZER AND GEDH16-65 GRAVITY EXHAUST DAMPER

RMF16-41 & 65 ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING FOR CHP20(R) UNITS

*3-1/4 inches (83 mm) for CHP20(R)V-261-311-410 models.

RMF16-41 & 65 ROOF MOUNTING FRAME FOR CHP20(R) UNITS WITH SRT16-65 SUPPLY AND RETURN AIR TRANSITIONS FOR FD9-65 & RTD9-65 CEILING DIFFUSERS

Model No.	Α		В		С		Γ)	I	E	F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41 with SRT16-65	56-3/8	1432	52-3/4	1340	44-7/8	1140	41-1'/4	1048	*4	102		
RMF16-65 with SRT16-65	69	1753	65-3/8	1661	50-1/2	1283	46-7/8	1191	4	102	4	102

*3-1/4 inches (83 mm) for CHP20(R)V-261-311-410 models.

TYPICAL FLASHING FOR RMF16-41 & 65 ROOF MOUNTING FRAMES WITH CHP20(R)V UNITS

COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

FD9-65 FLUSH DIFFUSER

D Technical Publications