

CHP16-261-311 & CHP16(R)-410-510-650 PACKAGED UNITS – HEAT PUMPS *24,200 to 56,000 Btuh Cooling Capacity *23,200 to 58,000 Btuh Heating Capacity 12,600 to 85,300 Btuh Optional Electric Heat

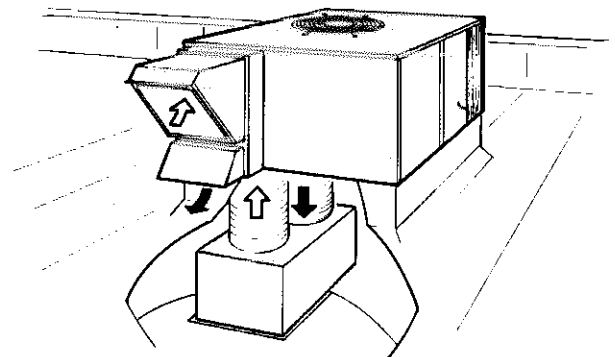
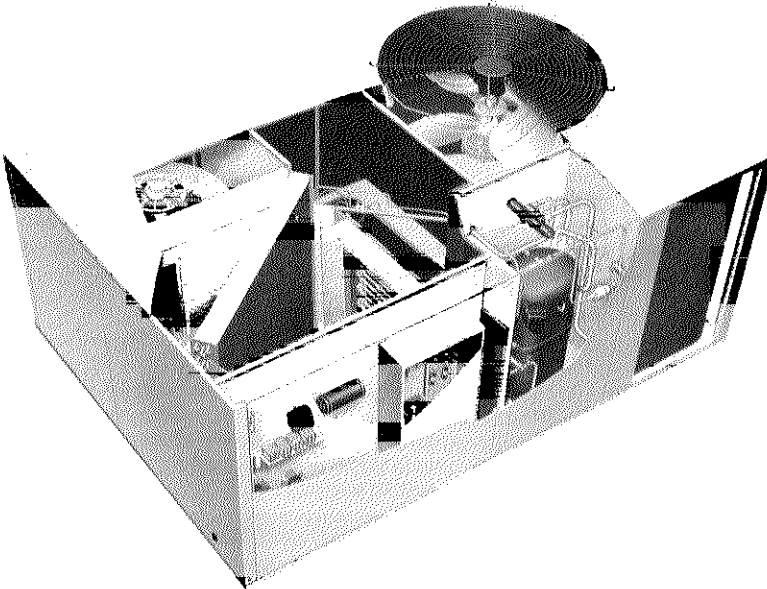
*ARI Standard 210/240 Ratings

CHP16 (2 Thru 5T)

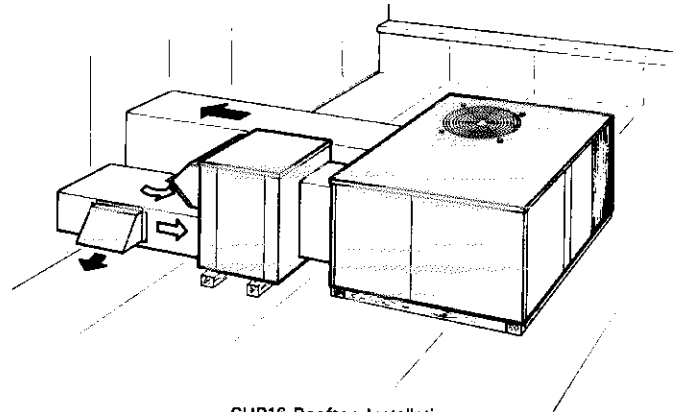
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CHP16 Rooftop Installation With Combination Supply and Return Air System



CHP16 Rooftop Installation With Horizontal Economizer

Application — Lennox single package CHP16(R) 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. CHP16(R) models are available in five models, single and three phase voltage with 24,200 to 56,000 Btuh cooling capacity and 23,200 to 58,000 Btuh heating capacity.

The CHP16-261-311-410-510-650 single and three phase voltage models are available with a choice of thermostat and related controls which include: electro-mechanical, W973, T7300, W7400 and Pro-stat. 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 CHP16R models.

Optional accessories include: supplemental electric heaters, lifting lug kit (CHP16R models), outdoor coil guards, down-flo filter adaptor kit (CHP16R models), roof mounting frames, stand-off mounting kit, down-flo or horizontal economizer dampers with modulating or 3 position damper motor, 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 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. and NEC. Optional electric heaters are U.L. 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.

Equipment Warranty — Compressor has a limited warranty for 5 years. All other covered components have a limited warranty for five years (single phase units only) in residential installations and one year (all single and three phase units) in non-residential installations. Refer to Lennox Equipment Limited Warranty furnished with equipment for details.

NOTE — Specifications, Ratings and Dimensions subject to change without notice.

Weather Resistant Cabinet — Rugged cabinet is constructed of heavy gauge galvanized steel. Cabinet is subject to a five station metal wash process resulting in a perfect bonding surface for the paint finish of powder enamel, electrostatically bonded to the metal. Large removable cabinet panels allow service access. Base section and cabinet panels exposed to conditioned air are lined with thick fiberglass insulation. 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 CHP16-261-311-410, 510 and 650 models. Electrical inlets are furnished for entry into the cabinet. Indoor coil drain pan is constructed of corrosion resistant galvalume and is equipped with a galvanized pipe (mpt) drain outlet.

Refrigeration System — Complete factory sealed refrigeration system consists of: compressor, outdoor coil and fan, indoor coil and blower, high pressure switch (manual reset) (all models except CHP16-311), reversing valve, suction and liquid line service gauge ports and full operating charge of refrigerant. CHP16-261 & 311 and CHP16(R)-410 models have a refrigerant metering/flow control device. Bullet-shaped metering orifice moves to free flow position during reverse refrigerant flow, eliminating check valve. CHP16(R)-510 & 650 models have a check and expansion valve and thermometer well. CHP16-261-311-410, 510 & 650 models have factory installed loss of charge switch.

FEATURES (Continued)

Dependable and Quiet Compressor — Rugged and reliable compressor is hermetically sealed, suction cooled, overload protected and equipped with internal pressure relief valve (all models except CHP16-311). Built-in protection devices assure protection from excessive current and temperature. The entire running gear is spring mounted within the sealed housing (all models except CHP16-311). In addition, the compressor is installed in the unit on resilient rubber mounts assuring quiet and vibration free operation. CHP16-311 model features a scroll compressor. CHP16 model compressors have an immersible self-regulating type crankcase heater. Heater is temperature actuated to operate only when required and ensures proper lubrication at all times. Not required on CHP16-311 model.

Suction Line Accumulator (CHP16(R)-510 & 650 Models) — Factory installed and piped. Traps and prevents large amounts of liquid refrigerant from flooding directly into the compressor and causing damage on start-ups.

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°F. A thermostat mounted on the outdoor coil determines when the defrost cycle is required and also when to terminate a cycle.

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.

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.

Powerful 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 permanent split capacitor (PSC) motor is resiliently mounted. A choice of blower speeds is available, see blower performance tables. Change in blower speed is easily accomplished by a simple field change in wiring.

Air Filters (Furnished on CHP16 Models Only) — Cleanable polyurethane one inch thick filter and filter rack is furnished for field installation in CHP16 models for down-flo applications. Filter rack will accept up to two inch thick filter. For horizontal applications without economizer, filter must be installed in return air duct. DF16 Down-Flo Filter Adaptor is available for CHP16R models and must be ordered extra.

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 (CHP16 Models) — A commercial controls platform is furnished and factory installed on the CHP16-261-311-410-510-650 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.

'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. 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. See Electric Heat Data tables for usage.

Thermostat (Optional) — Thermostat is not furnished and must be ordered extra. CHP16R models require a standard heat pump thermostat. See Thermostats bulletin in Accessories section. For thermostat and related controls for the CHP16261-311-410-510-650 single and three phase voltage models see page 4.

Low Ambient Kit (Optional for -510 & -650 Models Only) — Units will operate satisfactorily in the cooling mode down to 45°F 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-57113BF (71H34) can be added in the field, enabling it to operate properly down to 30°F.

Timed-Off Control (Optional) — Timed-off control LB-50709BA (32F21) is available for field installation. Prevents compressor short-cycling and also allows time for suction and discharge pressure to equalize on CHP16-261-311 and CHP16(R)-410 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) — PVC coated steel wire coil guards are available and must be ordered extra. CHP16(R)-261-311-410 models require 2 per unit, LB-82199CB (24H16). CHP16(R)-510-650 models require 3 per unit, LB-82199CC (24H17). Correct number of guards are furnished per order number.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Lifting Lug Kit (Optional for CHP16R Models Only) — Field installed kit LB-62125DB (44H92) facilitates handling and rigging of units. Reusable heavy gauge steel lifting lugs (4) are easily and quickly secured to units by means of a sliding steel pin. See dimension drawing for locations. Must be ordered extra. Lifting brackets are furnished with CHP16-261-311-410 units for field installation. Lifting brackets are factory installed on CHP16-510-650 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 National Roofing Contractor's Association. RMF16-41 may be used with all sizes of CHP16 models with slight overhang on the -510 and -650 models. RMF16-65 frame exactly matches the CHP16-510 & 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 CHP16 Models Only) — Economizer field installs directly in CHP16 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 CHP16 units. Filter rack will accept up to two-inch thick filter. See Air Resistance table, page 23 for resistance data of two-inch pleated non-woven cotton fabric or two-inch 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 CHP16 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 thick frame type disposable filter is furnished. Filter rack will accept up to two-inch 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 for CHP16(R) Models Only) — 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 CHP16R Models Only) — Heavy gauge steel filter rails field install on down-flo return air opening. One-inch thick cleanable frame type filter is furnished as standard. Filter rails are designed to accept up to two-inch thick filter. See Air Resistance table, page 23 for resistance data of two-inch pleated non-woven cotton fabric or two-inch 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 for CHP16 Models Only) — Field installed kit is available for power entry to the unit through the roof mounting frame. Kit contains 40-inch 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-inch. (18H71) 1-inch. (18H72) 1-1/2-inch.

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.

Optional SRT16 Supply and Return Transitions — 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 PRO-STAT Thermostat and Control System — The thermostat and related controls of this system must be ordered extra and field installed. Pro-stat Thermostat (36G67) has 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, operational mode symbols and battery back-up. A Remote Temperature Sensor (36G68) can be adapted to thermostat for applications where it is desirable to locate the thermostat out of the conditioned area. SP11 Remote Status Panel (12F83) is available for checking unit operation from within the conditioned area. Also available is a Warm Up Kit (39G77) which holds the economizer outside air dampers closed during nite heat operation and morning warm up. See Flow Chart on page 6.

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.

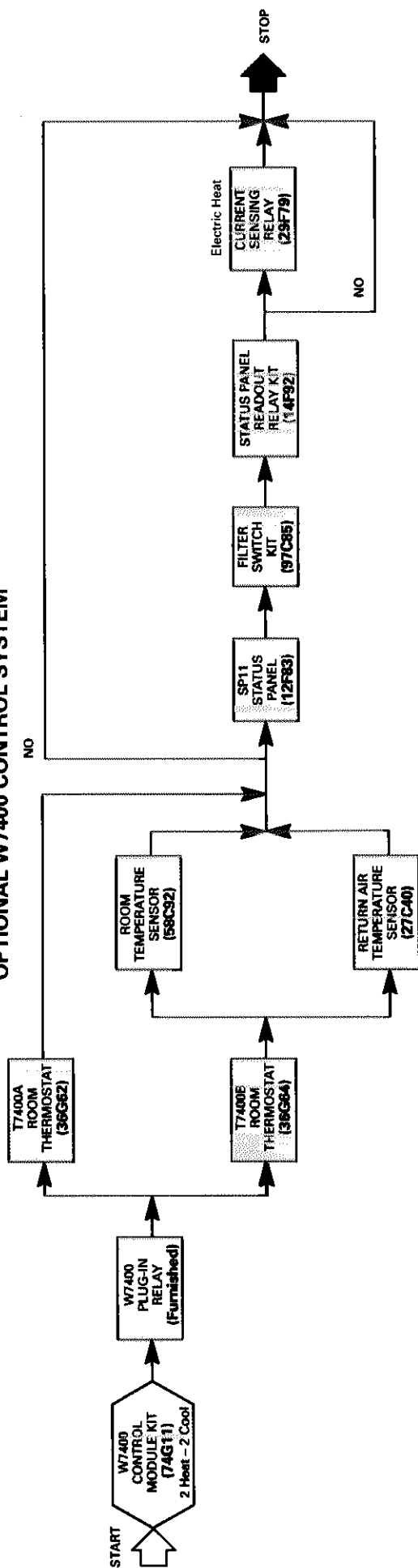
Optional T7300 Thermostat and Control System — The thermostat and related controls of this system must be ordered extra for field installation. T7300 programmable thermostat (81G59) has internal or optional remote temperature sensing, touch sensitive keyboard, automatic switching from heat to cool, °F 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 Kit (14F92) is required to interface status panel with unit operation. Current Sensing Relay (39F79) is required for operation of No Heat light with electric heat.

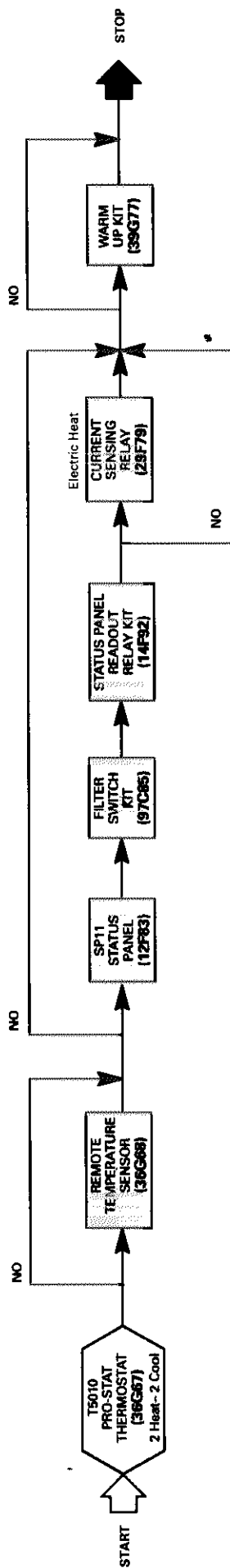
SSP11 Remote Switching Status Panel (Optional) — The operation of the unit can be controlled and observed on the Switching Status panel (12F84) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "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 (39F79) is required for operation of No Heat light with electric heat.



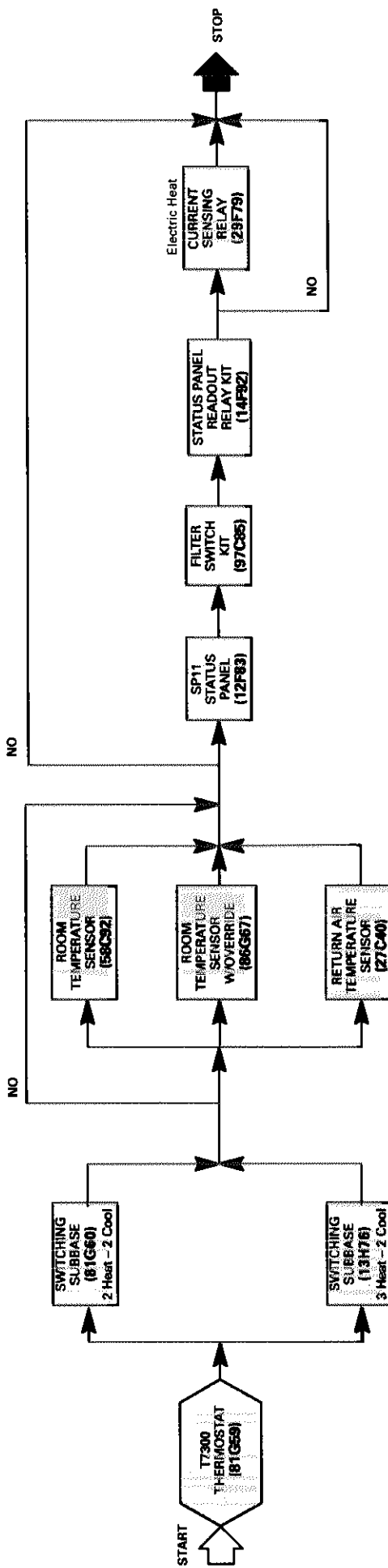
OPTIONAL W7400 CONTROL SYSTEM



OPTIONAL PRO-STAT THERMOSTAT CONTROL SYSTEM



OPTIONAL T7300 CONTROL SYSTEM



SPECIFICATIONS

Model No.			CHP16-261	CHP16-311	CHP16R-411 CHP16-411 CHP16-413	CHP16R-511 CHP16-511 CHP16-513	CHP16R-651 CHP16-651 CHP16-653
*ARI Cooling Ratings	Cooling Capacity (Btuh)		24,200	28,400	35,600	46,500	55,000
	Total unit watts		2520	2945	3870	5055	6110
	SEER (Btuh/Watts)		10.4	10.6	10.0	10.2	10.00
	EER (Btuh/Watts)		9.6	9.6	9.2	9.2	9.0
*ARI Certified High Temperature Heating Ratings	Total Capacity (Btuh)		23,200	27,800	35,400	48,500	57,500
	Total unit watts		2235	2630	3325	4525	5400
	C.O.P		3.04	3.10	3.12	3.14	3.12
	**HSPF		6.75	6.65	6.75	7.55	7.10
*ARI Certified Low Temperature Heating Ratings	Total Capacity (Btuh)		12,500	16,800	19,700	26,400	34,600
	Total unit watts		1890	2390	2700	3455	4410
	C.O.P		1.94	2.06	2.14	2.24	2.30
★ARI Standard 270 SRN (Bels)			8.0	8.0	8.0	8.2	8.2
Refrigerant (22) Charge			5 lbs. 8 oz.	5 lbs. 9 oz.	6 lbs. 11 oz.	9 lbs. 8 oz.	9 lbs. 4 oz.
Indoor Coil Blower	Blower wheel nom. diameter x width (in.)		9 x 8	10 x 7	10 x 7	10 x 8	12 x 8
	Motor horsepower		1/3	1/3	1/3	1/2	3/4
Indoor Coil	Net face area (sq. ft.)		3.2	4.1	4.1	5.8	5.8
	Tube diameter (in.) & No. of rows		3/8 — 3	3/8 — 3	3/8 — 3	3/8 — 3	3/8 — 3
	Fins per inch		15	15	15	15	15
Outdoor Coil	Net face area (sq. ft.)	Outer coil	8.6	8.6	8.6	14.3	14.3
		Inner coil	5.3	8.3	8.3	9.9	13.8
	Tube diameter (in.) & no. of rows		3/8 — 1.6	3/8 — 2	3/8 — 2	3/8 — 1.7	3/8 — 2
	Fins per inch		20	20	20	20	20
Outdoor Coil Fan(s)	Diameter (in.) & No. of blades		20 — 4	20 — 4	20 — 4	24 — 4	24 — 4
	Air Volume (cfm)		2350	2200	2200	3600	3600
	Motor horsepower		1/6	1/6	1/6	1/4	1/4
	Motor watts		220	220	220	340	340
Condensate drain size mpt (in.)			3/4	3/4	3/4	3/4	3/4
●No. & size of filters (in.)			(1) 16 x 25 x 1 (polyurethane)			(1) 20 x25 x 1 (polyurethane)	
Net weight of basic unit (lbs.)			338	352	368	520	521
Shipping weight of basic unit (lbs.) (1 Package)			402	416	455	619	604
Electrical characteristics (60 hz)			208/230v–1ph		208/230v–1ph or 3 ph or 460v–3ph		
†Commercial Controls Platform			Furnished and Factory Installed				

★Sound Rating Number in accordance with ARI Standard 270.

*Rated in accordance with ARI Standard 210/240.

Cooling Ratings— 95°F outdoor air temperature and 80°F db/67°F wb entering indoor coil air.

High Temperature Heating Ratings— 47°F db/43°F wb outdoor air temperature and 70°F entering indoor coil air.

Low Temperature Heating Ratings— 17°F db/15°F wb outdoor air temperature and 70°F entering indoor coil air.

**Heating Seasonal Performance Factor.

†Furnished as standard on CHP16 models only. Consists of: factory installed controls system and economizer wiring harness.

●Filters are not furnished with CHP16R models and must be ordered extra.

OPTIONAL ACCESSORIES — CHP16-261 Thru CHP16-650 (Must Be Ordered Extra)

Unit Model No.			CHP16-261	CHP16-311	CHP16-411 CHP16-413	CHP16-511 CHP16-513	CHP16-651 CHP16-653
Electric Heat Model No. and Ratings	ECH16R-5 ECH16-5	Output Btuh	19,000	19,000	19,000	----	----
		*A.F.U.E.	99.0%	99.0%	99.0%	----	----
	ECH16R-7 ECH16-7	Output Btuh	26,000	27,000	26,000	27,000	27,000
		*A.F.U.E.	99.0%	99.0%	99.0%	99.0%	99.0%
	ECH16R-10 ECH16-10	Output Btuh	36,000	37,000	36,000	37,000	37,000
		*A.F.U.E.	99.0%	99.0%	99.0%	99.0%	99.0%
	ECH16-15	Output Btuh	53,000	54,000	53,000	54,000	54,000
		*A.F.U.E.	99.0%	99.0%	99.0%	99.0%	99.0%
	ECH16-20	Output Btuh	----	----	70,000	71,000	71,000
		*A.F.U.E.	----	----	99.0%	99.0%	99.0%
	ECH16-25	Output Btuh	----	----	----	88,000	88,000
		*A.F.U.E.	----	----	----	99.0%	99.0%
Outdoor Thermostat Kit		Thermostat Kit	LB-29740BA (56A87)				
		Mounting Box	M-1595 (31461)				
Outdoor Coil Guards			LB-82199CB (24H16)			LB-82199CC (24H17)	
Outdoor Air Dampers (Manual) — (Net Weight) filter media size (in.)			OAD16-41 (12 lbs.) (15H00) 5 x 17 x 1			OAD16-65 (12 lbs.) (15H01) 8 x 17 x 1	
Roof Curb Power Entry Kit (conduit size)			1/2" (18H70) 1" (18H71) 1-1/2" (18H72)				
Roof Mounting Frame — (Net Weight)			RMF16-41 (75 lbs.) (73H79)			RMF16-41 (75 lbs.) (73H79) or RMF16-65 (86 lbs.) (73H81)	
Stand-off Mounting Kit			(38H18) contains six stand-offs				
Economizer Dampers with Gravity Exhaust	Model No.	3 position — (Net Weight)	REMD16-41 (48 lbs.) (58H73)			REMD16-65 (66 lbs.) (58H75)	
		Modulating — (Net Weight)	REMD16M-41 (48 lbs.) (58H72)			REMD16M-65 (66 lbs.) (58H74)	
	No. and size of filters (in.)	Indoor	●(1) 16 x 25 x 1			●(1) 20 x 25 x 1	
		Outdoor	(1) 14 x 25 x 1 (aluminum mesh)			(1) 18 x 25 x 1 (alum. mesh)	
Horizontal Economizer Dampers	Model No.	3 position — (Net Weight)	EMDH16-41 (110 lbs.) (14H97)			EMDH16-65 (130 lbs.) (14H98)	
		Modulating — (Net Weight)	EMDH16M-41 (110 lbs.) (23H03)			EMDH16M-65 (130 lbs.) (23H02)	
	No. and size of filters (in.)	Indoor	(1) 20 x 24 x 1 (fiberglass)			(1) 16 x 25 x 1 & (1) 14 x 25 x 1 (fiberglass)	
		Outdoor	(1) 8 x 24 x 1 (aluminum mesh)			(1) 8 x 28 x 1 (alum. mesh)	
Gravity Exhaust Dampers — (Net Weight)			GEDH16-65 (4 lbs.) (23H06) use with EMDH16				
Differential Enthalpy Control			(54G44) use with REMD16 or EMDH16				
Low Ambient Control Kit			LB-44961BB (56G99)				
Timed-Off Control			LB-50709BA (32F21)				
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-Down		RTD9-65 (67 lbs.) (27G87)				
	Flush		FD9-65 (37 lbs.) (27G86)				
	Transition		SRT16-65 (20 lbs.) (15H02)				
Optional Controls Selection			Electro-Mechanical Thermostat Controls				
			W973 Controls				
			W7400 Controls				
			Pro-stat Thermostat Controls				
			T7300 Thermostat Controls				

*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 CHP16 unit.

OPTIONAL ACCESSORIES — CHP16R-411-511-651 (Must Be Ordered Extra)

Unit Model No.			CHP16R-411	CHP16R-511	CHP16R-651
Electric Heat Model No. and Ratings	ECH16R-5 ECH16-5	Output Btuh	19,000	----	----
		*A.F.U.E.	99.0%	----	----
	ECH16R-7 ECH16-7	Output Btuh	26,000	27,000	27,000
		*A.F.U.E.	99.0%	99.0%	99.0%
	ECH16R-10 ECH16-10	Output Btuh	36,000	37,000	37,000
		*A.F.U.E.	99.0%	99.0%	99.0%
	ECH16-15	Output Btuh	53,000	54,000	54,000
		*A.F.U.E.	99.0%	99.0%	99.0%
	ECH16-20	Output Btuh	70,000	71,000	71,000
		*A.F.U.E.	99.0%	99.0%	99.0%
ECH16-25	Output Btuh	----	88,000	88,000	
	*A.F.U.E.	----	99.0%	99.0%	
Outdoor Thermostat Kit		Thermostat Kit	LB-29740BA (56A87)		
		Mounting Box	M-1595 (31461)		
Outdoor Coil Guards			LB-82199CB (24H16)	LB-82199CC (24H17)	
Stand-Off Mounting Kit			(38H18) contains six stand-offs		
Lifting Lug kit			LB-62125DB (44H92)		
Outdoor Air Dampers (Manual) — (Net Weight) filter media size (in.)			OAD16-41 (12 lbs.) (15H00) 5 x 17 x 1	OAD16-65 (12 lbs.) (15H01) 8 x 17 x 1	
Roof Curb Power Entry Kit (conduit size)			1/2" (18H70) 1" (18H71) 1-1/2" (18H72)		
Roof Mounting Frame — (Net Weight)			RMF16-41 (75 lbs.) (73H79)	RMF16-41 (75 lbs.) (73H79) or RMF16-65 (86 lbs.) (73H81)	
Down-Flo Filter Adaptor Kit	Model No.		DF16-41 (21H59)	DF16-65 (21H60)	
	No. & size of filters (in.)		(1) 16 x 25 x 1 (polyurethane)	(1) 20 x 25 x 1 (polyurethane)	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-Down		RTD9-65 (67 lbs.) (27G87)		
	Flush		FD9-65 (37 lbs.) (27G86)		
	Transition		SRT16-65 (20 lbs.) (15H02)		
Low Ambient Control Kit			LB-44961BB (56G99)		
Timed-Off Control			LB-50709BA (32F21)		

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

ELECTRICAL DATA — CHP16-261-311 — SINGLE PHASE VOLTAGE

Model No.		CHP16-261	CHP16-311
Line voltage data		60 Hz — 1 phase	60 Hz — 1 phase
		208/230v	208/230v
Compressors	Rated load amps	11.5	13.5
	Locked rotor amps	60.0	76.0
Outdoor Coil Fan Motor	Full load amps	1.1	1.1
	Locked rotor amps	2.2	2.2
Indoor Coil Blower Motor	Full load amps	2.2	3.0
	Locked rotor amps	4.2	6.2
**Recommended maximum fuse size (amps)		25	30
*Minimum Circuit Ampacity		17.7	21.0
Unit power factor		.93	.93

*Refer to National 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 — CHP16(R)-411-511-651 — SINGLE PHASE VOLTAGE

Model No.		CHP16(R)-411	CHP16(R)-511	CHP16(R)-651
Line voltage data		60 Hz — 1 phase	60 Hz — 1 phase	60 Hz — 1 phase
		208/230v	208/230v	208/230v
Compressors	Rated load amps	17.3	23.1	27.6
	Locked rotor amps	94.0	105.0	135.0
Outdoor Coil Fan Motor	Full load amps	1.1	2.3	2.3
	Locked rotor amps	2.2	4.4	4.4
Indoor Coil Blower Motor	Full load amps	3.0	3.9	4.6
	Locked rotor amps	6.2	8.3	10.0
**Recommended maximum fuse size (amps)		40	50	60
*Minimum Circuit Ampacity		26.0	36.0	42.0
Unit power factor		.95	.92	.97

*Refer to National 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 — CHP16-413-513-653 — THREE PHASE VOLTAGE

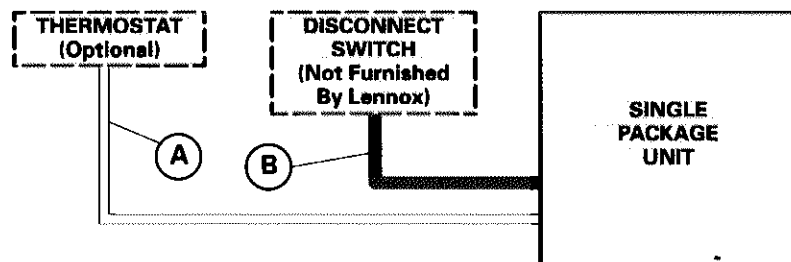
Model No.		CHP16-413		CHP16-513		CHP16-653	
Line voltage data		60 Hz — 3 phase		60 Hz — 3 phase		60 Hz — 3 phase	
		208/230v	460v	208/230v	460v	208/230v	460v
Compressors	Rated load amps	10.9	5.8	14.7	7.7	17.7	9.4
	Locked rotor amps	78.0	40.0	130.0	64.0	150.0	73.0
Outdoor Coil Fan Motor	Full load amps	1.1	0.7	2.3	1.1	2.3	1.1
	Locked rotor amps	2.2	1.3	4.4	2.0	4.4	2.0
Indoor Coil Blower Motor (1 phase)	Full load amps	3.0	1.8	3.9	1.8	4.6	1.8
	Locked rotor amps	6.2	4.4	8.3	4.4	10.0	3.8
**Recommended maximum fuse size (amps)		25	15	35	20	45	20
*Minimum Circuit Ampacity		18.0	10.0	25.0	13.0	30.0	15.0
Unit power factor		.86	.87	.88	.88	.89	.89

*Refer to National 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.

FIELD WIRING — CHP16R MODELS



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 and local electrical codes.

CHP16-411-413, CHP16-511-513 AND CHP16-651-653 MODELS ONLY

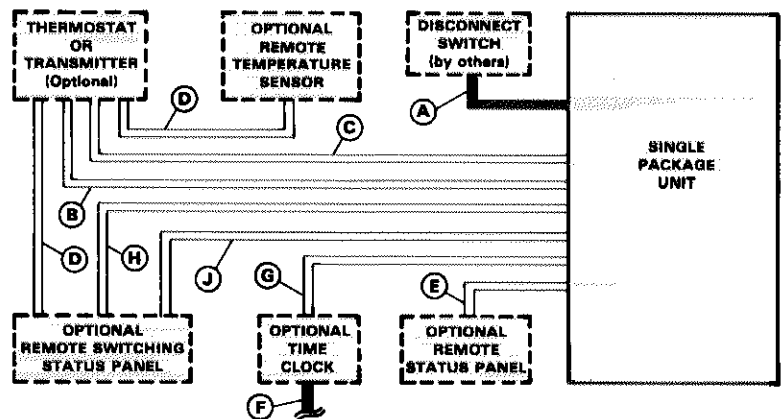
W973 CONTROL SYSTEM

- A — Two or Three wire power (See Electrical Data table)
 - B — Seven wire low voltage — DC only
 - Five wire low voltage — DC only — with SSP11 Switching Status Panel
 - Eight wire low voltage — DC only — with switching subbase
 - C — Two wire low voltage — AC only — with switching subbase
 - D — Two wire low voltage — DC only
 - E — 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 — Two wire low voltage — DC only
- AC — Alternating current
DC — Direct current

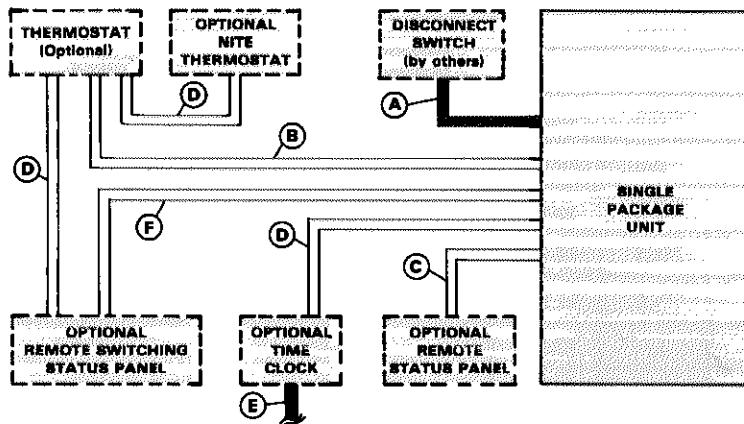
NOTE — Run separate harnesses for AC and DC.
AC voltage interferes with DC signals.

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.



ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM



- A — Two or Three wire power (See Electrical Data table)
- 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
- F — Eighteen wire low voltage

— Field wiring not furnished —

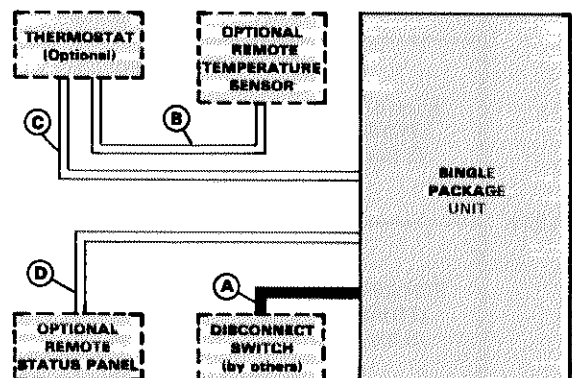
NOTE — All wiring must conform to NEC and local electrical codes.

W7400 CONTROL SYSTEM

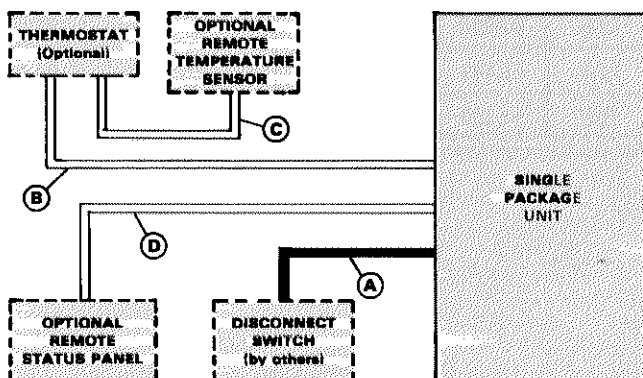
- A — Two or Three wire power (See Electrical Data table)
- B — Two wire low voltage
- C — Four wire low voltage
- D — Eleven wire low voltage

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.



PRO-STAT OR T7300 THERMOSTAT CONTROL SYSTEM



- A — Two or Three wire power (See Electrical Data table)
- B — Seven wire low voltage (Pro-Stat)
- Nine wire low voltage (T7300)
- C — Two wire low voltage
- D — Eleven wire low voltage

— Field wiring not furnished —

NOTE — All wiring must conform to NEC and local electrical codes.

ELECTRIC HEAT DATA — CHP16-261-311

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	Optional Single Point Power Source Boxes		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP16-261	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-261 (31H10)	40.3
			220	23.9	4.2	14,300			41.6
			230	24.9	4.6	15,700			42.6
			240	26.0	5.0	17,100			43.7
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		49.3
			220	33.5	5.9	20,100			51.1
			230	35.0	6.4	21,800			52.7
			240	36.5	7.0	23,900			54.2
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		54.2
			220	47.8	8.4	28,700			60.1
			230	50.0	9.2	31,400			64.9
			240	52.1	10.0	34,100			69.8
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		85.4
			220	71.6	12.6	43,000			89.3
			230	74.9	13.8	47,100			92.6
			240	78.1	15.0	51,200			95.8
CHP16-311	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-311 (31H11)	43.6
			220	23.9	4.2	14,300			44.9
			230	24.9	4.6	15,700			45.9
			240	26.0	5.0	17,100			47.0
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		52.6
			220	33.5	5.9	20,100			54.4
			230	35.0	6.4	21,800			56.0
			240	36.5	7.0	23,900			57.5
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		66.1
			220	47.8	8.4	28,700			68.7
			230	50.0	9.2	31,400			70.9
			240	52.1	10.0	34,100			73.1
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		88.7
			220	71.6	12.6	43,000			91.8
			230	74.9	13.8	47,100			94.4
			240	78.1	15.0	51,200			97.0

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

ELECTRIC HEAT DATA — CHP16(R)-411-413

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	Optional Single Point Power Source Boxes		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP16-411 CHP16R-411	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-411 (31H12)	48.4
			220	23.9	4.2	14,300			49.5
			230	24.9	4.6	15,700			50.6
			240	26.0	5.0	17,100			51.7
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		57.4
			220	33.5	5.9	20,100			59.0
			230	35.0	6.4	21,800			60.6
			240	36.5	7.0	23,900			62.2
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		70.9
			220	47.8	8.4	28,700			73.2
			230	50.0	9.2	31,400			75.6
			240	52.1	10.0	34,100			77.9
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		93.5
			220	71.6	12.6	43,000			97.0
			230	74.9	13.8	47,100			100.4
			240	78.1	15.0	51,200			103.9
	ECH16-20 (31H28) (19 lbs.)	1 step (1 phase)	208	90.3	15.0	51,200	----		116.0
			220	95.5	16.8	57,300			120.6
			230	99.8	18.4	62,800			125.2
			240	104.1	20.0	68,300			129.9
CHP16-413	ECH16-5 (31H30) (17 lbs.)	1 step (3 phase)	208	13.0	3.7	12,600	----	ECH16-413 (31H15)	30.7
			220	13.8	4.2	14,300			31.4
			230	14.4	4.6	15,700			32.0
			240	15.0	5.0	17,100			32.7
	ECH16-7 (31H31) (17 lbs.)	1 step (3 phase)	208	18.3	5.3	18,100	----	ECH16-413 (31H15)	36.0
			220	19.3	5.9	20,100			36.6
			230	20.1	6.4	21,800			37.2
			240	21.0	7.0	23,900			38.7
	ECH16-7 (31H36) (17 lbs.)	1 step (3 phase)	440	9.6	5.8	19,800	----	ECH16-413 (31H18)	19.4
			460	10.1	6.5	22,200			19.9
			480	10.5	7.0	23,900			20.3
	ECH16-10 (31H32) (17 lbs.)	1 step (3 phase)	208	26.1	7.5	25,600	----	ECH16-413 (31H15)	43.9
			220	27.6	8.4	28,700			45.2
			230	28.9	9.2	31,400			46.6
			240	30.1	10.0	34,100			47.9
	ECH16-10 (31H37) (17 lbs.)	1 step (3 phase)	440	13.8	8.4	28,700	----	ECH16-413 (31H18)	23.5
			460	14.4	9.2	31,400			24.2
			480	15.0	10.0	34,100			24.8
	ECH16-15 (31H33) (20 lbs.)	1 step (3 phase)	208	39.1	11.3	38,600	----	ECH16-413 (31H15)	56.9
			220	41.4	12.6	43,000			58.9
			230	43.2	13.8	47,100			60.9
			240	45.1	15.0	51,200			62.9
	ECH16-15 (31H38) (20 lbs.)	1 step (3 phase)	440	20.6	12.6	43,000	----	ECH16-413 (31H18)	30.4
			460	21.6	13.8	47,100			31.3
			480	22.5	15.0	51,200			32.3
	ECH16-20 (31H34) (20 lbs.)	2 steps (3 phase)	208	52.1	15.0	51,200	----	ECH16-413 (31H15)	69.9
			220	55.1	16.8	57,300			72.6
			230	57.6	18.4	62,800			75.2
			240	60.1	20.0	68,300			77.9
	ECH16-20 (31H39) (20 lbs.)	2 steps (3 phase)	440	27.6	16.8	57,300	----	ECH16-413 (31H18)	37.4
			460	28.9	18.4	62,800			38.9
			480	30.1	20.0	68,300			39.9

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

ELECTRIC HEAT DATA — CHP16(R)-511-513

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	Optional Single Point Power Source Boxes		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP16-511 CHP16R-511	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R- 26/65-7 (31H25)	ECH16-511 (31H13)	66.7
			220	33.5	5.9	20,100			68.3
			230	35.0	6.4	21,800			70.0
			240	36.5	7.0	23,900			71.6
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R- 26/65-10 (31H24)		80.2
			220	47.8	8.4	28,700			82.5
			230	50.0	9.2	31,400			84.9
			240	52.1	10.0	34,100			87.2
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		102.8
			220	71.6	12.6	43,000			106.3
			230	74.9	13.8	47,100			109.7
			240	78.1	15.0	51,200			113.2
	ECH16-20 (31H28) (19 lbs.)	1 step (1 phase)	208	90.3	15.0	51,200	----		125.3
			220	95.5	16.8	57,300			129.9
			230	99.8	18.4	62,800			134.6
			240	104.1	20.0	68,300			139.2
	ECH16-25 (31H29) (19 lbs.)	1 step (1 phase)	208	112.9	18.8	64,200	----		148.0
			220	119.4	21.0	71,700			153.8
			230	124.9	23.0	78,500			159.5
			240	130.3	25.0	85,300			165.3
CHP16-513	ECH16-7 (31H31) (17 lbs.)	1 step (3 phase)	208	18.3	5.3	18,100	----	ECH16-513 (31H16)	42.8
			220	19.3	5.9	20,100			43.7
			230	20.1	6.4	21,800			44.7
			240	21.0	7.0	23,900			45.6
	ECH16-7 (31H36) (17 lbs.)	1 step (3 phase)	440	9.6	5.8	19,800	----	ECH16-513/653 (31H19)	22.2
			460	10.1	6.5	22,200			22.6
			480	10.5	7.0	23,900			23.0
	ECH16-10 (31H32) (17 lbs.)	1 step (3 phase)	208	26.1	7.5	25,600	----	ECH16-513 (31H16)	50.7
			220	27.6	8.4	28,700			52.0
			230	28.9	9.2	31,400			53.4
			240	30.1	10.0	34,100			59.7
	ECH16-10 (31H37) (17 lbs.)	1 step (3 phase)	440	13.8	8.4	28,700	----	ECH16-513/653 (31H19)	26.3
			460	14.4	9.2	31,400			26.9
			480	15.0	10.0	34,100			27.5
	ECH16-15 (31H33) (17 lbs.)	1 step (3 phase)	208	39.1	11.3	38,600	----	ECH16-513 (31H16)	63.7
			220	41.4	12.6	43,000			65.7
			230	43.2	13.8	47,100			67.7
			240	45.1	15.0	51,200			69.7
	ECH16-15 (31H38) (17 lbs.)	1 step (3 phase)	440	20.6	12.6	43,000	----	ECH16-513/653 (31H19)	33.2
			460	21.6	13.8	47,100			34.1
			480	22.5	15.0	51,200			35.0
	ECH16-20 (31H34) (20 lbs.)	2 step (3 phase)	208	52.1	15.0	51,200	----	ECH16-513 (31H16)	76.7
			220	55.1	16.8	57,300			79.3
			230	57.6	18.4	62,800			82.0
			240	60.1	20.0	68,300			84.7
	ECH16-20 (31H39) (20 lbs.)	2 step (3 phase)	440	27.6	16.8	57,300	----	ECH16-513/653 (31H19)	40.2
			460	28.9	18.4	62,800			41.5
			480	30.1	20.0	68,300			42.7
ECH16-25 (31H35) (20 lbs.)	2 steps (3 phase)	208	65.1	18.8	64,200	----	ECH16-513 (31H16)	89.7	
		220	68.9	21.0	71,700			93.0	
		230	72.0	22.9	78,100			96.4	
		240	75.1	25.0	85,300			99.7	
ECH16-25 (31H40) (20 lbs.)	2 steps (3 phase)	440	34.5	21.0	71,700	----	ECH16-513/653 (31H19)	47.0	
		460	36.0	22.9	78,100			48.6	
		480	37.6	25.0	85,300			50.2	

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

ELECTRIC HEAT DATA — CHP16(R)-651-653

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	Optional Single Point Power Source Boxes		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP16-651 CHP16R-651	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)	ECH16-651 (31H14)	73.0
			220	33.5	5.9	20,100			74.9
			230	35.0	6.4	21,800			76.4
			240	36.5	7.0	23,900			77.9
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		86.5
			220	47.8	8.4	28,700			89.2
			230	50.0	9.2	31,400			91.4
			240	52.1	10.0	34,100			93.5
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		109.2
			220	71.6	12.6	43,000			113.0
			230	74.9	13.8	47,100			116.3
			240	78.1	15.0	51,200			119.5
	ECH16-20 (31H28) (19 lbs.)	1 step (1 phase)	208	90.3	15.0	51,200	----		131.7
			220	95.5	16.8	57,300			136.9
			230	99.8	18.4	62,800			141.2
			240	104.1	20.0	68,300			145.5
	ECH16-25 (31H29) (19 lbs.)	1 step (1 phase)	208	112.9	18.8	64,200	----		154.3
			220	119.4	21.0	71,700			160.8
			230	124.9	23.0	78,500			166.3
			240	130.3	25.0	85,300			171.7
CHP16-653	ECH16-7 (31H31) (17 lbs.)	1 step (3 phase)	208	18.3	5.3	18,100	----	ECH16-653 (31H17)	47.3
			220	19.3	5.9	20,100			48.3
			230	20.1	6.4	21,800			49.1
			240	21.0	7.0	23,900			50.0
	ECH16-7 (31H36) (17 lbs.)		440	9.6	5.8	19,800	----	ECH16-513/653 (31H19)	24.3
			460	10.1	6.5	22,200			24.8
			480	10.5	7.0	23,900			25.2
	ECH16-10 (31H32) (17 lbs.)	1 step (3 phase)	208	26.1	7.5	25,600	----	ECH16-653 (31H17)	55.1
			220	27.6	8.4	28,700			56.6
			230	28.9	9.2	31,400			57.9
			240	30.1	10.0	34,100			59.1
	ECH16-10 (31H37) (17 lbs.)		440	13.8	8.4	28,700	----	ECH16-513/653 (31H19)	28.5
			460	14.4	9.2	31,400			29.1
			480	15.0	10.0	34,100			29.7
	ECH16-15 (31H33) (17 lbs.)	1 step (3 phase)	208	39.1	11.3	38,600	----	ECH16-653 (31H17)	68.1
			220	41.4	12.6	43,000			70.4
			230	43.2	13.8	47,100			72.2
			240	45.1	15.0	51,200			74.1
	ECH16-15 (31H38) (17 lbs.)		440	20.6	12.6	43,000	----	ECH16-513/653 (31H19)	35.3
			460	21.6	13.8	47,100			36.3
480			22.5	15.0	51,200	37.2			
ECH16-20 (31H34) (20 lbs.)	2 step (3 phase)	208	52.1	15.0	51,200	----	ECH16-653 (31H17)	81.1	
		220	55.1	16.8	57,300			84.1	
		230	57.6	18.4	62,800			86.6	
		240	60.1	20.0	68,300			89.1	
ECH16-20 (31H39) (20 lbs.)		440	27.6	16.8	57,300	----	ECH16-513/653 (31H19)	42.3	
		460	28.9	18.4	62,800			43.6	
		480	30.1	20.0	68,300			44.8	
ECH16-25 (31H35) (20 lbs.)	2 steps (3 phase)	208	65.1	18.8	64,200	----	ECH16-653 (31H17)	94.1	
		220	68.9	21.0	71,700			97.9	
		230	72.0	22.9	78,100			101.0	
		240	75.1	25.0	85,300			104.1	
ECH16-25 (31H40) (20 lbs.)		440	34.5	21.0	71,700	----	ECH16-513/653 (31H19)	49.2	
		460	36.0	22.9	78,100			50.7	
		480	37.6	25.0	85,300			52.3	

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F.

COOLING AND HEATING RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

CHP16-261 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Outdoor Coil (°F)														
		85					95					105				
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)		
				75	80	85			75	80	85			75	80	85
63	700	24,100	1880	.75	.90	1.00	22,600	1930	.77	.93	1.00	21,200	2030	.79	.97	1.00
	800	24,800	1890	.78	.95	1.00	23,300	1940	.80	.98	1.00	21,800	2040	.83	1.00	1.00
	900	25,400	1900	.81	.99	1.00	23,900	1950	.84	1.00	1.00	22,400	2060	.86	1.00	1.00
67	700	25,600	1900	.59	.73	.88	24,100	1950	.60	.75	.90	22,500	2060	.61	.78	.93
	800	26,300	1900	.61	.76	.92	24,800	1960	.62	.79	.94	23,100	2080	.64	.81	.97
	900	26,900	1900	.63	.80	.96	25,300	1970	.64	.82	.98	23,600	2090	.66	.85	1.00
71	700	26,900	1900	.44	.58	.74	25,500	1970	.45	.59	.75	23,800	2090	.45	.61	.77
	800	27,700	1910	.45	.60	.77	26,100	1980	.45	.61	.78	24,500	2110	.46	.63	.80
	900	28,300	1910	.46	.62	.79	26,700	1990	.46	.64	.81	25,000	2130	.47	.65	.84

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

CHP16-261 HEATING CAPACITY

Indoor Coil Air Volume (cfm) 70°F db	Air Temperature Entering Outdoor Coil (°F)									
	65		45		25		5		-15	
	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)
700	28,800	1860	21,100	1655	13,300	1400	9,000	1150	4,300	870
800	29,400	1840	21,700	1635	13,900	1380	9,600	1130	4,900	850
900	29,800	1825	22,200	1625	14,300	1365	10,100	1115	5,300	835

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

CHP16-261 HEATING PERFORMANCE at 800 cfm Indoor Coil Air Volume

*Outdoor Temperature (°F)	Compressor Motor Watts Input	Total Output (Btuh)
65	1840	29,400
60	1790	27,600
55	1745	25,800
50	1695	24,000
47	1665	23,000
45	1635	21,700
40	1560	18,700
35	1485	15,600
30	1430	14,700
25	1380	13,900
20	1330	13,000
17	1295	12,400
15	1270	12,000
10	1200	10,800
5	1130	9,600
0	1060	8,400
-5	990	7,300
-10	950	6,100
-15	850	4,900
-20	780	3,700

*Outdoor temperature at 70% relative humidity. Indoor temperature at 70°F.

COOLING AND HEATING RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

CHP16-311 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Outdoor Coil (°F)														
		85			95			105			115					
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)
				Dry Bulb (°F)												
				75 80 85			75 80 85			75 80 85			75 80 85			75 80 85
63	875	28,700	2040	.74 .89 1.00	27,600	2280	.75 .91 1.00	26,400	2580	.77 .94 1.00	25,300	2960	.79 .96 1.00			
	1000	29,400	2050	.77 .94 1.00	28,300	2300	.79 .96 1.00	27,200	2600	.81 .98 1.00	26,000	2990	.83 1.00 1.00			
	1125	30,000	2060	.80 .98 1.00	29,000	2310	.82 1.00 1.00	27,800	2620	.84 1.00 1.00	26,800	3010	.87 1.00 1.00			
67	875	30,200	2060	.58 .72 .86	29,200	2310	.59 .73 .88	28,000	2620	.59 .74 .90	26,700	3010	.60 .76 .93			
	1000	31,000	2070	.60 .75 .90	29,900	2320	.61 .76 .93	28,700	2630	.62 .78 .95	27,300	3030	.63 .80 .98			
	1125	31,500	2080	.62 .78 .95	30,500	2330	.63 .80 .97	29,200	2650	.64 .82 .99	27,800	3040	.65 .85 1.00			
71	875	31,800	2090	.43 .56 .69	30,700	2340	.43 .57 .70	29,400	2650	.44 .58 .72	28,100	3050	.44 .59 .74			
	1000	32,500	2100	.44 .58 .72	31,500	2350	.44 .59 .74	30,200	2670	.44 .61 .76	28,800	3070	.45 .62 .78			
	1125	33,100	2110	.44 .60 .75	32,000	2360	.45 .62 .77	30,800	2680	.45 .63 .80	29,300	3090	.46 .64 .82			

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

CHP16-311 HEATING CAPACITY

Indoor Coil Air Volume (cfm) 70°F db	Air Temperature Entering Outdoor Coil (°F)									
	65		45		25		5		-15	
	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)
875	34,200	2185	26,000	2020	17,200	1845	12,800	1595	6500	1220
1000	34,400	2110	26,200	1940	17,400	1765	13,000	1515	6700	1140
1125	34,500	2050	26,300	1880	17,500	1705	13,100	1455	6700	1080

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

CHP16-311 HEATING PERFORMANCE at 1000 cfm Indoor Coil Air Volume

*Outdoor Temperature (°F)	Compressor Motor Watts Input	Total Output (Btuh)
65	2110	34,400
60	2070	32,600
55	2030	30,800
50	1995	28,900
47	1970	27,800
45	1940	26,200
40	1865	22,100
35	1790	18,000
30	1780	17,700
25	1765	17,400
20	1750	17,100
17	1745	16,800
15	1705	16,200
10	1610	14,600
5	1515	13,000
0	1425	11,400
-5	1330	9900
-10	1235	8300
-15	1140	6700
-20	1040	5100

*Outdoor temperature at 70% relative humidity. Indoor temperature at 70°F.

COOLING AND HEATING RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

CHP16(R)-411-413 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Outdoor Coil (°F)														
		85			95			105			115					
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)	Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T) Dry Bulb (°F)
				75 80 85			75 80 85			75 80 85			75 80 85			75 80 85
63	1050	36,000	2870	.74 .89 1.00	34,300	3070	.76 .92 1.00	32,200	3260	.77 .94 1.00	30,500	3440	.79 .97 1.00			
	1200	37,200	2900	.77 .93 1.00	35,200	3100	.79 .96 1.00	33,300	3300	.81 .99 1.00	31,400	3480	.83 1.00 1.00			
	1350	37,900	2920	.80 .97 1.00	36,000	3130	.82 .99 1.00	34,200	3340	.84 1.00 1.00	32,400	3530	.86 1.00 1.00			
67	1050	38,200	2930	.58 .72 .87	36,300	3140	.59 .74 .88	34,400	3350	.60 .76 .90	32,400	3530	.61 .78 .93			
	1200	39,300	2970	.60 .75 .90	37,400	3180	.61 .77 .92	35,300	3380	.62 .80 .95	33,100	3570	.63 .82 .98			
	1350	40,200	2990	.62 .78 .94	38,200	3210	.63 .81 .97	36,000	3410	.64 .83 .99	33,700	3600	.66 .86 1.00			
71	1050	40,300	2990	.43 .57 .73	38,400	3220	.44 .58 .74	36,400	3420	.44 .59 .75	34,200	3620	.45 .61 .77			
	1200	41,400	3030	.44 .59 .75	39,400	3250	.45 .60 .77	37,300	3460	.45 .62 .78	35,000	3660	.45 .63 .80			
	1350	42,300	3050	.45 .61 .78	40,200	3280	.45 .62 .80	38,000	3490	.46 .64 .82	35,700	3690	.46 .66 .84			

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

CHP16(R)-411-413 HEATING CAPACITY

Indoor Coil Air Volume (cfm) 70°F db	Air Temperature Entering Outdoor Coil (°F)									
	65		45		25		5		-15	
	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)
1050	44,500	3100	32,300	2605	19,200	2125	14,700	1805	7,200	1375
1200	45,100	3015	32,800	2525	19,700	2045	15,200	1720	7,800	1295
1350	45,600	2950	33,200	2455	20,200	1975	15,700	1655	8,200	1225

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

CHP16(R)-411-413 HEATING PERFORMANCE at 1200 cfm Indoor Coil Air Volume

*Outdoor Temperature (°F)	Compressor Motor Watts Input	Total Output (Btuh)
65	3015	45,100
60	2900	42,400
55	2785	39,700
50	2670	37,000
47	2605	35,400
45	2525	32,800
40	2325	26,200
35	2125	19,700
30	2085	19,700
25	2045	19,700
20	2000	19,700
17	1980	19,700
15	1935	18,900
10	1830	17,100
5	1720	15,200
0	1615	13,300
-5	1505	11,500
-10	1400	9,600
-15	1295	7,800
-20	1185	5,900

*Outdoor temperature at 70% relative humidity. Indoor temperature at 70°F.

COOLING AND HEATING RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

CHP16(R)-511-513 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Outdoor Coil (°F)																							
		85						95						105						115					
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)						
				Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)						
				75	80	85			75	80	85			75	80	85			75	80	85				
63	1400	47,500	3580	.74	.89	1.00	45,100	3870	.75	.91	1.00	42,400	4150	.77	.94	1.00	40,100	4430	.79	.97	1.00				
	1600	49,000	3620	.77	.93	1.00	46,400	3910	.79	.96	1.00	43,900	4210	.80	.98	1.00	41,400	4490	.82	1.00	1.00				
	1800	50,100	3650	.80	.97	1.00	47,500	3950	.82	.99	1.00	45,000	4250	.84	1.00	1.00	42,700	4560	.86	1.00	1.00				
67	1400	50,300	3660	.58	.72	.87	47,900	3960	.59	.74	.88	45,400	4260	.60	.76	.90	42,900	4560	.61	.78	.93				
	1600	51,800	3690	.60	.75	.90	49,200	4000	.61	.77	.92	46,600	4310	.62	.79	.95	43,900	4610	.63	.82	.97				
	1800	52,900	3720	.62	.78	.94	50,300	4040	.63	.80	.96	47,600	4350	.64	.83	.99	44,800	4650	.65	.86	1.00				
71	1400	53,100	3730	.43	.57	.72	50,600	4050	.44	.58	.74	48,000	4360	.44	.59	.75	45,300	4680	.44	.61	.77				
	1600	54,500	3760	.44	.59	.75	51,900	4090	.44	.60	.77	49,200	4410	.45	.61	.78	46,400	4730	.45	.63	.80				
	1800	55,700	3790	.45	.61	.78	53,000	4120	.45	.62	.80	50,200	4450	.46	.64	.81	47,400	4770	.46	.66	.83				

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

CHP16(R)-511-513 HEATING CAPACITY

Indoor Coil Air Volume (cfm) 70°F db	Air Temperature Entering Outdoor Coil (°F)									
	65		45		25		5		-15	
	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)
1400	60,900	4000	45,100	3395	28,700	2745	19,600	2325	9,600	1780
1600	61,800	3880	45,900	3275	29,500	2625	20,500	2205	10,500	1660
1800	62,300	3775	46,500	3170	30,100	2525	21,000	2105	11,000	1555

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

CHP16(R)-511-513 HEATING PERFORMANCE at 1600 cfm Indoor Coil Air Volume

*Outdoor Temperature (°F)	Compressor Motor Watts Input	Total Output (Btuh)
65	3880	61,800
60	3740	58,100
55	3600	54,400
50	3465	50,700
47	3380	48,500
45	3275	45,900
40	3005	36,900
35	2740	33,300
30	2680	31,400
25	2625	29,500
20	2570	27,600
17	2535	26,500
15	2480	25,500
10	2345	23,000
5	2205	20,500
0	2070	18,000
-5	1930	15,500
-10	1795	13,000
-15	1660	10,500
-20	1520	8,000

*Outdoor temperature at 70% relative humidity. Indoor temperature at 70°F.

COOLING AND HEATING RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

CHP16(R)-651-653 COOLING CAPACITY

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Outdoor Coil (°F)																							
		85						95						105						115					
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)						
				Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)						
				75	80	85			75	80	85	75		80	85	75	80		85	75	80	85			
63	1750	57,400	4390	.77	.93	1.00	54,600	4740	.77	.94	1.00	51,900	5090	.78	.96	1.00	48,800	5420	.80	.99	1.00				
	2000	58,900	4430	.79	.96	1.00	56,000	4790	.80	.98	1.00	53,400	5150	.82	1.00	1.00	50,300	5500	.84	1.00	1.00				
	2250	60,200	4470	.82	.99	1.00	57,400	4840	.83	1.00	1.00	54,800	5220	.85	1.00	1.00	52,000	5580	.87	1.00	1.00				
67	1750	61,200	4490	.59	.74	.88	58,100	4860	.60	.75	.90	55,200	5230	.61	.77	.92	51,800	5580	.62	.80	.94				
	2000	62,800	4530	.61	.77	.92	59,700	4910	.62	.79	.94	56,400	5290	.63	.81	.96	53,200	5630	.64	.84	.99				
	2250	64,200	4570	.63	.80	.96	60,900	4950	.64	.83	.98	57,700	5330	.65	.85	1.00	54,400	5690	.67	.88	1.00				
71	1750	64,300	4580	.44	.58	.74	61,100	4970	.45	.59	.75	58,100	5360	.45	.60	.76	54,900	5740	.46	.61	.78				
	2000	66,100	4620	.45	.60	.77	62,800	5050	.46	.61	.78	59,600	5410	.46	.63	.80	56,200	5800	.46	.64	.82				
	2250	67,500	4660	.46	.62	.79	64,100	5060	.46	.64	.81	60,800	5460	.47	.65	.83	57,400	5850	.47	.67	.85				

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

CHP16(R)-651-653 HEATING CAPACITY

Indoor Coil Air Volume (cfm) 70°F db	Air Temperature Entering Outdoor Coil (°F)									
	65		45		25		5		-15	
	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)	Total Htg. Cap. (Btuh)	Comp. Mtr. Input (W)
1750	72,600	5240	54,800	4435	35,800	3610	25,800	2960	12,800	2245
2000	73,300	5160	55,500	4350	36,500	3525	26,500	2875	13,500	2160
2250	73,900	5090	56,100	4285	37,100	3460	27,100	2810	14,100	2095

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

CHP16(R)-651-653 HEATING PERFORMANCE at 1600 cfm Indoor Coil Air Volume

*Outdoor Temperature (°F)	Compressor Motor Watts Input	Total Output (Btuh)
65	5160	73,300
60	4965	69,200
55	4770	65,200
50	4580	61,100
47	4465	58,000
45	4350	55,500
40	4075	47,300
35	3800	39,200
30	3660	37,800
25	3525	36,500
20	3385	35,100
17	3305	34,000
15	3230	33,000
10	3055	29,800
5	2875	26,500
0	2695	23,300
-5	2520	20,000
-10	2340	16,800
-15	2160	13,500
-20	1980	10,300

*Outdoor temperature at 70% relative humidity. Indoor temperature at 70°F.

BLOWER DATA**CHP16-261 BLOWER PERFORMANCE @ 230 VOLTS**
(With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1385	1025	900	685
.05	1380	1035	915	700
.10	1365	1045	925	710
.15	1350	1045	930	715
.20	1330	1040	930	715
.25	1305	1030	925	715
.30	1275	1010	915	705
.40	1205	965	880	680
.50	1120	890	820	640
.60	1015	800	740	585
.70	900	685	640	510
.75	835	615	580	470

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-311 BLOWER PERFORMANCE @ 230 VOLTS
(With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1485	1250	1085	905
.05	1460	1250	1075	900
.10	1430	1240	1070	895
.15	1400	1235	1060	890
.20	1375	1225	1045	885
.25	1345	1215	1035	875
.30	1315	1200	1020	865
.40	1255	1165	990	835
.50	1190	1125	950	805
.60	1125	1075	910	770
.70	1060	1015	865	725
.75	1025	985	840	700

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16(R)-411-413 BLOWER PERFORMANCE @ 230 VOLTS
(With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1360	1270	1070	890
.05	1355	1250	1060	885
.10	1350	1230	1050	880
.15	1330	1220	1035	870
.20	1310	1210	1020	860
.25	1295	1190	1005	845
.30	1280	1170	990	830
.40	1230	1130	960	800
.50	1170	1070	910	760
.60	1100	990	850	700
.70	1020	890	780	620
.75	975	830	740	570

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-413 BLOWER PERFORMANCE @ 460 VOLTS
(With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1560	1380	1070
.05	1555	1355	1075
.10	1540	1330	1080
.15	1510	1320	1070
.20	1475	1315	1060
.25	1450	1295	1040
.30	1430	1270	1025
.40	1360	1215	980
.50	1280	1145	925
.60	1185	1045	850
.70	1070	925	750
.75	990	860	680

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-261 BLOWER PERFORMANCE @ 230 VOLTS
(With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1435	1035	895	625
.05	1420	1050	915	645
.10	1400	1060	925	660
.15	1380	1060	935	670
.20	1360	1060	935	675
.25	1335	1050	930	675
.30	1305	1035	920	670
.40	1235	985	875	650
.50	1155	910	810	605
.60	1065	810	720	545
.70	960	690	605	465
.75	905	620	540	415

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-311 BLOWER PERFORMANCE @ 230 VOLTS
(With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1485	1345	1115	920
.05	1480	1340	1120	930
.10	1465	1335	1120	940
.15	1455	1325	1115	945
.20	1435	1315	1110	945
.25	1420	1305	1105	940
.30	1400	1285	1095	935
.40	1350	1250	1065	910
.50	1295	1200	1025	875
.60	1230	1145	975	820
.70	1160	1075	915	755
.75	1120	1040	885	720

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16(R)-411-413 BLOWER PERFORMANCE @ 230 VOLTS
(With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	1450	1370	1080	900
.05	1430	1350	1070	890
.10	1410	1330	1060	880
.15	1395	1310	1055	875
.20	1380	1290	1050	870
.25	1360	1270	1040	860
.30	1340	1250	1030	850
.40	1300	1210	1010	830
.50	1250	1170	970	810
.60	1200	1120	930	770
.70	1150	1060	890	710
.75	1125	1025	870	670

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-413 BLOWER PERFORMANCE @ 460 VOLTS
(With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	1665	1490	1080
.05	1640	1465	1080
.10	1610	1440	1080
.15	1585	1420	1075
.20	1555	1400	1070
.25	1525	1380	1060
.30	1495	1355	1050
.40	1435	1300	1015
.50	1365	1250	985
.60	1295	1180	935
.70	1205	1100	860
.75	1145	1060	800

NOTE — All cfm is measured external to unit with dry coil and without filter.

BLOWER DATA

CHP16(R)-511-513 BLOWER PERFORMANCE @ 230 VOLTS (With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	2015	1610	1425	1240
.05	2000	1595	1420	1235
.10	1980	1580	1415	1235
.15	1960	1575	1415	1230
.20	1935	1560	1405	1225
.25	1910	1540	1395	1215
.30	1885	1520	1385	1205
.40	1825	1485	1355	1185
.50	1760	1445	1315	1160
.60	1690	1395	1260	1130
.70	1615	1335	1190	1095
.75	1575	1300	1145	1065

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-513 BLOWER PERFORMANCE @ 460 VOLTS (With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2075	1650	1105
.05	2045	1635	1105
.10	2015	1625	1100
.15	1980	1615	1100
.20	1945	1600	1095
.25	1915	1585	1090
.30	1880	1570	1085
.40	1810	1535	1070
.50	1735	1490	1045
.60	1650	1430	1010
.70	1555	1355	965
.75	1500	1310	935

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16(R)-651-653 BLOWER PERFORMANCE @ 230 VOLTS (With Down-Flo Supply and Return Air Openings)

External Static Press. (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	2450	2200	1990	1760	1460
.05	2430	2180	1980	1750	1470
.10	2410	2170	1970	1740	1490
.15	2390	2160	1960	1730	1500
.20	2360	2140	1950	1720	1490
.25	2340	2120	1930	1710	1490
.30	2320	2100	1910	1700	1480
.40	2270	2060	1880	1670	1470
.50	2230	2010	1830	1640	1430
.60	2170	1930	1780	1600	1390
.70	2120	1890	1730	1550	1340
.75	2080	1850	1700	1530	1310

NOTE — All cfm data is measured external to unit with the air filter in place.

CHP16-653 BLOWER PERFORMANCE @ 460 VOLTS (With Down-Flo Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2450	2090	1740
.05	2430	2080	1740
.10	2410	2060	1730
.15	2390	2040	1720
.20	2360	2020	1710
.25	2340	2000	1700
.30	2320	1990	1680
.40	2270	1940	1630
.50	2230	1880	1590
.60	2170	1840	1520
.70	2120	1770	1460
.75	2080	1740	1440

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16(R)-511-513 BLOWER PERFORMANCE @ 230 VOLTS (With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds			
	High	Med-High	Med-Low	Low
0	2075	1675	1445	1275
.05	2060	1660	1440	1270
.10	2040	1645	1435	1270
.15	2020	1635	1435	1265
.20	1995	1620	1425	1260
.25	1965	1600	1415	1250
.30	1940	1580	1405	1240
.40	1880	1545	1375	1220
.50	1815	1500	1335	1195
.60	1740	1450	1280	1165
.70	1655	1395	1210	1130
.75	1605	1365	1165	1110

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16-513 BLOWER PERFORMANCE @ 460 VOLTS (With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2090	1755	1115
.05	2065	1740	1115
.10	2035	1720	1110
.15	2005	1705	1110
.20	1975	1685	1105
.25	1950	1675	1100
.30	1920	1650	1095
.40	1860	1600	1080
.50	1790	1555	1055
.60	1720	1495	1020
.70	1640	1425	975
.75	1595	1385	945

NOTE — All cfm is measured external to unit with dry coil and without filter.

CHP16(R)-651-653 BLOWER PERFORMANCE @ 230 VOLTS (With Horizontal Supply and Return Air Openings)

External Static Press. (in. wg)	Air Volume (cfm) @ Various Speeds				
	High	Med-High	Medium	Med-Low	Low
0	2570	2220	2000	1780	1510
.05	2560	2210	1990	1780	1520
.10	2540	2200	1980	1770	1530
.15	2520	2190	1970	1770	1520
.20	2500	2180	1960	1760	1510
.25	2480	2160	1940	1750	1510
.30	2440	2140	1920	1740	1500
.40	2390	2100	1900	1710	1470
.50	2320	2060	1860	1670	1440
.60	2240	2010	1810	1630	1400
.70	2160	1950	1760	1580	1350
.75	2120	1920	1720	1560	1330

NOTE — All cfm data is measured external to unit with the air filter in place.

CHP16-653 BLOWER PERFORMANCE @ 460 VOLTS (With Horizontal Supply and Return Air Openings)

External Static Pressure (in. wg)	Air Volume (cfm) @ Various Speeds		
	High	Medium	Low
0	2570	2100	1760
.05	2560	2090	1770
.10	2540	2070	1760
.15	2520	2050	1760
.20	2500	2030	1750
.25	2480	2010	1740
.30	2440	2000	1720
.40	2390	1960	1670
.50	2320	1910	1620
.60	2240	1870	1550
.70	2160	1800	1490
.75	2120	1760	1470

NOTE — All cfm is measured external to unit with dry coil and without filter.

ACCESSORY BLOWER DATA

FILTER AND ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume (cfm)	Total Air Resistance (inches water gauge)									
		1" Filter Furnished With CHP16 Unit	REMD16 Down-Flo Economizer				EMDH16 Horizontal Economizer		DF16 Down-Flo Filter Adaptor Kit		
			With 1" Filter (Not Furnished)	Less Filter	†With Optional Pleated 2" Filter	††With Optional Fiberglass 2" Filter	With Furnished 1" Filter	Less Filter	With Furnished 1" Filter	†With Optional Pleated 2" Filter	††With Optional Fiberglass 2" Filter
CHP16-261 CHP16-311 CHP16-410	800	.15	.15	.05	.27	.13	.18	.10	.15	.27	.13
	1000	.18	.18	.06	.34	.18	.26	.15	.18	.34	.18
	1200	.21	.21	.09	.42	.24	.35	.21	.21	.42	.24
	1400	.25	.25	.15	.51	.31	.46	.29	.25	.51	.31
CHP16-510 CHP16-650	1600	.15	.20	.05	.40	.27	.30	.17	.15	.35	.22
	1800	.17	.23	.06	.48	.33	.35	.19	.17	.42	.27
	2000	.20	.27	.08	.56	.39	.40	.22	.20	.49	.32
	2200	.23	.32	.10	.66	.46	.47	.26	.23	.57	.37

†Air resistance with field furnished 2" pleated non-woven cotton fabric filter.

††Air resistance with field furnished 2" fiberglass media filter.

NOTE — Electric heaters have no appreciable air resistance.

DIFFUSER AIR RESISTANCE

Unit Model No.	Air Volume (cfm)	Total Air Resistance (inches water gauge)			
		RTD9-65 Diffuser			FD9-65 Diffuser
		2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
CHP16-261 CHP16-311 CHP16(R)-410	800	.15	.13	.11	.11
	1000	.19	.16	.14	.14
	1200	.25	.20	.17	.17
	1400	.33	.26	.20	.20
CHP16(R)-510 CHP16(R)-650	1600	.43	.32	.24	.24
	1800	.56	.40	.30	.30
	2000	.73	.50	.36	.36
	2200	.95	.63	.44	.44

RTD9-65 STEP-DOWN CEILING DIFFUSER AIR THROW DATA

Grille Vanes	Air Volume (cfm)	*Effective Throw (ft.)		
		Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down
2 Ends Open	600	21	20	14
	800	22	21	15
	1000	24	22	16
	1200	25	23	17
	1400	27	25	18
	1600	29	26	19
	1800	31	27	20
	2000	33	28	21
	2200	35	30	22
	2400	38	34	23
1 Side 2 Ends Open	600	15	14	8
	800	16	15	9
	1000	17	16	10
	1200	18	17	11
	1400	19	18	12
	1600	20	18	12
	1800	21	19	13
	2000	23	20	14
All Sides And Ends Open	2200	25	22	16
	2400	27	24	17
	600	11	10	7
	800	12	11	8
	1000	13	12	8
	1200	14	13	9
	1400	15	14	9
	1600	16	14	10
	1800	17	15	10
	2000	18	16	11
	2200	19	17	12
	2400	20	18	12

FD9-65 FLUSH CEILING DIFFUSER AIR THROW DATA

Air Volume (cfm)	*Effective Throw (ft.)
600	7
800	8
1000	8
1200	9
1400	9
1600	10
1800	11
2000	12
2200	12
2400	13

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

WET INDOOR COIL AIR RESISTANCE

Model No.	Air Volume (cfm)	Air Resistance (in. w.g.)
CHP16-261	600	0.05
	800	0.06
	1000	0.07
CHP16-311	800	0.09
	1000	0.10
	1200	0.11
CHP16(R)-410	800	0.07
	1000	0.08
	1200	0.09
CHP16(R)-510	1400	0.10
	1600	0.13
	1800	0.14
	2000	0.15
CHP16(R)-650	2200	0.16
	1600	0.11
	1800	0.12
	2000	0.13
	2200	0.14

*Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft. 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.

The installed weight shall not be more than lbs. Entire unit shall have a width of not more than inches, a depth of not more than inches and an overall height of not more than inches. 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. Listing. All wiring shall be in compliance with NEC.

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. density fiberglass or equivalent.

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

Heating System — The total certified heating capacity shall not be less than Btuh with an indoor coil air volume of cfm, an entering wet bulb air temperature of °F, an entering dry bulb temperature of °F and an outdoor coil entering air temperature of °F. 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. (indoor coil) and sq. ft. (outdoor coil). Optional coil guard(s) shall be available.

CHP16-261 and CHP16(R)-410-510-650 model compressors shall be resiliently mounted, have overload protection, internal pressure relief and compressor crankcase heater. CHP16-311 shall have scroll compressor. The refrigeration system shall have suction and liquid line service gauge ports, high pressure switch (not required on CHP16-311), reversing valve and full refrigerant charge. CHP16-261 & 311 and CHP16(R)-410 models shall have refrigerant metering/flow control device. CHP16(R)-510-650 shall have check and expansion valve, suction line accumulator and thermometer well. CHP16-261-311-410-510-650 models shall have loss of charge switch. Control options shall consist of thermostat, timed-off control 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 cut-off 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. 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. CHP16-261-311-410-510-650 models shall have low voltage terminal strip. Optional lifting brackets shall be available for rigging on CHP16R models. Lifting brackets shall be furnished for field installation on CHP16-261-31-410 models. Lifting brackets shall be factory installed on CHP16-510-650 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 at an external static pressure of inches water gauge requiring not more than bhp and rpm. Blower shall be statically and dynamically balanced.

Propeller type condenser fan shall be direct driven by a hp 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 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 CHP16R 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. 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.

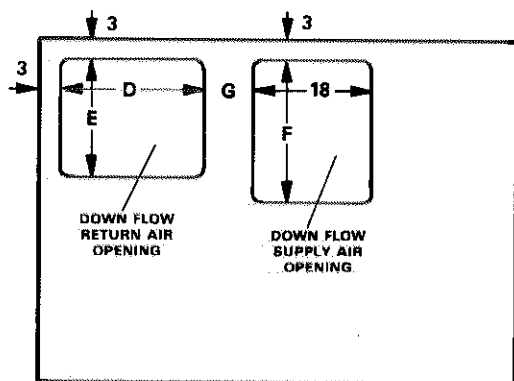
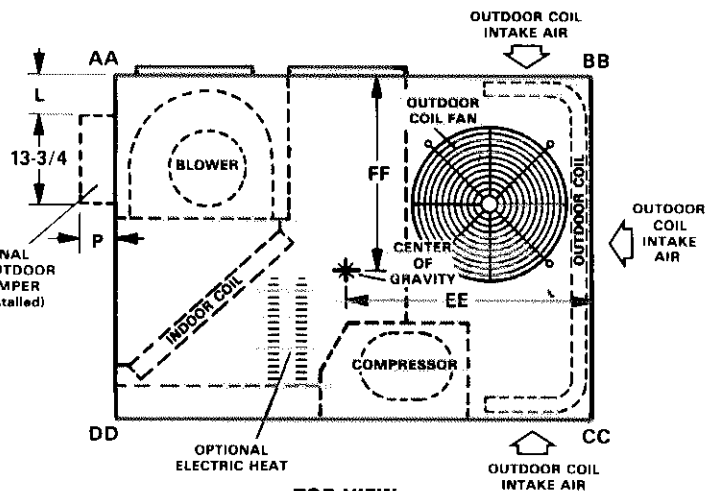
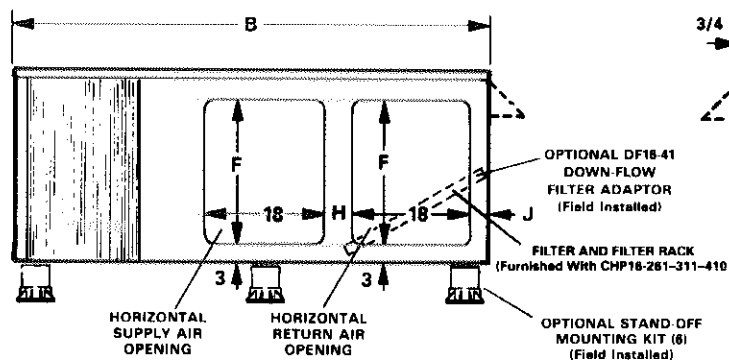
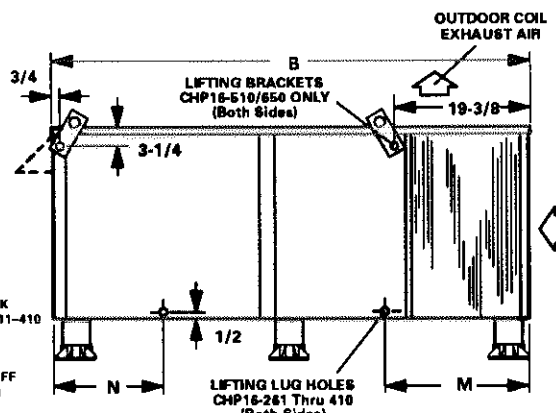
Control Systems — Shall provide a selection of thermostats and related controls to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

CHP16(R) BASIC UNIT
CORNER WEIGHTS (lbs.)

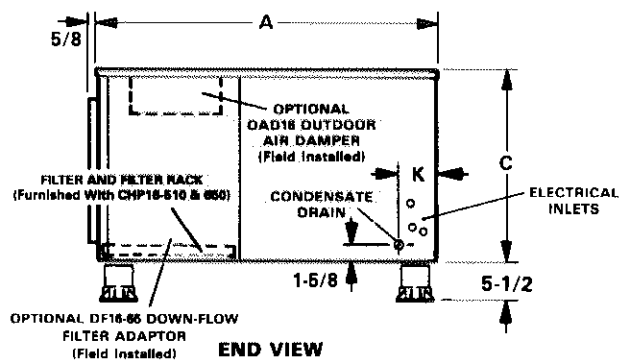
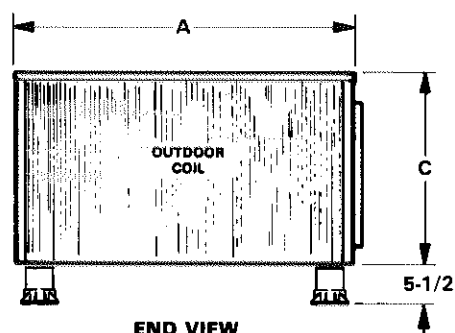
Model No.	AA	BB	CC	DD
CHP16-261	66	71	104	97
CHP16-311	69	74	108	101
CHP16(R)-411-413	72	77	113	106
CHP16(R)-511-513	93	93	142	142
CHP16(R)-651-653	102	108	160	151

CENTER OF GRAVITY (in.)

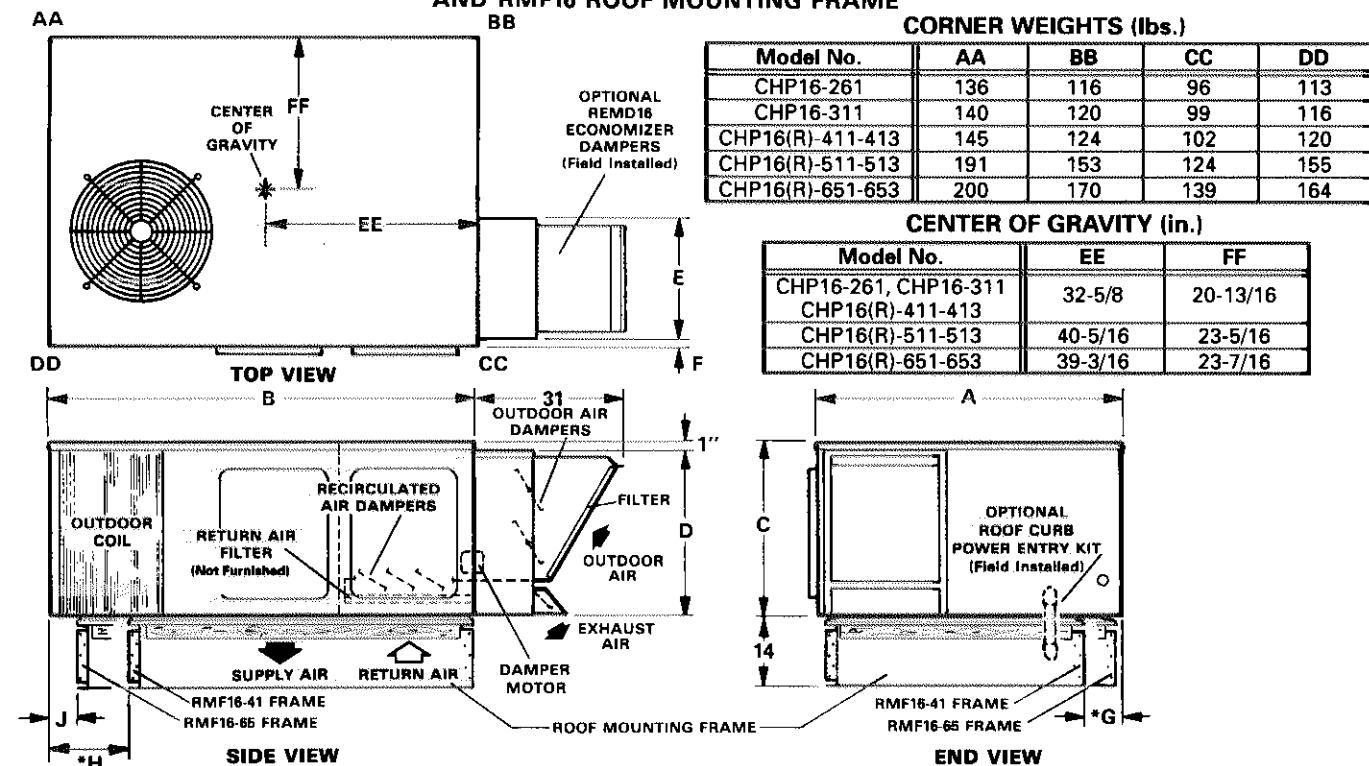
Model No.	EE	FF
CHP16-261, CHP16-311 CHP16(R)-411-413	29	27-3/8
CHP16(R)-511-513	36-1/4	31-7/16
CHP16(R)-651-653	35-1/4	31


TOP VIEW BASE SECTION

TOP VIEW

**BACK VIEW
(With Horizontal Supply & Return Air)**

FRONT VIEW

All "R" Model Unit Brackets must be ordered extra.

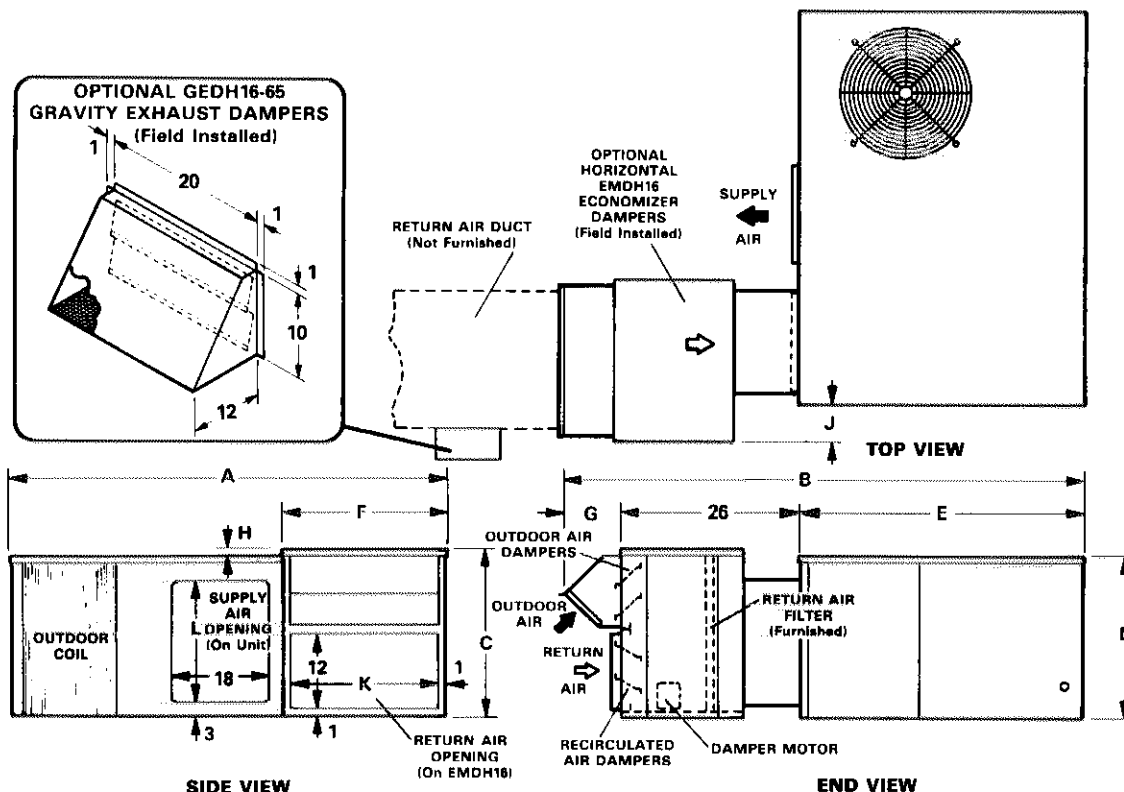

END VIEW

END VIEW

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P
CHP16-261, CHP16-311 CHP16(R)-411-413	46	60	23	18	13	13	10	3	4	6-1/2	2	13-1/4	10	5
CHP16(R)-511-513 CHP16(R)-651-653	52	72-1/2	29	22	18	22	7-1/2	5	3	6-1/8	5	21-1/2	17	8

**CHP16 UNIT WITH REMD16 ECONOMIZER DAMPER SECTION
AND RMF16 ROOF MOUNTING FRAME**


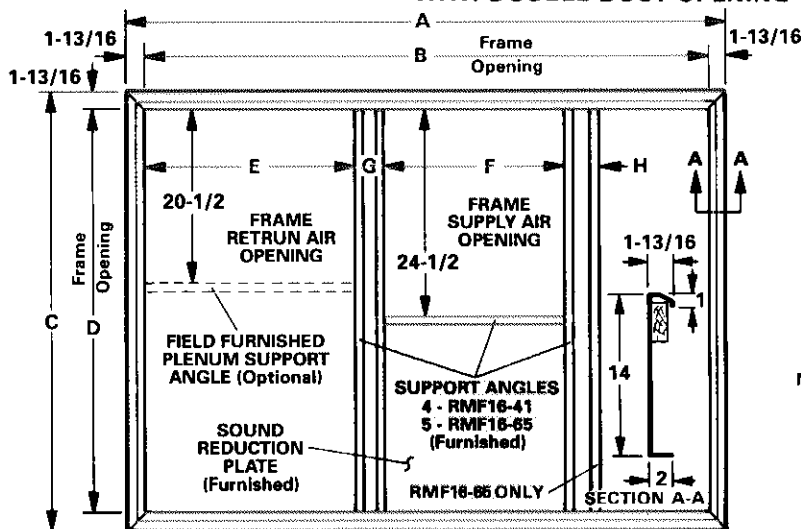
Model No.	A	B	C	D	E	F	*G	*H	J
CHP16-261, CHP16-311, CHP16(R)-411-413	46	60	23	21-3/4	16-1/8	3/4	----	----	----
CHP16(R)-511-513, CHP16(R)-651-653	52	72-1/2	29	27-3/4	20-1/4	1-1/2	7	16	3-1/2

*Dimensions reflect usage with RMF16-41 mounting frame.

**CHP16 UNIT WITH EMDH16 HORIZONTAL ECONOMIZER DAMPER SECTION
AND GEDH16-65 GRAVITY EXHAUST DAMPERS**


Model No.	A	B	C	D	E	F	G	H	J	K	L
CHP16-261, CHP16-311, CHP16(R)-411-413	63	81-1/2	26	23	46	26	9-1/2	3	3	24	13
CHP16(R)-511-513, CHP16(R)-651-653	79-1/2	90	30-3/8	29	52	30-1/2	12	1-1/2	7	28-7/8	22

**RMF16-41 & 65 ROOF MOUNTING FRAME
WITH DOUBLE DUCT OPENING FOR CHP16 UNITS**

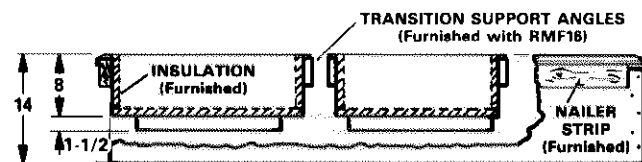


TOP VIEW

Model No.	A	B	C	D	E	F	G	H
RMF16-41	56-3/8	52-3/4	44-7/8	41-1/4	24-3/8	20-9/16	*4	---
RMF16-65	69	65-3/8	50-1/2	46-7/8	24-1/4	20-1/2	4	4

*3-1/4 inches with CHP16-261-311-410 models.

**RMF16-41 & 65 ROOF MOUNTING FRAME FOR CHP16 UNITS WITH SRT16-65
SUPPLY AND RETURN AIR TRANSITIONS FOR FD9-65 & RTD9-65 CEILING DIFFUSERS**

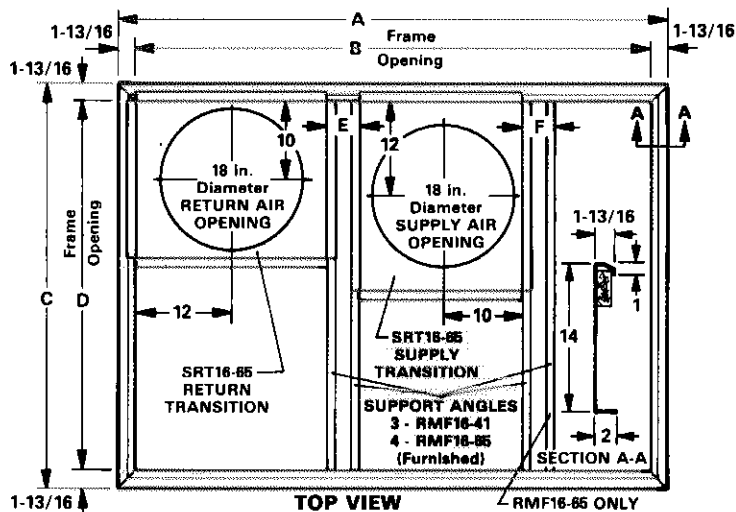


NOTE - Roof deck may be omitted within confines of frame.

SIDE VIEW

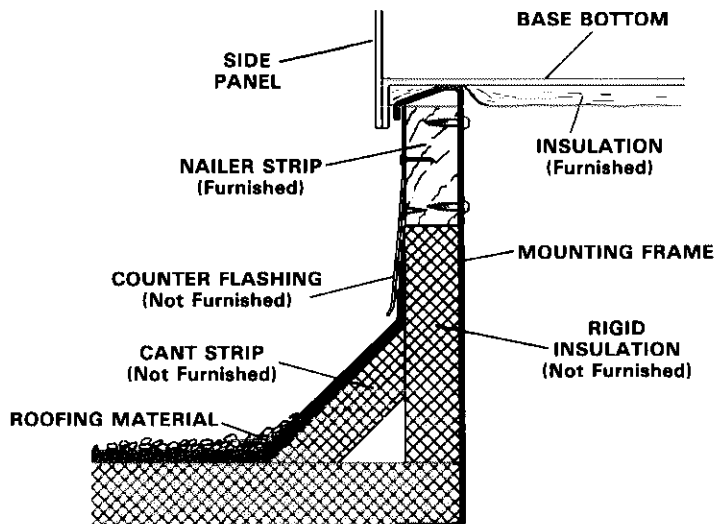
Model No.	A	B	C	D	E	F
RMF16-41 with SRT16-65	56-3/8	52-3/4	44-7/8	41-1/4	*4	---
RMF16-65 with SRT16-65	69	65-3/8	50-1/2	46-7/8	4	4

*3-1/4 inches with CHP16-261-311-410 models.



TOP VIEW

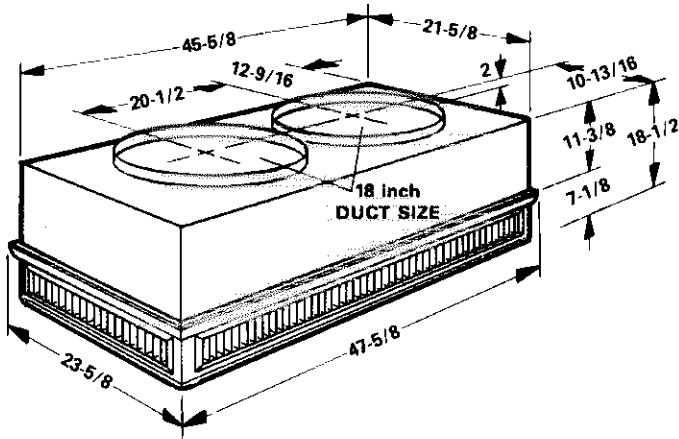
**TYPICAL FLASHING FOR RMF16-41 & 65
ROOF MOUNTING FRAMES WITH CHP16 SERIES UNITS**



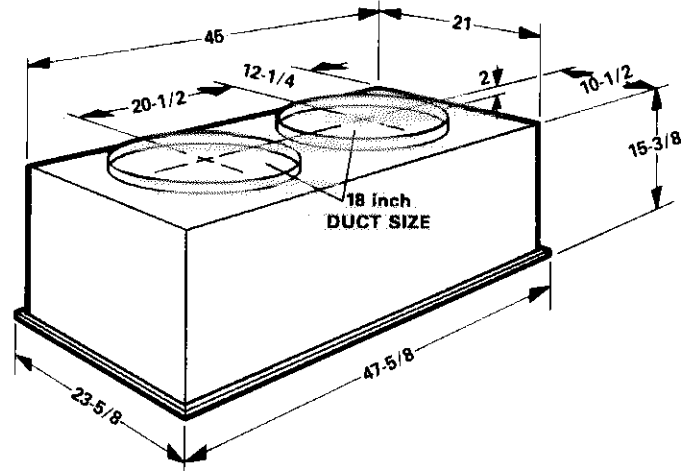
ACCESSORY DIMENSIONS (inches)

COMBINATION CEILING SUPPLY AND RETURN AIR DIFFUSERS

RTD9-65 STEP-DOWN DIFFUSER

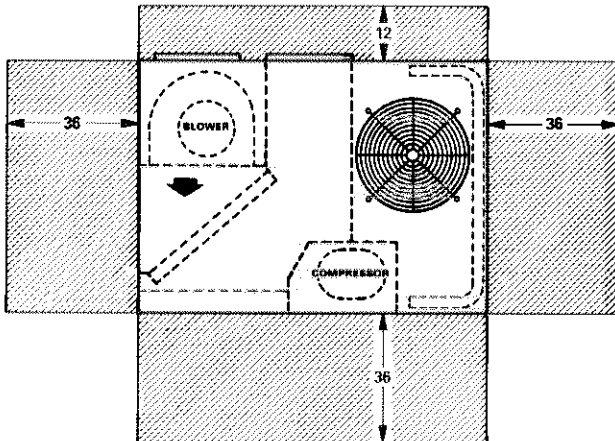


FD9-65 FLUSH DIFFUSER



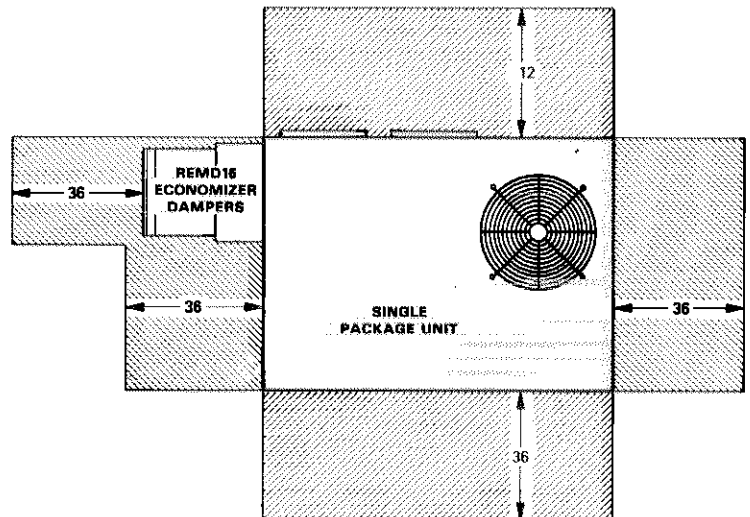
INSTALLATION CLEARANCES (inches)

CHP16(R) BASIC UNIT



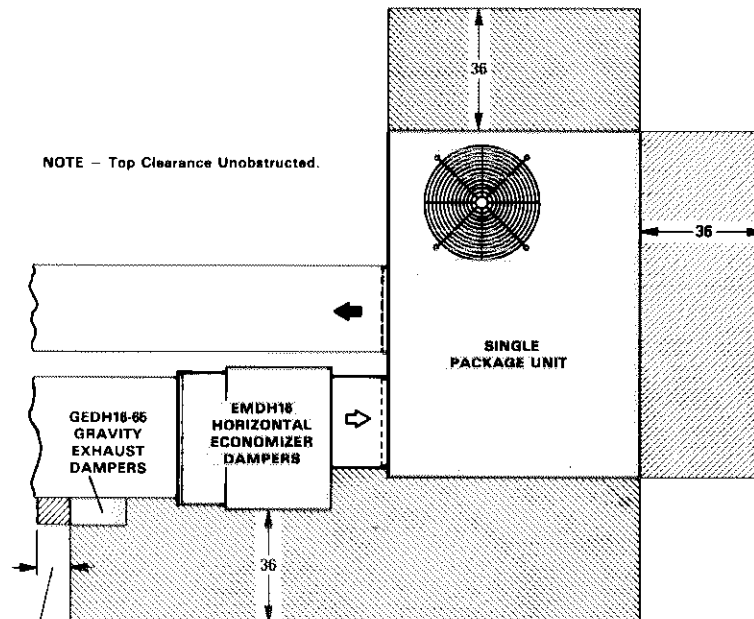
NOTE - Top Clearance Unobstructed.

CHP16 UNIT WITH REMD16 ECONOMIZER



NOTE - Top Clearance Unobstructed.

CHP16 UNIT WITH EMDH16 ECONOMIZER AND GEDH16-65 GRAVITY EXHAUST DAMPERS



NOTE - Top Clearance Unobstructed.

Allow adequate clearance for duct and GEDH16-65 installation.