



**CHP16-953-1353-1853**  
**PACKAGED UNITS — HEAT PUMPS**

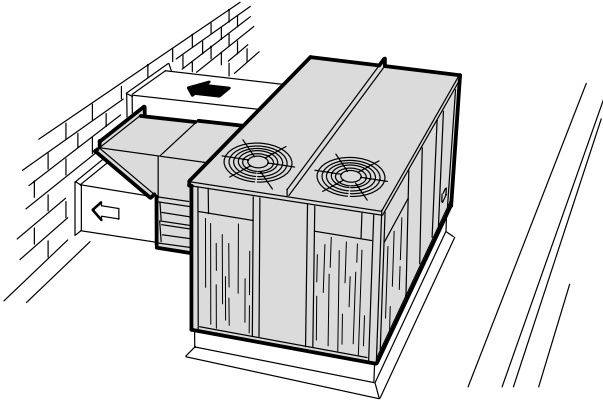
23.5 to 49.6 kW (80 500 to 169 300 Btuh) Cooling Capacity (7.5 to 15 Ton)  
 22.3 to 45.0 kW (76 200 to 153 500 Btuh) Heating Capacity  
 6.3 thru 57.4 kW (21 400 to 195 900) Optional Electric Heat

**CHP16**

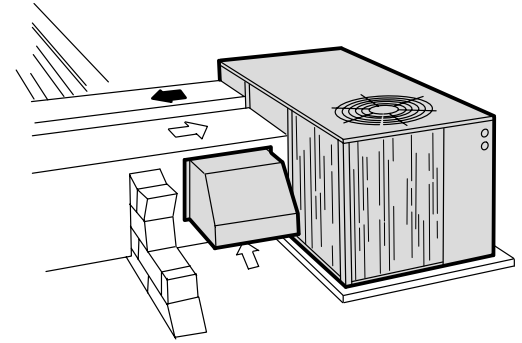
26.4 to 52.7 kW

Bulletin #490005  
 October 1994

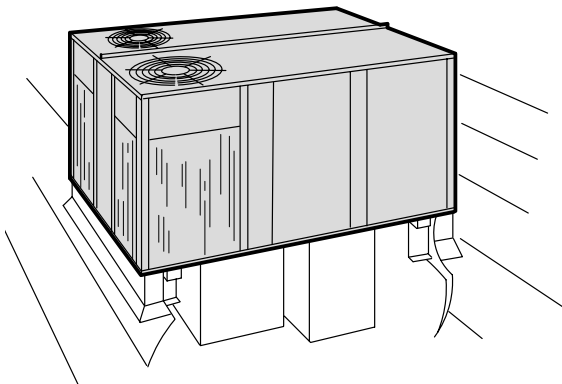
Supersedes May 1990



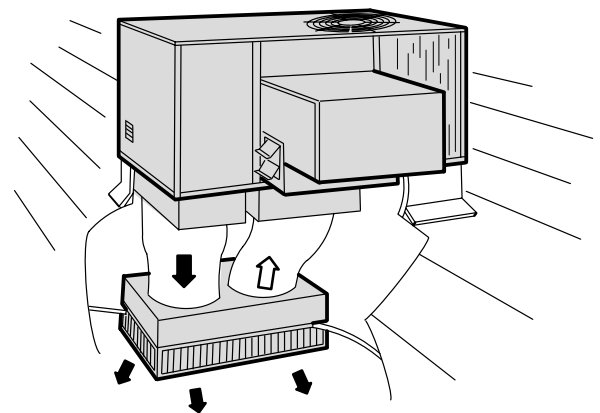
Horizontal (Side) Supply and Return Air Installation with RMF16 Roof Mounting Frame and EMDH16M Economizer Dampers.



Horizontal (Side) Supply and Return Air Installation with OAD16 Outdoor Air Dampers.



Down-Flo Supply and Return Air Installation With RMF16 Roof Mounting Frame.



Down-Flo Supply and Return Air Installation With RMF16 Roof Mounting Frame, REMD16M Economizer and RTD11 Diffuser.

## FEATURES

**Application** — Lennox CHP16 single package heat pump units are designed for bottom (down-flo) or side (horizontal) handling of supply and return air. A separate roof mounting frame mates to the unit base and when flashed into the roof permits weatherproof duct connections and entry into the conditioned area in down-flo applications. The units can also be installed at grade level with horizontal (side) duct connections. A choice of RTD11 step-down or FD11 flush ceiling diffusers are available for combination ceiling supply and return air distribution systems. Optional economizer dampers provide “free cooling” by using outdoor air in lieu of mechanical refrigeration. Units are available for cooling only or cooling with electric heat. Thermostat and system controls are not furnished and must be ordered extra. Available as options are W973 control system, W7400 control system, electro-mechanical, or T7300 thermostat control systems. Units are shipped factory assembled, piped and wired. Each unit is factory test operated insuring unit dependability.

**Completely Tested** — CHP16-953-1353 units have been tested in the Lennox Research Laboratory Environmental Test Rooms which meet American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 37 requirements. The rating test conditions are those included in Air Conditioning and Refrigeration Institute (ARI) Standard 210/240-89 while operating at rated voltage and air volumes. CHP16-1853 units have been tested in the Lennox Research Laboratory Environmental Test Rooms which meet American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 37 requirements. The rating test conditions are those included in the Air Conditioning and Refrigeration Institute (ARI) Standard 360-86 while operating at rated voltage and indoor air volumes. In addition, units have been sound rated in the Lennox reverberant sound test room in accordance with test conditions for Air-Conditioning and Refrigeration Institute (ARI) Standard 270-84. Units and components within are bonded for grounding to meet safety standards for servicing required by Underwriter’s Laboratories (U.L.) and the International Electrotechnical Commission (IEC). Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

**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 a paint finish of powder enamel, electrostatically bonded to the metal. Large removable cabinet panels allow service access. CHP16-1853 filter access panel is hinged and equipped with quarter turn fasteners. Base section and cabinet panels exposed to conditioned air are lined with thick fiberglass insulation. Electrical inlets are provided in cabinet base and outdoor section cabinet panel for wiring entry. Control box with factory installed controls is conveniently located for service access. A low voltage terminal strip is provided in the control box for ease of field wiring connections. Lifting brackets are furnished for ease of handling and rigging. Indoor coil condensate drain connection extends outside of cabinet for ease of connection.

**Air Filters** — Disposable frame type 51 mm (2 inch) thick commercial grade filters are furnished as standard. Media is pleated non-woven cotton fabric for maximum efficiency. Filters are readily accessible for service. See dimension drawings. Filter rack is designed to accept 25 mm (1 inch) thick cleanable filters.

**Refrigeration System** — Factory sealed refrigerant system consists of multiple compressors, outdoor coils and direct drive fan(s), indoor coil (dual circuits) and belt drive blower, check and expansion valves, high capacity driers, thermometer wells, high pressure switches and loss of charge switches, reversing valves, suction line accumulators and full operating charge of refrigerant. Dual independent refrigerant circuits provide staging control to fit varying cooling loads.

**Copper Tube Indoor and Outdoor Coils** — Extra large surface area and circuiting of 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. CHP16-953 and -1353 models have enhanced fin outdoor coils. 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. The indoor coil is face split with separate circuits. Each circuit has separate expansion valve, compressor and refrigerant charge.

**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 7°C (45°F). A pressure switch mounted on the outdoor coil vapor line determines when the defrost cycle is required and also when to terminate a cycle.

**Outdoor Coil Fan(s)** — CHP16-953 is equipped with a single fan. CHP16-1353 and -1853 have two. Direct drive fan(s) draw large air volumes uniformly through outdoor coils and discharges it vertically. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air flow through the coil results in high refrigerant cooling capacity. Fan motor is permanently lubricated and overload protected. Motor is resiliently mounted. Corrosion resistant polyvinyl chloride (PVC) coated steel wire fan guard(s) are furnished.

**Supply Air Blower** — Belt drive centrifugal blower delivers large air volume efficiently and with minimum power consumption. Blower wheel is heavy duty, with forward curved blades and double inlet. Wheel is statically and dynamically balanced to eliminate vibration and designed to give maximum air delivery. Bearings are heavy duty, self aligning, permanently sealed and lubricated. Design of motor mounting base permits quick and simple motor changeover, belt tension adjustment or belt changing. Adjustable motor pulley allows for variable speed adjustments. Motor is overload protected.

**Dual Compressors** — Rugged and reliable compressors are hermetically sealed, suction cooled, overload protected and equipped with internal pressure relief valve. Compressors are internally protected from excessive current and temperature. Immersible self-regulating crankcase heater is temperature actuated to operate only when required and ensures proper lubrication at all times. The entire running gear is spring mounted within the sealed housing. In addition, the compressors are installed on resilient rubber mounts in the unit, assuring quiet and vibration free operation.

## OPTIONAL ACCESSORIES (Must Be Ordered Extra)

**ECH16 Supplemental Electric Heat (Optional)** — Available factory or field installed in 10kW through 75kW sizes. Helix wound nichrome heating elements are exposed directly in the air stream resulting in instant heat transfer, lower coil temperatures and long service life. Elements are accurately located and insulated from the heavy gauge steel support frame by high quality insulators. Time delays bring the elements on and off the line in sequence and equal increments in response to demand with a time delay between each element. Elements are equipped with individual limit controls providing positive protection in case of overheating. Some heaters may be two stage controlled with each stage being energized only when required. Fuse block for electric heaters must be ordered extra, see Optional Accessories tables. Factory installed heaters will have the fuse block factory installed. Fuse block must be field installed on field installed heaters. Wiring harness and mounting screws are provided with fuse block.

**Timed-Off Control (Optional)** — Timed-off control is available for field installation. Prevents compressor short-cycling. Automatic reset control provides a time delay between compressor shutoff and start-up. Kit (40G20) includes two LB-50709BA controls and must be ordered extra.

**Bottom Power Entry Kit (Optional CHP16-953, and -1353 Models Only)** — Factory or field installed kit LB-55757CA (34G70) is provided for bottom power entry into the unit within the confines of the roof mounting frame. Kit contains wiring junction box with cover 152 mm x 203 mm x 254 mm (6" x 8" x 10"), 2.0 m (78 inch) length of armored cable and necessary installing hardware. Galvanized steel junction box with prepunched mounting holes and electrical knockouts installs on electrical inlet openings located in the unit base. Kit must be ordered extra. See basic unit dimension drawing. Furnished as standard on the CHP16-1853 model.

**Low Ambient Control Kit (Optional)** — System will operate satisfactorily in the cooling mode down to 7°C (45°F) outdoor air temperature without additional controls. If air conditioning operation is required at low ambients a field installed low ambient kit can be added enabling the unit to operate down to minus 1°C (30°F). Kits (CHP16-953 16J87 — CHP16-1353, -1853 25J80) must be ordered extra. See Optional Accessories tables.

**RMF16 Roof Mounting Frame (Optional)** — Sturdy mounting frame mates to the single package unit and provides an automatic weather sealed rooftop installation. Shipped knocked down for ease of shipping and handling it is easily field assembled. A nailer strip is secured to the frame sides to facilitate flashing. Approved by United States National Roofing Contractors Association.

## **OPTIONAL ACCESSORIES (Must Be Ordered Extra)**

**REMD16M Economizer Dampers (Optional)** — Economizer consists of: mechanically linked recirculated air dampers and outdoor air dampers, damper motor and controls. Economizers are shipped factory wired and only require plug-in connection. Formed low leakage (less than 3%) dampers rotate smoothly in nylon bearings. Outdoor air dampers are equipped with stainless steel seals for minimum air leakage. The positioning of the dampers is accomplished with a 24 volt fully modulating spring return damper motor with adjustable minimum damper position switch. Damper motor is controlled by the room thermostat, mixed air controller and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows for 0 to 100% outdoor air (first stage of cooling) to be used for “free cooling” when outdoor humidity and temperature are acceptable. Additionally, an integrated economizer cycle can be accomplished by allowing the outside air dampers to remain open, continuing to admit outside air, and cycling the compressors to provide dehumidification and additional cooling, as needed. The integrated economizer cycle uses only the minimum amount of mechanical cooling necessary. Two cleanable polyurethane media frame filters are furnished for extra air filtering and bird screen protection.

REMD16M-95 and -135 are available for down-flo applications only. Economizer cabinet is constructed of heavy gauge galvanized steel with a powder enamel paint finish electrostatically bonded to the metal and completely insulated with thick fiberglass insulation. Economizer cabinet field installs on the unit cabinet. Provisions have been made in the economizer cabinet for easy field installation of optional GED16 gravity exhaust dampers. See dimension drawings.

REMD16M-185 is available for down-flo or horizontal applications. Factory or field installed damper assembly slides in cavity provided in unit cabinet. Outdoor air hood field installs over outdoor air dampers external to the unit. Gravity exhaust dampers are also furnished for field installation. See dimension drawings. Horizontal applications require Optional Horizontal Supply and Return Air Kit for duct connection to unit. See Optional Accessories tables.

**PED16 Power Exhaust Fans (Optional CHP16-1853 Unit Only)** — Fans field install on REMD16M-185 economizer in down-flo applications and must be ordered extra. Fans provide pressure relief and are interlocked to run when return air dampers are closed and supply air blowers are operating. Motors are overload protected. See dimension drawing.

**EMDH16M Horizontal Economizer Dampers (Optional CHP16-953 and -1353 Units Only)** — The EMDH16M horizontal economizer cabinet section contains recirculated air dampers, outdoor air dampers, damper motor and controls. Economizer section field installs on the unit cabinet. Outdoor air hood is shipped separately and is field installed. Economizer is factory assembled and wired and only requires field plug-in connection. Cabinet is constructed of heavy gauge galvanized steel with a powdered enamel finish electrostatically bonded to the metal. Completely insulated with thick fiberglass insulation. Recirculated damper section of cabinet has flanged air openings for ease of duct connection. Formed low leakage (less than 3%) dampers rotate smoothly in nylon bearings. Outdoor air damper blades are equipped with stainless steel seals for minimum air leakage. The positioning of the dampers is accomplished with a 24 volt fully modulating spring return damper motor with adjustable minimum positioner. Damper motor is controlled by the room thermostat, mixed air controller and solid-state adjustable outdoor air enthalpy control. The enthalpy control allows for 0 to 100% outdoor air (first stage of cooling) to be used for “free cooling” when outdoor humidity and temperature are acceptable. Additionally, an integrated economizer cycle can be accomplished by allowing the outside air dampers to remain open, continuing to admit outside air, and cycling the compressors to provide dehumidification and additional cooling as needed. The integrated economizer cycle uses only the minimum amount of mechanical cooling necessary. Two cleanable polyurethane media frame filters are furnished for extra air filtering and bird screen protection. See dimension drawing. Provisions have been made in the economizer cabinet for easy field installation of optional GED16 gravity exhaust dampers. Requires Optional Horizontal Supply and Return Air Kit for duct connection to unit. See Optional Accessories tables.

**Differential Enthalpy Control (Optional)** — A solid-state return air enthalpy sensor is available to be used 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 (54G44) field installs in the return air section and must be ordered extra.

**GED16 Gravity Exhaust Dampers (Optional)** — For use with REMD16M and EMD16M-95 and -135 economizer damper sections and must be ordered extra. Furnished as standard with REMD16M-185. Openings are provided in the economizer cabinet for easy field installation. See Dimension Drawing. Two exhaust dampers are furnished for installation on the economizer section. Rainhoods are also furnished for field installation on the -95-135-160 model. Neoprene coated fiberglass dampers prevent blow-back and outdoor air infiltration during off cycle. Bird screen is provided. Exhaust dampers are field installed on the return air duct adjacent to the unit in horizontal applications with REMD16M-185.

**OAD16 Outdoor Air Damper Section (Optional)** — Damper section with factory installed and linked dampers field installs external to the unit cabinet and must be ordered extra. Interchangeable unit cabinet panel with opening for installation is furnished with damper for down-flo air applications. Two-piece cabinet panel allows access to controls. See unit dimension drawing for location. Damper section field installs in return air duct for horizontal supply and return air applications. A cleanable polyurethane media frame type air filter is furnished and factory installed. Dampers allow a fixed amount of outdoor air into the system and can be adjusted for air quantities up to 25%. Damper section is available for manual or automatic operation. Manually operated dampers may be adjusted and locked in place for the amount of air desired. Automatic operation is available with the addition of a spring return 3 position damper actuator. Actuator only requires plug-in connection for operation. Automatic OAD16 Damper Kit (35G21) must be ordered extra.

**Horizontal Supply & Return Air Kit (Optional)** — Provides horizontal supply and return air duct connection to the side of the unit. Kit contains duct connection flanges for field installation on the supply and return air openings, screws for installing, two filler panels for supply and return air openings in the unit base not being used and a filter access panel to replace the existing cabinet panel above the return air opening. Kit must be ordered extra. See Optional Accessories tables.

**RTD11 Combination Ceiling Supply and Return Diffuser Assembly (Optional)** — Step-down mount diffuser extends slightly below ceiling level 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 flanges for ease of duct connection, hanging rings for suspending and 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.

**FD11 Combination Ceiling Supply and Return Diffuser Assembly (Optional)** — Flush mount diffuser 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 flanges for ease of duct connections, support hanger eyelets at the top corners for secure installation and interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings. Must be ordered extra, see Optional Accessories tables.

**SRT16 Supply and Return Transitions (Optional)** — Transitions 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 flanges for ease of duct connection. Duct from the transitions to the diffuser is not furnished and must be provided by installer. Transitions are completely factory assembled and easily field installed in the roof mounting frame with minimum costs and labor requirements. Must be ordered extra, see Optional Accessories tables

- SRT16-95 used with the RMF16-95 with CHP16-953.
- SRT16-135 used with the RMF16-135/160 with CHP16-1353.
- SRT16-185 used with the RMF16-185 with CHP16-1853.

## OPTIONAL TEMPERATURE CONTROL SYSTEMS

### **Electro-Mechanical Thermostat and Controls System (Optional)** —

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. A 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. Cycle Control (42H52) is required with CHP16-953 and -1353 units. Furnished on CHP16-1853. Control, with plug-in connections, provides a timed-on and timed-off function to prevent compressor short-cycling. See Flow Chart on page 5.

**W973 Control System (Optional)** — 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-Off) and fan switch (Auto-On). 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.

**W7400 Control System (Optional)** — 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 (43G96) with integral sensor that installs in the conditioned space or a remote thermostat (43G97) 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.

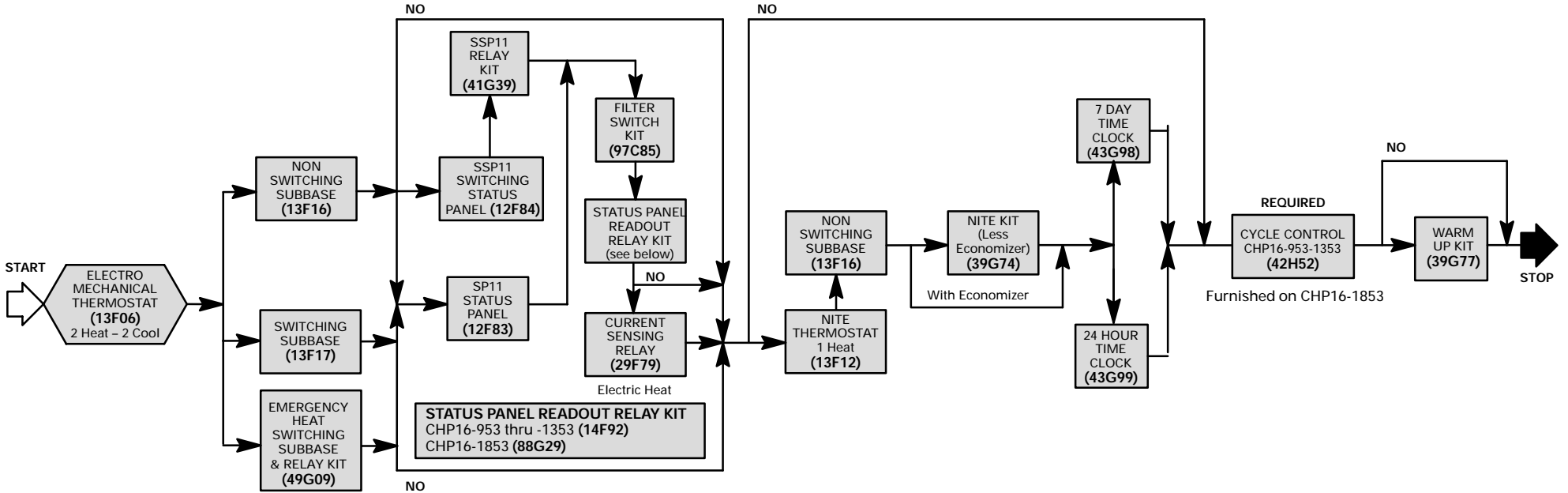
**T7300 Thermostat and Control System (Optional)** — T7300 programmable thermostat (81G59) has internal or optional remote temperature sensing, touch sensitive keyboard, automatic switching from heat to cool, °C or °F temperature readout, no anticipator, droop/ no droop selection, indicator LED's, hour/day 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, indicator LED's, manual system switch (Heat-Off-Auto-Cool) and fan switch (Auto-On). 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 (86G67) with 3-hour override and setpoint adjustment 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 at a glance on the Remote Status Panel (12F83) 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 and Compressor 2 lights are green when operating and will turn red if there is an operational malfunction. The No Heat and Filter lights will show red and indicate a requirement for service. 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 is required to interface status panel with unit operation. See flowchart for kit selection. Current Sensing Relay (29F79) is required with electric heat for operation of the No Heat light.

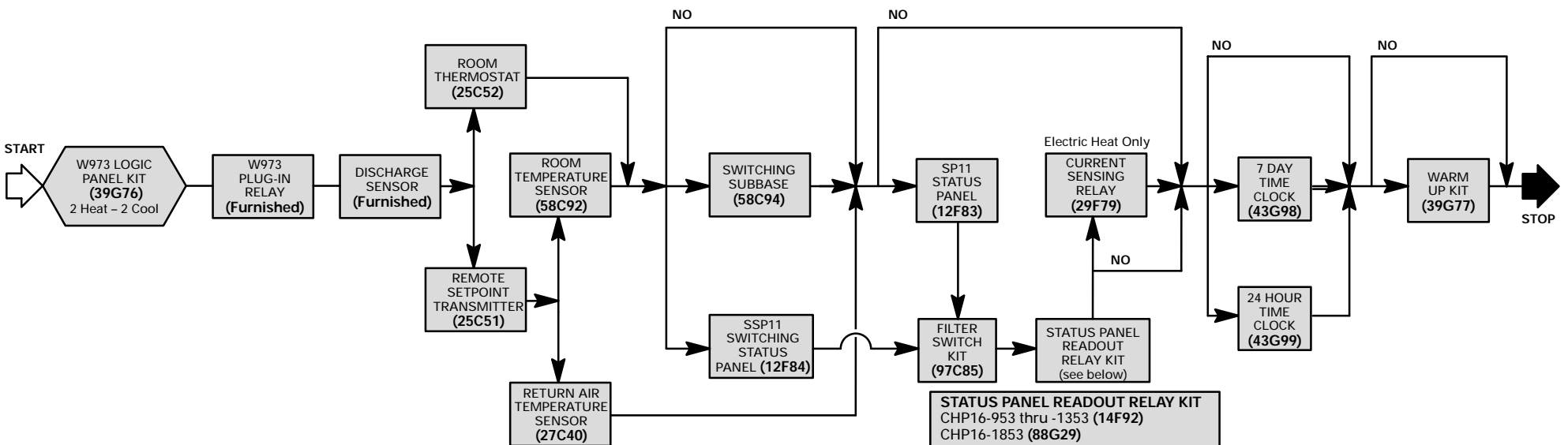
**SSP11 Remote Switching Status Panel (Optional)** — The operation of the unit can be controlled and observed on the Switching Status Panel (12F84) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" 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 and Compressor 2 lights are green when operating and will turn red if there is an operational malfunction. 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 is required to interface status panel with unit operation. See flowchart for kit selection. Current Sensing Relay (29F79) is required with electric heat for operation of the No Heat light.

**TEMPERATURE CONTROL SELECTION FLOWCHARTS**

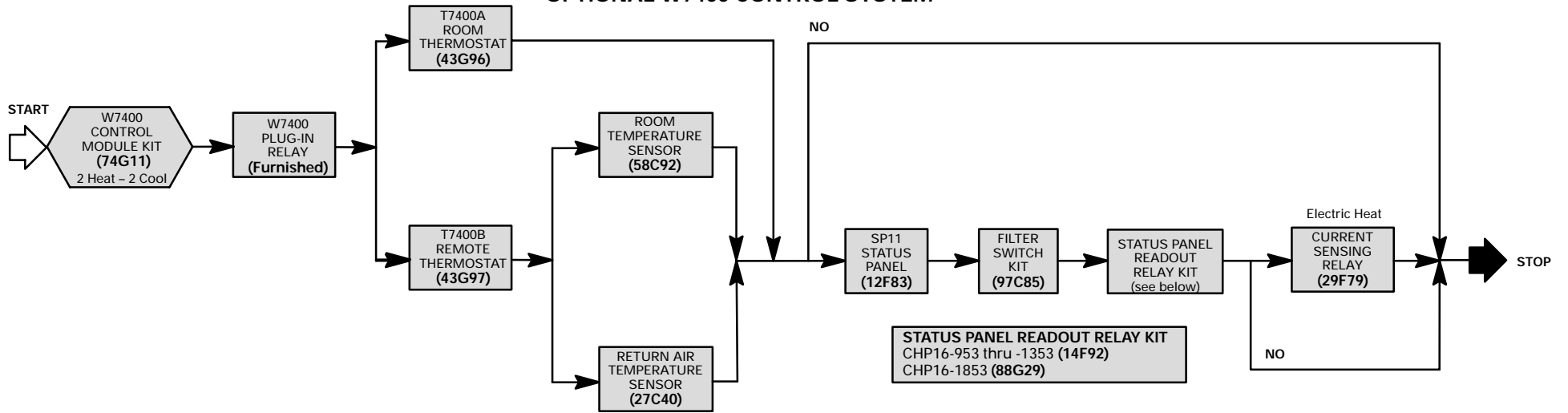
**OPTIONAL ELECTRO-MECHANICAL THERMOSTAT**



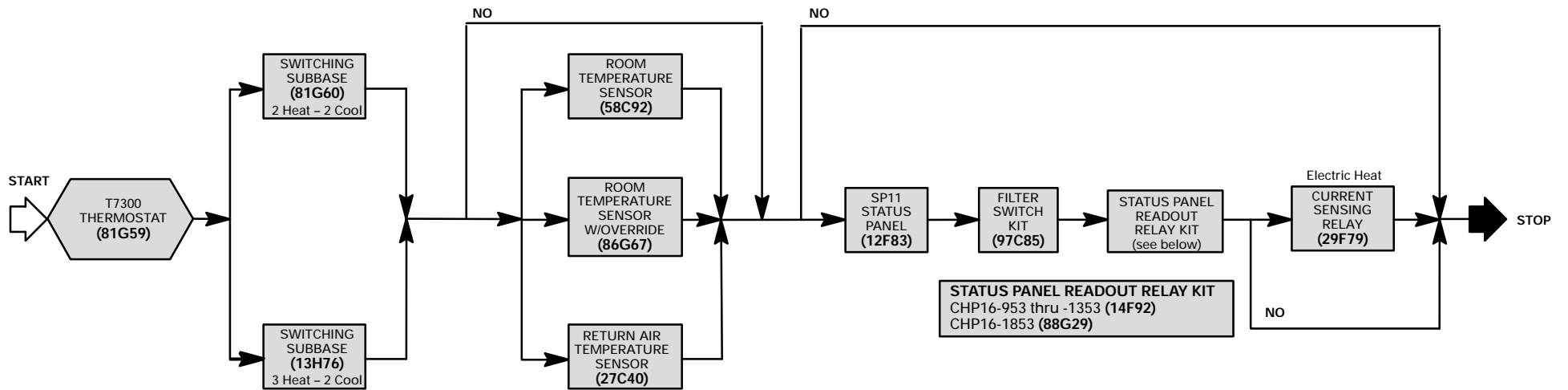
**OPTIONAL W973 CONTROL SYSTEM**



OPTIONAL W7400 CONTROL SYSTEM



OPTIONAL T7300 CONTROL SYSTEM



## SPECIFICATIONS

Model Number		CHP16-953	CHP16-1353	CHP16-1853
Cooling Rating	Total cooling capacity — kW (Btuh)	*23.5 (80 500)	*31.7 (108 200)	†49.6 (169 300)
	Total power input — kW	*9.10	*12.10	†18.2
	Coefficient of Performance — Output/Input	*2.60	*2.60	†2.75
	Energy Efficiency Ratio — Btuh/Watt	*8.85	*8.95	†9.3
	●Integrated Part Load Value	*9.3	*8.6	†9.6
High Temperature Heating Ratings	Total capacity — kW (Btuh)	*22.3 (76 200)	*30.5 (104 000)	†45.0 (153 500)
	Total power input — kW	*7.25	*10.05	†15.2
	Coefficient of Performance — Output/Input	*3.10	*3.05	†2.95
Low Temperature Heating Ratings	Total capacity — kW (Btuh)	*10.9 (37 300)	*16.4 (55 900)	†25.6 (87 500)
	Total power input — kW	*5.30	*8.15	†12.3
	Coefficient of Performance — Output/Input	*2.05	*2.00	†2.10
★Sound rating number (bels)		8.4	8.6	- - -
Refrigerant HCFC-22 Charge furnished	Circuit 1	3.6 kg (8 lbs. 0 oz.)	5.7 kg (12 lbs. 10 oz.)	7.3 kg (16 lbs. 2 oz.)
	Circuit 2	3.6 kg (8 lbs. 0 oz.)	5.6 kg (12 lbs. 6 oz.)	7.3 kg (16 lbs. 2 oz.)
Indoor Coil Blower	Blower wheel nominal diameter x width — mm (in.)	305 x 305 (12 x 12)	381 x 381 (15 x 15)	457 x 457 (18 x 18)
	Motor output — kW (hp) — (minimum-maximum)	1.5 — 1.7 (2 — 2.3)	1.5 — 1.7 (2 — 2.3)	2.2 — 3.7 (3 — 5)
Indoor Coil	Net face area — m <sup>2</sup> (ft. <sup>2</sup> )	0.72 (7.75)	0.88 (9.46)	1.49 (16.0)
	Tube outside diameter — mm (in.) — number of rows	9.5 (3/8) — 4	9.5 (3/8) — 5	9.5 (3/8) — 3
	Fins per m (fins per inch)	551 (14)	551 (14)	512 (13)
Outdoor Coil	Net face area — m <sup>2</sup> (ft. <sup>2</sup> )	1.46 (15.67)	2.18 (23.45)	2.83 (30.50)
	Tube outside diameter — mm (in.) — number of rows	9.5 (3/8) — 3	9.5 (3/8) — 3	9.5 (3/8) — 2
	Fins per m (fins per inch)	787 (20)	787 (20)	787 (20)
Outdoor Coil Fan(s)	Diameter — mm (in.) — number of blades	610 (24) — 4	(2) 559 (22) — 4	(2) 660 (26) — 4
	Air volume — m <sup>3</sup> /s (cfm)	1.98 (4200)	3.02 (6400) (total)	4.72 (10 000) (total)
	Motor output — W (hp)	(1) 373 (1/2)	(2) 249 (1/3)	(2) 746 (1)
	Total motor input — W	320	520 (total)	1825 (total)
Condensate drain size — male pipe thread — mm (in.) polyvinyl chloride		25.4 (1)		
Number and size of filters — mm (in.)		(4) 406 x 508 x 51 (16 x 20 x 2)	(4) 406 x 635 x 51 (16 x 25 x 2)	(4) 610 x 610 x 51 (24 x 24 x 2)
Net weight of basic unit — kg (lbs.) 1 Package		390 (860)	508 (1120)	717 (1581)

★Sound rating number rated at test conditions for Air Conditioning and Refrigeration Institute (ARI) Standard 270.

\*The rating test conditions are those included in Air Conditioning and Refrigeration Institute (ARI) Standard 240 or †340 while operating at rated voltage and air volumes.  
**Cooling Ratings:** 35°C (95°F) outdoor air temperature, 26.7°C (80°F) dry bulb and 19.4°C (67°F) wet bulb entering indoor air.

**High Temperature Heating Ratings:** 8°C (47°F) dry bulb/6.1°C (43°F) wet bulb outdoor air temperature and 21°C (70°F) entering indoor air.

**Low Temperature Heating Ratings:** minus 8°C (17°F) dry bulb/minus 9°C (15°F) wet bulb outdoor air temperature and 21°C (70°F) entering indoor air.

●Integrated Part Load Value rated at 27°C (80°F) outdoor air temperature.

**OPTIONAL ACCESSORIES — (Must Be Ordered Extra)**

Unit Model Number		CHP16-953	CHP16-1353	CHP16-1853
Electric Heat	Model Number	ECH16-95	ECH16-135/160	ECH16-185/300
	†Fuse Block	<b>61H84</b>	<b>72G11</b>	<b>29H31</b>
Roof Mounting Frame — Net Weight — kg (lbs.)		RMF16-95 ( <b>32G90</b> ) 47 (107)	RMF16-135/160 ( <b>32G91</b> ) 54 (119)	RMF16-185 ( <b>12H05</b> ) 58 (127)
Economizer Dampers	Net Weight — kg (lbs.)	REMD16M-95 ( <b>74G22</b> ) 54 (118)	REMD16M-135 ( <b>74G23</b> ) 57 (125)	REMD16M-185 ( <b>12H06, 12H07, 40H15</b> ) 73 (160)
	Number and size of filters — mm (in.)	(2) 406 x 635 x 25 (16 x 25 x 1)	(2) 406 x 635 x 25 (16 x 25 x 1)	(2) 635 x 635 x 25 (25 x 25 x 1)
Power Exhaust Fans (Down-Flo Only)	Model Number — Net Weight — kg (lbs.)	----	----	PED16-185 ( <b>12H10, 12H13</b> ) 27 (60)
	Diameter — mm (in.) — Blades	----	----	406 (16) — 5
	Total air volume — m <sup>3</sup> /s (cfm)	----	----	1650 (3500)
	Motor output — W (hp)	----	----	(2) 187 (1/4)
	Total motor input — W	----	----	415
Horizontal Economizer Dampers	Net Weight — kg (lbs.)	EMDH16M-95 ( <b>68G80, 24H06</b> ) 54 (120)	EMDH16M-135 ( <b>68G80, 24H07</b> ) 62 (137)	Use REMD16M-185
	Number and size of filters — mm (in.)	(2) 406 x 635 x 25 (16 x 25 x 1)	(2) 406 x 635 x 25 (16 x 25 x 1)	----
Exhaust Dampers — Net Weight — kg (lbs.) — (Net Face Area)		GED16-95/135/160 — 2 (5) ( <b>96H84</b> ) — (0.04 m <sup>2</sup> ) (0.43 ft. <sup>2</sup> )		Furnished with REMD16M-185
Differential Enthalpy Control		<b>54G44</b>		
Horizontal Supply and Return Air Kit — Net Weight — kg (lbs.)		<b>(34G71)</b> 14 (30)	<b>(35G42)</b> 16 (35)	<b>(12H04)</b> 24 (52)
Bottom Power Entry Kit — Net Weight — kg (lbs.)		<b>(34G70)</b> 5 kg (12 lbs.)		Furnished
Ceiling Supply and Return Air Diffusers Net Weight kg (lbs.)	Step-Down	RTD11-95 ( <b>29G04</b> ) 40 (88)	RTD11-135 ( <b>29G05</b> ) 57 (125)	RTD11-185 ( <b>29G06</b> ) 178 (392)
	Flush	FD11-95 ( <b>29G08</b> ) 34 (75)	FD11-135 ( <b>29G09</b> ) 43 (95)	FD11-185 ( <b>29G10</b> ) 131 (289)
	Transition	SRT16-95 ( <b>33G96</b> ) 13 (29)	SRT16-135 ( <b>97H10</b> ) 17 (38)	SRT16-185 ( <b>97H12</b> ) 34 (75)
Outdoor Air Dampers	Net Weight — kg (lbs.)	OAD16-95 ( <b>35G24, 35G22</b> ) 19 (41)	OAD16-135 ( <b>35G24, 35G23</b> ) 20 (43)	OAD16-185 ( <b>12H01, 12H02</b> ) 54 (120)
	Number and size of filters — mm (in.)	(1) 406 x 508 x 25 (16 x 20 x 1)		(1) 635 x 686 x 25 (25 x 27 x 1)
Automatic OAD16 Damper Kit — Net Weight — kg (lbs.)		<b>35G21</b> 3 (7)		
Low Ambient Control Kit		<b>16J87</b>	<b>15J80</b>	<b>15J80</b>

†Must be ordered extra. Factory installed heaters will have fuse block installed. Must be field installed in field installed heaters.

**ELECTRICAL DATA**

Model Number		CHP16-953	CHP16-1353	CHP16-1853
Line voltage data (50 Hz — 3 phase with neutral)		380/420V	380/420V	380/420V
Voltage range (minimum — maximum)		342-462V	342-462V	342-462V
Compressor 1	Rated load (A)	7.4	9.2	14.2
	Locked rotor (A)	46.0	63.0	91.1
Compressor 2	Rated load (A)	7.4	9.2	14.2
	Locked rotor (A)	46.0	63.0	91.1
Outdoor Coil Fan Motor(s) (1 Phase)	Full load (A) (total)	1.7	1.5/1.5 (3.0)	†2.4/2.4 (4.8)
	Locked rotor (A) (total)	3.7	3.4/3.4 (6.8)	6.0/6.0 (12.0)
Indoor Blower Motor	Output — kW (hp)	1.5 (2)	1.5 (2)	2.2 (3)   3.7 (5)
	Full load (A)	3.3	3.4	4.8   7.6
	Locked rotor (A)	20.4	20.4	26.8   45.6
Optional Exhaust Fan Motors (1 Phase)	Full load (A)	----	----	1.4
	Locked rotor (A)	----	----	3.2
Electric Heat — Per Element (A)		15.7	15.7	15.7

\*Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 75°C (167°F).

†Three phase outdoor coil fan motors.



**OPTIONAL ELECTRIC HEAT DATA — (Heater Fuse Block Must Be Ordered Extra)**

**ECH16 SERIES ELECTRIC HEAT FOR CHP16-953**

Electric Heat Model Number and Shipping Weight	Number of Elements	Number of Steps	Volts Input	Heating Capacity	
				kW	Btuh
ECH16-82/95-10 (61H73) 17 kg (38 lbs.)	1	1	380	6.3	21 400
			400	6.9	23 700
			420	7.7	26 100
ECH16-82/95-15 (61H74) 17 kg (38 lbs.)	1	1	380	9.4	32 100
			400	10.4	35 600
			420	11.5	39 200
ECH16-82/95-20 (61H75) 19 kg (42 lbs.)	2	1	380	12.5	42 800
			400	13.9	47 400
			420	15.3	52 300
ECH16-82/95-30 (61H76) 19 kg (42 lbs.)	2	1	380	18.8	64 200
			400	20.8	71 100
			420	23.0	78 400
ECH16-82/95-40 (61H77) 24 kg (53 lbs.)	3	†2	380	26.1	85 500
			400	27.8	95 800
			420	30.6	104 500

NOTE — Refer to local electrical code manual to determine wire, fuse and disconnect size requirements.

NOTE — Fuse block for ECH16-135/160 and ECH16-185 heaters must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be field installed in field installed heaters. See specifications tables.

†May be used with two stage control.

**ECH16 SERIES ELECTRIC HEAT FOR CHP16-1353**

Electric Heat Model Number and Shipping Weight	Number of Elements	Number of Steps	Volts Input	Heating Capacity	
				kW	Btuh
ECH16-135/160-15 (72G26) 17 kg (38 lbs.)	1	1	380	9.4	32 100
			400	10.4	35 600
			420	11.5	39 200
ECH16-135/160-20 (72G27) 19 kg (42 lbs.)	2	1	380	12.5	42 800
			400	13.9	47 400
			420	15.3	52 300
ECH16-135/160-30 (72G28) 19 kg (42 lbs.)	2	1	380	18.8	64 200
			400	20.8	71 100
			420	23.0	78 400
ECH16-135/160-40 (72G29) 24 kg (53 lbs.)	3	†2	380	26.1	85 500
			400	27.8	95 800
			420	30.6	104 500
ECH16-135/160-50 (72G30) 26 kg (58 lbs.)	4	†2	380	31.3	106 900
			400	34.7	118 500
			420	38.3	130 600

NOTE — Refer to local electrical code manual to determine wire, fuse and disconnect size requirements.

NOTE — Fuse block for ECH16-135/160 and ECH16-185 heaters must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be field installed in field installed heaters. See specifications tables.

†May be used with two stage control.

**ECH16 SERIES ELECTRIC HEAT FOR CHP16-1853**

Electric Heat Model Number and Shipping Weight	Number of Elements	Number of Steps	Volts Input	Heating Capacity	
				kW	Btuh
ECH16-185-15 (24H32) 21 kg (47 lbs.)	1	1	380	9.4	32 100
			400	10.4	35 600
			420	11.5	39 200
ECH16-185/300-30 (24H33) 23 kg (51 lbs.)	2	†2	380	18.8	64 200
			400	20.8	71 100
			420	23.0	78 400
ECH16-185/300-45 (24H34) 28 kg (62 lbs.)	3	†2	380	28.2	96 300
			400	31.2	106 700
			420	34.4	117 600
ECH16-185/300-60 (24H35) 30 kg (67 lbs.)	4	†2	380	37.6	128 400
			400	41.6	142 200
			420	45.9	156 800
ECH16-185/300-75 (24H36) 40 kg (88 lbs.)	5	†2	380	47.0	160 000
			400	52.1	177 700
			420	57.4	195 900

NOTE — Refer to local electrical code manual to determine wire, fuse and disconnect size requirements.

NOTE — Fuse block for ECH16-135/160 and ECH16-185 heaters must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be field installed in field installed heaters. See specifications tables.

†May be used with two stage control.

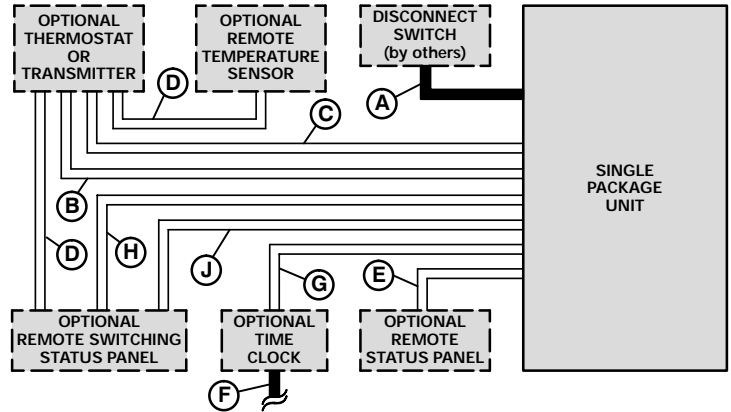
**W973 CONTROL SYSTEM**

- A — Three phase with neutral (See Electrical Data Table)
- B — Seven wire 24V — DC only
  - Five wire 24V — DC only — with SSP11 Switching Status Panel
  - Eight wire 24V — DC only — with switching subbase
- C — Two wire 24V — AC only — with switching subbase
- D — Two wire 24V — DC only
- E — Eleven wire 24V — AC only
- F — Two wire 24V — AC only
- G — Two wire 24V — AC only
- H — Fifteen wire 24V — DC only
- J — Two wire 24V — DC only

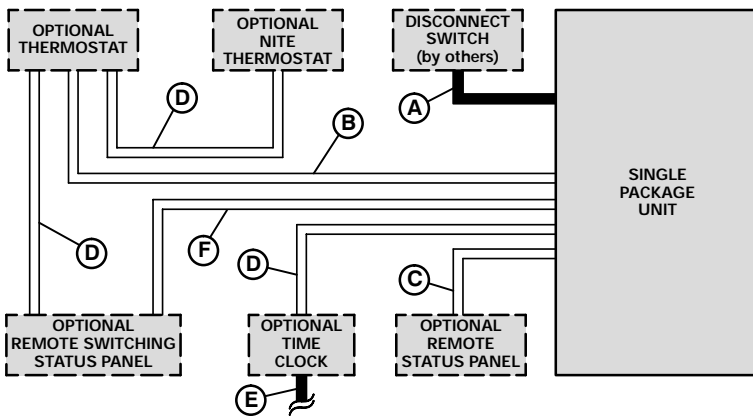
AC — Alternating current  
DC — Direct current

NOTE — Run separate harness for AC and DC.  
AC voltage interferes with DC signals.  
— *Field wiring not furnished* —

NOTE — All wiring must conform to local electrical codes.



**ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM**



- A — Three phase with neutral (See Electrical Data Table)
- B — Six wire 24V
  - Five wire 24V — with SSP11 Switching Status Panel
  - Eight wire 24V — with emergency heat switching subbase
- C — Eleven wire 24V
- D — Two wire 24V
- E — Two wire 24V
- F — Eighteen wire 24V

— *Field wiring not furnished* —

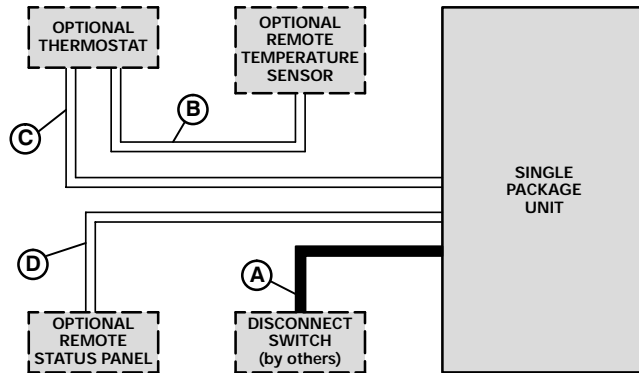
NOTE — All wiring must conform to local electrical codes.

**W7400 CONTROL SYSTEM**

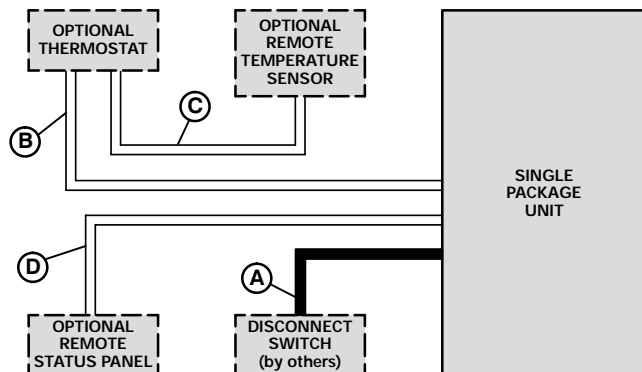
- A — Three phase with neutral (See Electrical Data Table)
- B — Two wire 24V
- C — Four wire 24V
- D — Eleven wire 24V

— *Field wiring not furnished* —

NOTE — All wiring must conform to local electrical codes.



**T7300 THERMOSTAT CONTROL SYSTEM**



- A — Three phase with neutral (See Electrical Data Table)
- B — Nine wire 24V
- C — Two wire 24V
  - Seven wire 24V (Room Sensor with Override)
- D — Eleven wire 24V

— *Field wiring not furnished* —

NOTE — All wiring must conform to local electrical codes.

**RATINGS — 50hz**

NOTE — Temperatures and capacities not shown in tables, see bulletin — Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data Section.

**CHP16-953 COOLING CAPACITY (With One Compressor Only Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
m <sup>3</sup> /s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	
17.2°C (63°F)	1.25	2700	13.7	46 800	2.91	.75	.90	1.00	13.0	44 300	3.14	.77	.93	1.00	12.3	41 800	3.36	.79	.96	1.00	11.5	39 400	3.57	.82	.99	1.00
	1.40	3000	14.0	47 700	2.93	.78	.94	1.00	13.2	45 200	3.16	.80	.96	1.00	12.5	42 700	3.39	.82	1.00	1.00	11.8	40 200	3.60	.85	1.00	1.00
	1.55	3300	14.2	48 500	2.94	.80	.97	1.00	13.5	46 000	3.18	.82	1.00	1.00	12.7	43 400	3.41	.85	1.00	1.00	12.1	41 200	3.64	.88	1.00	1.00
19.4°C (67°F)	1.25	2700	14.7	50 000	2.97	.58	.73	.86	13.9	47 400	3.22	.59	.74	.89	13.1	44 600	3.45	.61	.77	.92	12.3	41 900	3.66	.62	.79	.95
	1.40	3000	14.9	50 700	2.99	.60	.75	.90	14.1	48 100	3.23	.61	.77	.93	13.3	45 300	3.47	.62	.80	.96	12.5	42 500	3.69	.64	.82	.99
	1.55	3300	15.1	51 400	3.00	.61	.78	.94	14.2	48 600	3.25	.63	.80	.96	13.4	45 800	3.48	.64	.82	1.00	12.6	43 000	3.71	.66	.85	1.00
21.7°C (71°F)	1.25	2700	15.7	53 600	3.04	.43	.57	.70	14.9	50 800	3.30	.44	.58	.72	14.0	47 900	3.55	.44	.59	.74	13.2	45 000	3.77	.45	.61	.76
	1.40	3000	15.9	54 300	3.05	.44	.58	.73	15.1	51 400	3.31	.44	.60	.75	14.2	48 500	3.56	.45	.61	.77	13.4	45 600	3.79	.45	.63	.80
	1.55	3300	16.1	54 900	3.06	.44	.60	.75	15.2	52 000	3.33	.45	.61	.77	14.4	49 000	3.58	.46	.63	.80	13.5	46 000	3.81	.46	.65	.83

**CHP16-953 TOTAL COOLING CAPACITY (With Both Compressors Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)					
			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor Input	Sensible To Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb						Dry Bulb		
m <sup>3</sup> /s	cfm	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	kW	Btuh	kW	24°C 75°F	27°C 80°F	29°C 85°F	
17.2°C (63°F)	1.25	2700	23.5	80 200	7.01	.79	.96	1.00	22.2	75 700	7.34	.82	.99	1.00	20.7	70 700	7.65	.85	1.00	1.00	19.5	66 500	7.92	.88	1.00	1.00
	1.40	3000	23.9	81 400	7.06	.83	1.00	1.00	22.6	77 000	7.43	.85	1.00	1.00	21.3	72 600	7.76	.89	1.00	1.00	20.0	68 200	8.04	.92	1.00	1.00
	1.55	3300	24.4	83 300	7.16	.86	1.00	1.00	23.1	78 800	7.53	.89	1.00	1.00	21.7	74 200	7.86	.92	1.00	1.00	20.4	69 700	8.13	.96	1.00	1.00
19.4°C (67°F)	1.25	2700	24.9	84 900	7.23	.61	.77	.93	23.3	79 600	7.57	.62	.80	.96	21.8	74 300	7.86	.64	.83	1.00	20.2	69 000	8.09	.66	.86	1.00
	1.40	3000	25.2	86 000	7.28	.63	.80	.97	23.6	80 600	7.63	.64	.83	1.00	22.0	75 200	7.92	.66	.86	1.00	20.5	69 900	8.15	.69	.90	1.00
	1.55	3300	25.5	87 000	7.33	.65	.83	1.00	23.9	81 500	7.67	.66	.87	1.00	22.3	76 100	7.97	.69	.90	1.00	20.7	70 700	8.20	.71	.94	1.00
21.7°C (71°F)	1.25	2700	26.5	90 500	7.49	.44	.59	.75	24.9	84 900	7.85	.45	.61	.77	23.2	79 200	8.15	.45	.63	.80	21.6	74 600	8.39	.46	.65	.84
	1.40	3000	26.8	91 500	7.54	.45	.61	.78	25.1	85 800	7.89	.45	.63	.81	23.4	80 000	8.20	.46	.65	.84	21.8	74 300	8.43	.47	.68	.88
	1.55	3300	27.1	92 300	7.58	.46	.64	.81	25.4	86 500	7.93	.46	.66	.84	23.6	80 600	8.23	.47	.68	.88	21.9	74 800	8.47	.48	.71	.92

**CHP16-953 TOTAL HEATING CAPACITY (With Both Compressors Operating)**

Indoor Coil Air Volume 70°F db (21°C db)	*Air Temperature Entering Outdoor Coil																			
	18°C (65°F)				7°C (45°F)				minus 4°C (25°F)				minus 15°C (5°F)				minus 28°C (minus 15°F)			
	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input		
				kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh
m <sup>3</sup> /s	cfm	kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh	kW	Btuh			
1.25	2700	28.9	98 700	7.09	21.0	71 700	5.77	13.4	45 800	4.46	7.9	26 900	3.43	3.8	12 800	2.60				
1.40	3000	29.5	100 600	7.00	21.6	73 600	5.68	14.0	47 600	4.37	8.4	28 800	3.35	4.3	14 700	2.52				
1.55	3300	30.0	102 300	6.92	22.1	75 300	5.60	14.5	49 400	4.29	8.9	30 500	3.27	4.8	16 400	2.44				

\*At 70% relative humidity.

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

**RATINGS — 50hz**

NOTE — Temperatures and capacities not shown in tables, see bulletin — Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data Section.

**CHP16-1353 COOLING CAPACITY (With One Compressor Only Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			18°C (65°F)					24°C (75°F)					29°C (85°F)					35°C (95°F)								
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)		
			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb		
24°C 75°F	27°C 80°F	29°C 85°F			24°C 75°F	27°C 80°F	29°C 85°F	24°C 75°F			27°C 80°F	29°C 85°F	24°C 75°F	27°C 80°F			29°C 85°F	24°C 75°F	27°C 80°F	29°C 85°F						
17.2°C (63°F)	1.70	3600	16.9	57 800	3.90	.77	.93	1.00	16.1	55 100	4.26	.79	.96	1.00	15.3	52 300	4.60	.81	.98	1.00	14.5	49 500	4.92	.84	1.00	1.00
	1.90	4050	17.3	59 000	3.93	.80	.97	1.00	16.4	55 800	4.29	.82	1.00	1.00	15.7	53 500	4.66	.85	1.00	1.00	14.9	50 900	5.00	.87	1.00	1.00
	2.10	4500	17.6	59 900	3.96	.83	1.00	1.00	16.9	57 500	4.34	.85	1.00	1.00	16.1	54 800	4.71	.88	1.00	1.00	15.3	52 100	5.05	.91	1.00	1.00
19.4°C (67°F)	1.70	3600	18.0	61 500	4.01	.59	.75	.89	17.2	58 600	4.38	.60	.76	.92	16.2	55 400	4.74	.62	.79	.95	15.3	52 300	5.06	.63	.81	.98
	1.90	4050	18.3	62 400	4.04	.61	.78	.94	17.4	59 400	4.41	.62	.80	.96	16.5	56 200	4.77	.64	.82	.99	15.5	53 000	5.10	.66	.85	1.00
	2.10	4500	18.5	63 200	4.06	.63	.81	.98	17.6	60 100	4.44	.64	.83	1.00	16.7	56 900	4.80	.66	.86	1.00	15.7	53 600	5.13	.68	.89	1.00
21.7°C (71°F)	1.70	3600	19.3	65 700	4.14	.44	.58	.72	18.3	62 500	4.52	.44	.59	.74	17.3	59 200	4.89	.44	.60	.76	16.4	55 800	5.23	.45	.62	.79
	1.90	4050	19.5	66 500	4.17	.44	.60	.75	18.6	63 300	4.55	.45	.61	.77	17.6	59 900	4.92	.45	.63	.80	16.6	56 500	5.26	.46	.64	.83
	2.10	4500	19.7	67 200	4.19	.45	.62	.79	18.7	63 900	4.57	.45	.63	.81	17.7	60 400	4.94	.46	.65	.83	16.7	57 000	5.28	.47	.67	.86

**CHP16-1353 TOTAL COOLING CAPACITY (With Both Compressors Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)					
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)		
			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb		
24°C 75°F	27°C 80°F	29°C 85°F			24°C 75°F	27°C 80°F	29°C 85°F	24°C 75°F			27°C 80°F	29°C 85°F	24°C 75°F	27°C 80°F			29°C 85°F	24°C 75°F	27°C 80°F	29°C 85°F						
17.2°C (63°F)	1.70	3600	31.3	106 900	9.15	.75	.91	1.00	29.5	100 800	9.83	.77	.93	1.00	28.0	95 600	10.48	.80	.93	1.00	26.5	90 300	11.06	.83	1.00	1.00
	1.90	4050	32.1	109 400	9.27	.79	.93	1.00	30.5	104 100	9.98	.81	.93	1.00	28.9	98 600	10.64	.84	.93	1.00	27.3	93 100	11.22	.88	1.00	1.00
	2.10	4500	32.9	112 400	9.39	.82	.93	1.00	31.3	106 900	10.11	.85	1.00	1.00	29.7	101 200	10.78	.88	1.00	1.00	27.9	95 300	11.37	.92	1.00	1.00
19.4°C (67°F)	1.70	3600	33.2	113 300	9.43	.57	.73	.88	31.3	106 900	10.11	.59	.75	.91	29.4	100 300	10.73	.60	.78	.93	27.5	93 700	11.27	.62	.81	1.00
	1.90	4050	33.7	115 000	9.50	.59	.76	.93	31.8	108 500	10.18	.61	.79	.93	29.8	101 800	10.81	.63	.82	1.00	27.9	95 100	11.35	.65	.85	1.00
	2.10	4500	34.1	116 500	9.56	.62	.80	.93	32.2	109 900	10.25	.63	.83	1.00	30.2	103 200	10.88	.65	.86	1.00	28.3	96 400	11.43	.68	.90	1.00
21.7°C (71°F)	1.70	3600	35.4	120 900	9.73	.41	.56	.70	33.5	114 200	10.44	.42	.57	.73	31.4	107 100	11.09	.42	.59	.75	29.3	100 000	11.64	.43	.61	.78
	1.90	4050	35.9	122 500	9.79	.42	.58	.74	33.9	115 600	10.50	.43	.60	.77	31.8	108 400	11.15	.43	.62	.80	29.7	101 200	11.71	.44	.64	.83
	2.10	4500	36.3	123 800	9.84	.43	.61	.78	34.2	116 700	10.56	.44	.62	.81	32.1	109 400	11.21	.45	.65	.84	29.9	102 100	11.76	.46	.67	.88

**CHP16-1353 TOTAL HEATING CAPACITY (With Both Compressors Operating)**

Indoor Coil Air Volume 70°F db (21°C db)	* Air Temperature Entering Outdoor Coil																		
	18°C (65°F)				7°C (45°F)				minus 4°C (25°F)				minus 15°C (5°F)				minus 28°C (minus 15°F)		
	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	
	kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		
1.70	3600	38.7	132 000	8.52	28.5	97 400	8.16	18.5	63 000	6.87	12.0	41 000	5.59	5.8	19 900	4.27			
1.90	4050	39.3	134 200	8.27	29.2	99 500	7.92	19.1	65 100	6.63	12.7	43 200	5.35	6.4	22 000	4.02			
2.10	4500	39.9	136 100	8.08	29.7	101 500	7.72	19.7	67 100	6.44	13.2	45 200	5.16	7.0	24 000	3.83			

\* At 70% relative humidity.

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

**RATINGS — 50hz**

NOTE — Temperatures and capacities not shown in tables, see bulletin — Cooling Unit Rating Table Correction Factor Data in Miscellaneous Engineering Data Section.

**CHP16-1853 COOLING CAPACITY (With One Compressor Only Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			18°C (65°F)						24°C (75°F)						29°C (85°F)						35°C (95°F)					
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)		
			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb		
24°C 75°F	27°C 80°F	29°C 85°F			24°C 75°F	27°C 80°F	29°C 85°F	24°C 75°F			27°C 80°F	29°C 85°F	24°C 75°F	27°C 80°F			29°C 85°F									
17.2°C (63°F)	2.85	6000	26.8	91 600	4.87	.66	.85	1.00	25.7	87 600	5.41	.67	.89	1.00	24.4	83 200	5.97	.70	.92	1.00	22.9	78 300	6.52	.72	.95	1.00
	3.20	6750	27.3	93 1000	4.90	.68	.90	1.00	26.2	89 400	5.44	.71	.94	1.00	24.8	84 700	6.01	.74	.97	1.00	23.6	80 500	6.58	.77	1.00	1.00
	3.55	7500	27.7	94 500	4.91	.72	.95	1.00	26.6	90 800	5.47	.74	.98	1.00	25.3	86 500	6.04	.78	1.00	1.00	24.2	82 700	6.65	.81	1.00	1.00
19.4°C (67°F)	2.85	6000	28.2	96 300	4.94	.52	.64	.80	27.1	92 500	5.50	.52	.65	.83	25.9	88 300	6.08	.53	.67	.87	24.6	83 900	6.68	.54	.69	.91
	3.20	6750	28.8	98 300	4.96	.53	.66	.85	27.7	94 400	5.53	.54	.68	.89	26.4	90 100	6.13	.55	.70	.93	25.1	85 500	6.74	.56	.73	.97
	3.55	7500	29.3	100 000	4.98	.54	.68	.90	28.1	96 000	5.56	.55	.71	.94	26.8	91 600	6.16	.56	.74	.97	25.5	86 900	6.77	.58	.78	1.00
21.7°C (71°F)	2.85	6000	29.6	101 100	5.00	.38	.50	.62	28.4	97 000	5.58	.39	.51	.63	27.2	92 900	6.19	.39	.52	.64	25.9	88 400	6.82	.39	.53	.66
	3.20	6750	30.2	103 100	5.02	.38	.51	.64	28.9	98 700	5.62	.39	.53	.65	27.7	94 600	6.23	.40	.54	.67	26.4	90 000	6.87	.40	.55	.70
	3.55	7500	30.6	104 600	5.05	.39	.53	.66	29.5	100 000	5.64	.39	.54	.68	28.2	96 100	6.26	.41	.55	.71	26.8	91 400	6.91	.41	.57	.75

**CHP16-1853 TOTAL COOLING CAPACITY (With Both Compressors Operating)**

Entering Wet Bulb Temperature	Total Air Volume		Outdoor Temperature																							
			29°C (85°F)						35°C (95°F)						41°C (105°F)						46°C (115°F)					
			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)			Total Cooling Capacity		Compressor Motor Input	Sensible To Total Ratio (S/T)		
			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb			kW	Btuh		Dry Bulb		
24°C 75°F	27°C 80°F	29°C 85°F			24°C 75°F	27°C 80°F	29°C 85°F	24°C 75°F			27°C 80°F	29°C 85°F	24°C 75°F	27°C 80°F			29°C 85°F									
17.2°C (63°F)	2.85	6000	48.3	164 800	11.93	.77	.94	1.00	45.4	155 000	13.04	.79	.98	1.00	43.5	148 300	14.23	.82	1.00	1.00	41.0	139 900	15.44	.85	1.00	1.00
	3.20	6750	49.2	167 800	12.01	.80	.98	1.00	46.7	159 400	13.17	.82	1.00	1.00	44.5	152 000	14.40	.85	1.00	1.00	42.2	144 000	15.65	.89	1.00	1.00
	3.55	7500	50.2	171 300	12.08	.83	1.00	1.00	48.0	163 800	13.30	.86	1.00	1.00	45.7	155 900	14.55	.89	1.00	1.00	43.3	147 700	15.83	.93	1.00	1.00
19.4°C (67°F)	2.85	6000	51.2	174 900	12.17	.59	.74	.90	48.7	166 100	13.37	.60	.76	.93	46.0	156 900	14.59	.62	.79	1.00	43.1	147 200	15.82	.64	.82	1.00
	3.20	6750	52.2	178 300	12.25	.61	.77	.94	49.6	169 300	13.47	.62	.80	.98	46.8	159 700	14.71	.64	.83	1.00	44.0	150 000	15.95	.66	.86	1.00
	3.55	7500	53.1	181 300	12.32	.63	.80	.98	50.4	172 100	13.55	.64	.83	1.00	47.6	162 500	14.80	.66	.87	1.00	44.2	150 900	16.04	.68	.91	1.00
21.7°C (71°F)	2.85	6000	53.9	183 800	12.38	.43	.58	.72	51.3	175 000	13.65	.44	.59	.74	48.5	165 600	14.95	.44	.61	.76	45.6	155 500	16.25	.45	.63	.79
	3.20	6750	54.9	187 300	12.46	.44	.60	.75	52.2	178 200	13.75	.45	.61	.77	49.3	168 400	15.07	.45	.63	.80	46.3	158 100	16.39	.45	.65	.84
	3.55	7500	55.7	190 200	12.53	.45	.62	.78	53.0	180 800	13.83	.45	.63	.80	50.1	170 900	15.16	.46	.65	.84	46.9	160 200	16.50	.47	.68	.88

**CHP16-1853 TOTAL HEATING CAPACITY (With Both Compressors Operating)**

Indoor Coil Air Volume 70°F db (21°C db)		*Air Temperature Entering Outdoor Coil																			
		18°C (65°F)				7°C (45°F)				minus 4°C (25°F)				minus 15°C (5°F)				minus 28°C (minus 15°F)			
		Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input	Total Heating Capacity		Comp. Motor Input		
kW	Btuh	kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh		kW	Btuh						
2.85	6000	55.0	187 500	12.40	39.8	135 700	10.72	26.8	91 400	8.84	15.9	54.300	6.94	6.2	21 200	5.29					
3.20	6750	58.8	200 800	12.08	43.7	149 000	10.40	30.7	104 700	8.52	19.8	67 600	6.62	10.1	34 500	4.97					
3.55	7500	59.7	203 800	11.80	44.5	152 000	10.12	31.6	107 700	8.24	20.7	70 600	6.34	11.0	37 500	4.69					

\* At 70% relative humidity.

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

**BLOWER DATA**

**CHP16-953 BLOWER PERFORMANCE**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)																							
	50 (.20)	75 (.30)	100 (.40)	125 (.50)	150 (.60)	175 (.70)	200 (.80)	225 (.90)	250 (1.00)	275 (1.10)	300 (1.30)	325 (1.50)												
	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)										
1.25 (2600)	750 (1.04)	775 (1.04)	795 (1.12)	835 (1.12)	840 (1.19)	890 (1.19)	875 (1.23)	920 (1.23)	905 (1.28)	955 (1.28)	940 (1.35)	1005 (1.35)	980 (1.40)	1095 (1.40)	1015 (1.50)	1120 (1.50)	1050 (1.63)	1215 (1.63)	1090 (1.80)	1345 (1.80)	1155 (2.05)	1530 (2.05)	1185 (2.21)	1650 (2.21)
1.30 (2800)	795 (1.20)	895 (1.20)	840 (1.25)	935 (1.25)	875 (1.30)	970 (1.30)	905 (1.35)	1005 (1.35)	940 (1.43)	1065 (1.43)	975 (1.49)	1110 (1.49)	1015 (1.58)	1180 (1.58)	1045 (1.70)	1270 (1.70)	1085 (1.84)	1375 (1.84)	1120 (2.00)	1490 (2.00)	1170 (2.23)	1665 (2.23)	-----	-----
1.40 (3000)	840 (1.39)	1035 (1.39)	875 (1.39)	1035 (1.39)	905 (1.44)	1075 (1.44)	940 (1.50)	1120 (1.50)	980 (1.53)	1140 (1.53)	1015 (1.68)	1255 (1.68)	1045 (1.78)	1330 (1.78)	1085 (1.94)	1445 (1.94)	1115 (2.05)	1530 (2.05)	1145 (2.21)	1650 (2.21)	-----	-----	-----	-----
1.50 (3200)	875 (1.49)	1110 (1.49)	905 (1.55)	1155 (1.55)	940 (1.60)	1195 (1.60)	980 (1.68)	1255 (1.68)	1015 (1.78)	1330 (1.78)	1045 (1.88)	1400 (1.88)	1085 (2.04)	1520 (2.04)	1115 (2.15)	1605 (2.15)	1150 (2.30)	1715 (2.30)	-----	-----	-----	-----	-----	-----
1.60 (3400)	910 (1.66)	1240 (1.66)	940 (1.75)	1305 (1.75)	985 (1.80)	1345 (1.80)	1015 (1.90)	1415 (1.90)	1050 (2.03)	1515 (2.03)	1085 (2.15)	1605 (2.15)	1120 (2.30)	1715 (2.30)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1.70 (3600)	955 (1.75)	1305 (1.75)	995 (1.83)	1365 (1.83)	1025 (1.93)	1440 (1.93)	1060 (2.18)	1625 (2.18)	1090 (3.32)	1730 (3.32)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1.80 (3800)	1005 (2.14)	1595 (2.14)	1030 (2.23)	1665 (2.23)	1065 (2.35)	1755 (2.35)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

NOTE — All data is measured external to the unit with dry coil and air filters in place. See Page 16 for Accessory Air Resistance data.  
 Legend — Rev/Min = Blower speed required. W (HP) = Motor output required.

**CHP16-1353 BLOWER PERFORMANCE**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)																							
	50 (.20)	75 (.30)	100 (.40)	125 (.50)	150 (.60)	175 (.70)	200 (.80)	225 (.90)	250 (1.00)	275 (1.10)	325 (1.30)	325 (1.50)												
	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)	Rev/ Min (HP)	W (HP)										
1.70 (3600)	645 (1.10)	8.20 (1.10)	685 (1.25)	935 (1.25)	720 (1.38)	1030 (1.38)	755 (1.53)	1140 (1.53)	785 (1.65)	1230 (1.65)	815 (1.78)	1330 (1.78)	840 (1.90)	1415 (1.90)	865 (2.03)	1515 (2.03)	890 (2.18)	1625 (2.18)	915 (2.28)	1700 (2.28)	970 (2.64)	1970 (2.64)	1025 (3.00)	2240 (3.00)
1.80 (3800)	670 (1.25)	935 (1.25)	710 (1.38)	1030 (1.38)	740 (1.53)	1140 (1.53)	775 (1.65)	1230 (1.65)	805 (1.78)	1330 (1.78)	830 (1.90)	1415 (1.90)	860 (2.03)	1515 (2.03)	885 (2.18)	1625 (2.18)	910 (2.28)	1700 (2.28)	935 (2.45)	1830 (2.45)	985 (2.80)	2090 (2.80)	1040 (3.18)	2370 (3.18)
1.90 (4000)	700 (1.38)	1030 (1.38)	735 (1.53)	1140 (1.53)	765 (1.65)	1230 (1.65)	795 (1.83)	1365 (1.83)	825 (1.95)	1455 (1.95)	855 (2.10)	1565 (2.10)	880 (2.23)	1665 (2.23)	905 (2.38)	1775 (2.38)	930 (2.53)	1890 (2.53)	955 (2.68)	2000 (2.68)	1010 (3.05)	2275 (3.05)	1055 (3.35)	2500 (3.35)
2.00 (4200)	730 (1.63)	1215 (1.63)	760 (1.75)	1305 (1.75)	790 (1.90)	1415 (1.90)	820 (2.03)	1515 (2.03)	850 (2.15)	1605 (2.15)	875 (2.30)	1715 (2.30)	900 (2.43)	1815 (2.43)	925 (2.60)	1940 (2.60)	950 (2.73)	2035 (2.73)	975 (2.90)	2165 (2.90)	1025 (3.25)	2425 (3.25)	-----	-----
2.10 (4400)	755 (1.80)	1345 (1.80)	785 (1.93)	1440 (1.93)	815 (2.08)	1550 (2.08)	845 (2.23)	1665 (2.23)	870 (2.38)	1775 (2.38)	895 (2.50)	1865 (2.50)	920 (2.65)	1975 (2.65)	950 (2.83)	2110 (2.83)	970 (2.95)	2200 (2.95)	1000 (3.18)	2370 (3.18)	-----	-----	-----	-----
2.15 (4600)	780 (2.00)	1490 (2.00)	815 (2.18)	1625 (2.18)	840 (2.30)	1715 (2.30)	865 (2.43)	1815 (2.43)	890 (2.58)	1925 (2.58)	920 (2.73)	2035 (2.73)	945 (2.88)	2150 (2.88)	970 (3.08)	2240 (3.08)	995 (3.25)	2425 (3.25)	1020 (3.40)	2535 (3.40)	-----	-----	-----	-----
2.25 (4800)	815 (2.28)	1700 (2.28)	840 (2.40)	1790 (2.40)	865 (2.53)	1885 (2.53)	885 (2.65)	1975 (2.65)	920 (2.85)	2125 (2.85)	945 (3.00)	2240 (3.00)	970 (3.15)	2350 (3.15)	995 (3.38)	2520 (3.38)	-----	-----	-----	-----	-----	-----	-----	-----
2.35 (5000)	840 (2.53)	1885 (2.53)	865 (2.65)	1975 (2.65)	885 (2.75)	2050 (2.75)	920 (2.95)	2200 (2.95)	945 (3.10)	2315 (3.10)	970 (3.30)	2460 (3.30)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
2.45 (5200)	865 (2.78)	2075 (2.78)	885 (2.90)	2165 (2.90)	920 (3.08)	2300 (3.08)	945 (3.25)	2425 (3.25)	970 (3.43)	2560 (3.43)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See Page 16 for Accessory Air Resistance data.  
 Legend — Rev/Min = Blower speed required. W (HP) = Motor output required.

**BLOWER DATA**

**CHP16-1853 BLOWER PERFORMANCE**

Air Volume m <sup>3</sup> /s (cfm)	STATIC PRESSURE EXTERNAL TO UNIT — Pa (Inches Water Gauge)																							
	50 (.20)		75 (.30)		100 (.40)		125 (.50)		150 (.60)		175 (.70)		200 (.80)		225 (.90)		250 (1.00)		275 (1.10)		300 (1.30)		325 (1.50)	
	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)	Rev/ Min	W (HP)
2.35 (5000)	540 (1.50)	1120	570 (1.60)	1195	600 (1.70)	1270	640 (1.80)	1345	660 (1.95)	1455	690 (2.20)	1640	720 (2.25)	1680	740 (2.40)	1790	765 (2.60)	1940	785 (2.75)	2050	830 (3.00)	2240	870 (3.20)	2385
2.45 (5200)	555 (1.60)	1195	580 (1.70)	1270	615 (1.80)	1345	650 (2.10)	1565	670 (2.20)	1640	700 (2.30)	1715	730 (2.40)	1790	750 (2.50)	1865	775 (2.75)	2050	795 (2.80)	2090	840 (3.20)	2385	880 (3.50)	2610
2.55 (5400)	570 (1.70)	1270	590 (1.85)	1380	630 (2.00)	1490	660 (2.25)	1680	690 (2.30)	1715	710 (2.40)	1790	740 (2.50)	1865	760 (2.70)	2015	785 (2.80)	2090	810 (3.00)	2240	850 (3.30)	2460	890 (3.75)	2800
2.65 (5600)	580 (1.75)	1305	615 (2.05)	1530	640 (2.25)	1680	670 (2.30)	1715	700 (2.45)	1830	725 (2.55)	1900	750 (2.70)	2015	775 (2.85)	2125	795 (3.00)	2240	820 (3.20)	2385	860 (3.50)	2610	905 (3.95)	2945
2.75 (5800)	600 (2.00)	1490	630 (2.25)	1680	655 (2.35)	1755	685 (2.50)	1865	715 (2.65)	1975	740 (2.75)	2050	765 (2.90)	2165	785 (3.10)	2315	805 (3.25)	2425	830 (3.35)	2500	870 (3.70)	2760	915 (4.20)	3135
2.85 (6000)	615 (2.20)	1640	640 (2.35)	1755	670 (2.60)	1940	695 (2.65)	1975	725 (2.80)	2090	750 (2.95)	2200	775 (3.15)	2350	795 (3.30)	2460	820 (3.50)	2610	840 (3.65)	2725	880 (4.05)	3020	925 (4.45)	3320
2.95 (6200)	630 (2.40)	1790	660 (2.60)	1940	685 (2.75)	2050	715 (2.90)	2165	740 (3.00)	2240	765 (3.20)	2385	785 (3.40)	2535	810 (3.60)	2685	830 (3.80)	2835	850 (3.90)	2910	895 (4.30)	3210	935 (4.75)	3545
3.00 (6400)	645 (2.55)	1900	670 (2.75)	2050	700 (2.90)	2165	725 (3.05)	2275	750 (3.20)	2385	775 (3.40)	2535	800 (3.70)	2760	820 (3.75)	2800	845 (4.00)	2985	860 (4.25)	3170	905 (4.60)	3430	940 (5.00)	3730
3.10 (6600)	660 (2.80)	2090	690 (2.95)	2200	715 (3.15)	2350	740 (3.25)	2425	765 (3.40)	2535	790 (3.65)	2725	810 (3.90)	2910	835 (4.10)	3060	850 (4.20)	3135	875 (4.50)	3355	915 (4.80)	3580	955 (5.30)	3955
3.20 (6800)	670 (3.00)	2240	705 (3.25)	2425	730 (3.40)	2535	760 (3.55)	2650	780 (3.75)	2800	800 (3.95)	2945	825 (4.15)	3095	845 (4.40)	3280	865 (4.50)	3355	890 (4.90)	3655	930 (5.20)	3880	965 (5.60)	4180
3.30 (7000)	695 (3.30)	2460	720 (3.45)	2575	745 (3.60)	2685	770 (3.75)	2800	790 (4.00)	2985	815 (4.20)	3135	840 (4.50)	3355	860 (4.65)	3470	880 (4.90)	3655	900 (5.05)	3765	950 (5.60)	4180	-----	-----
3.40 (7200)	710 (3.55)	2650	740 (3.70)	2760	760 (3.85)	2870	785 (4.15)	3095	810 (4.40)	3280	830 (4.55)	3395	850 (4.70)	3505	870 (4.95)	3695	895 (5.30)	3955	915 (5.65)	4215	-----	-----	-----	-----
3.50 (7400)	730 (3.75)	2800	750 (3.90)	2910	775 (4.10)	3060	800 (4.40)	3280	820 (4.60)	3430	840 (4.70)	3505	860 (5.00)	3730	880 (5.25)	3915	900 (5.40)	4030	925 (5.70)	4250	-----	-----	-----	-----
3.55 (7500)	740 (3.90)	2910	765 (4.40)	3280	785 (4.35)	3245	810 (4.60)	3430	830 (4.70)	3505	850 (4.95)	3695	870 (5.15)	3840	890 (5.40)	4030	920 (5.60)	4180	-----	-----	-----	-----	-----	-----

NOTE — All data is measured external to the unit with dry coil and with the air filters in place. See Page 16 for Accessory Air Resistance data.  
 Legend — Rev/Min = Blower speed required. W (HP) = Motor output required.

**BLOWER DATA**

**CHP16-1853 POWER EXHAUST FANS PERFORMANCE**

Model Number	Air Volume Exhausted		Return Air System Static Pressure	
	m <sup>3</sup> /s	cfm	Pa	Inches Water Gauge
PED16-185	1.65	3500	0	0.0
	1.50	3150	12	.05
	1.35	2900	25	.10
	1.25	2650	37	.15
	1.05	2250	50	.20
	0.85	1825	62	.25

**CEILING DIFFUSER AIR THROW DATA**

Model Number	Air Volume		*Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	m <sup>3</sup> /s	cfm	m	feet	m	feet
CHP16-953	1.40	3000	8.2 — 10.1	27 — 33	7.6 — 9.1	25 — 30
	1.60	3375	9.1 — 11.3	30 — 37	8.5 — 10.4	28 — 34
	1.75	3750	10.4 — 12.5	34 — 41	9.4 — 11.6	31 — 38
CHP16-1353	2.10	4400	10.4 — 12.8	34 — 42	9.8 — 12.2	32 — 40
	2.35	4950	11.6 — 14.3	38 — 47	11.0 — 13.7	36 — 45
	2.60	5500	13.1 — 15.8	43 — 52	12.2 — 15.2	40 — 50
CHP16-1853	2.85	6000	13.7 — 16.8	45 — 55	14.6 — 16.8	48 — 55
	3.20	6750	14.3 — 17.1	47 — 56	15.2 — 17.7	50 — 58
	3.55	7500	14.9 — 17.7	49 — 58	16.8 — 20.1	55 — 66

† Throw is the horizontal or vertical distance an air stream travels on leaving the outlet or diffuser before the maximum velocity is reduced to 15 m (50 ft.) per minute. Four sides open.

**ACCESSORY AIR RESISTANCE**

Model Number	Air Volume		Total Resistance — Pa (Inches Water Gauge)							
			Wet Indoor Coil	†ECH16 Electric Heat	REMD16M Economizer	EMDH16M Horizontal Economizer	RTD11 Diffuser			FD11 Diffuser
	m <sup>3</sup> /s	cfm					2 Ends Open	1 Side 2 Ends Open	All Ends and Sides Open	
CHP16-953	1.15	2400	30 (0.12)	----	7 (0.03)	7 (0.03)	52 (0.21)	45 (0.18)	37 (0.15)	34 (0.14)
	1.25	2600	32 (0.13)	----	10 (0.04)	10 (0.04)	60 (0.24)	52 (0.21)	45 (0.18)	42 (0.17)
	1.30	2800	35 (0.14)	----	10 (0.04)	10 (0.04)	67 (0.27)	60 (0.24)	52 (0.21)	50 (0.20)
	1.40	3000	40 (0.16)	----	12 (0.05)	12 (0.05)	80 (0.32)	72 (0.29)	62 (0.25)	62 (0.25)
	1.50	3200	45 (0.18)	----	12 (0.05)	12 (0.05)	102 (0.41)	92 (0.37)	80 (0.32)	77 (0.31)
	1.60	3400	47 (0.19)	----	15 (0.06)	15 (0.06)	124 (0.50)	112 (0.45)	97 (0.39)	92 (0.37)
	1.70	3600	52 (0.21)	----	15 (0.06)	15 (0.06)	152 (0.61)	134 (0.54)	119 (0.48)	109 (0.44)
	1.80	3800	57 (0.23)	----	17 (0.07)	17 (0.07)	182 (0.73)	157 (0.63)	142 (0.57)	127 (0.51)
CHP16-1353	1.70	3600	30 (0.12)	----	7 (0.03)	7 (0.03)	90 (0.36)	70 (0.28)	57 (0.23)	37 (0.15)
	1.80	3800	32 (0.13)	----	10 (0.04)	10 (0.04)	99 (0.40)	80 (0.32)	65 (0.26)	45 (0.18)
	1.90	4000	35 (0.14)	----	10 (0.04)	10 (0.04)	109 (0.44)	90 (0.36)	72 (0.29)	52 (0.21)
	2.00	4200	37 (0.15)	----	12 (0.05)	12 (0.05)	122 (0.49)	99 (0.40)	82 (0.33)	60 (0.24)
	2.10	4400	40 (0.16)	----	12 (0.05)	12 (0.05)	134 (0.54)	109 (0.44)	92 (0.37)	67 (0.27)
	2.15	4600	42 (0.17)	----	15 (0.06)	15 (0.06)	149 (0.60)	122 (0.49)	104 (0.42)	77 (0.31)
	2.25	4800	45 (0.18)	----	17 (0.07)	17 (0.07)	162 (0.65)	132 (0.53)	114 (0.46)	87 (0.35)
	2.35	5000	47 (0.19)	----	22 (0.09)	22 (0.09)	172 (0.69)	144 (0.58)	124 (0.50)	97 (0.39)
	2.45	5200	50 (0.20)	----	25 (0.10)	25 (0.10)	186 (0.75)	154 (0.62)	134 (0.54)	107 (0.43)
CHP16-1853	2.35	5000	17 (0.07)	37 (0.15)	27 (0.11)	----	127 (0.51)	109 (0.44)	97 (0.39)	67 (0.27)
	2.45	5200	20 (0.08)	40 (0.16)	30 (0.12)	----	139 (0.56)	119 (0.48)	104 (0.42)	75 (0.30)
	2.55	5400	22 (0.09)	42 (0.17)	32 (0.13)	----	152 (0.61)	129 (0.52)	112 (0.45)	82 (0.33)
	2.65	5600	25 (0.10)	47 (0.19)	35 (0.14)	----	164 (0.66)	139 (0.56)	119 (0.48)	90 (0.36)
	2.75	5800	27 (0.11)	52 (0.21)	37 (0.15)	----	177 (0.71)	147 (0.59)	127 (0.51)	97 (0.39)
	2.85	6000	30 (0.12)	57 (0.23)	40 (0.16)	----	189 (0.76)	157 (0.63)	137 (0.55)	104 (0.42)
	2.95	6200	32 (0.13)	62 (0.25)	42 (0.17)	----	199 (0.80)	169 (0.68)	147 (0.59)	114 (0.46)
	3.00	6400	35 (0.14)	67 (0.27)	45 (0.18)	----	214 (0.86)	179 (0.72)	157 (0.63)	124 (0.50)
	3.10	6600	37 (0.15)	72 (0.29)	50 (0.20)	----	229 (0.92)	191 (0.77)	167 (0.67)	134 (0.54)
	3.20	6800	40 (0.16)	77 (0.31)	55 (0.22)	----	246 (0.99)	206 (0.83)	179 (0.72)	144 (0.58)
	3.30	7000	42 (0.17)	80 (0.32)	57 (0.23)	----	256 (1.03)	216 (0.87)	189 (0.76)	154 (0.62)
	3.40	7200	45 (0.18)	85 (0.34)	60 (0.24)	----	271 (10.9)	229 (0.92)	199 (0.80)	164 (0.66)
	3.50	7400	47 (0.19)	90 (0.36)	62 (0.25)	----	286 (1.15)	241 (0.97)	209 (0.84)	174 (0.70)
3.60	7600	50 (0.20)	94 (0.38)	65 (0.26)	----	301 (1.21)	254 (1.02)	219 (0.88)	184 (0.74)	

†Electric heaters have no appreciable air resistance on CHP16-953-1353 units.



## GUIDE SPECIFICATIONS

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

**General** — Furnish and install a single package air to air direct expansion mechanical heat pump system, 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 installed weight shall not be more than . . . . . kg (lbs.). Entire unit shall have a width of not more than . . . . . mm (inches), a depth of not more than . . . . . mm (inches), and an overall height of not more than . . . . . mm (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.

**Air Distribution** — Equipment shall be capable of bottom (down-flo) or side (horizontal) handling of conditioned air. All air distribution ducts shall be fiberglass or galvanized steel insulated with . . . . . mm (inch) thick . . . . . kg/m<sup>3</sup> (lb./ft.<sup>3</sup>) density fiberglass or equivalent.

**Cooling System** — The total cooling capacity shall not be less than . . . . . kW (Btuh) with an indoor coil air volume of . . . . . m<sup>3</sup>/s (cfm), an entering wet bulb air temperature of . . . . . °C (°F), an entering dry bulb air temperature of . . . . . °C (°F) and an outdoor coil entering temperature of . . . . . °C (°F). The total compressor power input shall not exceed . . . . . kW at these conditions.

**Heating System** — The total heating capacity shall not be less than . . . . . kW (Btuh) with an indoor coil air volume of . . . . . m<sup>3</sup>/s (cfm), an entering wet bulb air temperature of . . . . . °C (°F), an entering dry bulb air temperature of . . . . . °C (°F) and an outdoor coil entering air temperature of . . . . . °C (°F). The total compressor power input shall not exceed . . . . . kW at these 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 . . . . . m<sup>2</sup> (ft.<sup>2</sup>) (indoor coil) and . . . . . m<sup>2</sup> (ft.<sup>2</sup>) (outdoor coil).

Dual compressors shall be resiliently mounted, have overload protection, internal pressure relief and crankcase heater. The refrigeration system shall have suction and discharge line service valves with gauge ports, high pressure switches, loss of charge switches, defrost control, check and expansion valves, reversing valves, thermometer wells, accumulators, driers, freezestats and full refrigerant charge. Control option available shall consist of low ambient control and timed-off control.

**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. Indoor coil condensate drain extended outside cabinet shall be provided. Lifting brackets shall be provided for rigging.

**Service Access** — All components, wiring and inspection areas shall be completely accessible through removable panels.

**Supply Air Blowers** — Centrifugal supply air blower shall have permanently lubricated ball bearings and adjustable belt drive. Motor mount base shall permit ease of motor changeover and belt tension adjustment. Blower wheel shall be statically and dynamically balanced. Blower shall be capable of delivering . . . . . m<sup>3</sup>/s (cfm) at an external static pressure of . . . . . Pa (inches water gauge) requiring . . . . . kW (bhp) and . . . . . rev/min.

**Outdoor Coil Fan(s)** — Direct drive propeller type outdoor fan(s) shall discharge vertically and be direct driven by a . . . . . W (hp) motor. Fan motor shall be permanently lubricated and inherently protected. Fan(s) shall have a safety guard.

**Air Filters** — Disposable filters furnished shall have not less than . . . . . m<sup>2</sup> (ft.<sup>2</sup>) of free area.

## OPTIONAL ACCESSORIES

**Supplemental Electric Heaters** — The total heating capacity output shall be . . . . . kW (Btuh) at . . . . . volts power supply.

Electric heaters shall be available for factory or field installation. Heating elements shall be nichrome bare wire exposed directly to the air stream. Time delays shall bring the elements on and off in sequence with a time delay between each element. Limit controls shall provide overload and short circuit protection. Optional fuse block shall be required on electric heaters.

**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.

**Economizer Damper Section** — Furnish and install complete with recirculated air dampers, outside air dampers, air filters, damper actuator and controls. Low leakage dampers shall ride in nylon bearings. The economizer section shall provide for the introduction of 100% outdoor air for minimum ventilation and free cooling. REMD16M-185 shall include gravity operated exhaust air dampers. Integrated economizer cycle shall allow compressors to cycle for dehumidification and additional cooling, as needed, with 100% outdoor air intake. Damper actuator shall be 24 volt, fully modulating spring return. Controls shall include fixed 13° C (55° F) mixed air controller, damper actuator, adjustable minimum position switch and solid-state adjustable outdoor air enthalpy control. Cabinet shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Control option shall consist of differential enthalpy control (return air sensor).

**Gravity Exhaust Dampers** — Optional pressure operated dampers shall be available for field installation in economizer damper section. Neoprene coated fiberglass dampers shall prevent blow-back and outdoor air infiltration during off cycle. Shall be equipped with rain-hoods and bird screen. Shall be furnished with REMD16M-185.

**Power Exhaust Fans** — Shall be available for CHP16-1853 with REMD16M-185 economizer installed in the down-flo position only. Direct drive propeller type fans shall exhaust air through exhaust dampers. Motors shall be overload protected. Fans shall install in-between the unit and exhaust dampers.

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

**Horizontal Supply & Return Air Kit** — Optional kit shall provide necessary cabinet parts to field convert unit for side (horizontal) supply and return air duct connections.

**Bottom Power Entry Kit** — Optional kit shall provide bottom power entry to the unit within the confines of the roof mounting frame. Shall be furnished on CHP16-1853 models.

**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 . . . . . m (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.

**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.

**DIMENSIONS — inches (mm)**

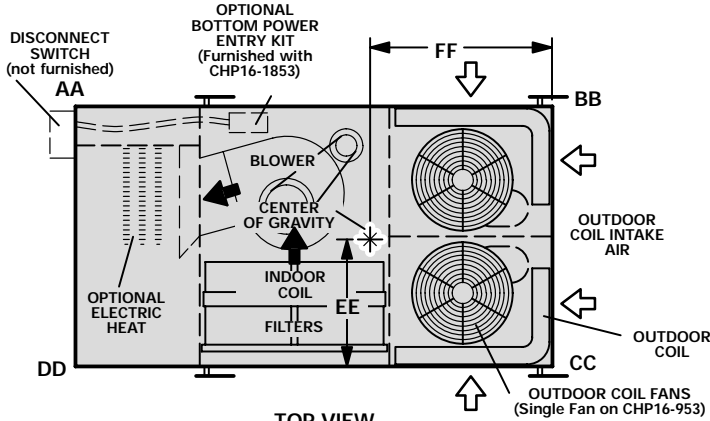
**CHP16 BASIC UNIT**

**CORNER WEIGHTS**

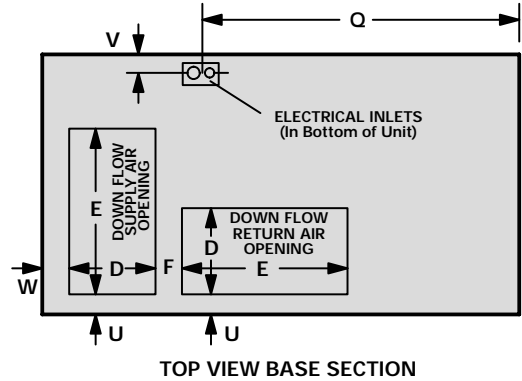
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-953	198	90	317	144	208	94	128	58
CHP16-1353	215	98	383	174	330	150	185	84
CHP16-1853	315	143	535	243	475	215	280	127

**CENTER OF GRAVITY**

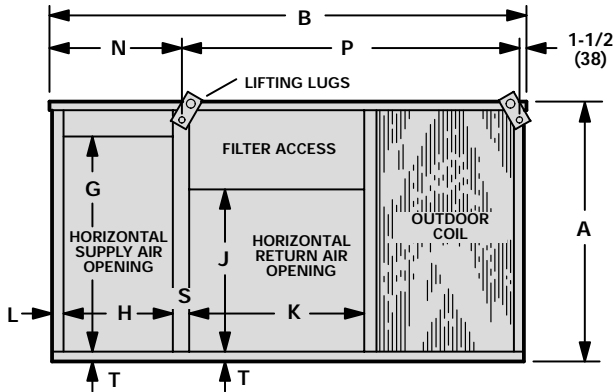
Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-953	29	737	34	921
CHP16-1353	32-1/4	806	33-3/4	902
CHP16-1853	36	914	43	1092



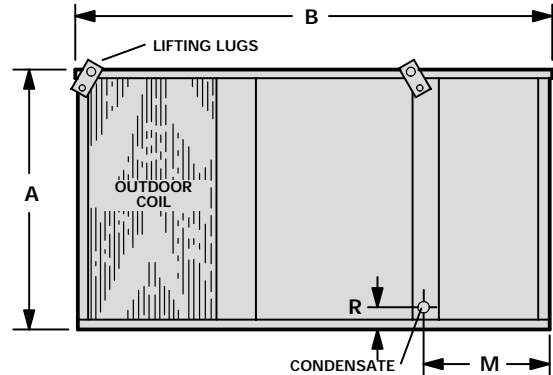
**TOP VIEW**



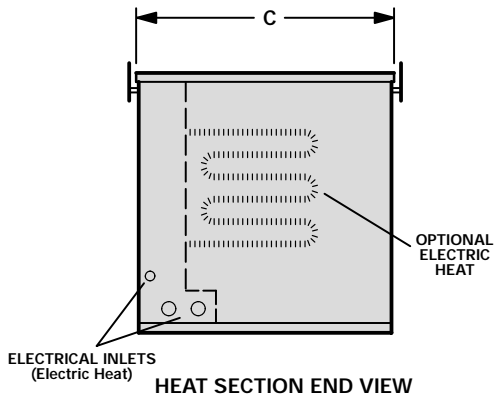
**TOP VIEW BASE SECTION**



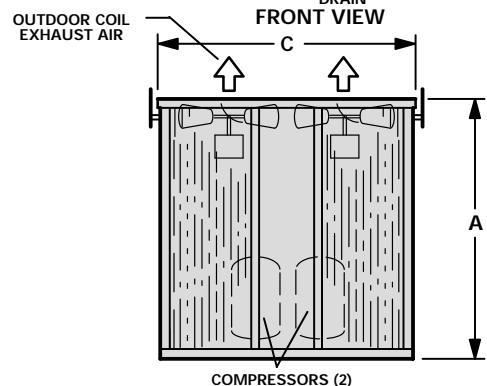
**BACK VIEW WITH HORIZONTAL SUPPLY & RETURN AIR OPENING**



**FRONT VIEW**



**HEAT SECTION END VIEW**



**OUTDOOR SECTION END VIEW**

Model Number	A		B		C		D		E		F		G		H		J		K		L	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP16-953	39	991	88-1/2	2248	48	1219	16-1/2	419	30-3/8	772	5-5/8	143	32-1/8	816	19-7/16	494	24-5/8	625	33	838	1-5/8	41
CHP16-1353	46	1168	94	2388	60	1524	24	610	30-3/8	772	4-7/16	113	39-1/8	994	25-1/4	641	31-5/8	803	33	838	2	51
CHP16-1853	51-1/2	1308	116	2946	68	1727	24-1/2	622	44	1118	5-5/8	143	41-1/2	1054	25-3/4	654	32-3/4	832	50-1/8	1273	2	51

Model Number	M		N		P		Q		R		S		T		U		V		W	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP16-953	25-1/16	637	22-1/8	562	64-7/8	1648	54-1/2	1384	2-3/8	60	2-3/4	70	1-1/2	38	3-1/16	78	4-3/16	106	3-1/16	78
CHP16-1353	31-3/16	792	28-1/2	724	64	1626	54-1/2	1384	2-3/8	60	2-3/4	70	1-1/2	38	3-1/16	78	4-3/16	106	3-1/16	78
CHP16-1853	33-1/2	851	33	838	81-1/2	2070	36	914	4	102	4-1/4	108	3	76	5	127	7-1/4	184	4-1/16	103

**ACCESSORY DIMENSIONS — inches (mm)**

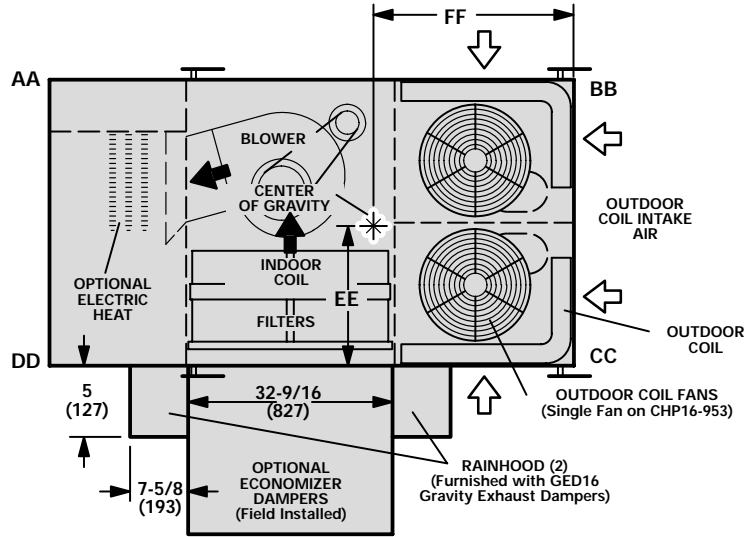
**CHP16-953 AND -1353 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME**

**CORNER WEIGHTS**

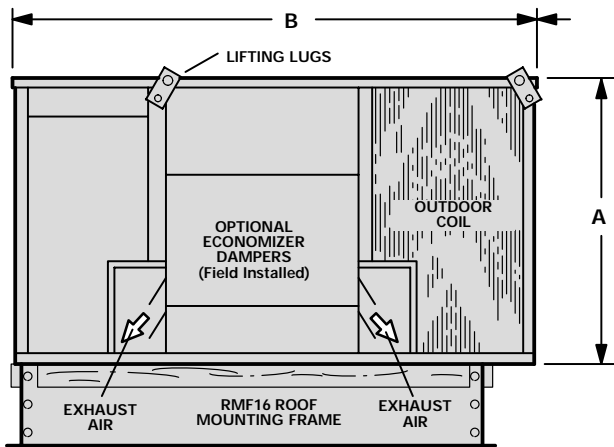
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-953	200	91	298	135	266	121	178	81
CHP16-1353	213	97	367	166	406	184	236	107

**CENTER OF GRAVITY**

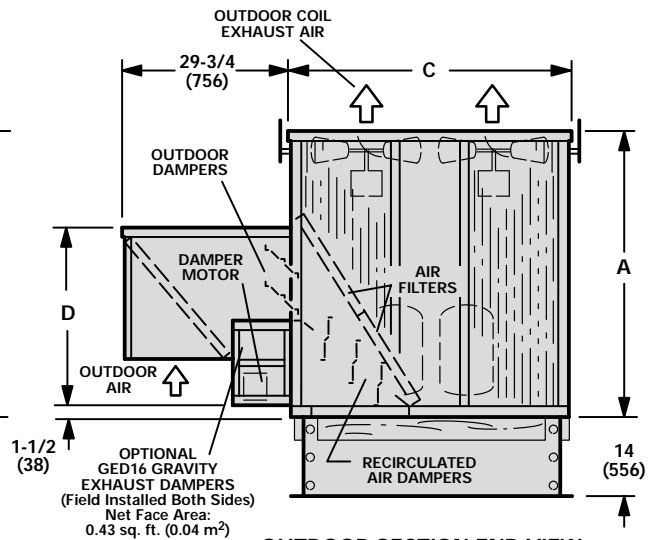
Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-953	25-3/8	645	35-1/2	902
CHP16-1353	24-1/2	622	38	965



**TOP VIEW**



**BACK VIEW**



**OUTDOOR SECTION END VIEW**

Model Number	A		B		C		D	
	inch	mm	inch	mm	inch	mm	inch	mm
CHP16-953	39	991	88-1/2	2248	48	1219	28-9/16	725
CHP16-1353	46	1168	94	2388	60	1524	34-9/16	878

**ACCESSORY DIMENSIONS — inches (mm)**

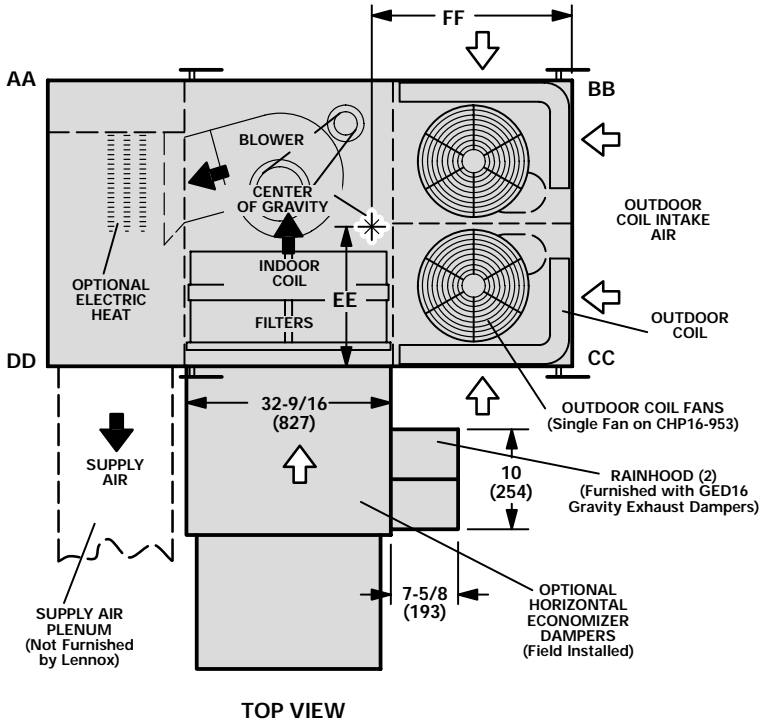
**CHP16-953 AND -1353 UNITS WITH EMDH16 HORIZONTAL ECONOMIZER DAMPER SECTION**

**CORNER WEIGHTS**

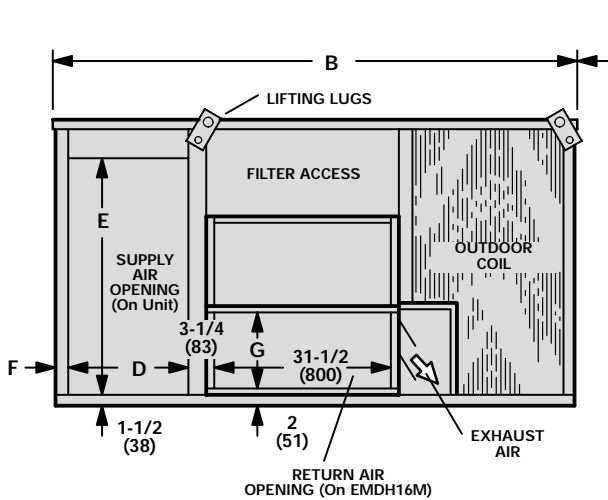
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-953	200	91	298	135	266	121	178	121
CHP16-1353	213	97	367	166	406	184	236	107

**CENTER OF GRAVITY**

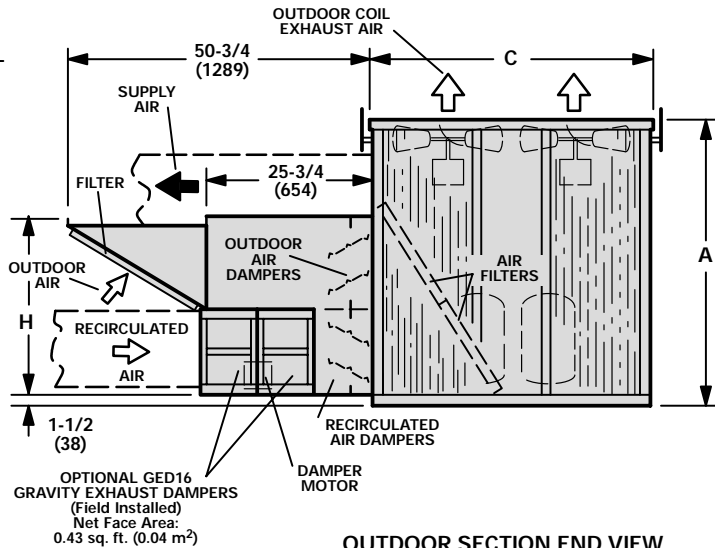
Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-953	25-3/8	645	35-1/2	902
CHP16-1353	24-1/2	622	38	965



**TOP VIEW**



**BACK VIEW**



**OUTDOOR SECTION END VIEW**

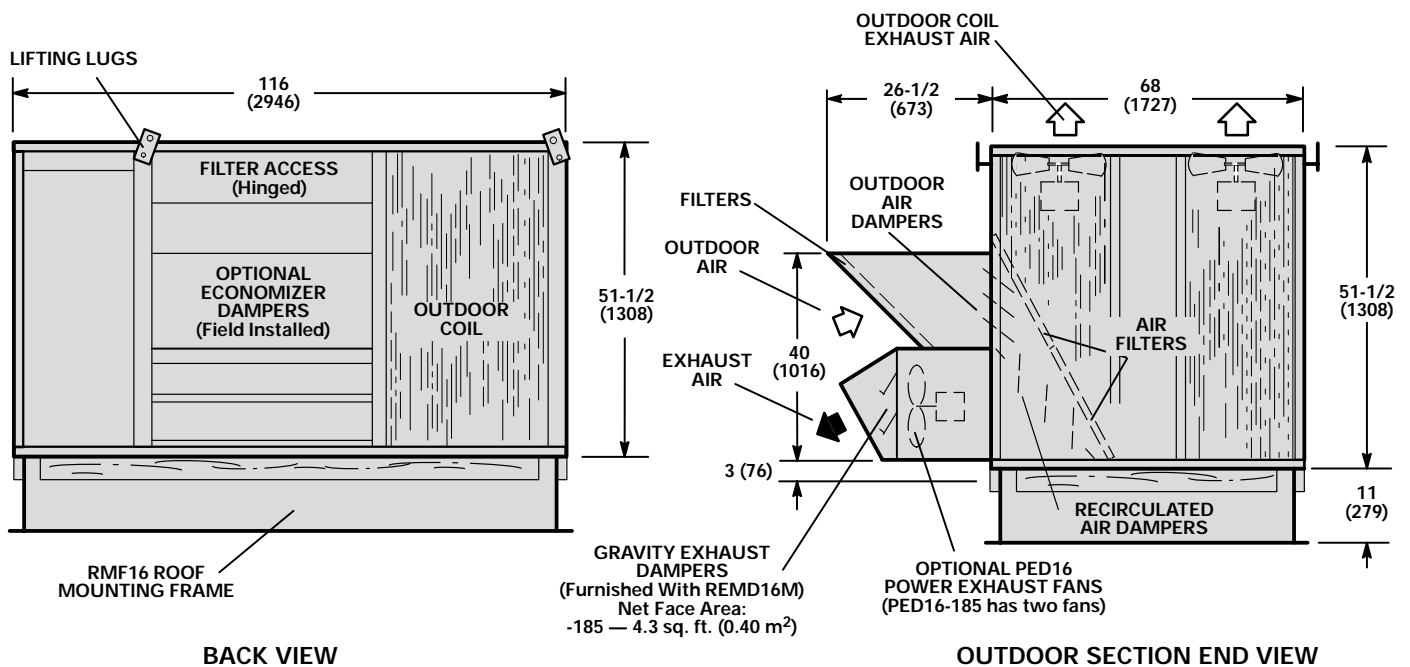
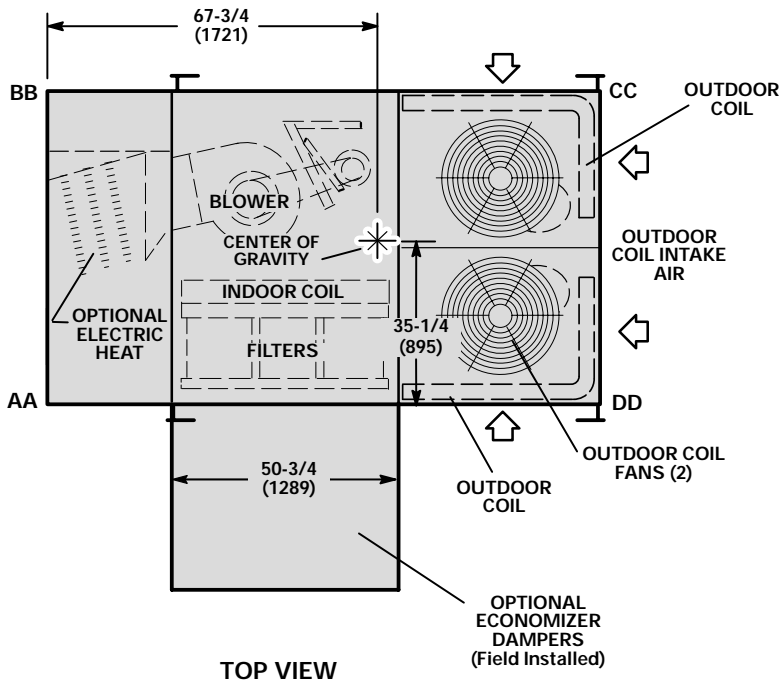
Model Number	A		B		C		D		E		F		G		H	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP16-953	39	991	88-1/2	2248	48	1219	19-7/16	494	32-1/8	816	1-5/8	41	13-1/4	337	28-3/4	730
CHP16-1353	46	1168	94	2388	60	1524	25-1/4	641	39-1/8	994	2	51	19-1/4	489	34-3/4	883

**ACCESSORY DIMENSIONS — inches (mm)**

**CHP16-1853 UNIT WITH REMD16M-185 ECONOMIZER DAMPER SECTION  
(DOWN-FLO APPLICATION) AND RMF16-185 ROOF MOUNTING FRAME**

**CORNER WEIGHTS**

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-1853	387	176	364	165	368	167	535	243

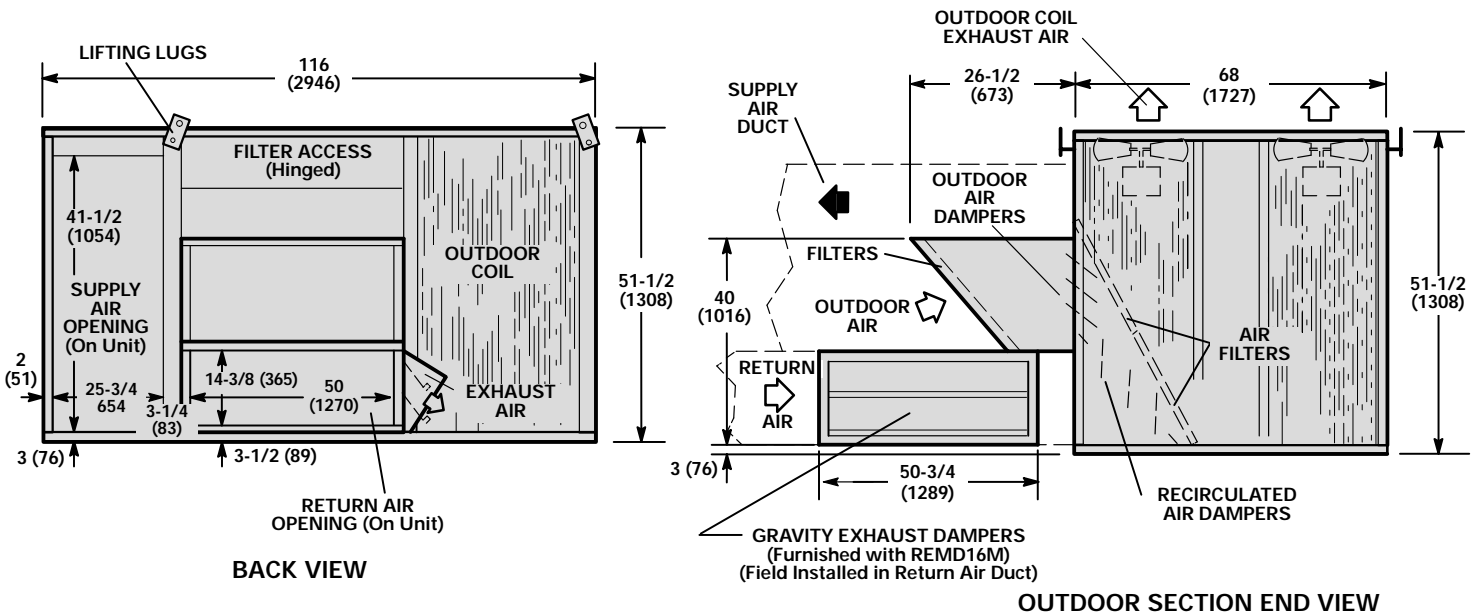
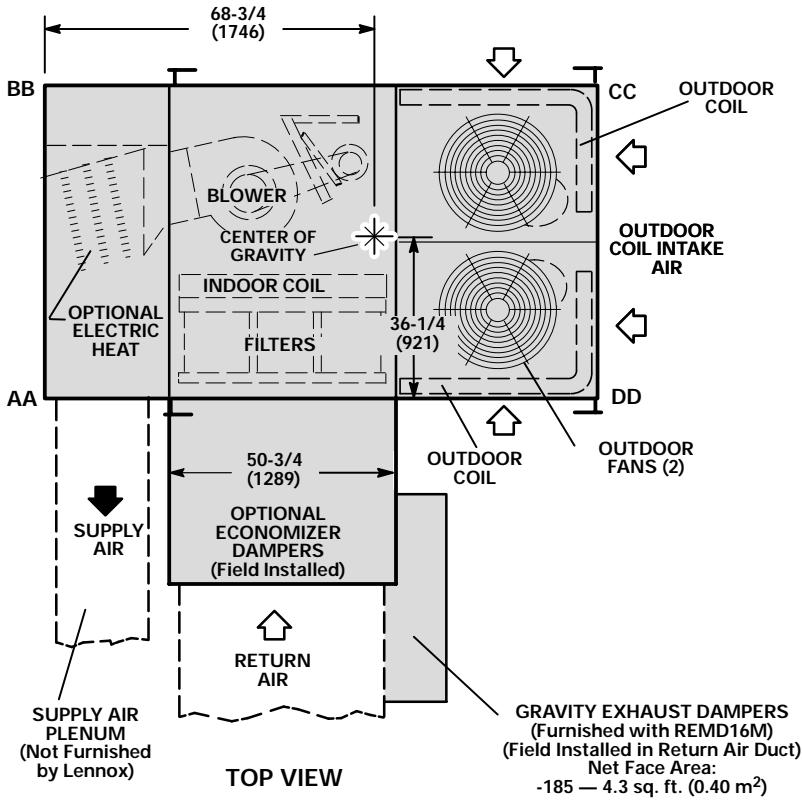


**ACCESSORY DIMENSIONS — inches (mm)**

**CHP16-1853 WITH REMD16M ECONOMIZER DAMPER SECTION  
(HORIZONTAL APPLICATION)**

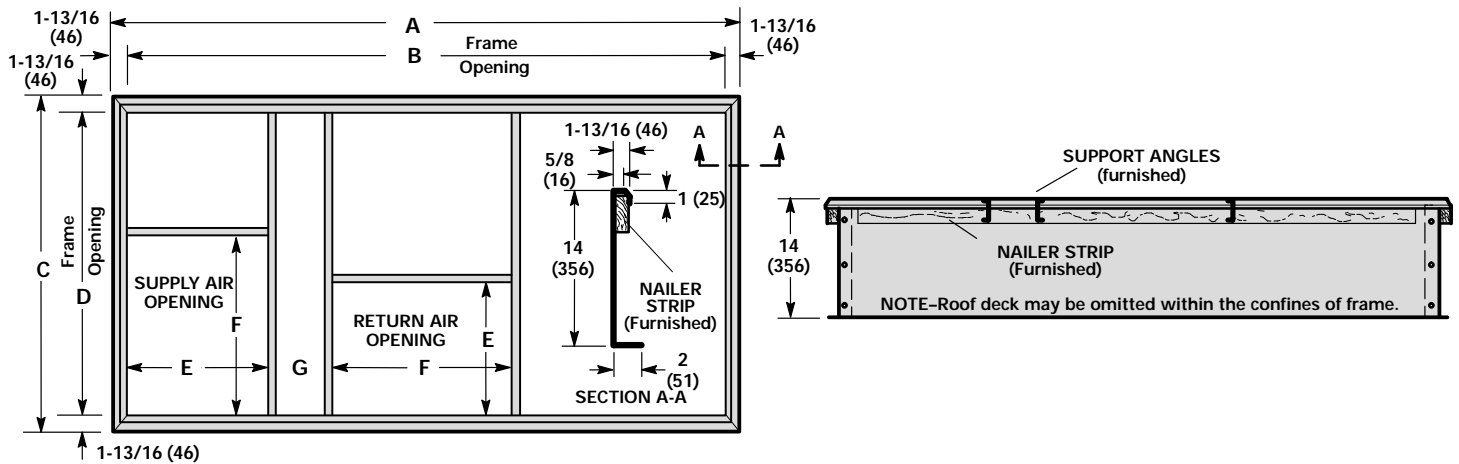
**CORNER WEIGHTS**

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP16-1853	380	172	358	162	559	254	526	239



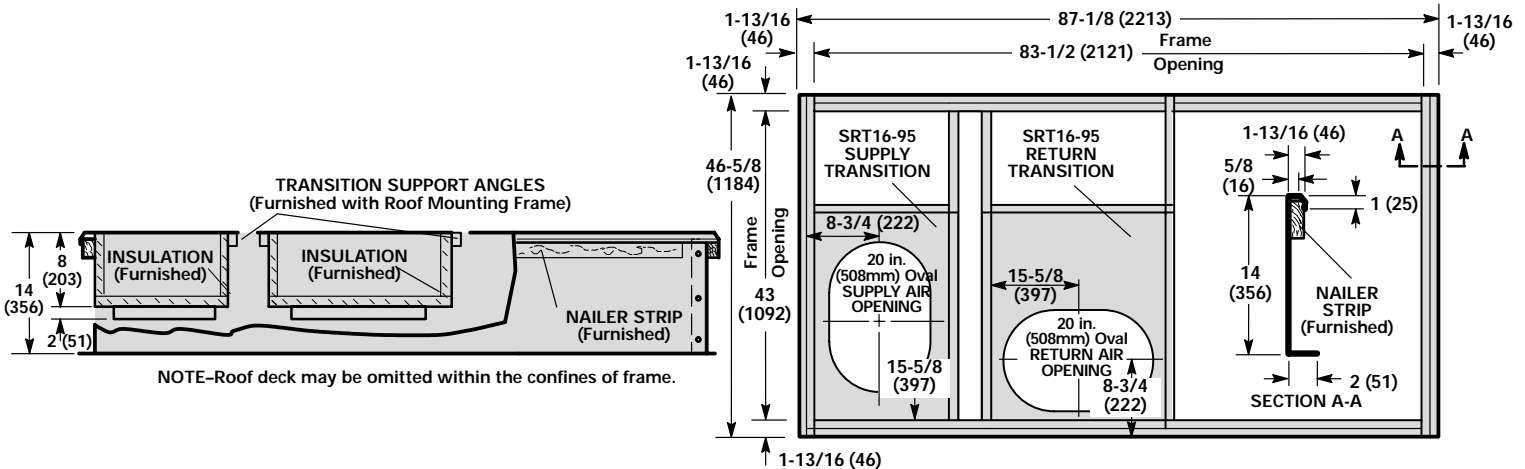
**OPTIONAL ACCESSORY DIMENSIONS — inches (mm)**

**RMF16 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING**

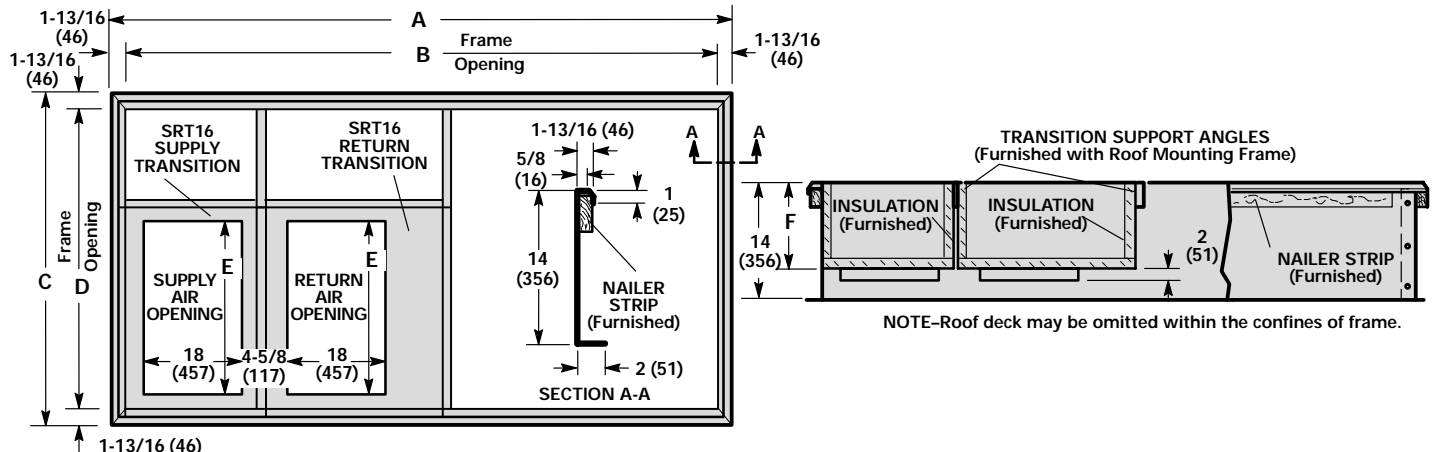


Model Number	A		B		C		D		E		F		G	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-95	87-1/8	2213	83-1/2	2121	46-5/8	1184	43	1092	17-15/16	456	31-1/2	800	4	102
RMF16-135/160	92-1/2	2350	88-7/8	2257	58-1/2	1486	54-7/8	1394	25-1/4	641	31-1/2	800	3-3/16	81
RMF16-185	111-3/4	2838	108-1/8	2746	63-7/8	1622	60-1/4	1530	26	660	45-1/2	1156	4-3/8	111

**RMF16-95 ROOF MOUNTING FRAMES WITH SRT16  
SUPPLY AND RETURN AIR TRANSITIONS FOR FD11-95 & RTD11-95 CEILING DIFFUSERS**

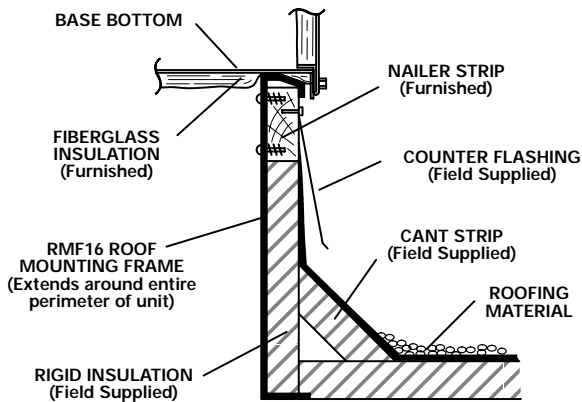


**RMF16-135/160 & -185 ROOF MOUNTING FRAMES WITH SRT16  
SUPPLY AND RETURN AIR TRANSITIONS FOR FD11 & RTD11 CEILING DIFFUSERS**



Model Number	A		B		C		D		E		F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-135/160	92-1/2	2346	88-7/8	2257	58-1/2	1486	54-7/8	1394	28	711	8	203
RMF16-185	111-3/4	2838	108-1/8	2746	63-7/8	1622	60-1/4	1530	36	914	12	305

**TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME**



**ROOF MOUNTING FRAME SPECIFICATIONS**

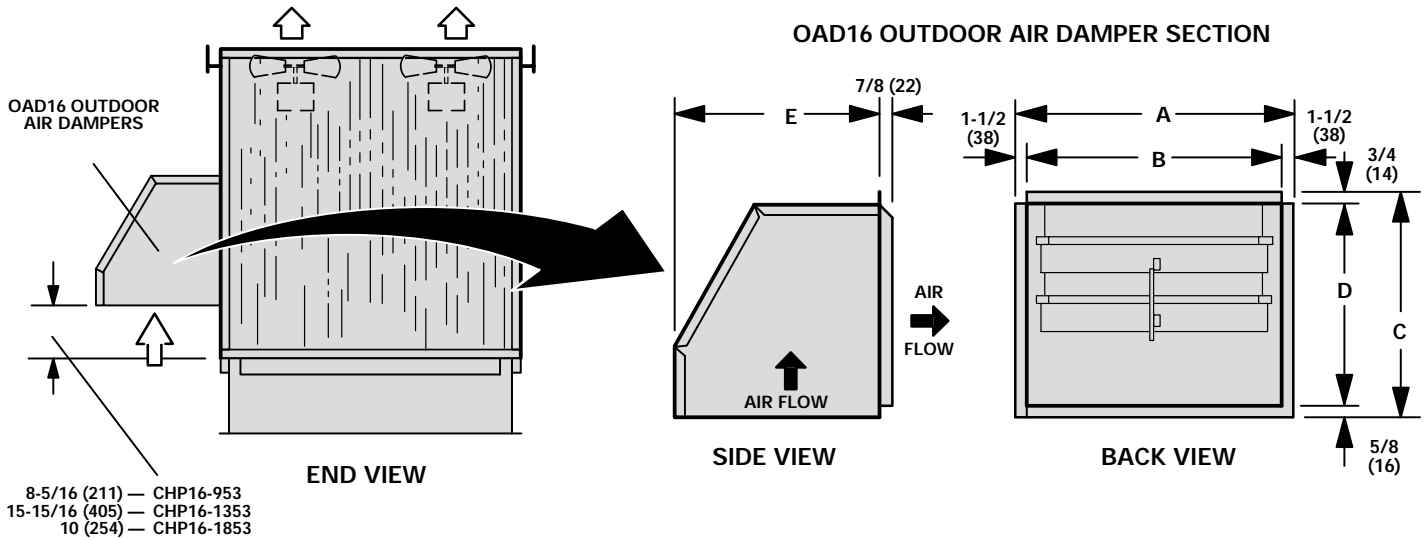
Roof Mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on both sides of center of gravity.

Roof Mounting Frame	RMF16-95 thru -300
*Moment of inertia (I) (inch <sup>4</sup> ) (mm <sup>4</sup> )	42 (1.75 x 10 <sup>7</sup> )
*Section modulus $\frac{I}{C}$ (inch <sup>3</sup> ) (mm <sup>3</sup> )	5.8 (9.5 x 10 <sup>3</sup> )
Weight (lb./ft.) (kg/m) of length	5.5 (8.2)
Design strength (psi) (mPa)	20 000 (138)

\*Includes both sides of frame.

**CHP16 UNIT WITH OAD16 OUTDOOR AIR DAMPER SECTION DOWN-FLO SUPPLY AND RETURN AIR**

NOTE — For Horizontal (Side) Supply And Return Air, OAD16 Field Installs on Return Air Duct



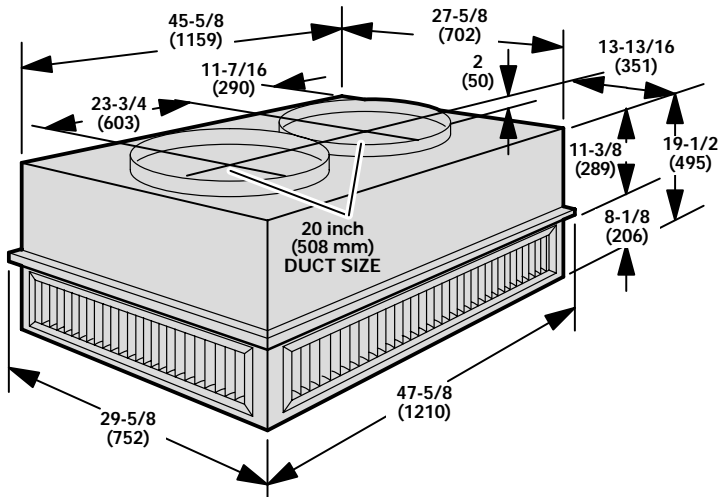
**OAD16 OUTDOOR AIR DAMPER SECTION**

Model Number	A		B		C		D		E	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
OAD16-95 OAD16-135	24	610	21	533	18-1/2	470	17-1/8	435	17-1/8	435
OAD16-185	33	838	30	762	28-3/8	721	27	686	22-1/4	565

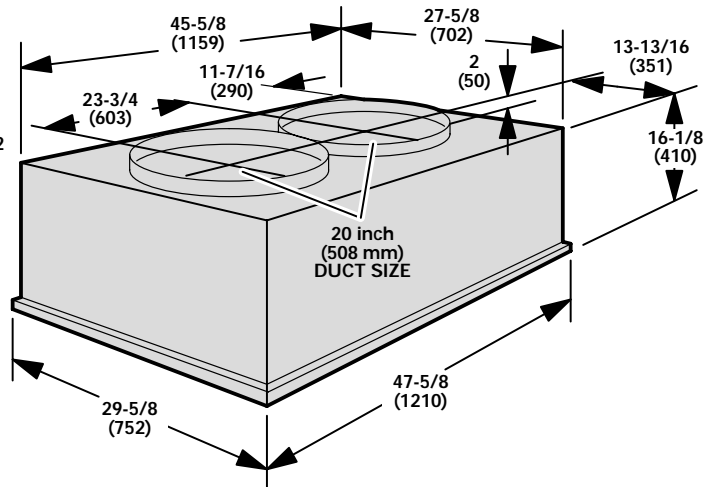


**COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS**

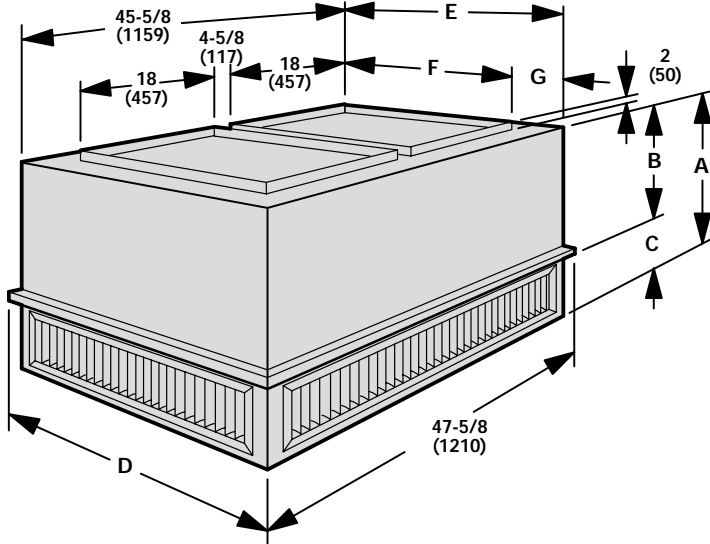
**RTD11-95 STEP-DOWN CEILING DIFFUSER**



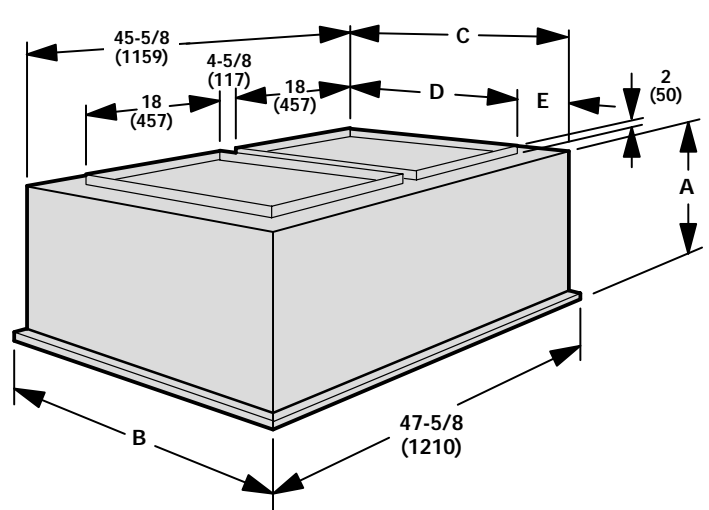
**FD11-95 FLUSH CEILING DIFFUSER**



**RTD11-135 & RTD11-185 STEP-DOWN CEILING DIFFUSER**



**FD11-135 & FD11-185 FLUSH CEILING DIFFUSER**



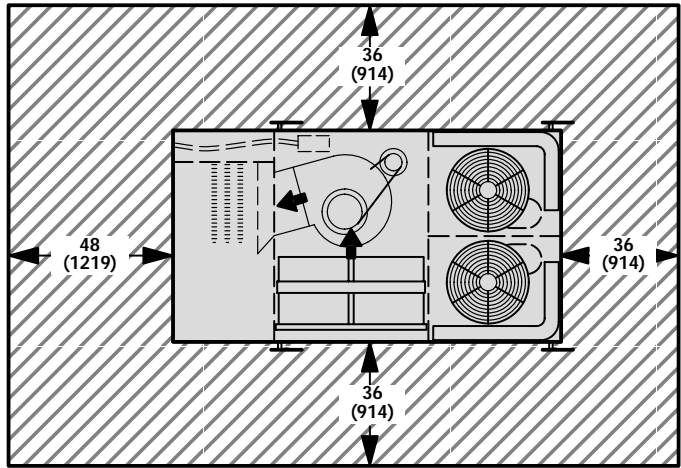
Model Number	A		B		C	
	inch	mm	inch	mm	inch	mm
RTD11-135	28	711	18-7/8	479	9-1/8	232
RTD11-185	34	864	23-7/8	606	10-1/8	257

Model Number	A		B		C	
	inch	mm	inch	mm	inch	mm
FD11-135	24-1/8	613	35-5/8	905	33-5/8	854
FD11-185	30-1/8	613	47-5/8	1210	45-5/8	1159

Model Number	D		E		F		G	
	inch	mm	inch	mm	inch	mm	inch	mm
RTD11-135	35-5/8	905	33-5/8	854	28	711	2-13/16	71
RTD11-185	47-5/8	1210	45-5/8	1159	36	914	4-13/16	122

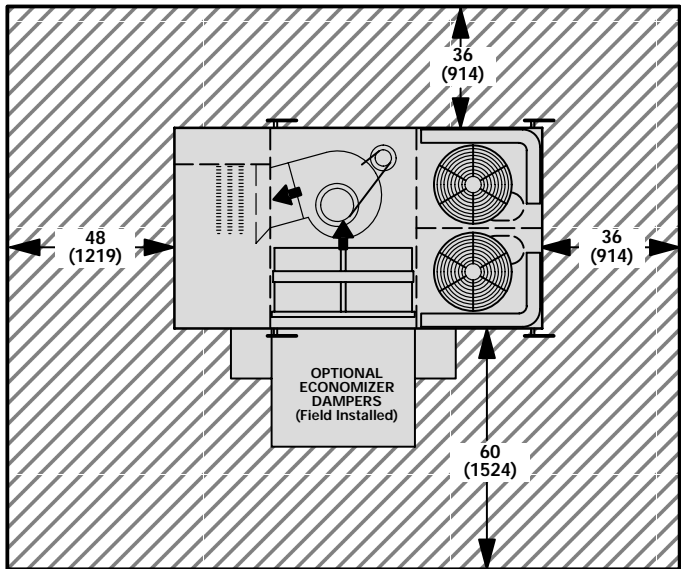
Model Number	D		E	
	inch	mm	inch	mm
FD11-135	28	711	2-13/16	71
FD11-185	36	914	4-13/16	122

**CHP16 BASIC UNIT**



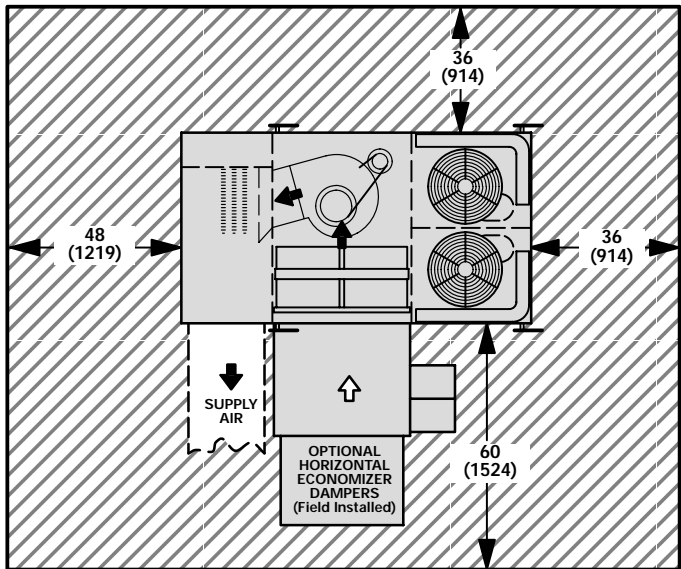
NOTE — Top Clearance Unobstructed.  
 NOTE — Entire perimeter of unit requires support when elevated above mounting surface.

**CHP16 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION**



NOTE — Top Clearance Unobstructed.

**CHP16 UNIT WITH EMDH16M HORIZONTAL ECONOMIZER DAMPER SECTION**



NOTE — Top Clearance Unobstructed.