

**CHA24-1853-2553-2753-3003
PACKAGED UNITS**

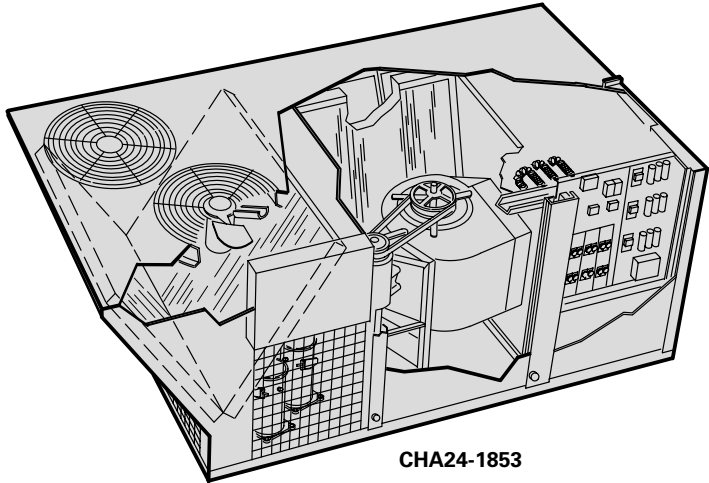
(15, 18.5, 20 & 25 Ton)
(52.8, 65.1, 70.3 & 87.9 kW)

Bulletin No. 210053
June 1994
Supersedes April 1994

COOLING & ELECTRIC HEAT

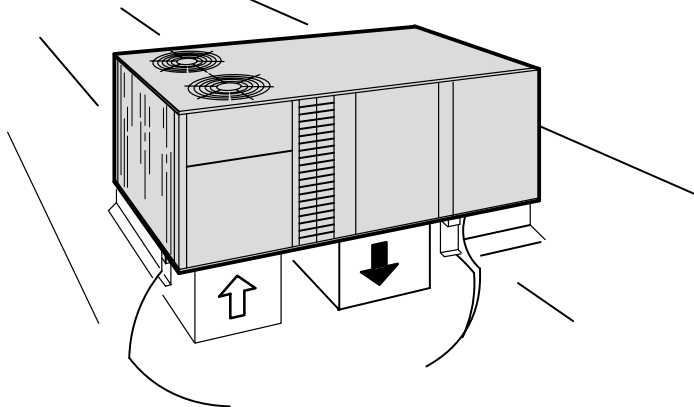
***177,000 and 280,000 Btuh (51.9 to 82.0 kW) Cooling Capacity**
51,200 to 307,100 Btuh (15.0 to 90.0 kW) Optional Electric Heat

*ARI Standard Ratings

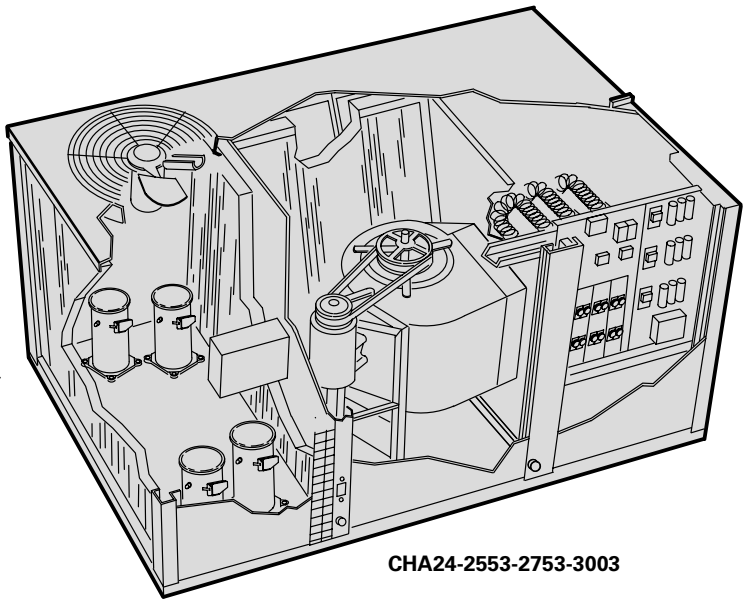


CHA24-1853

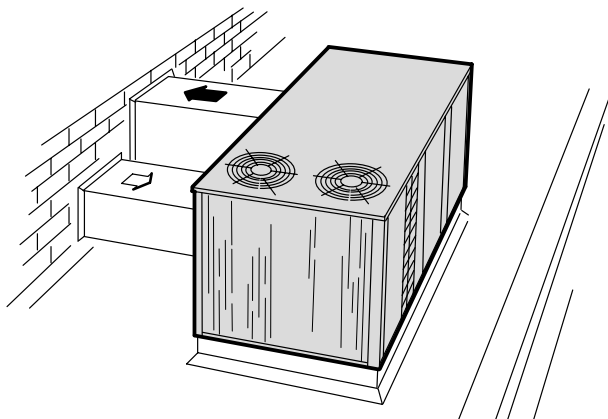
Typical Applications



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



CHA24-2553-2753-3003



Horizontal (Side) Supply and Return Air Installation
With RMF16 Roof Mounting Frame.

Table of Contents

Features	Page 2
Accessories	Page 3
Temperature Control Systems	Page 4-5
Temperature Control Flowcharts	Page 6-7
Specifications	Page 8
Field Installed Accessories – CHA24-1853	Page 9
Field Installed Accessories – CHA24-2553-2753-3003	Page 10
Model Number Identification	Page 11
Factory Installed Options Selection	Page 12
Electrical Data	Page 13
Field Wiring	Page 14
Electric Heat Data	Page 15-16
Cooling Ratings	Page 17-18
Blower Data	Page 19-21
Guide Specifications	Page 22
Dimensions – CHA24-1853	Page 23-25
Dimensions – CHA24-2553-2753-3003	Page 26-28
Dimensions – Accessories	Page 29-31
Installation Clearances	Page 32

☼ The maple leaf symbol in this bulletin denotes Canadian only usage where applicable

NOTE – Due to Lennox' ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice. ©1994 Lennox Industries Inc.

FEATURES

Item	CHA24-1853	CHA24-2553	CHA24-2753	CHA24-3003
Air Flow Choice — Bottom (down-flow) or horizontal (side) supply and return air	Std.	Std.	Std.	Std.
Approvals — U.L. and C.S.A. listed, components bonded for grounding to meet safety standards for servicing required by U.L., C.S.A. and National and Canadian Electrical Codes	Std.	Std.	Std.	Std.
ARI Standard 360-86 Certified	Std.	Std.	Std.	▲
Bottom Power Entry	Std.	Std.	Std.	Std.
Cabinet — Heavy gauge galvanized steel, fully insulated, powdered enamel paint finish, large removeable access panels, electrical inlets in cabinet base and electric heat end panel, control box with factory installed controls low voltage terminal strip, unit lifting brackets	Std.	Std.	Std.	Std.
Cabinet Panels — 2 compressor panels, 2 blower panels and 1 electric heat access panel hinged with quarter-turn latches	—	●Opt.	●Opt.	●Opt.
Coil Construction (Evaporator and Condenser) — Copper tube construction, ripple-edged enhanced aluminum fins, flared shoulder tubing connections, silver soldered construction, factory tested, evaporator coil face split with separate circuits, evaporator coil drain connection outside of unit cabinet	Std.	Std.	Std.	Std.
Compressors — Copeland® Compliant Scroll™ type, hermetically sealed, discharge temperature thermostat (protects compressor)	Std.	Std.	Std.	—
Compressors — Bristol® Inertia™ type, hermetically sealed, overload protected	—	—	—	Std.
Compressor Crankcase Heaters	—	Std.	Std.	Std.
Condenser Coils — Slab coil construction	Std.	Std.	Std.	Std.
Condenser Fans — Low sound operating levels, PVC coated fan guard furnished	Std.	Std.	Std.	Std.
Condenser Fan Motors — Overload protected, permanently lubricated, equipped with ball bearings	Std.	Std.	Std.	Std.
Control Box Panel — Hinged for easy access, factory installed	Std.	Std.	Std.	Std.
Corrosion Protection — Phenolic epoxy coating applied to condenser coil only (with painted base section) or to both condenser and evaporator coils (with painted condenser and evaporator base section and painted blower housings), factory applied	**Opt.	**Opt.	**Opt.	**Opt.
Disconnect — Factory installed	*Opt.	*Opt.	*Opt.	*Opt.
Filters — Disposable 2 inch (51 mm) commercial grade, filter rack will accept 1 inch (25 mm) thick filters	Std.	Std.	Std.	Std.
Filter Access — Hinged filter door with quarter turn fasteners	Std.	Std.	Std.	Std.
Low Ambient Controls — Allows unit cooling operation down to 30°F (-1°C)	Std.	Std.	Std.	Std.
Refrigeration System — Consists of: compressors, condenser coil and direct drive fan(s), evaporator coil and belt drive blower, expansion valves, high capacity driers, thermometer wells, high pressure switches, low pressure switches, full refrigerant charge, freezestat (prevents coil freeze-up during low ambient operation), independent refrigerant circuits (allows staging)	Std.	Std.	Std.	Std.
Service Outlets (2) — Factory installed, 120v ground fault circuit interrupter (GFCI) type	*Opt.	*Opt.	*Opt.	*Opt.
Supply Air Blower — Belt drive, forward curved blades with double inlet, blower wheel statically and dynamically balanced, permanently lubricated sleeve bearings, adjustable pulley (allows speed change)	Std.	Std.	Std.	Std.
Supply Air Motor — Overload protected, equipped with ball bearings	Std.	Std.	Std.	Std.
Warranty — Limited five years compressors, limited one year all other components, see limited warranty certificate included with unit for details	Std.	Std.	Std.	Std.

Std.= Standard with unit.

Opt.= Optional.

▲ Testing conditions are those included in ARI Standard 360.

*Available as part of factory installed Electrical Convenience Package, see Factory Installed Options tables.

**Available factory installed Corrosion Protection Package, see Factory Installed Options tables.

●Available factory installed Hinged Panel Package, see Factory Installed Options tables.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Item	CHA24-1853	CHA24-2553-2753	CHA24-3003
Control System — Electro-mechanical Thermostat	Opt.	Opt.	Opt.
Control System — W973	Opt.	Opt.	Opt.
Control System — T7300 Thermostat	Opt.	Opt.	Opt.
Control System — W7400	Opt.	Opt.	Opt.
⊕ Control System — T8600 and T8621 Thermostat	Opt.	Opt.	Opt.
Differential Enthalpy Control — For use with economizer dampers, solid-state return air sensor allows selection between outdoor air and return air (whichever has lowest enthalpy)	Opt.	Opt.	Opt.
Diffusers (Step-Down) — Aluminum grilles, double deflection louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	RTD11-185	RTD11-275	RTD11-275
Diffusers (Flush) — Aluminum grilles, fixed blade louvers, large center grille, insulated diffuser box with flanges, hanging rings furnished, interior transition (even air flow), internally sealed (prevents recirculation), adapts to T-bar ceiling grids or plaster ceilings	FD11-185	FD11-275	FD11-275
Transitions (Supply and Return) — Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated	SRT16-185	SRT16-300	SRT16-300
Economizer Dampers (Down-Flow or Horizontal) — Mechanically linked recirculated air and outdoor air dampers, plug-in connections to unit, nylon bearings, stainless steel seals (outdoor dampers), 24 volt fully modulating spring return damper motor, adjustable minimum damper position switch, mixed air controller, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, two cleanable polyurethane frame filters furnished, damper assembly installs in unit, outdoor air hood installs over outdoor air dampers, gravity exhaust dampers furnished, horizontal applications require Horizontal Supply and Return Air Kit	†REMD16M-185	†REMD16M-300	†REMD16M-300
Electric Heat — Factory or field installed, helix wound nichrome elements, time delay for element staging, individual element limit controls, may be two-stage controlled, requires optional Fuse Block	**Opt.	**Opt.	**Opt.
Electric Heat Fuse Block — Wiring harness and mounting screws furnished	**Opt.	**Opt.	**Opt.
Horizontal Supply and Return Air Kit — Provides duct connection to unit, flanges furnished, hardware furnished, two filler panels furnished for unused air openings, filter access panel furnished	Opt.	Opt.	Opt.
Outdoor Air Damper Section — Linked mechanical dampers, interchangeable unit panel furnished (down-flow applications), two-piece cabinet (control access), cleanable polyurethane frame type filter furnished, 0 to 25% (fixed) outdoor air adjustable, manual or automatic operation (kit required for automatic operation), installs on unit for down-flow applications, installs in return air duct for horizontal applications	OAD16-185	OAD16-300	OAD16-300
Outdoor Air Damper Automatic Damper Kit — 3 position damper actuator, plug-in connection	Opt.	Opt.	Opt.
Power Exhaust Fans — Install on economizer dampers in down-flow applications, provide pressure relief, interlocked to run when return air dampers are closed and supply air blowers are operating, overload protected	PED16-185	PED16-300	PED16-300
Roof Mounting Frame — Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down	RMF16-185	RMF16-300	RMF16-300
Smoke Detector — Photoelectric type, factory installed in return air section	*Opt.	*Opt.	*Opt.
Timed-Off Control — Prevents compressor short cycling, automatic reset control holds compressor off for 5 minutes	Opt.	Opt.	Opt.

Opt.= Optional must be ordered extra. See Optional Field Installed Accessories Tables for ordering information.

†Available for field installation, see Optional Field Installed Accessories tables. Also available as factory installed Economizer Package, see Factory Installed Options tables.

*Available factory installed Smoke Detector Package, see Factory Installed Options tables.

**Available for field installation, see Optional Field Installed Accessories Tables and Electric Heat Data Tables. Also available as part of factory installed Electric Heat, see Factory Installed Options tables.

OPTIONAL TEMPERATURE CONTROL SYSTEMS (See Flow Charts on Pages 6 and 7)

System and Component Description	Catalog No.
ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM	
Thermostat — Two stage heat & two stage cool with dual temperature levers, subbase choice	13F06
Subbase — Manual system switch (Off-Heat-Auto-Cool), fan switch (Auto-On)	13F17
Subbase — Non-switching	13F16
Night Setback Operation — Order components below	—
Heating Thermostat — Single stage heat	13F12
Subbase — Non-switching	13F16
Nite Kit — Required if economizer is not used, contains plug-in relay, overrides operation of day thermostat	39G74
Time Clock — 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	See Price Book for Selection
Time Clock — 24 hour night setback operation, 15 minute increments, battery back-up	See Price Book for Selection
Warm Up Kit — Holds economizer dampers closed during night heating operation and morning warm-up	39G77
W973 CONTROL SYSTEM	
Logic Panel/Discharge Sensor/Plug-in Relay — Panel controls operation of economizer and stages of heating and cooling in response to signals from thermostat, balances conditioned space thermostat demand against system output, system output measured by discharge sensor (furnished), combined demand and output signals determine economizer damper position and number of cooling or heating stages required, logic panel may be installed in unit or remotely located, W973 Plug-in Relay (furnished) adapts control system to unit	39G76
Thermostat — Dual setpoint, separate heating-cooling levers, locking setpoints, integral sensor	25C52
Subbase — Switching with system selector switch (Heat-Auto-Off-Cool), fan switch (Auto-On)	58C93
Transmitter — Dual setpoint, separate heating-cooling levers, locking setpoints, requires sensor	25C51
Subbase — Switching with system selector switch (Heat-Auto-Off-Cool), fan switch (Auto-On)	58C93
Sensor — Room temperature	58C92
Sensor — Return air temperature	27C40
Time Clock — 7 day operation, indicates day and night periods, 2 hour increments, battery back-up	See Price Book for Selection
Time Clock — 24 hour night setback operation, 15 minute increments, battery back-up	See Price Book for Selection
Warm Up Kit — Holds economizer dampers closed during night heating operation and morning warm-up	39G77
T7300 THERMOSTAT CONTROL SYSTEM	
Thermostat — Programmable, internal or optional remote temperature sensing (sensor required), touch sensitive keyboard, automatic switching, °F or °C readout, no anticipator, droop/no droop selection, indicator LED's, hour/day programming, override capabilities, time and operational mode readout, stage status indicators, battery back-up, subbase choice	81G59
Subbase — Selectable staging up to two stage heat & two stage cool, manual system switch (Heat-Off-Auto-Cool), fan switch (Auto-On), indicator LED's, auxiliary relay output for economizer operation	81G60
Subbase — Selectable staging up to three stage heat & two stage cool, manual system switch (Auto-Cool-Off-Heat-Emergency Heat) (heat pump only), fan switch (Auto-On), indicator LED's, auxiliary relay output for economizer operation	13H76
Sensor — Room temperature	58C92
Sensor — Room temperature with 3 hour override and setpoint adjustment	86G67
Sensor — Return air temperature	27C40

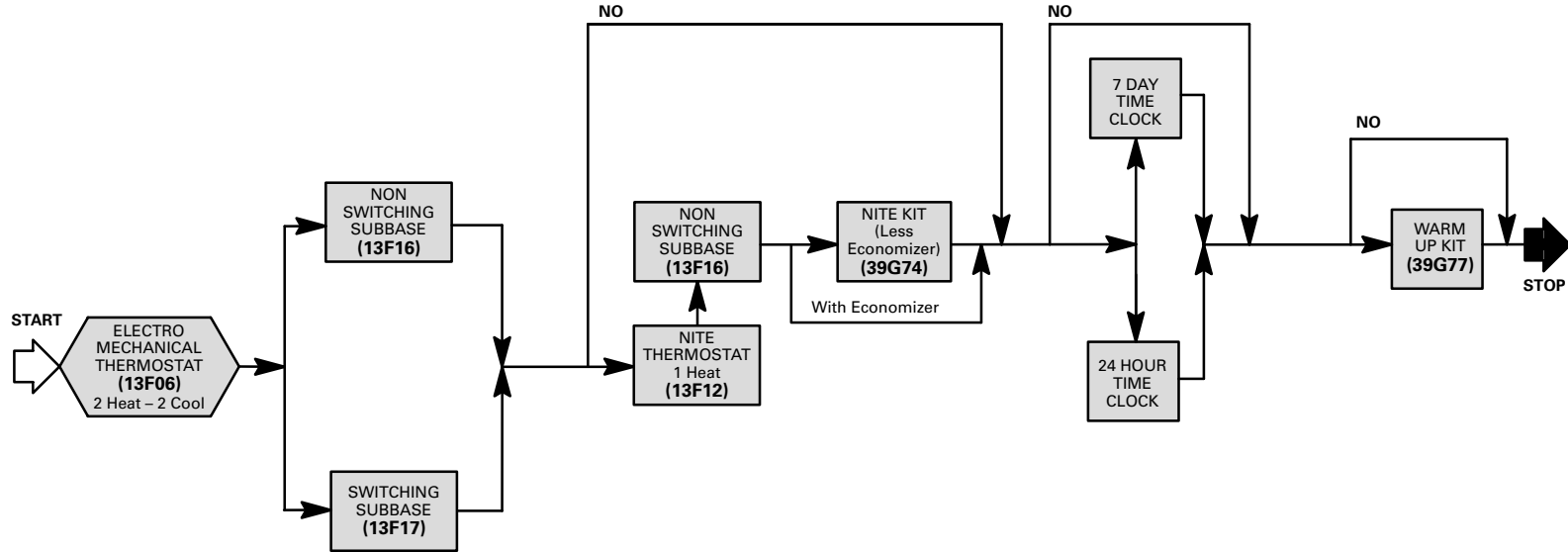
OPTIONAL TEMPERATURE CONTROL SYSTEMS (See Flow Charts on Pages 6 and 7)

System and Component Description	Catalog No.
W7400 CONTROL SYSTEM	—
Control Module/Plug-in Relay — Module controls operation of economizer and stages of heating and cooling, setpoint/space temperature sensor and time-of-day signals control unit operation, module balances space temperature signal against stages operating to determine system output, system output is measured and updated by monitoring actual space temperature deviation from setpoint and rate of change of space temperature, module may be installed in unit or remotely located, plug-in relay (furnished) provides set points for economizer and DX cooling, choice of thermostats	74G11
Thermostat — Room thermostat with integral sensor, touch sensitive keyboard, automatic switching, no anticipator, zero droop, indicator lights, hour/day programming, override capabilities, time readout, stage status indicators, battery back-up, wiring wallplate	36G62 (°F) or 36G63 (°C)
Thermostat — Remote thermostat (sensor required), touch sensitive keyboard, automatic switching, no anticipator, zero droop, indicator lights, hour/day programming, override capabilities, time readout, stage status indicators, battery back-up, wiring wallplate	36G64 (°F) or 36G65 (°C)
Sensor — Room temperature	58C92
Sensor — Return air temperature	27C40
✦ T8600 and T8621 THERMOSTAT CONTROL SYSTEMS	—
Thermostats — Built-in time delays, system switch (Heat-Off-Cool-Auto), fan switch (Auto-On), touch sensitive keyboard, LCD display (Time-Day-Status-Temperature readout in °F or °C), four different time and temperature settings per day, T8621 has switching subbase and one LED (system “On”), T8600 has wiring wall plate and two LED’s (Energy Savings and system “On”), both have instant override capabilities for skipping current program, running previous program, temporarily raising or lowering temperature for current program or overriding program indefinitely, three “AAA” battery back-up, see below for additional descriptions	See left for catalog numbers
T8600C1055 71E91 . . . 1 htg./1 clg. 5-1-1 day programming, manual changeover T8600D1079 27H31 . . . 1 htg./1 clg. 5-1-1 day programming, auto changeover T8621A7010 75E25 . . . 1 htg./1 clg. 7 day programming, auto changeover T8621D7055 27H29 . . . 2 htg./2 clg. 7 day programming, auto changeover	
Warm Up Kit — Holds economizer dampers closed during night heating operation and morning warm-up	39G77

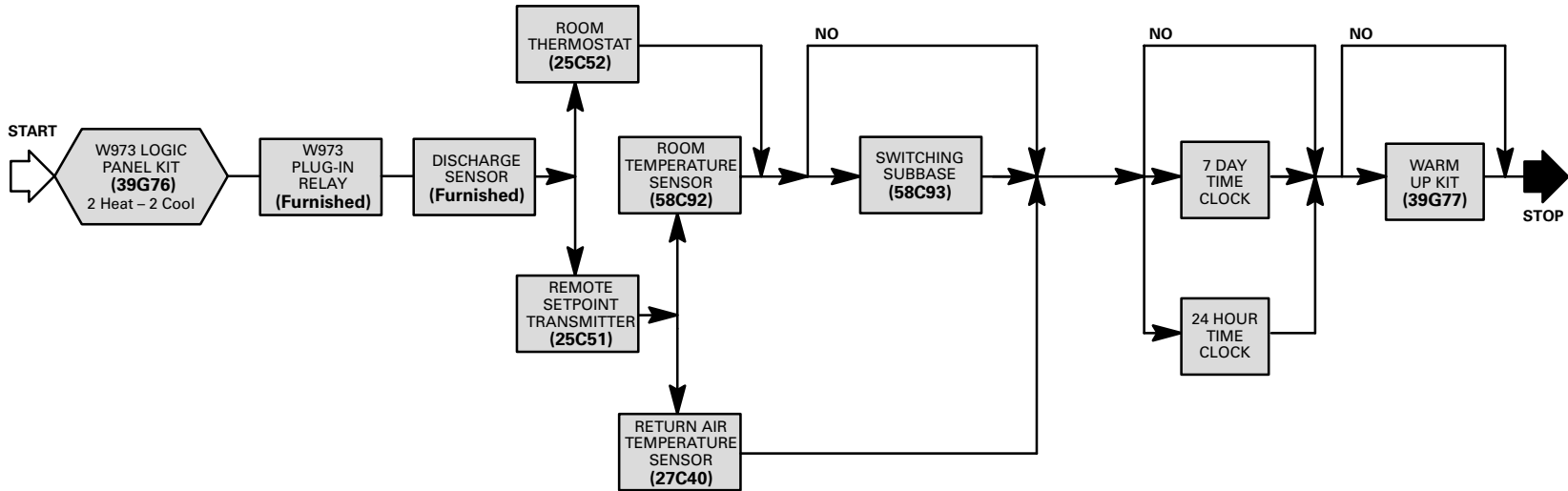
LOGIC CONTROLS PACKAGE (Factory Installed Option)

Component Description	Catalog No.
ETM Electronic Thermostat Module — Factory installed control monitors unit operation from different sensors factory installed in unit, has outputs for 2 stage heat/2 stage cool, automatic or continuous blower operation, economizer damper operation and night setback, features: day/occupied mode with low enthalpy (outdoor air damper open), high enthalpy (outdoor air damper closed) or night/unoccupied mode (outdoor air damper closed), ETM allows units to be “daisy chained” together (up to 31 units) to be operated from one central location with an “executive” type control processor (onsite or offsite), built-in time delays, built-in unit operating defaults, diagnostic LED’s indicate various operating functions, surge suppression protects ETM against lightning or voltage spikes	Factory Installed In Unit
Return Air Sensor — Provides input to ETM module to determine heating or cooling operation and number of stages required	Factory Installed In Unit
Blower Proving Switch — Monitors blower operation, locks out unit in case of blower failure, sends signal to ETM module for alarm	Factory Installed In Unit
Dirty Filter Switch — Senses static pressure increase indicating a dirty filter condition	Factory Installed In Unit
Discharge Air Monitor — Senses leaving air temperature for monitoring unit operation	Factory Installed In Unit
Room Temperature Sensor — Provides input to ETM module to determine heating or cooling operation and number of stages required (ordered separately)	97H53
Night Setback Override Switch — Allows momentary override of night setback during unoccupied mode	Field Furnished

OPTIONAL ELECTRO-MECHANICAL THERMOSTAT

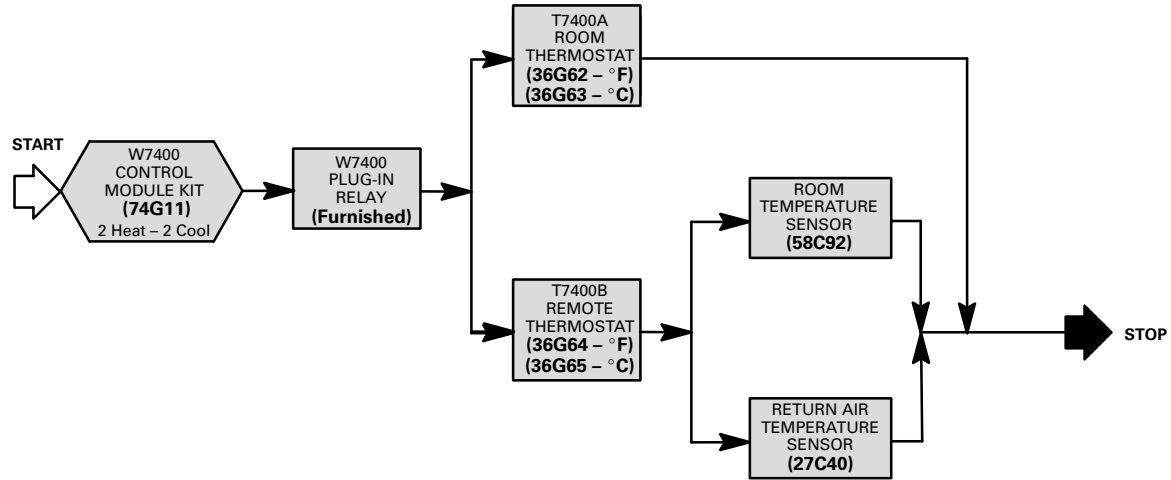


OPTIONAL W973 CONTROL SYSTEM

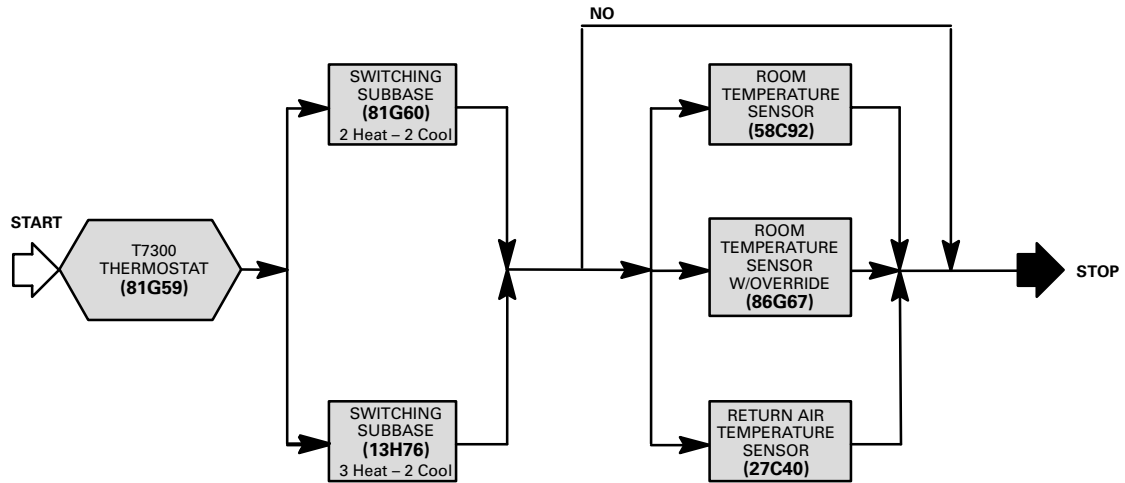


TEMPERATURE CONTROL SELECTION FLOWCHARTS

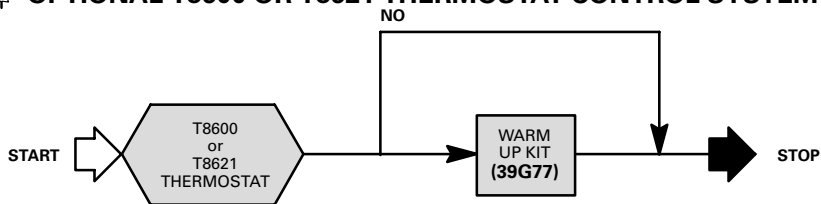
OPTIONAL W7400 CONTROL SYSTEM



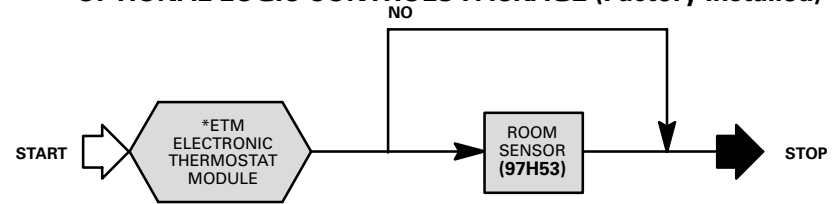
OPTIONAL T7300 CONTROL SYSTEM



OPTIONAL T8600 OR T8621 THERMOSTAT CONTROL SYSTEM



OPTIONAL LOGIC CONTROLS PACKAGE (Factory Installed)



*Includes Return Air Sensor, Blower Proving Switch, Dirty Filter Switch and Discharge Air Monitor factory installed in unit.

SPECIFICATIONS — CHA24-1853, -2553, -2753 & -3003

Model No.		CHA24-1853	CHA24-2553	CHA24-2753	CHA24-3003	
Cooling Ratings	Gross Cooling Capacity — Btuh (kW)	184,000 (53.9)	224,600 (65.8)	244,800 (71.7)	294,600 (86.3)	
	*Total Cooling Capacity — Btuh (kW)	177,000 (51.9)	216,000 (63.3)	232,000 (68.0)	▲280,000 (82.0)	
	*Total Unit Watts	17,700	21,600	24,400	▲31,100	
	*EER (Btuh/Watts)	10.0	10.0	9.5	▲9.0	
	*†Integrated Part Load Value	10.5	10.8	10.3	▲9.1	
Refrigerant Charge (HCFC-22)	Circuit 1	8 lbs.0 oz. (3.63 kg)	8 lbs.4 oz. (3.74 kg)	8 lbs.8 oz. (3.86 kg)	10 lbs.4 oz. (4.65 kg)	
	Circuit 2	8 lbs.0 oz. (3.63 kg)	8 lbs.4 oz. (3.74 kg)	8 lbs.8 oz. (3.86 kg)	10 lbs.4 oz. (4.65 kg)	
	Circuit 3	8 lbs.0 oz. (3.63 kg)	8 lbs.4 oz. (3.74 kg)	8 lbs.8 oz. (3.86 kg)	10 lbs.4 oz. (4.65 kg)	
	Circuit 4	----	8 lbs.4 oz. (3.74 kg)	8 lbs.8 oz. (3.86 kg)	10 lbs.4 oz. (4.65 kg)	
Evaporator Blower and Drive Selection	Blower wheel nom. dia. x width — in. (mm)		18 x 18 (457 x 457)	20 x 18 (508 x 457)		
	Factory Installed **Drives	Nominal motor output — hp (W)	3 (2238)	5 (3730)		7.5 (5595)
		Max. usable motor output — hp (W)	3.45 (2574)	5.75 (4290)		8.6 (6415)
		Voltage & phase	208/230v, 460v or 575v-3ph			
		RPM range	610 — 780	660 — 840		610 — 780
	Optional Factory Installed **Drives	Nominal motor horsepower (W)	5 (3730)	7.5 (5595)		10 (7460)
		Max. usable motor output — hp (W)	5.75 (4290)	8.6 (6415)		11.5 (8580)
		Voltage & phase	208/230v, 460v or 575v-3ph			
RPM range		770 — 980	750 — 905		770 — 980	
Evaporator Coil	Net face area — sq. ft. (m ²)		16.0 (1.49)	21.0 (1.95)		
	Tube diameter — in. (mm) & No. of rows		3/8 (9.5) — 3	3/8 (9.5) — 3		
	Fins per inch (m)		13 (512)	13 (512)		
	Drain connection no. & size — in. (mm) mpt		(1) 1 (25)	(2) 1 (25)		
	Expansion device type		Thermostatic Expansion Valve			
Condenser Coil	Net face area — sq. ft. (m ²)		35.4 (3.29)	48.5 (4.51)		
	Tube diameter — in. (mm) & No. of rows		3/8 (9.5) — 2	3/8 (9.5) — 2		
	Fins per inch (m)		20 (787)	20 (787)		
Condenser Fans	Diameter — in. (mm) & No. of blades		(2) 26 (660) — 4	(2) 26 (660) — 4		
	Air volume — cfm (L/s)		13,800 (6510) total	14,000 (6605) total		
	Motor horsepower (W)		(2) 1 (746)	(2) 1 (746)		
	Motor rpm		1075	1130		
	Motor watts		2300	1900		
Filters (furnished)	Type of filter		Disposable, commercial grade			
	No. & size — in. (mm)		(4) 24 x 24 x 2 (610 x 610 x 51)	(6) 20 x 25 x 2 (508 x 635 x 51)		
Net weight of basic unit — lbs. (kg)		1800 (816)	2100 (953)	2100 (953)	2420 (1098)	
Shipping weight of basic unit — lbs. (kg) (1 Package)		2040 (925)	2375 (1077)	2375 (1077)	2725 (1236)	
Electrical characteristics		208/230v, 460v or 575v — 60 hertz — 3 phase				

*Rated in accordance with ARI Standard 360; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air; minimum external duct static pressure.

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

▲Testing conditions are those included in ARI Standard 360-86.

NOTE — ARI capacity is net and includes evaporator blower motor heat deduction. Gross capacity does not include evaporator blower motor heat deduction.

**Using total air volume and system static pressure requirements determine from blower performance tables rpm and motor output required. Maximum usable output of motors furnished by Lennox are shown. In Canada, nominal motor output is also maximum usable motor output. If motors of comparable output are used, be sure to keep within the service factor limitations outlined on the motor nameplate.

OPTIONAL FIELD INSTALLED ACCESSORIES – CHA24-1853

Unit Model No.		CHA24-1853	
Electric Heat (also see Electric Heat Data Tables)	Model No.	ECH16-185/275	
	kW input range	15-30-45-60-75	
	*Fuse Block	208/230 volt – 3 hp (2238 W) motor	29H26 (90 amp)
		208/230 volt – 5 hp (3730 W) motor	29H27 (100 amp)
		460 volt	29H31 (50 amp)
		575 volt – 3 hp (2238 W) motor	29H28 (30 amp)
575 volt – 5 hp (3730 W) motor		29H29 (35 amp)	
Roof Mounting Frame – (Net Weight)		RMF16-185 (127 lbs.) (12H05)	
Economizer Dampers with Gravity Exhaust– (Net Weight) No. & size of filters – in. (mm)		REMD16M-185 (160 lbs.) (40H14) (2) 25 x 25 x 1 (635 x 635 x 25)	
Differential Enthalpy Control		54G44	
Power Exhaust Fans (Down-Flo Only)	Model No. (Net Weight)	208/230 volt	PED16-185 (60 lbs.) (27 kg) (12H16)
		460 volt	PED16-185 (60 lbs.) (27 kg) (12H17)
		575 volt	PED16-185 (60 lbs.) (27 kg) (12H18)
	Diameter – in. (mm) & No. of Blades		(2) 16 (406) – 5
	Total air volume – cfm (L/s)		4200 (1980)
	Motor Horsepower (W)		(2) 1/4 (187)
	Watts Input (total)		500
Horizontal Supply and Return Air Kit (LB-55756BD) – (Net Weight)		12H04 (52 lbs.) (24 kg)	
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-Down	RTD11-185 (392 lbs.) (178 kg) (29G06)	
	Flush	FD11-185 (289 lbs.) (131 kg) (29G10)	
	Transition	SRT16-185 (75 lbs.) (34 kg) (97H12)	
Outdoor Air Dampers – (Net Weight) No. & size of filters – in. (mm)		OAD16-185 (120 lbs.) (54 kg) (12H03) (1) 25 x 27 x 1 (635 x 686 x 25)	
Automatic OAD16 Damper Kit – (Net Weight)		35G21 (7 lbs.) (3 kg)	
Timed-Off Control (2) LB-50709BA		40G20	

*Must be ordered extra. Factory installed heaters will have fuse block installed. Fuse block must be field installed in field installed heaters.

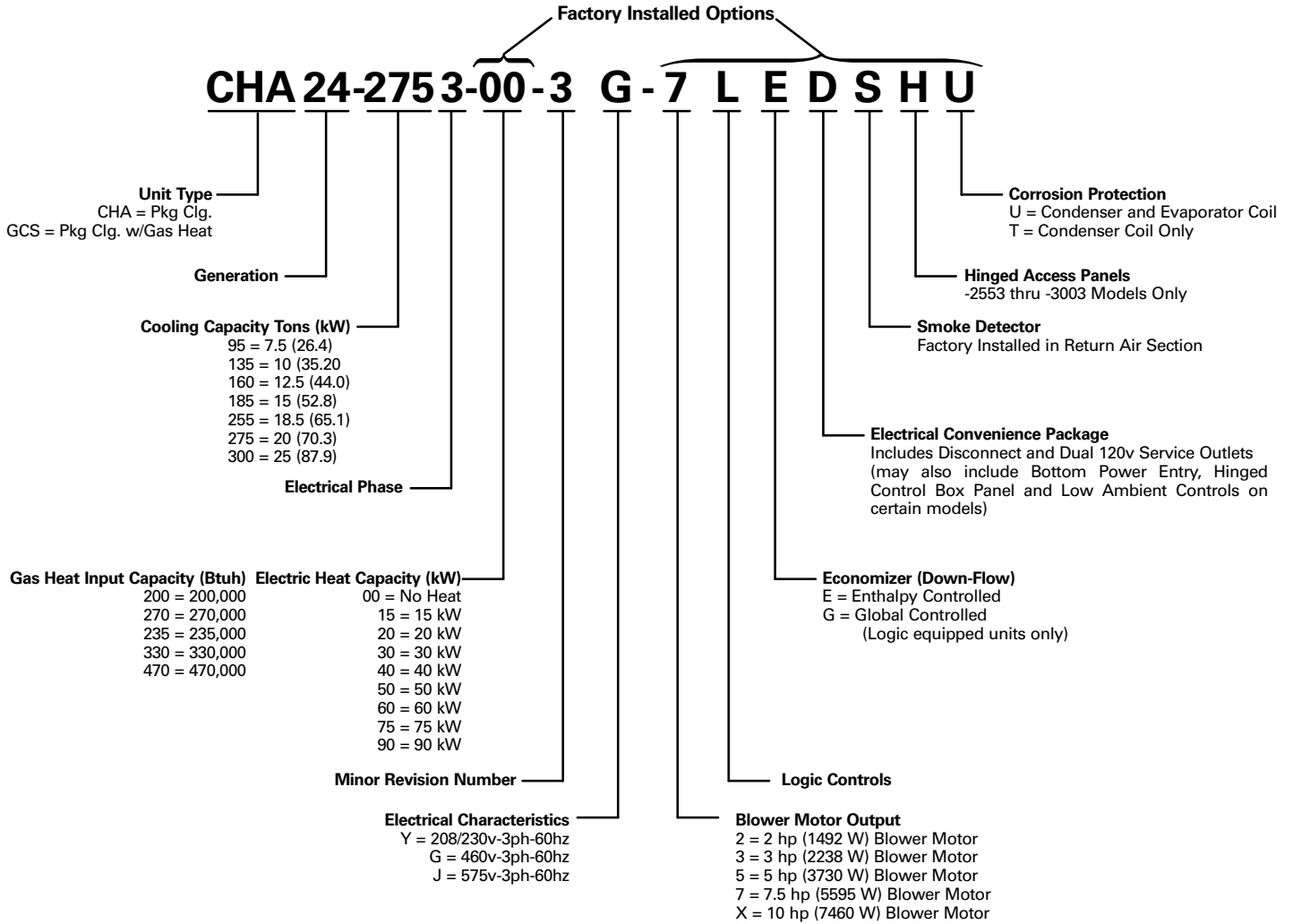
OPTIONAL FIELD INSTALLED ACCESSORIES – CHA24-2553, -2753 & -3003

Unit Model No.		CHA24-2553, CHA24-2753 & CHA24-3003			
Electric Heat (also see Electric Heat Data Tables)	Model No.	ECH16-185/275 & ECH16-275/300			
	kW input range	30-45-60-75 (185/275) & -90 (275/300)			
	*Fuse Block	Unit Model No.	CHA24-2553	CHA24-2753	CHA24-3003
		208/230 volt – 5 hp (3730 W) motor	50H26 (110 amp)		----
		208/230 volt – 7.5 hp (5595 W) motor	50H27 (125 amp)		50H28 (150 amp)
		208/230 volt – 10 hp (7460 W) motor	----		
		460 volt – 5 hp (3730 W) motor	29H31 (50 amp)	50H30 (60 amp)	----
		460 volt – 7.5 hp (5595 W) motor			50H31 (70 amp)
		460 volt – 10 hp (7460 W) motor	----		
		575 volt – 5 hp (3730 W) motor	29H30 (40 amp)	50H33 (45 amp)	----
		575 volt – 7.5 hp (5595 W) motor	50H33 (45 amp)	29H31 (50 amp)	50H30 (60 amp)
		575 volt – 10 hp (7460 W) motor	----		
Roof Mounting Frame – (Net Weight)		RMF16-300 (180 lbs.) (82 kg) (41H04)			
Economizer Dampers with Gravity Exhaust – (Net Weight) No. & size of filters – in. (mm)		REMD16M-300 (210 lbs.) (95 kg) (44H47) (3) 20 x 25 x 1 (508 x 635 x 25)			
Differential Enthalpy Control		54G44			
Power Exhaust Fans (Down-Flo Only)	Model No. (Net Weight)	208/230v	PED16-300 (91 lbs.) (41 kg) (44H79)		
		460v	PED16-300 (91 lbs.) (41 kg) (44H80)		
		575v	PED16-300 (91 lbs.) (41 kg) (44H81)		
	Diameter – in. (mm) & No. of Blades		(3) 16 (406) – 5		
	Total air volume – cfm (L/s)		6300 (2975)		
	Motor Horsepower (W)		(3) 1/4 (187)		
	Watts Input (total)		750		
Horizontal Supply and Return Air Kit (LB-55756BE) – (Net Weight)		41H23 (60 lbs.) (27 kg)			
Ceiling Supply and Return Air Diffusers (Net Weight)	Step-Down	RTD11-275 (403 lbs.) (183 kg) (29G07)			
	Flush	FD11-275 (363 lbs.) (165 kg) (29G11)			
	Transition	SRT16-300 (120 lbs.) (54 kg) (97H13)			
Outdoor Air Dampers – (Net Weight) No. & size of filters – in. (mm)		OAD16-300 (84 lbs.) (38 kg) (40H47) (1) 26 x 31 x 1 (660 x 787 x 25)			
Automatic OAD16 Damper Kit – (Net Weight)		35G21 (7 lbs.) (3 kg)			
Timed-Off Control (2) LB-50709BA		40G20			

*Must be ordered extra. Factory installed heaters will have fuse block installed. Fuse block must be field installed in field installed heaters.

MODEL NUMBER IDENTIFICATION

NOTE – See Factory Installed Options Selection on Next Page For Complete Description Of Available Accessories.
 NOTE – This example shows all possible combinations available.



FACTORY INSTALLED OPTIONS SELECTION

CHA24-1853

Packaged Unit Model No.	Voltage Selection 3 phase 60hz	Blower Motor (Select One)	Electric Heat (Select One)	Electrical Convenience Package (D)	Economizer Package (E) or (G)	Smoke Detector Package (S)	Corrosion Protection Package (T) or (U)
CHA24-1853 Basic unit includes: -Hinged Control Box - Hinged Filter Access - Bottom Power Entry - Low Ambient Controls	208/230v	3 hp (2238W)	None 15kW 30kW	Unit Disconnect Installed and Wired. Dual 120v GFCI Service Outlets (Field Wired)	Down-Flow Economizer With Gravity Exhaust Installed and Wired (E) Enthalpy Controlled or (G) Globally Controlled	Photoelectric Smoke Detector Installed and Wired In Return Air Section	Corrosion Resistant Coating Applied To Both Condenser And Evaporator Coils With Painted Base in Condensing And Evaporator Sections And Painted Blower Housing (U) Or Condenser Coil Only With Painted Base Condensing Section(T)
		5 hp (3730W)	45kW 60kW				
	460V	3 hp (2238W)	None 15kW 30kW				
		5 hp (3730W)	45kW 60kW				
	575v	3 hp (2238W)	None 15kW 30kW				
		5 hp (3730W)	45kW 60kW				

CHA24-2553-2753

Packaged Unit Model No.	Voltage Selection 3 phase 60hz	Blower Motor (Select One)	Electric Heat (Select One)	Electrical Convenience Package (D)	Economizer Package (E) or (G)	Smoke Detector Package (S)	Hinged Panel Package (H)	Corrosion Protection Package (T) or (U)
CHA24-2553 CHA24-2753 Basic unit includes: -Hinged Control Box - Hinged Filter Access - Bottom Power Entry - Low Ambient Controls	208/230v	5 hp (3730W)	None 30kW 45kW 60kW 75kW	Unit Disconnect Installed and Wired. Dual 120v GFCI Service Outlets (Field Wired)	Down-Flow Economizer With Gravity Exhaust Installed and Wired (E) Enthalpy Controlled or (G) Globally Controlled	Photoelectric Smoke Detector Installed and Wired In Return Air Section	Two Compressor Panels, Two Blower Panels And One Electric Heat Service Panel Hinged With Quarter Turn Latches	Corrosion Resistant Coating Applied To Both Condenser And Evaporator Coils With Painted Base in Condensing And Evaporator Sections And Painted Blower Housing (U) Or Condenser Coil Only With Painted Base Condensing Section(T)
		7.5 hp (5595)	45kW 60kW 75kW					
	460V	5 hp (3730W)	None 30kW 45kW 60kW 75kW 90kW					
		7.5 hp (5595)	75kW 90kW					
	575v	5 hp (3730W)	None 15kW 30kW 45kW 60kW 75kW 90kW					
		7.5 hp (5595)	45kW 60kW 75kW 90kW					

CHA24-3003

Packaged Unit Model No.	Voltage Selection 3 phase 60hz	Blower Motor (Select One)	Electric Heat (Select One)	Electrical Convenience Package (D)	Economizer Package (E) or (G)	Smoke Detector Package (S)	Hinged Panel Package (H)	Corrosion Protection Package (T) or (U)
CHA24-3003 Basic unit includes: -Hinged Control Box -Hinged Filter Access -Bottom Power Entry -Low Ambient Controls	208/230v	7.5 hp (5595)	None 30kW 45kW 60kW 75kW	Unit Disconnect Installed and Wired. Dual 120v GFCI Service Outlets (Field Wired)	Down-Flow Economizer With Gravity Exhaust Installed and Wired (E) Enthalpy Controlled or (G) Globally Controlled	Photoelectric Smoke Detector Installed and Wired In Return Air Section	Two Compressor Panels, Two Blower Panels And One Electric Heat Service Panel Hinged With Quarter Turn Latches	Corrosion Resistant Coating Applied To Both Condenser And Evaporator Coils With Painted Base in Condensing And Evaporator Sections And Painted Blower Housing (U) Or Condenser Coil Only With Painted Base Condensing Section(T)
		10 hp (7460)	45kW 60kW 75kW					
	460V	7.5 hp (5595)	None 30kW 45kW 60kW 75kW 90kW					
		10 hp (7460)	75kW 90kW					
	575v	7.5 hp (5595)	None 15kW 30kW 45kW 60kW 75kW 90kW					
		10 hp (7460)	45kW 60kW 75kW 90kW					

All MODELS

Packaged Unit Model No.	Logic Controls Package (L)
All Models	Controls for Logic Control System factory installed

ELECTRICAL DATA — CHA24-1853 & -2553

Model No.		CHA24-1853						CHA24-2553						
Line voltage data — 60 hz — 3 phase		208/230v		460v		575v		208/230v		460v		575v		
Compressors (3 -1853) (4 -2553)	Rated load amps each (total)	(3) 17.3 (51.9)		(3) 9.0 (27.0)		(3) 7.1 (21.3)		(4) 17.9 (71.6)		(4) 6.7 (26.8)		(4) 5.8 (23.2)		
	Locked rotor amps each (total)	(3) 123.0 (369.0)		(3) 62.0 (186.0)		(3) 50.0 (150.0)		(4) 129.0 (516.0)		(4) 52.0 (208.0)		(4) 39.6 (158.4)		
Condenser Fan Motors	Full load amps (total)	9.6		4.8		4.0		9.6		4.8		4.0		
	Locked rotor amps (total)	24.0		12.0		9.6		46.0		27.0		17.8		
Evaporator Blower Motor	Motor Output	hp	3	5	3	5	3	5	5	7-1/2	5	7-1/2	5	7-1/2
		W	2238	3730	2238	3730	2238	3730	3730	5595	3730	5595	3730	5595
	Full load amps (total)	10.6	16.7	4.8	7.6	3.9	6.1	16.7	24.2	7.6	11.0	6.1	9.0	
	Locked rotor amps (total)	58.0	91.0	26.8	45.6	23.4	36.6	105.0	152.0	45.6	66.0	36.6	54.0	
Optional Power Exhaust Fans	(No.) Horsepower (W)	(2) — 1/4 (187)						(3) — 1/4 (187)						
	Full load amps (total)	2.8		1.4		1.2		4.2		2.2		2.1		
	Locked rotor amps (total)	6.5		3.3		2.8		8.7		3.9		3.9		
Rec. max. fuse size (amps)	With Exhaust Fans	90	100	45	50	35	40	110	125	50	50	40	45	
	Less Exhaust Fans	90	90	45	50	35	40	110	125	45	50	40	45	
*Minimum Circuit Ampacity	With Exhaust Fans	80.0	86.0	41.0	44.0	33.0	35.0	107.0	116.0	43.0	48.0	37.0	41.0	
	Less Exhaust Fans	77.0	83.0	39.0	42.0	31.0	34.0	98.0	107.0	40.0	46.0	33.0	37.0	
Service Outlets (2) 120 volt GFCI (amp rating)		20		20		20		20		20		20		
Unit Power Factor		.84		.84		.84		.88		.88		.88		

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10 % of line voltage.

ELECTRICAL DATA — CHA24-2753 & -3003

Model No.		CHA24-2753						CHA24-3003						
Line voltage data — 60 hz — 3 phase		208/230v		460v		575v		208/230v		460v		575v		
Compressors (4)	Rated load amps each (total)	(4) 17.3 (69.2)		(4) 9.0 (36.0)		(4) 7.1 (28.4)		(4) 21.8 (87.2)		(4) 12.2 (48.8)		(4) 9.0 (36.0)		
	Locked rotor amps each (total)	(4) 123.0 (492.0)		(4) 62.0 (248.0)		(4) 50.0 (200.0)		(4) 158.0 (632.0)		(4) 82.0 (328.0)		(4) 68 (272.0)		
Condenser Fan Motors	Full load amps (total)	9.6		4.8		4.0		9.6		4.8		4.0		
	Locked rotor amps (total)	46.0		23.0		17.8		46.0		23.0		17.8		
Evaporator Blower Motor	Motor Output	hp	5	7-1/2	5	7-1/2	5	7-1/2	7-1/2	10	7-1/2	10	7-1/2	10
		W	3730	5595	3730	5595	3730	5595	5595	7460	5595	7460	5595	7460
	Full load amps (total)	16.7	24.2	7.6	11.0	6.1	9.0	24.2	30.8	11.0	14.0	9.0	11.0	
	Locked rotor amps (total)	105.0	152.0	45.6	66.0	36.6	54.0	152.0	193.0	66.0	84.0	54.0	66.0	
Optional Power Exhaust Fans	(No.) Horsepower (W)	(3) — 1/4 (187)						(3) — 1/4 (187)						
	Full load amps (total)	4.2		2.2		2.1		4.2		2.2		2.1		
	Locked rotor amps (total)	8.7		3.9		3.9		8.7		3.9		4.2		
Rec. max. fuse size (amps)	With Exhaust Fans	110	125	60	60	45	50	150	150	80	80	60	60	
	Less Exhaust Fans	110	125	50	60	45	50	150	150	70	80	60	60	
*Minimum Circuit Ampacity	With Exhaust Fans	104.0	113.0	52.0	57.0	42.0	46.0	131.0	140.0	69.0	73.0	53.0	56.0	
	Less Exhaust Fans	100.0	109.0	50.0	54.0	41.0	45.0	127.0	136.0	67.0	71.0	51.0	54.0	
Service Outlets (2) 120 volt GFCI (amp rating)		20		20		20		20		20		20		
Unit Power Factor		.88		.88		.88		.89		.89		.89		

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
NOTE — Extremes of operating range are plus and minus 10 % of line voltage.

W973 CONTROL SYSTEM

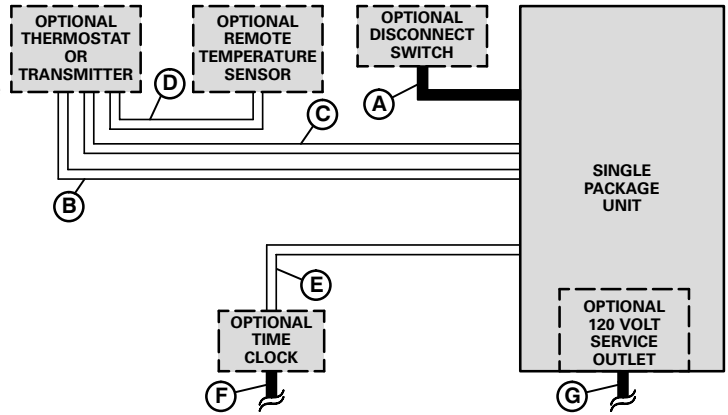
- A — Three wire power (See Electrical Data Table)
- B — Seven wire low voltage — DC only
- Seven wire low voltage — DC only — with switching subbase
- C — Two wire low voltage — AC only — with switching subbase
- D — Two wire low voltage — DC only
- E — Two wire low voltage — AC only
- F — Two wire low voltage — AC only
- G — Two wire power (120 volt)

AC — Alternating current
DC — Direct current

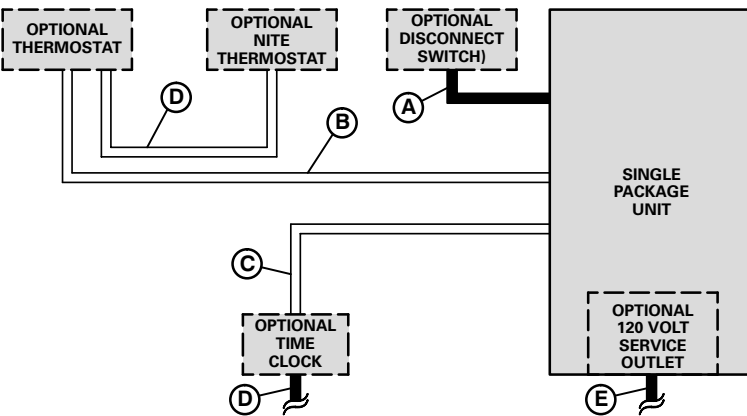
NOTE — Run separate harnesses for AC and DC.
AC voltage interferes with DC signals.

— Field wiring not furnished —

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



ELECTRO-MECHANICAL THERMOSTAT CONTROL SYSTEM



- A — Three wire power (See Electrical Data Table)
- B — Six wire low voltage
- C — Two wire low voltage
- D — Two wire low voltage
- E — Two wire power (120 volt)

— Field wiring not furnished —

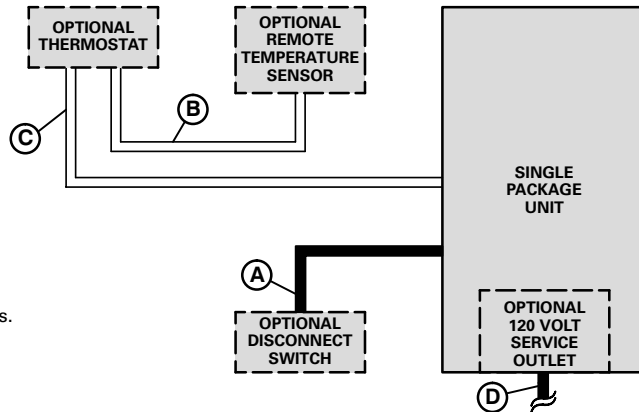
NOTE — All wiring must conform to NEC or CEC and local electrical codes.

W7400 CONTROL SYSTEM

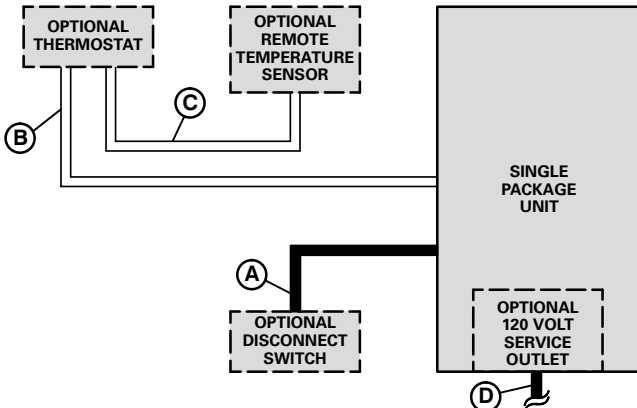
- A — Three wire power (See Electrical Data Table)
- B — Two wire low voltage
- C — Four wire low voltage
- D — Two wire power (120 volt)

— Field wiring not furnished —

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



T7300, T8600 OR T8621 THERMOSTAT CONTROL SYSTEM



- A — Three wire power (See Electrical Data Table)
- B — Nine wire low voltage
- C — Two wire low voltage
- Seven wire low voltage (T7300 Room Sensor with override)
- D — Two wire power (120 volt)

— Field wiring not furnished —

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

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

CHA24-1853 MODELS

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity	
					3 hp (2238W)	5 hp (3730W)
ECH16-185-15 208/230v (24H27) 460v (24H32) 575v (24H38) 47 lbs. (21 kg)	1	208	11.3	38,600	80.0	86.0
		220	12.6	43,000	79.0	84.0
		230	13.5	46,100		
	1	240	15.0	51,200	41.0	44.0
		440	12.6	43,000		
		460	13.8	46,100		
	1	480	15.0	51,200	33.0	35.0
		550	12.6	43,000		
		575	13.8	46,100		
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575v (24H39) 51 lbs. (23 kg)	**2	208	22.5	76,800	92.0	100.0
		220	25.2	86,000	103.0	110.0
		230	27.5	93,900		
	1	240	30.0	120,400	52.0	55.0
		440	25.2	86,000		
		460	27.5	93,900		
	1	480	30.0	102,400	41.0	44.0
		550	25.2	86,000		
		575	27.5	93,900		
ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	**3	208	33.8	115,300	131.0	139.0
		220	37.8	129,000	148.0	155.0
		230	41.3	141,000		
	**2	240	45.0	153,600	74.0	78.0
		440	37.8	129,000		
		460	41.3	141,000		
	**2	480	45.0	153,600	59.0	62.0
		550	37.8	129,000		
		575	41.3	141,000		
ECH16-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	**4	208	45.0	153,600	139.0	147.0
		220	50.4	172,000	157.0	164.0
		230	55.1	188,000		
	**2	240	60.0	204,800	79.0	82.0
		440	50.4	172,000		
		460	55.1	188,000		
	**2	480	60.0	204,800	63.0	66.0
		550	50.4	172,000		
		575	55.1	188,000		
ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs. (40 kg)	**3	440	63.0	215,000	97.0	100.0
		460	68.9	235,100		
		480	75.0	255,900		
	**3	550	63.0	215,000	78.0	80.0
		575	68.9	235,100		
		600	75.0	255,900		

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).
 **May be used with two stage control.
 NOTE — Fuse block must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be installed in field installed heaters. See Optional Accessories tables.

CHA24-2553 MODELS

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity	
					5 hp (3730W)	7.5 hp (5595W)
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575v (24H39) 51 lbs. (23 kg)	**2	208	22.5	76,800	107.0	116.0
		220	25.2	86,000	111.0	121.0
		230	27.5	93,900		
	1	240	30.0	102,400	55.0	59.0
		440	25.2	86,000		
		460	27.5	93,900		
	1	480	30.0	104,400	44.0	47.0
		550	25.2	86,000		
		575	27.5	93,900		
ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	**3	208	33.8	115,300	138.0	148.0
		220	37.8	129,000	156.0	166.0
		230	41.3	141,000		
	**2	240	45.0	153,600	77.0	82.0
		440	37.8	129,000		
		460	41.3	141,000		
	**2	480	45.0	153,600	62.0	65.0
		550	37.8	129,000		
		575	41.3	141,000		
ECH16-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	**4	208	45.0	153,600	177.0	187.0
		220	50.4	172,000	165.0	175.0
		230	55.1	188,100		
	**2	240	60.0	204,800	82.0	86.0
		440	50.4	172,000		
		460	55.1	188,100		
	**2	480	60.0	204,800	65.0	69.0
		550	50.4	172,000		
		575	55.1	188,100		
ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs. (40 kg)	**5	208	56.3	192,200	177.0	187.0
		220	63.0	215,000	201.0	211.0
		230	68.9	235,000		
	**3	240	75.0	255,900	100.0	104.0
		440	63.0	215,000		
		460	68.9	235,000		
	**3	480	75.0	255,900	80.0	84.0
		550	63.0	215,000		
		575	68.9	235,000		
ECH16-275/300-90 460v (24H37) 575v (24H43) 92 lbs. (42 kg)	**3	440	75.6	258,000	118.0	122.0
		460	82.7	282,000		
		480	90.0	307,100		
	**3	550	75.6	258,000	94.0	98.0
		575	82.7	282,000		
		600	90.0	307,100		

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).
 **May be used with two stage control.
 NOTE — Fuse block must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be installed in field installed heaters. See Optional Accessories tables.

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

CHA24-2753 MODELS

CHA24-3003 MODELS

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity	
					5 hp (3730W)	7.5 hp (5595W)
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575v (24H39) 51 lbs. (23 kg)	**2	208	22.5	76,800	104.0	110.0
		220	25.2	86,000	111.0	121.0
		230	27.5	93,900		
		240	30.0	102,400		
	1	440	25.2	86,000	55.0	59.0
		460	27.5	93,900		
		480	30.0	104,400		
	1	550	25.2	86,000	44.0	47.0
		575	27.5	93,900		
600		30.0	104,400			
ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	**3	208	33.8	115,300	138.0	148.0
		220	37.8	129,000	156.0	166.0
		230	41.3	141,000		
		240	45.0	153,600		
	**2	440	37.8	129,000	77.0	82.0
		460	41.3	141,000		
		480	45.0	153,600		
	**2	550	37.8	129,000	62.0	65.0
		575	41.3	141,000		
600		45.0	153,600			
ECH16-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	**4	208	45.0	153,600	177.0	187.0
		220	50.4	172,000	165.0	175.0
		230	55.1	188,100		
		240	60.0	204,800		
	**2	440	50.4	172,000	82.0	86.0
		460	55.1	188,100		
		480	60.0	204,800		
	**2	550	50.4	172,000	65.0	69.0
		575	55.1	188,100		
600		60.0	204,800			
ECH16-275/300-75 208/230v (24H31) ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs. (40 kg)	**5	208	56.3	192,200	177.0	187.0
		220	63.0	215,000	201.0	211.0
		230	68.9	235,000		
		240	75.0	255,900		
	**3	440	63.0	215,000	100.0	104.0
		460	68.9	235,000		
		480	75.0	255,900		
	**3	550	63.0	215,000	80.0	84.0
		575	68.9	235,000		
600		75.0	255,900			
ECH16-275/300-90 460v (24H37) 575v (24H43) 92 lbs. (42 kg)	**3	440	75.6	258,000	118.0	122.0
		460	82.7	282,000		
		480	90.0	307,100		
	**3	550	75.6	258,000	94.0	98.0
		575	82.7	282,000		
		600	90.0	307,100		

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity		
					7.5 hp (5595W)	10 hp (7460W)	
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575v (24H39) 51 lbs. (23 kg)	**2	208	22.5	76,800	131.0	140.0	
		220	25.2	86,000			
		230	27.5	93,900			
		240	30.0	102,400			
	1	440	25.2	86,000	62.0	66.0	
		460	27.5	93,900			
		480	30.0	104,400			
		550	25.2	86,000			
		575	27.5	93,900			
600	30.0	104,400	53.0	56.0			
	ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	**3	208	33.8	115,300	148.0	156.0
			220	37.8	129,000	166.0	174.0
230			41.3	141,000			
240			45.0	153,600			
**2		440	37.8	129,000	82.0	85.0	
		460	41.3	141,000			
		480	45.0	153,600			
**2		550	37.8	129,000	65.0	68.0	
		575	41.3	141,000			
	600	45.0	153,600				
ECH16-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	**4	208	45.0	153,600	187.0	195.0	
		220	50.4	172,000	175.0	183.0	
		230	55.1	188,100			
		240	60.0	204,800			
	**2	440	50.4	172,000	86.0	90.0	
		460	55.1	188,100			
		480	60.0	204,800			
	**2	550	50.4	172,000	69.0	72.0	
		575	55.1	188,100			
600		60.0	204,800				
ECH16-275/300-75 208/230v (24H31) ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs. (40 kg)	**5	208	56.3	192,200	187.0	195.0	
		220	63.0	215,000	211.0	219.0	
		230	68.9	235,000			
		240	75.0	255,900			
	**3	440	63.0	215,000	104.0	108.0	
		460	68.9	235,000			
		480	75.0	255,900			
	**3	550	63.0	215,000	84.0	86.0	
		575	68.9	235,000			
600		75.0	255,900				
ECH16-275/300-90 460v (24H37) 575v (24H43) 92 lbs. (42 kg)	**3	440	75.6	258,000	122.0	126.0	
		460	82.7	282,000			
		480	90.0	307,100			
	**3	550	75.6	258,000	98.0	100.0	
		575	82.7	282,000			
		600	90.0	307,100			

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**May be used with two stage control.

NOTE — Fuse block must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be installed in field installed heaters. See Optional Accessories tables.

*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 167°F (75°C).

**May be used with two stage control.

NOTE — Fuse block must be ordered extra. Factory installed heaters will have the fuse block factory installed. Fuse block must be installed in field installed heaters. See Optional Accessories tables.

BLOWER DATA

CHA16-1853 BLOWER PERFORMANCE

Air Volume cfm (L/s)	STATIC PRESSURE EXTERNAL TO UNIT – Inches Water Gauge																			
	.20 (50)		.40 (100)		.50 (125)		.70 (175)		.80 (200)		.90 (225)		1.00 (250)		1.10 (275)		1.30 (325)		1.50 (375)	
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)
5000 (2360)	540	1.50 (1.12)	600	1.70 (1.27)	640	1.80 (1.34)	690	2.20 (1.64)	720	2.25 (1.68)	740	2.40 (1.79)	765	2.60 (1.94)	785	2.75 (2.05)	830	3.00 (2.24)	870	3.20 (2.39)
5200 (2455)	555	1.60 (1.19)	615	1.80 (1.34)	650	2.10 (1.57)	700	2.30 (1.72)	730	2.40 (1.79)	750	2.50 (1.87)	775	2.75 (2.05)	795	2.80 (2.09)	840	3.20 (2.39)	880	3.50 (2.61)
5400 (2550)	570	1.70 (1.27)	630	2.00 (1.49)	660	2.25 (1.68)	710	2.40 (1.79)	740	2.50 (1.87)	760	2.70 (2.01)	785	2.80 (2.09)	810	3.00 (2.24)	850	3.30 (2.46)	890	3.75 (2.80)
5600 (2645)	580	1.75 (1.31)	640	2.25 (1.68)	670	2.30 (1.72)	725	2.55 (1.90)	750	2.70 (2.01)	775	2.85 (2.13)	795	3.00 (2.24)	820	3.20 (2.39)	860	3.50 (2.61)	905	3.95 (2.95)
5800 (2735)	600	2.00 (1.49)	655	2.35 (1.75)	685	2.50 (1.87)	740	2.75 (2.05)	765	2.90 (2.16)	785	3.10 (2.31)	805	3.25 (2.42)	830	3.35 (2.50)	870	3.70 (2.76)	915	4.20 (3.13)
6000 (2830)	615	2.20 (1.64)	670	2.60 (1.94)	695	2.65 (1.98)	750	2.95 (2.20)	775	3.15 (2.35)	795	3.30 (2.46)	820	3.50 (2.61)	840	3.65 (2.72)	880	4.05 (3.02)	925	4.45 (3.32)
6200 (2925)	630	2.40 (1.79)	685	2.75 (2.05)	715	2.90 (2.16)	765	3.20 (2.39)	785	3.40 (2.54)	810	3.60 (2.69)	830	3.80 (2.83)	850	3.90 (2.91)	895	4.30 (3.21)	935	4.75 (3.54)
6400 (3020)	645	2.55 (1.90)	700	2.90 (2.16)	725	3.05 (2.28)	775	3.40 (2.54)	800	3.70 (2.76)	820	3.75 (2.80)	845	4.00 (2.98)	860	4.25 (3.17)	905	4.60 (3.43)	940	5.00 (3.73)
6600 (3115)	660	2.80 (2.09)	715	3.15 (2.35)	740	3.25 (2.42)	790	3.65 (2.72)	810	3.90 (2.91)	835	4.10 (3.06)	850	4.20 (3.13)	875	4.50 (3.36)	915	4.80 (3.58)	955	5.30 (3.95)
6800 (3210)	670	3.00 (2.24)	730	3.40 (2.54)	760	3.55 (2.64)	800	3.95 (2.95)	825	4.15 (3.10)	845	4.40 (3.28)	865	4.50 (3.36)	890	4.90 (3.66)	930	5.20 (3.88)	965	5.60 (4.18)
7000 (3305)	695	3.30 (2.46)	745	3.60 (2.69)	770	3.75 (2.80)	815	4.20 (3.13)	840	4.50 (3.36)	860	4.65 (3.47)	880	4.90 (3.66)	900	5.05 (3.77)	950	5.60 (4.18)	-----	-----
7200 (3400)	710	3.55 (2.65)	760	3.85 (2.87)	785	4.15 (3.10)	830	4.55 (3.39)	850	4.70 (3.52)	870	4.95 (3.69)	895	5.30 (3.95)	915	5.65 (4.21)	-----	-----	-----	-----
7400 (3490)	730	3.75 (2.80)	775	4.10 (3.06)	800	4.40 (3.28)	840	4.70 (3.51)	860	5.00 (3.73)	880	5.25 (3.92)	900	5.40 (4.03)	925	5.70 (4.25)	-----	-----	-----	-----
7600 (3385)	740	3.90 (2.91)	785	4.35 (3.25)	810	4.60 (3.43)	850	4.95 (3.69)	870	5.15 (3.84)	890	5.40 (4.03)	920	5.60 (4.18)	-----	-----	-----	-----	-----	-----

NOTE – All data is measured external to the unit with dry coil and with the air filters in place. See Page 21 for Accessory Air Resistance data.

NOTE – Data in shaded area denotes optional 5 hp (3730 W) drive kit.

NOTE – In Canada, nominal motor output is also maximum usable motor output.

BLOWER DATA — CHA24-2553, -2753 & -3003

Air Volume cfm (L/s)	STATIC PRESSURE EXTERNAL TO UNIT — Inches Water Gauge																	
	.30 (75)	.40 (100)	.50 (125)	.60 (150)	.70 (175)	.80 (200)	.90 (225)	1.00 (250)	1.10 (275)	1.20 (300)	1.30 (325)	1.40 (350)	1.50 (375)	1.60 (400)	1.70 (425)	1.80 (450)	1.90 (470)	2.00 (490)
	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)	RPM BHP (kW)
6000 (2830)	465 1.60 (1.19)	495 1.80 (1.34)	520 1.95 (1.45)	545 2.15 (1.60)	565 2.30 (1.72)	590 2.45 (1.83)	610 2.65 (1.98)	635 2.85 (2.13)	655 3.00 (2.24)	675 3.20 (2.39)	695 3.40 (2.54)	710 3.55 (2.65)	730 3.75 (2.80)	750 4.00 (2.98)	765 4.15 (3.10)	785 4.40 (3.28)	800 4.60 (3.43)	815 4.75 (3.54)
6250 (2950)	480 1.80 (1.34)	505 1.95 (1.45)	530 2.15 (1.60)	555 2.30 (1.72)	575 2.45 (1.83)	600 2.65 (1.98)	620 2.85 (2.13)	640 3.00 (2.24)	665 3.25 (2.42)	680 3.40 (2.54)	700 3.60 (2.69)	720 3.80 (2.83)	740 4.00 (2.98)	755 4.20 (3.13)	775 4.45 (3.32)	790 4.60 (3.43)	810 4.85 (3.62)	825 5.05 (3.77)
6500 (3065)	490 1.95 (1.45)	515 2.15 (1.60)	540 2.30 (1.72)	565 2.50 (1.87)	585 2.65 (1.98)	610 2.85 (2.13)	630 3.05 (2.28)	650 3.25 (2.42)	670 3.45 (2.57)	690 3.65 (2.72)	710 3.85 (2.87)	730 4.05 (3.02)	745 4.25 (3.17)	765 4.45 (3.32)	780 4.65 (3.47)	800 4.90 (3.66)	815 5.10 (3.80)	830 5.30 (3.95)
6750 (3185)	500 2.15 (1.60)	525 2.30 (1.72)	550 2.50 (1.87)	575 2.70 (2.01)	600 2.90 (2.16)	620 3.10 (2.31)	640 3.30 (2.46)	660 3.45 (2.57)	680 3.70 (2.76)	700 3.90 (2.91)	720 4.10 (3.06)	735 4.30 (3.21)	755 4.50 (3.36)	770 4.70 (3.51)	790 4.95 (3.69)	805 5.15 (3.84)	820 5.35 (3.99)	840 5.60 (4.18)
7000 (3305)	515 2.35 (1.75)	540 2.55 (1.90)	565 2.75 (2.05)	585 2.90 (2.16)	610 3.15 (2.35)	630 3.35 (2.50)	650 3.50 (2.61)	670 3.70 (2.76)	690 3.95 (2.95)	710 4.15 (3.10)	730 4.40 (3.28)	745 4.55 (3.39)	765 4.80 (3.58)	780 5.00 (3.73)	800 5.25 (3.92)	815 5.45 (4.07)	830 5.65 (4.21)	845 5.90 (4.40)
7250 (3420)	530 2.60 (1.94)	555 2.80 (2.09)	575 3.00 (2.24)	600 3.20 (2.39)	620 3.40 (2.54)	640 3.55 (2.65)	660 3.75 (2.80)	680 4.00 (2.98)	700 4.20 (3.13)	720 4.45 (3.32)	735 4.60 (3.43)	755 4.85 (3.62)	770 5.05 (3.77)	790 5.30 (3.95)	805 5.50 (4.10)	820 5.70 (4.25)	840 6.00 (4.48)	855 6.25 (4.66)
7500 (3540)	540 2.80 (2.09)	565 3.00 (2.24)	590 3.25 (2.42)	610 3.45 (2.57)	630 3.60 (2.69)	650 3.85 (2.87)	670 4.05 (3.02)	690 4.25 (3.17)	710 4.50 (3.36)	730 4.75 (3.54)	745 4.90 (3.66)	765 5.15 (3.84)	780 5.35 (3.99)	800 5.65 (4.21)	815 5.85 (4.36)	830 6.05 (4.51)	845 6.30 (4.70)	860 6.50 (4.85)
7750 (3655)	555 3.05 (2.28)	575 3.25 (2.42)	600 3.50 (2.61)	620 3.70 (2.76)	645 3.95 (2.95)	665 4.15 (3.10)	680 4.30 (3.21)	700 4.55 (3.39)	720 4.80 (3.58)	740 5.05 (3.77)	755 5.20 (3.88)	775 5.45 (4.07)	790 5.70 (4.25)	805 5.90 (4.40)	825 6.20 (4.63)	840 6.40 (4.77)	855 6.65 (4.96)	870 6.90 (5.15)
8000 (3775)	570 3.35 (2.50)	590 3.55 (2.65)	610 3.75 (2.80)	635 4.00 (2.98)	655 4.20 (3.13)	675 4.45 (3.32)	695 4.65 (3.47)	710 4.85 (3.62)	730 5.10 (3.80)	750 5.35 (3.99)	765 5.55 (4.14)	785 5.80 (4.33)	800 6.05 (4.51)	815 6.25 (4.66)	830 6.50 (4.85)	850 6.80 (5.07)	865 7.00 (5.22)	880 7.25 (5.41)
8250 (3895)	580 3.60 (2.69)	605 3.85 (2.87)	625 4.05 (3.02)	645 4.25 (3.17)	665 4.50 (3.36)	685 4.75 (3.54)	705 4.95 (3.69)	725 5.20 (3.88)	740 5.40 (4.03)	760 5.70 (4.25)	775 5.90 (4.40)	795 6.15 (4.59)	810 6.40 (4.77)	825 6.60 (4.92)	840 6.85 (5.11)	855 7.10 (5.30)	870 7.35 (5.48)	890 7.65 (5.67)
8500 (4010)	595 3.90 (2.91)	615 4.10 (3.06)	635 4.35 (3.25)	660 4.60 (3.43)	675 4.80 (3.58)	695 5.05 (3.77)	715 5.30 (3.95)	735 5.55 (4.14)	750 5.75 (4.29)	770 6.05 (4.51)	785 6.25 (4.66)	805 6.55 (4.89)	820 6.75 (5.04)	835 7.00 (5.22)	850 7.25 (5.41)	865 7.50 (5.60)	880 7.75 (5.79)	895 8.00 (5.98)
8750 (4130)	610 4.25 (3.17)	630 4.45 (3.32)	650 4.70 (3.51)	670 4.90 (3.66)	690 5.15 (3.84)	710 5.40 (4.03)	725 5.60 (4.18)	745 5.90 (4.40)	760 6.10 (4.55)	780 6.40 (4.77)	795 6.60 (4.92)	815 6.90 (5.15)	830 7.15 (5.33)	845 7.40 (5.52)	860 7.65 (5.71)	875 7.90 (5.90)	890 8.15 (6.09)	905 8.40 (6.28)
9000 (4245)	620 4.50 (3.36)	645 4.80 (3.58)	665 5.05 (3.77)	685 5.30 (3.95)	700 5.50 (4.10)	720 5.75 (4.29)	740 6.05 (4.51)	755 6.25 (4.66)	775 6.55 (4.89)	790 6.75 (5.04)	805 7.00 (5.22)	825 7.30 (5.54)	840 7.55 (5.73)	855 7.80 (5.91)	870 8.05 (6.10)	885 8.30 (6.29)	900 8.60 (6.48)	915 8.90 (6.67)
9250 (4365)	635 4.90 (3.66)	655 5.10 (3.80)	675 5.35 (3.99)	695 5.65 (4.21)	715 5.90 (4.40)	730 6.10 (4.55)	750 6.40 (4.77)	765 6.60 (4.92)	785 6.90 (5.15)	800 7.15 (5.33)	815 7.40 (5.52)	835 7.70 (5.84)	850 7.95 (6.03)	865 8.25 (6.22)	880 8.50 (6.41)	895 8.80 (6.60)	910 9.00 (6.79)	925 9.25 (6.98)
9500 (4485)	650 5.25 (3.92)	670 5.50 (4.10)	690 5.80 (4.33)	710 6.05 (4.51)	725 6.25 (4.66)	745 6.55 (4.89)	760 6.75 (5.04)	780 7.10 (5.29)	795 7.30 (5.45)	810 7.55 (5.64)	830 7.90 (5.88)	845 8.15 (6.07)	860 8.40 (6.26)	875 8.65 (6.45)	890 9.00 (6.64)	905 9.15 (6.83)	920 9.35 (7.02)	935 9.60 (7.21)
9750 (4600)	665 5.65 (4.21)	685 5.90 (4.40)	705 6.20 (4.63)	720 6.40 (4.77)	740 6.70 (5.00)	755 6.95 (5.18)	775 7.25 (5.41)	790 7.50 (5.59)	805 7.75 (5.78)	825 8.05 (6.01)	840 8.30 (6.24)	855 8.60 (6.47)	870 8.85 (6.70)	885 9.10 (6.93)	900 9.35 (7.16)	915 9.60 (7.39)	930 9.85 (7.62)	945 10.15 (7.85)
10,000 (4720)	680 6.05 (4.51)	695 6.30 (4.70)	715 6.55 (4.89)	735 6.85 (5.11)	750 7.10 (5.30)	770 7.40 (5.52)	785 7.65 (5.74)	805 8.00 (6.01)	820 8.25 (6.24)	835 8.50 (6.47)	850 8.70 (6.70)	865 8.90 (6.93)	880 9.10 (7.16)	895 9.35 (7.39)	910 9.60 (7.62)	925 10.05 (7.85)	940 10.40 (8.08)	955 10.60 (8.31)
10,250 (4835)	690 6.30 (4.70)	705 6.40 (4.77)	725 6.75 (5.04)	745 7.10 (5.30)	760 7.25 (5.41)	780 7.80 (5.82)	795 8.00 (5.97)	815 8.35 (6.23)	830 8.70 (6.49)	845 8.85 (6.60)	860 9.10 (6.79)	875 9.35 (7.02)	890 9.75 (7.27)	905 9.90 (7.39)	920 10.20 (7.85)	935 10.40 (8.08)	950 10.75 (8.31)	965 11.15 (8.54)
10,500 (4955)	705 6.55 (4.89)	720 6.85 (5.11)	735 7.10 (5.30)	755 7.45 (5.56)	775 7.85 (5.86)	790 8.25 (6.15)	810 8.55 (6.38)	825 8.80 (6.56)	840 9.15 (6.83)	855 9.25 (6.90)	870 9.55 (7.12)	885 9.70 (7.24)	895 10.00 (7.46)	915 10.25 (7.65)	930 10.60 (8.08)	950 11.00 (8.31)	960 11.20 (8.54)	975 11.50 (8.77)
10,750 (5075)	715 7.00 (5.22)	735 7.25 (5.41)	745 7.50 (5.60)	770 7.95 (5.93)	785 8.35 (6.23)	805 8.70 (6.49)	820 8.90 (6.64)	835 9.25 (6.90)	850 9.45 (7.05)	865 9.70 (7.24)	880 10.15 (7.57)	895 10.30 (7.68)	905 10.40 (7.76)	925 10.80 (8.06)	940 11.20 (8.33)	960 11.50 (8.54)	-----	-----
11,000 (5190)	730 7.50 (5.60)	745 7.70 (5.74)	760 7.95 (5.93)	780 8.35 (6.23)	800 8.85 (6.60)	815 9.10 (6.79)	830 9.40 (7.01)	845 9.65 (7.20)	860 9.85 (7.35)	875 10.20 (7.61)	890 10.50 (7.83)	905 10.70 (7.98)	915 10.85 (8.09)	935 11.30 (8.43)	-----	-----	-----	-----
11,250 (5310)	740 7.85 (5.86)	755 8.10 (6.04)	775 8.50 (6.34)	795 9.00 (6.71)	810 9.25 (6.90)	830 9.70 (7.24)	845 9.85 (7.35)	855 10.05 (7.50)	870 10.35 (7.72)	885 10.60 (7.91)	900 10.85 (8.09)	915 11.15 (8.32)	925 11.40 (8.50)	-----	-----	-----	-----	-----
11,500 (5425)	755 8.30 (6.19)	770 8.70 (6.50)	785 9.05 (6.75)	810 9.55 (7.12)	825 9.80 (7.31)	840 10.00 (7.46)	855 10.25 (7.65)	865 10.55 (7.87)	880 10.75 (8.02)	895 11.10 (8.28)	910 11.30 (8.43)	-----	-----	-----	-----	-----	-----	-----
11,750 (5545)	770 8.85 (6.60)	780 9.25 (6.90)	805 9.70 (7.23)	820 9.90 (7.39)	840 10.25 (7.65)	855 10.50 (7.83)	865 10.75 (8.02)	875 10.85 (8.10)	890 11.25 (8.40)	905 11.45 (8.54)	-----	-----	-----	-----	-----	-----	-----	-----
12,000 (5665)	780 9.65 (7.20)	795 9.85 (7.35)	820 10.15 (7.57)	835 10.40 (7.76)	850 10.65 (7.94)	865 11.00 (8.21)	875 11.20 (8.35)	885 11.35 (8.47)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12,250 (5780)	795 10.15 (7.57)	810 10.35 (7.72)	835 10.65 (7.94)	850 10.90 (8.13)	860 11.15 (8.32)	875 11.35 (8.47)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
12,500 (5900)	805 10.50 (7.83)	825 10.75 (7.89)	845 11.20 (8.36)	860 11.35 (8.47)	870 11.50 (8.58)	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

NOTE — All data is measured external to the unit with dry coil and air filters in place. See Page 21 for Accessory Air Resistance data.
 NOTE — Maximum air volume for CHA24-2553 and CHA24-2753 is 10,000 cfm (4720 L/s). Maximum air volume for CHA24-3003 is 12,500 cfm (5900 L/s).
 Light shaded area denotes optional 7-1/2 hp (5595W) drive kit for CHA24-2553 and CHA24-2753 units. Dark shaded area denotes optional 10 hp (7460W) drive kit for CHA24-3003 unit.

NOTE — In Canada, nominal motor output is also maximum usable motor output.

BLOWER DATA

ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Resistance — inches water gauge (Pa)						
			Wet Evaporator Coil	ECH16 Electric Heat	REMD16M Down-Flow Economizer	RTD11 Step-Down Diffuser			FD11 Flush Diffuser
	cfm	L/s				2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
CHA24-1853	5000	2360	.07 (17)	.15 (37)	.11 (27)	.51 (127)	.44 (109)	.39 (97)	.27 (67)
	5200	2455	.08 (20)	.16 (40)	.12 (30)	.56 (139)	.48 (119)	.42 (104)	.30 (75)
	5400	2550	.09 (22)	.17 (42)	.13 (32)	.61 (152)	.52 (129)	.45 (112)	.33 (82)
	5600	2645	.10 (25)	.19 (47)	.14 (35)	.66 (164)	.56 (139)	.48 (119)	.36 (90)
	5800	2735	.11 (27)	.21 (52)	.15 (37)	.71 (177)	.59 (147)	.51 (127)	.39 (97)
	6000	2830	.12 (30)	.23 (57)	.16 (40)	.76 (189)	.63 (157)	.55 (137)	.42 (104)
	6200	2925	.13 (32)	.25 (62)	.17 (42)	.80 (199)	.68 (169)	.59 (147)	.46 (114)
	6400	3020	.14 (35)	.27 (67)	.18 (45)	.86 (214)	.72 (179)	.63 (157)	.50 (124)
	6600	3115	.15 (37)	.29 (72)	.20 (50)	.92 (229)	.77 (191)	.67 (167)	.54 (134)
	6800	3210	.16 (40)	.31 (77)	.22 (55)	.99 (246)	.83 (206)	.72 (174)	.58 (144)
	7000	3305	.17 (42)	.32 (80)	.23 (57)	1.03 (256)	.87 (216)	.76 (189)	.62 (154)
	7200	3400	.18 (45)	.34 (85)	.24 (60)	1.09 (271)	.92 (229)	.80 (199)	.66 (164)
	7400	3490	.19 (47)	.36 (90)	.25 (62)	1.15 (286)	.97 (241)	.84 (209)	.70 (174)
7600	3585	.20 (50)	.38 (95)	.26 (65)	1.20 (301)	1.02 (254)	.88 (219)	.74 (184)	
CHA24-2553 CHA24-2753 CHA24-3003	6000	2830	.06 (15)	.09 (22)	.01 (2)	.36 (90)	.31 (77)	.27 (67)	.29 (72)
	6500	3065	.07 (17)	.10 (25)	.02 (5)	.42 (104)	.36 (90)	.31 (77)	.34 (85)
	7000	3305	.08 (20)	.11 (27)	.02 (5)	.49 (122)	.41 (102)	.36 (90)	.40 (99)
	7500	3540	.09 (22)	.12 (30)	.04 (10)	.51 (127)	.46 (114)	.41 (102)	.45 (112)
	8000	3775	.10 (25)	.13 (32)	.06 (15)	.59 (147)	.49 (122)	.43 (107)	.50 (124)
	8500	4010	.11 (27)	.14 (35)	.08 (20)	.69 (172)	.58 (144)	.50 (124)	.57 (142)
	9000	4245	.12 (30)	.15 (37)	.10 (25)	.79 (196)	.67 (167)	.58 (144)	.66 (164)
	9500	4485	.13 (32)	.16 (40)	.12 (30)	.89 (221)	.75 (186)	.65 (162)	.74 (184)
	10,000	4720	.15 (37)	.17 (42)	.14 (35)	1.00 (249)	.84 (209)	.73 (182)	.81 (201)

PED16-185 & -300 POWER EXHAUST FANS PERFORMANCE

Model No.	Air Volume Exhausted		Return Air System Static Pressure Inches Water Gauge (Pa)
	cfm	L/s	
PED16-185	4200	1980	0 (0)
	3800	1795	.05 (12)
	3500	1650	.10 (25)
	3200	1510	.15 (37)
	2700	1275	.20 (50)
	2200	1040	.25 (62)
PED16-300	6300	2970	0 (0)
	5750	2715	.05 (12)
	5200	2455	.10 (25)
	4625	2180	.15 (37)
	4050	1910	.20 (50)

CEILING DIFFUSER AIR THROW DATA

Model No.	Air Volume		*Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	cfm	L/s	ft.	m	ft.	m
CHA24-1853	6000	2830	45 – 55	14 – 17	48 – 55	15 – 17
	6750	3190	47 – 56	14 – 17	50 – 58	15 – 18
	7500	3540	49 – 58	15 – 18	55 – 66	17 – 20
CHA24-2553 CHA24-2753 CHA24-3003	8000	3775	39 – 44	12 – 13	53 – 62	16 – 19
	9000	4245	47 – 56	14 – 17	55 – 64	17 – 20
	10,000	4720	49 – 58	15 – 18	57 – 67	17 – 20

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

GUIDE SPECIFICATIONS

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

General — Furnish and install a single package air to air DX mechanical cooling 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 manufacturer shall have parts and service available throughout the U.S. and Canada.

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

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 ga. galvanized steel insulated with inch (mm) thick lb./ft.² (kg/m²) density fiberglass or equivalent.

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

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

Cooling System — The total certified cooling capacity shall not be less than Btuh (kW) with an evaporator air volume of cfm (L/s), an entering wet bulb air temperature of °F (°C), an entering dry bulb air temperature of °F (°C) and a condenser entering temperature of °F (°C). The 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 sq. ft. (m²) (evaporator) and sq. ft. (m²) (condenser). Condenser coils shall be slab coil construction.

Multiple compressors shall be resiliently mounted, have overload protection and crankcase heaters. The refrigeration system shall have suction and liquid line gauge ports and service valves, high pressure switches, low pressure switches, thermometer wells, driers, freestat and full refrigerant charge. Controls shall consist of low ambient controls (all models) and cycle controls (CHA24-1853). Optional controls shall consist of timed-off controls (CHA24-2553, -2753, -3003). CHA24-1853, -2553, -2753 shall be rated in accordance with ARI Standard 360-86. CHA24-3003 shall be tested at conditions included in ARI Standard 360-86.

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. Evaporator coil condensate drain extended outside cabinet shall be provided. Lifting brackets shall be provided for rigging. Bottom power entry shall be furnished. Control box panel shall be hinged for easy access.

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 sleeve 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 cfm (L/s) at an external static pressure of inches water gauge (Pa) requiring bhp (W) and rpm.

Condenser Fans — Direct drive propeller type condenser fans shall discharge vertically and be direct driven by a hp (W) motor. Fan motor shall have ball bearings and be permanently lubricated and inherently protected. Fans shall have a safety guard.

Air Filters — Disposable filters furnished shall have not less than sq. ft. (m²) of free area.

OPTIONAL ACCESSORIES

Additive Electric Heaters — The certified total heating capacity output shall be Btuh with kW input 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. RMF16 frame shall be approved by U.S. National Roofing Contractors Association.

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. 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 55° F (13° C) 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). Economizer shall be available for factory or field installation.

Gravity Exhaust Dampers — Pressure operated dampers shall be furnished with economizer damper assembly. Neoprene coated fiberglass dampers shall prevent blow-back and outdoor air infiltration during off cycle.

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.

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

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.

Disconnect Package — Furnish and factory install package that includes unit disconnect and dual 120 volt GFCI type service outlets.

Smoke Detector Package — Furnish and factory install photoelectric type smoke detector in return air section.

Corrosion Protection Package — Furnish and factory apply phenolic epoxy coating to condenser and evaporator coils with painted condensing and evaporator base sections and painted blower housings or apply only to condenser coil with painted condensing section base.

Logic Controls Package — Furnish and factory install a selection of controls to automatically operate the mechanical equipment through the heating or cooling and ventilating cycles as required.

Hinged Panel Package — Furnish and factory install package that includes hinged panels for two compressor section panels, two blower section panels and one electric heat access panel with quarter turn handles.

UNIT DIMENSIONS – inches (mm)

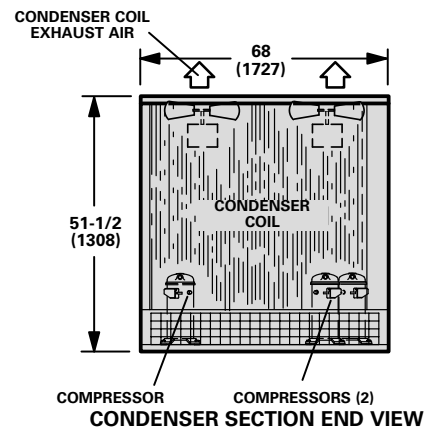
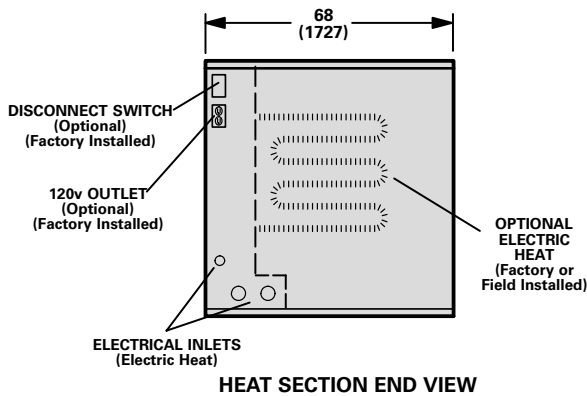
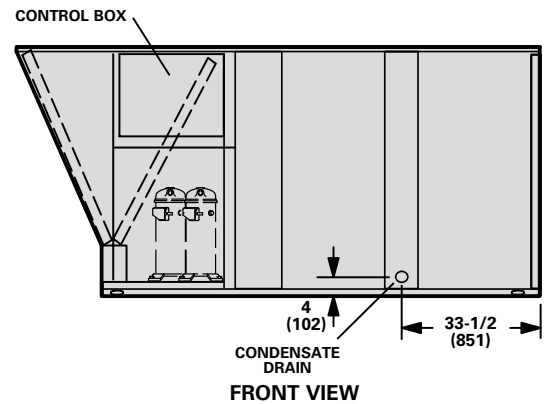
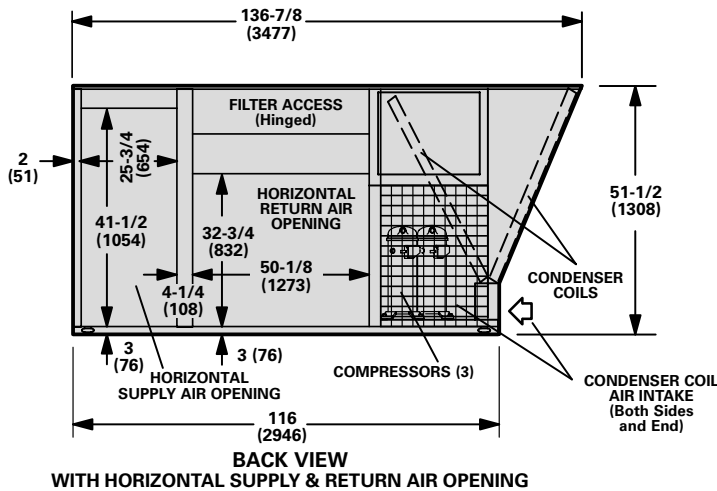
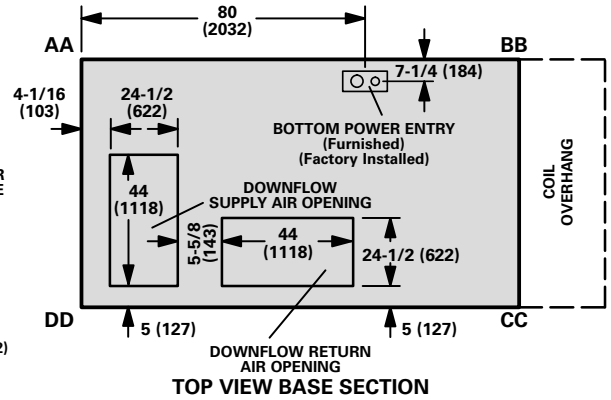
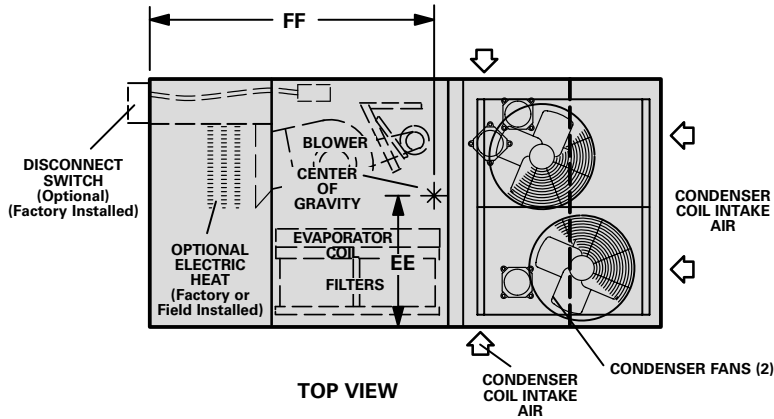
CHA24-1853 BASIC UNIT

CORNER WEIGHTS At BASE – lbs. (kg)

Model No.	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-1853	347	157	632	287	530	240	291	132

CENTER OF GRAVITY – in. (mm)

Model No.	EE		FF	
	in.	mm	in.	mm
CHA24-1853	37	940	74-7/8	1902



ACCESSORY DIMENSIONS – inches (mm)

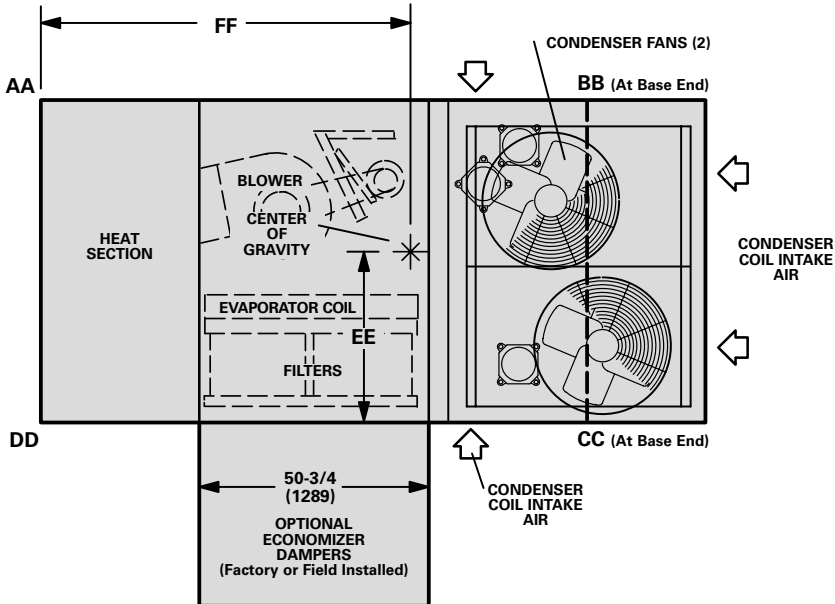
**CHA24-1853 UNIT
WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME
(DOWN-FLOW APPLICATION)**

CORNER WEIGHTS At BASE – lbs. (kg)

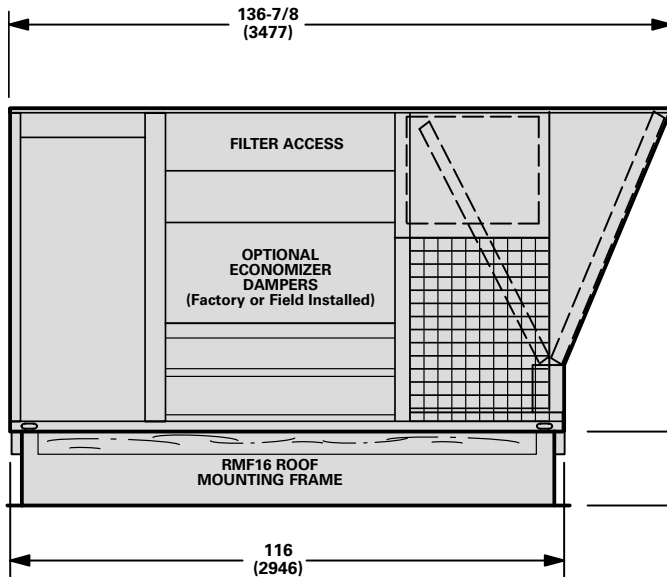
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-1853	401	182	659	299	560	254	341	155

CENTER OF GRAVITY – inches (mm)

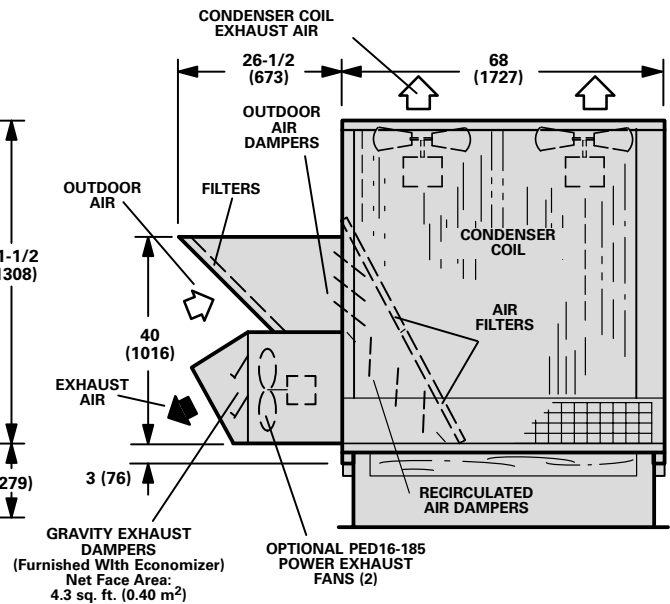
Model Number	EE		FF	
	inch	mm	inch	mm
CHA24-1853	36-3/4	933	72	1829



TOP VIEW



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



CONDENSER SECTION END VIEW

ACCESSORY DIMENSIONS – inches (mm)

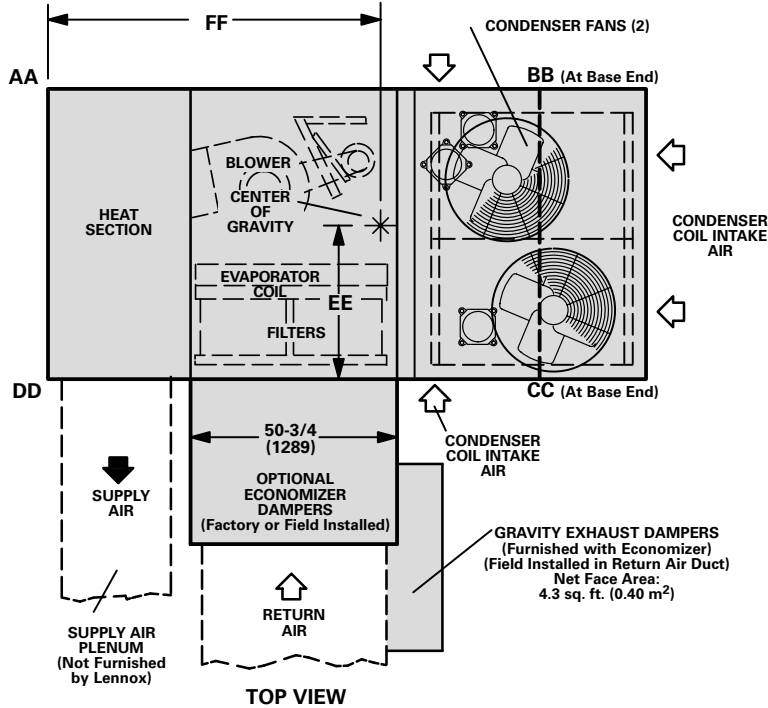
**CHA24-1853 UNIT
WITH REMD16M ECONOMIZER DAMPER SECTION
(HORIZONTAL APPLICATION)**

CORNER WEIGHTS At BASE – lbs. (kg)

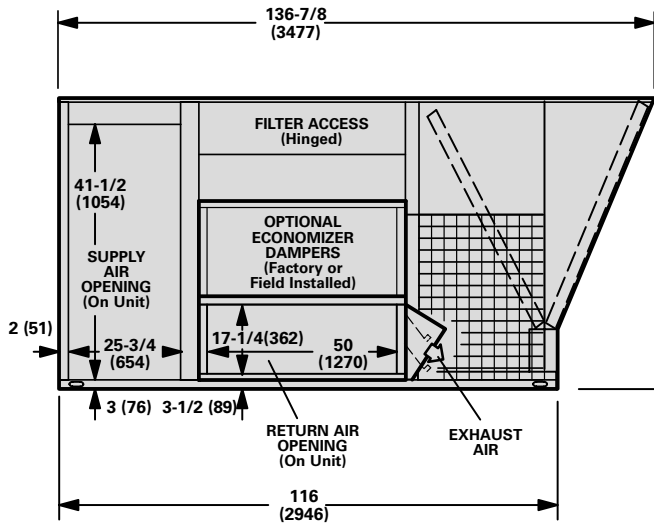
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-1853	387	176	630	286	603	274	392	178

CENTER OF GRAVITY – inches (mm)

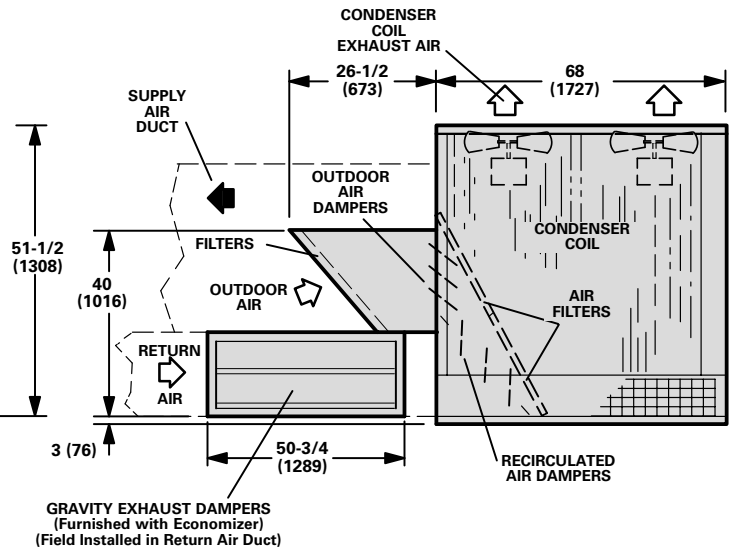
Model Number	EE		FF	
	inch	mm	inch	mm
CHA24-1853	34-3/4	883	79-3/4	2026



TOP VIEW



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



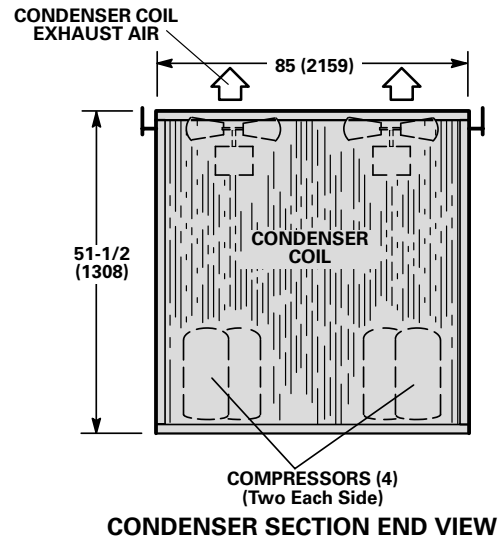
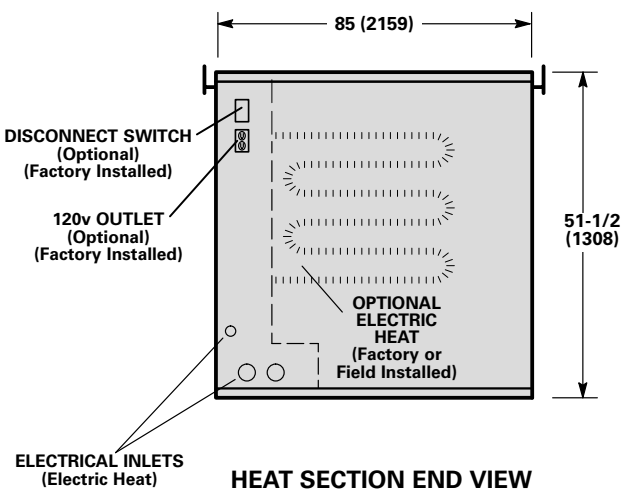
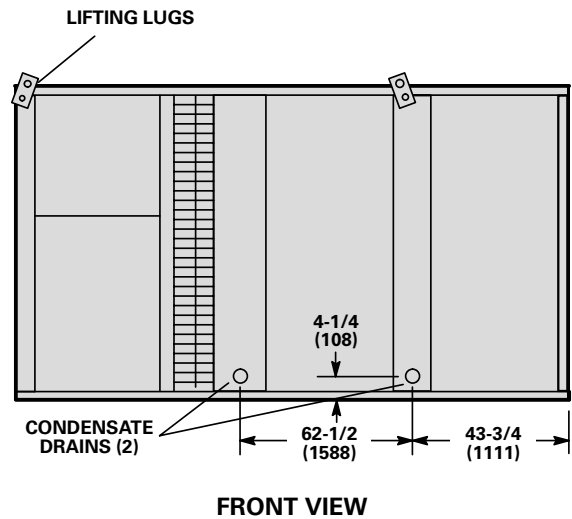
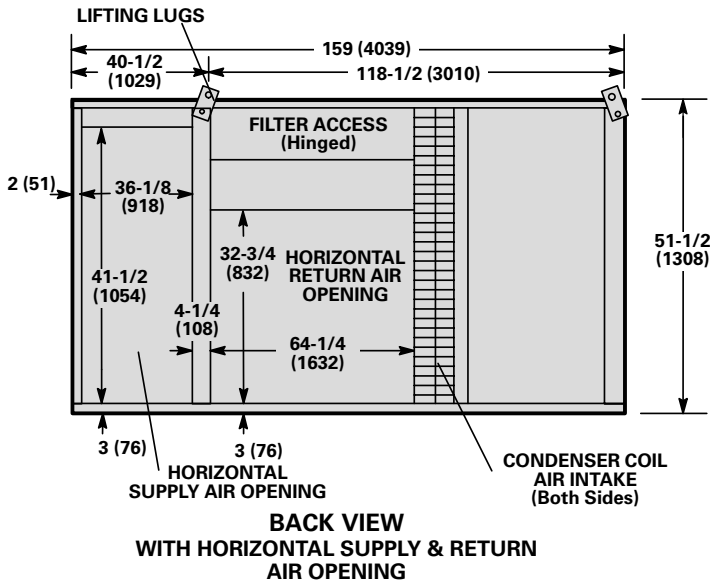
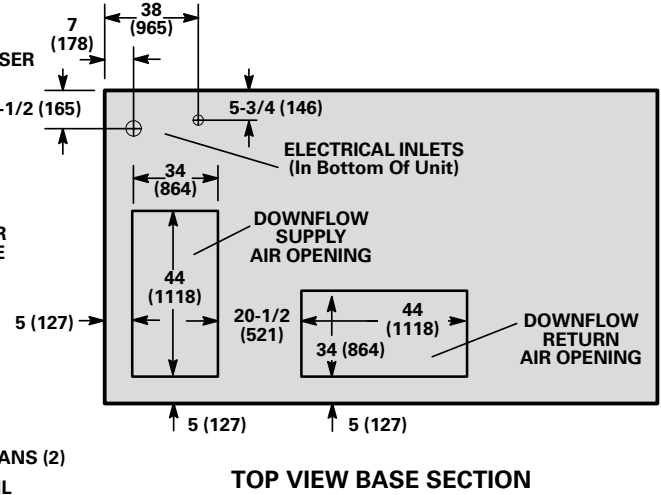
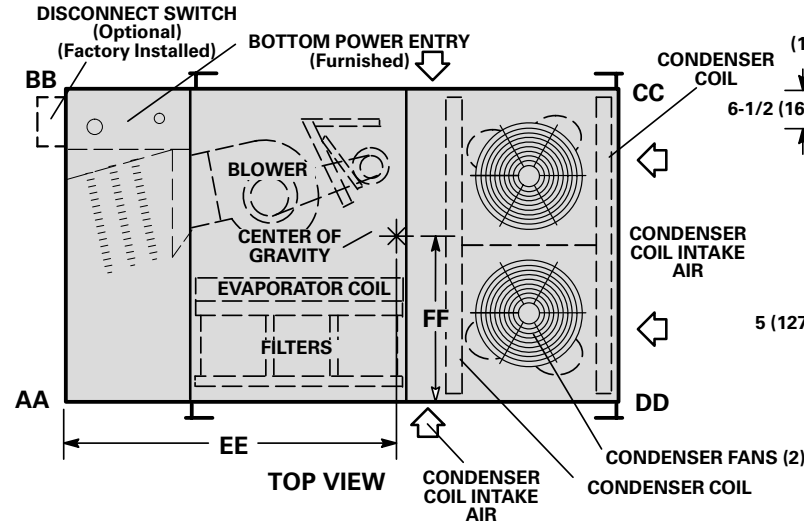
CONDENSER SECTION END VIEW

UNIT DIMENSIONS – inches (mm)

CHA24-2553, -2753 & -3003 BASIC UNIT CORNER WEIGHTS – lbs. (kg) CENTER OF GRAVITY – inches (mm)

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-2553 CHA24-2753	419	190	522	237	643	292	516	234
CHA24-3003	483	219	601	273	740	336	595	270

Model Number	EE		FF	
	inch	mm	inch	mm
CHA24-2553 CHA24-2753	87-3/4	2229	47-1/8	1197
CHA24-3003	100-1/2	2553	46-1/2	1181



ACCESSORY DIMENSIONS – inches (mm)

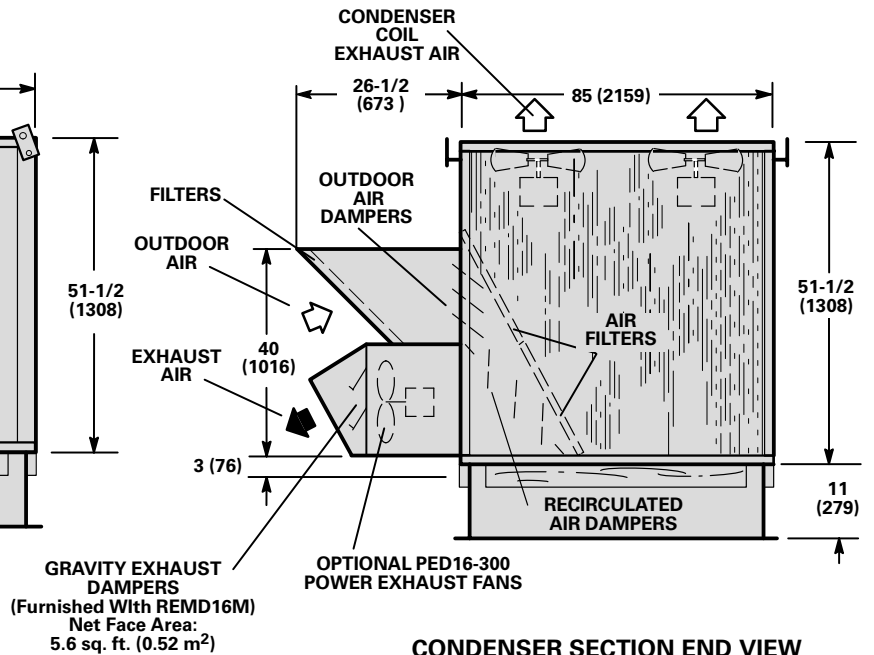
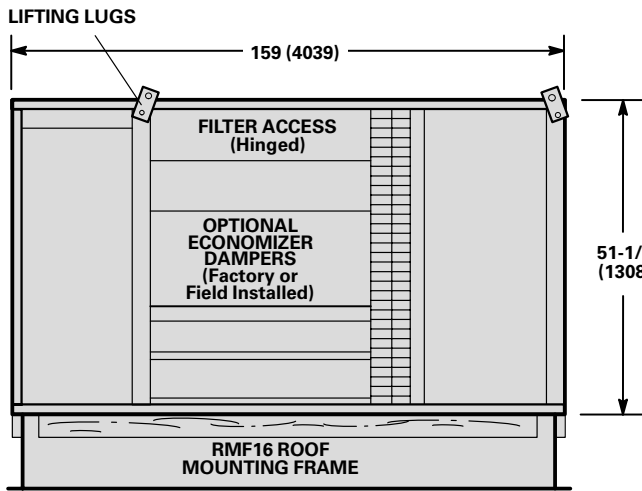
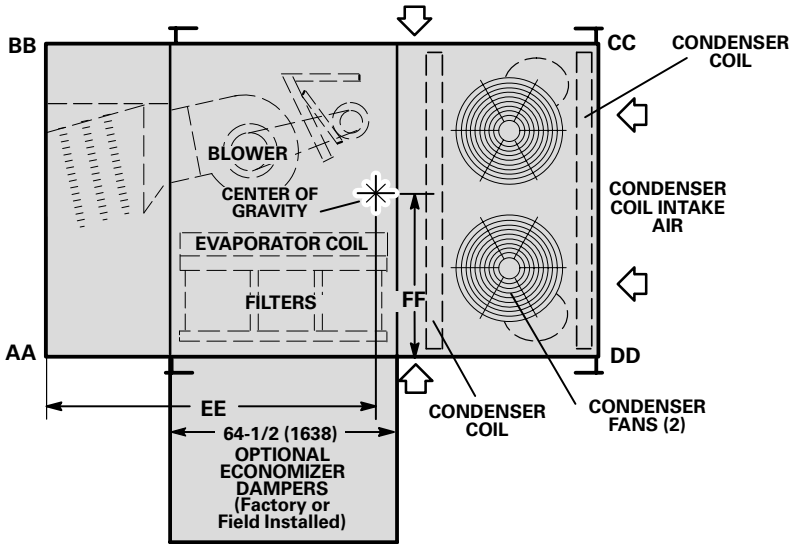
**CHA24-2553, 2753 & 3003 UNIT
WITH REMD16M ECONOMIZER DAMPER SECTION AND RMF16 ROOF MOUNTING FRAME
(DOWN-FLOW APPLICATION)**

CORNER WEIGHTS – lbs. (kg)

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-2553 CHA24-2753	572	260	572	260	673	306	673	306
CHA24-3003	555	252	541	245	846	384	868	394

CENTER OF GRAVITY – inches (mm)

Model Number	EE		FF	
	inch	mm	inch	mm
CHA24-2553 CHA24-2753	86	2184	42-1/2	1080
CHA24-3003	97	2464	42	1067



ACCESSORY DIMENSIONS – inches (mm)

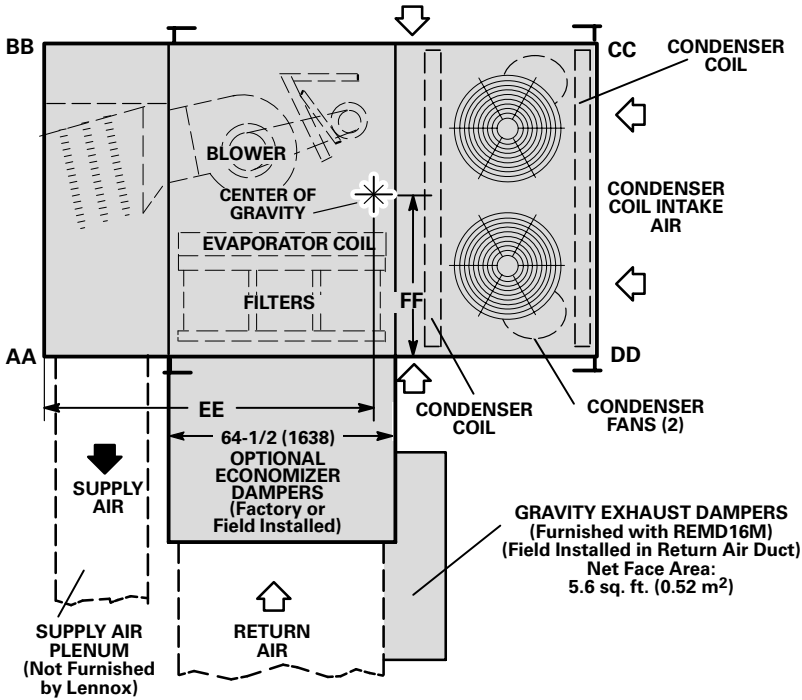
**CHA24-2553, 2753 & 3003 UNIT
WITH REMD16M ECONOMIZER DAMPER SECTION
(HORIZONTAL APPLICATION)**

CORNER WEIGHTS – lbs. (kg)

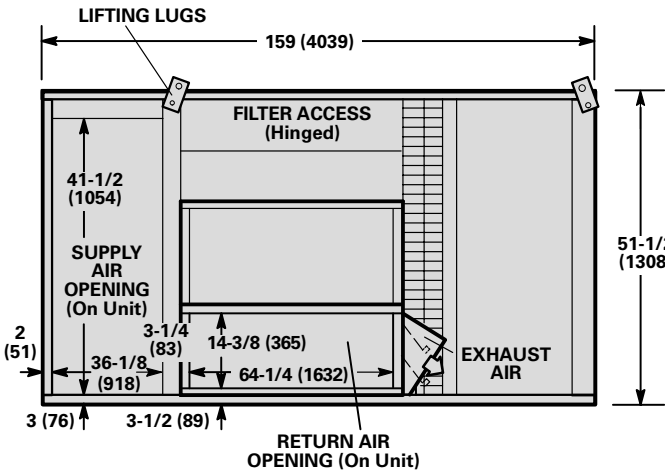
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA24-2553 CHA24-2753	530	240	530	240	625	283	625	283
CHA24-3003	519	235	506	230	792	359	812	368

CENTER OF GRAVITY – inches (mm)

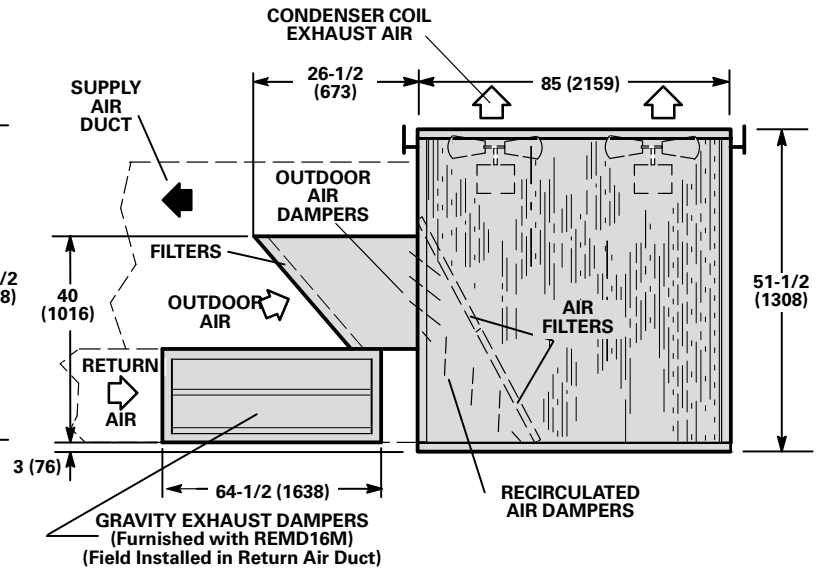
Model Number	EE		FF	
	inch	mm	inch	mm
CHA24-2553 CHA24-2753	86	2184	42-1/2	1080
CHA24-3003	97	2464	42	1067



TOP VIEW



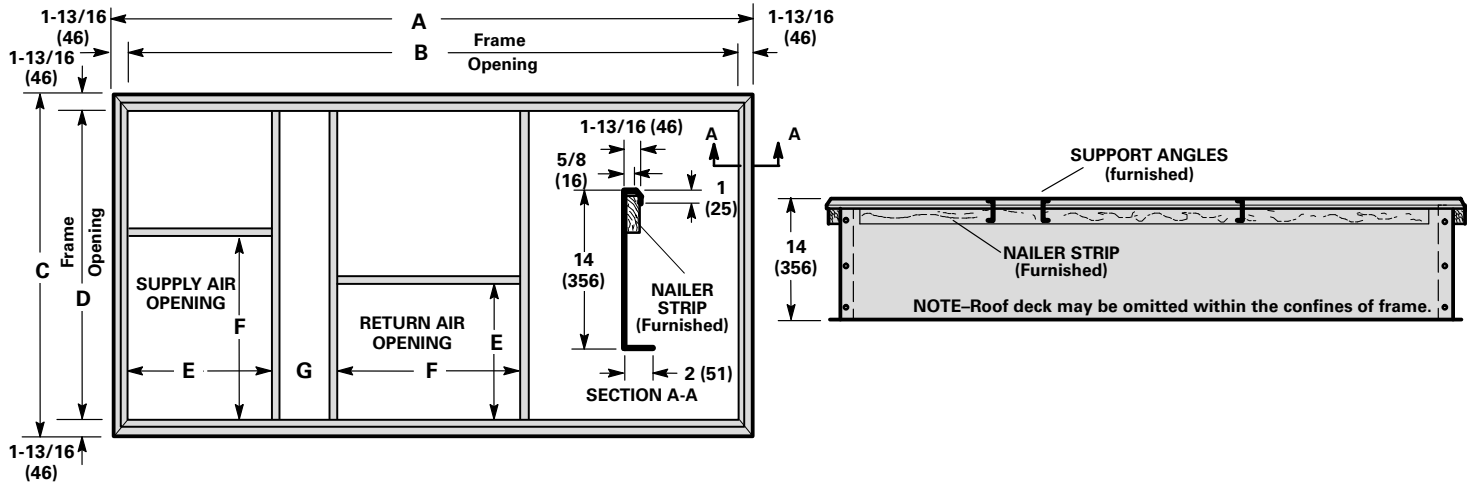
BACK VIEW



CONDENSER SECTION END VIEW

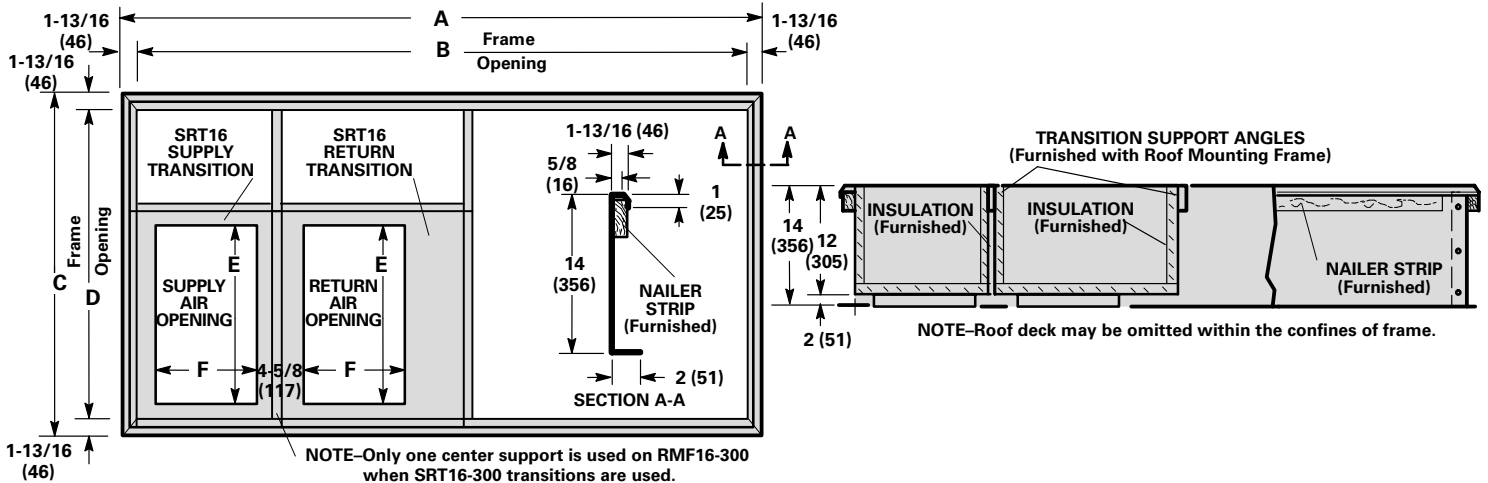
ACCESSORY DIMENSIONS (inches)

RMF16-185 & -300 ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



Model No.	A		B		C		D		E		F		G	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
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
RMF16-300	156-5/16	3970	152-11/16	3878	80-7/8	2054	77-1/4	1962	36	914	46	1168	18	457

RMF16-185 & -300 ROOF MOUNTING FRAMES WITH SRT16 SUPPLY AND RETURN AIR TRANSITIONS FOR FD11 & RTD11 CEILING DIFFUSERS



Model No.	A		B		C		D		E		F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-185	111-3/4	2838	108-1/8	2746	63-7/8	1622	60-1/4	1530	36	914	18	457
RMF16-300	156-5/16	3970	152-11/16	3878	80-7/8	2054	77-1/4	1962	48	1219	24	610

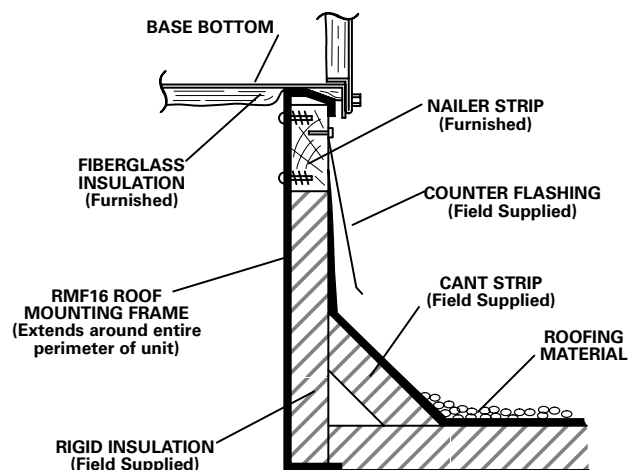
ROOF MOUNTING FRAME SPECIFICATIONS

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

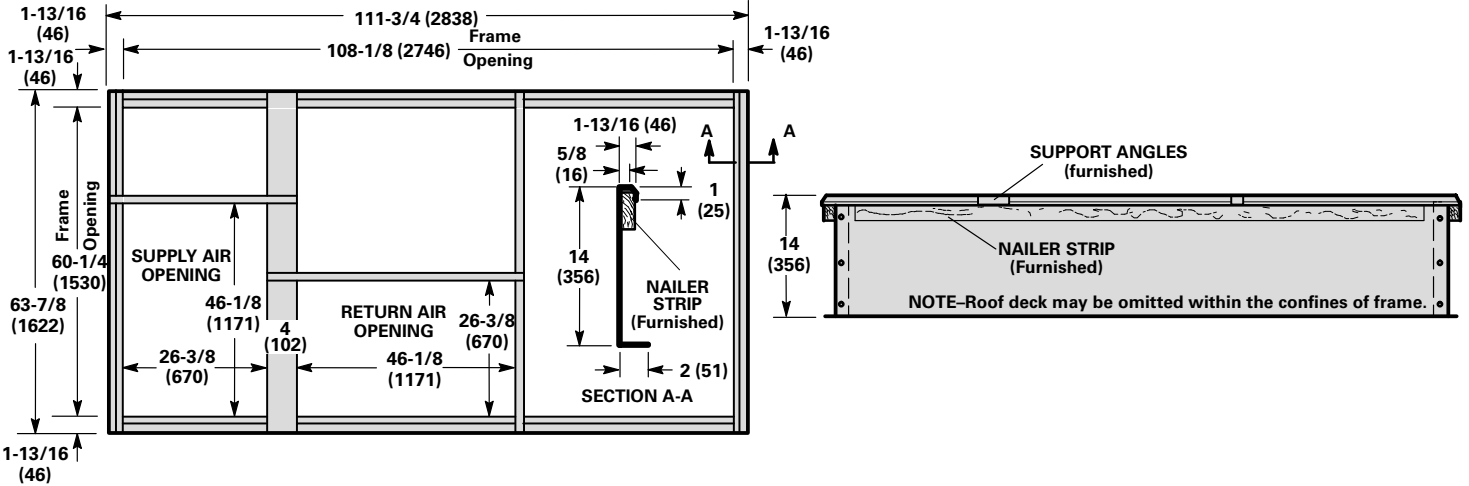
Roof Mounting Frame	RMF16-185 & -300
*Moment of inertia (I) (in. ⁴) (cm ⁴)	42 (1748)
*Section modulus $\frac{I}{C}$ (in. ³) (cm ³)	5.8 (95)
Maximum weight. (lb/ft) (kg/m) of length	5.5 (8.2)
Design strength (psi) (kPa)	20,000 (137,900)

*Includes both sides of frame.

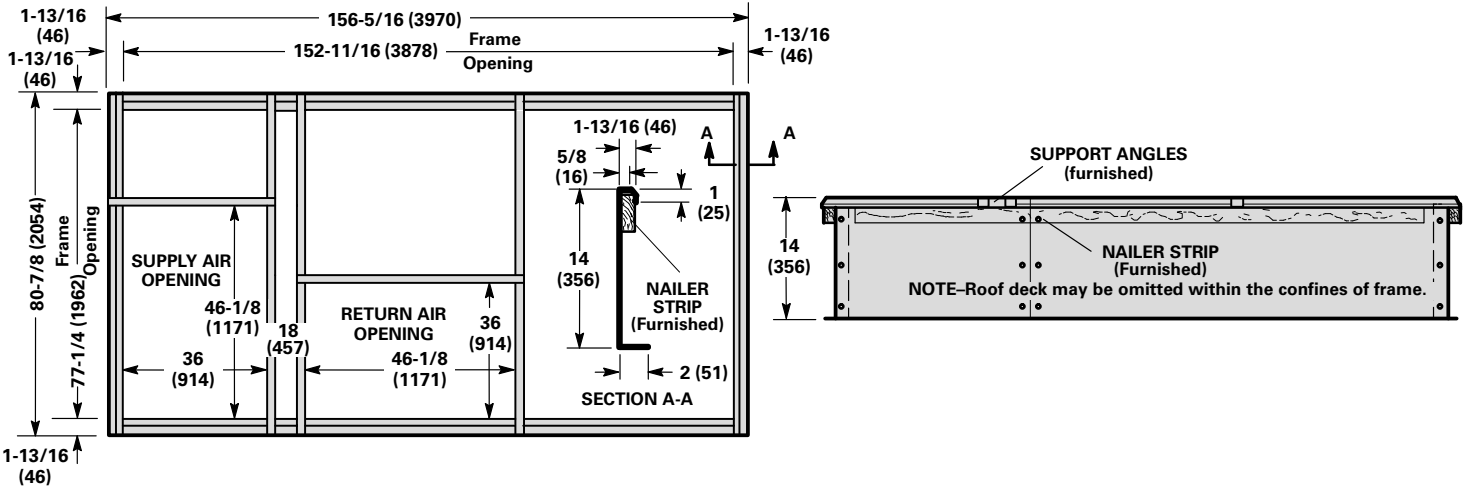
TYPICAL FLASHING DETAIL FOR RMF16 ROOF MOUNTING FRAME



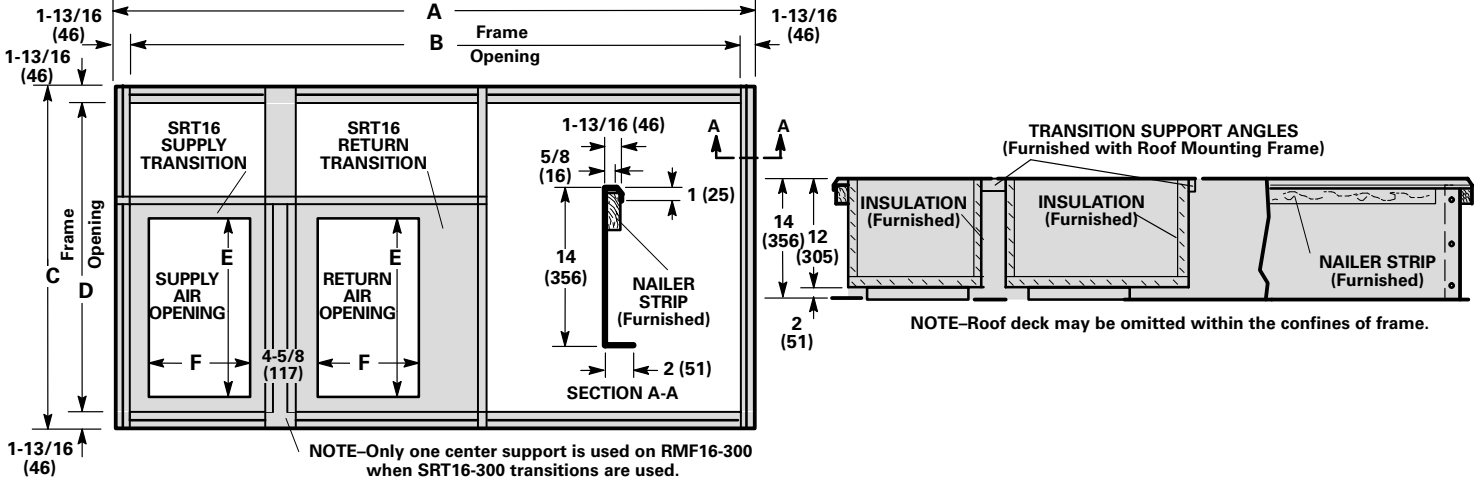
RMF16-185 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



RMF16-300 SERIES ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING



RMF16-185 & -300 ROOF MOUNTING FRAMES WITH SRT16 SUPPLY AND RETURN AIR TRANSITIONS FOR FD11 & RTD11 CEILING DIFFUSERS

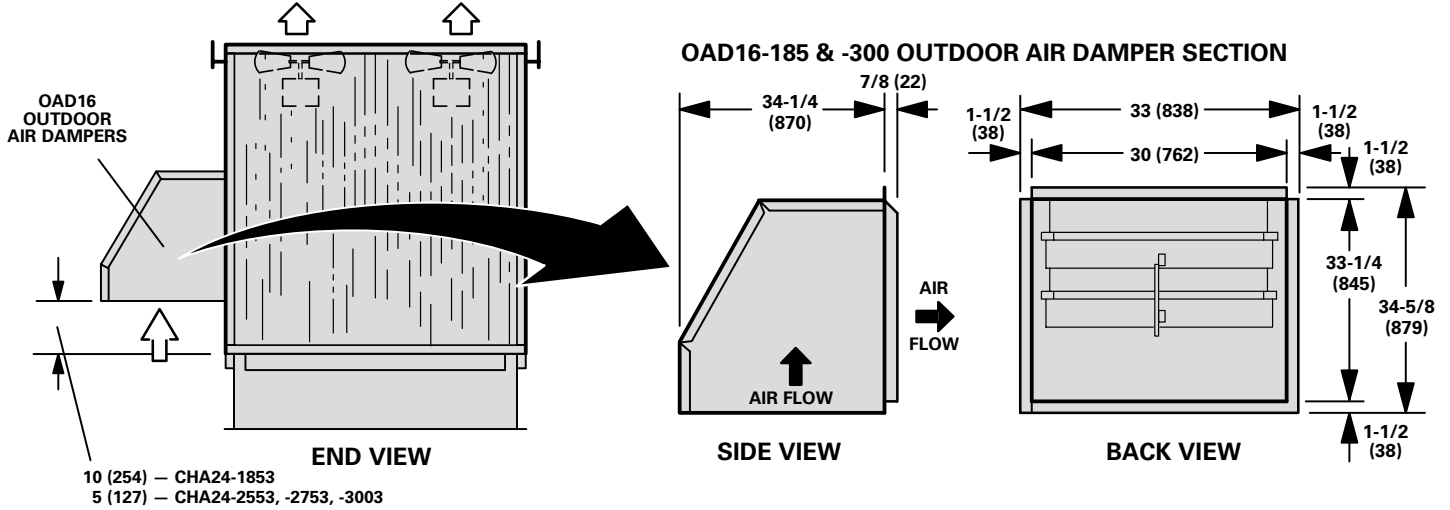


Model No.	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RMF16-185	111-3/4	2838	108-1/8	2746	63-7/8	1622	60-1/4	1530	36	914	18	457
RMF16-300	156-5/16	3970	152-11/16	3878	80-7/8	2054	77-1/4	1962	48	1219	24	610

ACCESSORY DIMENSIONS – inches (mm)

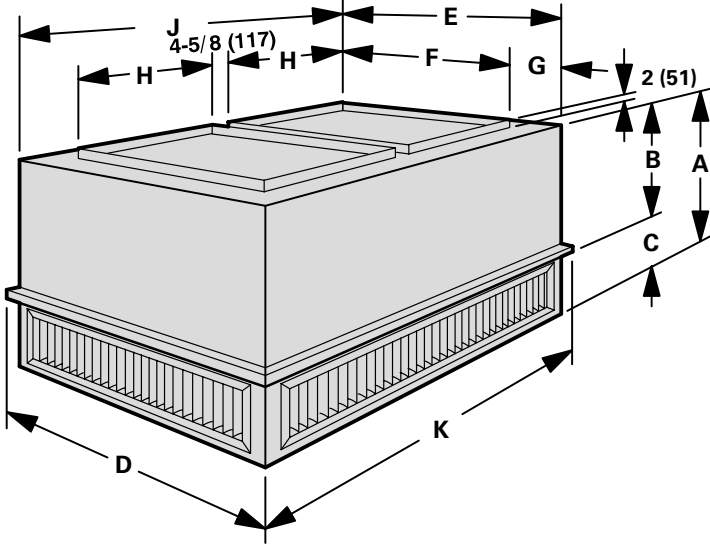
**CHA24 UNIT WITH OAD16 OUTDOOR AIR DAMPER SECTION
DOWN-FLO SUPPLY AND RETURN AIR**

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



COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

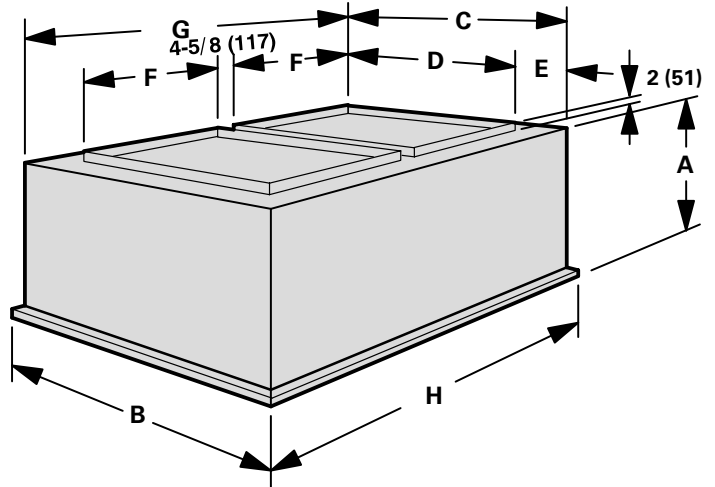
**RTD11-185 & RTD11-275
STEP-DOWN CEILING DIFFUSER**



Model Number	A		B		C		D		E	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RTD11-185	34	864	23-7/8	606	10-1/8	257	47-5/8	1210	45-5/8	1159
RTD11-275	40	1016	28-7/8	725	11-1/8	283	59-5/8	1514	57-7/8	1470

Model Number	F		G		H		J		K	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RTD11-185	36	914	4-13/16	122	18	457	45-5/8	1159	47-5/8	1210
RTD11-275	48	1219	4-13/16	122	24	610	57-5/8	1464	59-5/8	1521

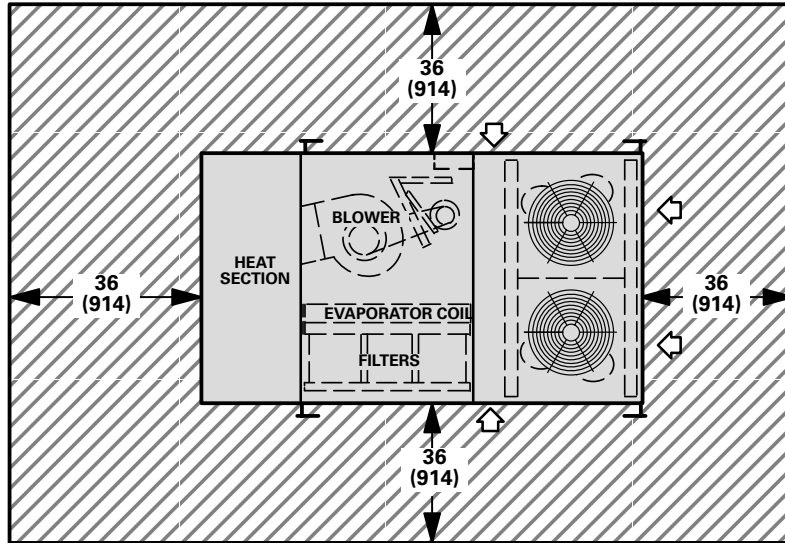
**FD11-185 & FD11-275
FLUSH CEILING DIFFUSER**



Model Number	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
FD11-185	30-1/8	613	47-5/8	1210	45-5/8	1159	36	914
FD11-275	36-1/8	918	59-5/8	1514	57-5/8	1464	48	1219

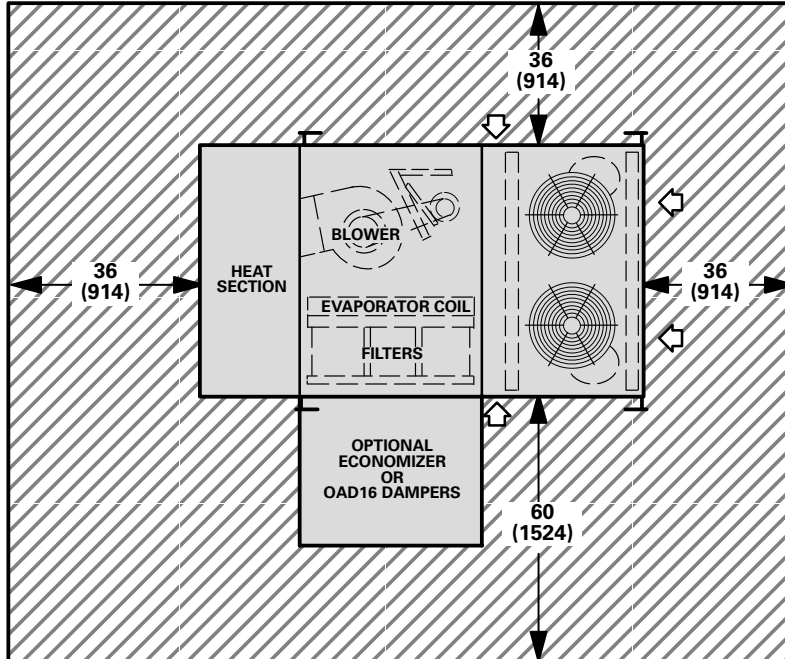
Model Number	E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm
FD11-185	4-13/16	122	18	457	45-5/8	1159	47-5/8	1210
FD11-275	4-13/16	122	24	610	57-5/8	1464	59-5/8	1521

CHA24 BASIC UNIT



NOTE — Top Clearance Unobstructed.

**CHA24 UNIT WITH REMD16M ECONOMIZER DAMPER SECTION
OR OAD16 OUTDOOR AIR DAMPER**



NOTE — Top Clearance Unobstructed.