

# Packaged Unit

## Cooling & Electric Heat

**6, 7 1/2, 10 and 12 1/2 tons**

**Cooling Capacity**

**34,100 to 170,600 Btuh Optional**

**Electric Heating Capacity**

### **CHA16-072/090/120/150**



#### **FEATURES**

- ◆ Down-flow or horizontal supply and return air configuration
- ◆ U.L. and C.S.A. listed, components bonded for grounding to meet safety standards for servicing by U.L., C.S.A. and National and Canadian Electrical Codes
- ◆ CHA16-072-090 and -120 are ARI Standard 210/240-94 certified, CHA16-150 is ARI Standard 340/360-93 certified
- ◆ Sound tested in accordance with conditions included in ARI 270
- ◆ Heavy gauge galvanized steel cabinet, fully insulated, powdered enamel paint finish, large removable access panels, electrical inlets in cabinet base and evaporator section, control box with factory installed controls, unit lifting brackets
- ◆ Coil constructed of copper tube, 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
- ◆ Copeland® Compliant Scroll® compressor for high efficiency
- ◆ Condenser fans have low operating sound levels complimented with a PVC coated fan guard
- ◆ Condenser fan motors are overload protected, permanently lubricated ball bearings
- ◆ Disposable 2" pleated filters furnished
- ◆ Refrigeration system consists of compressors, condenser coil and direct drive fan(s), evaporator coil and belt drive blower, expansion valves, high capacity filter driers, high pressure switches (072-090 only), full refrigerant charge, freezestats (prevents coil freeze-up during low ambient operation), independent refrigerant circuits (allows staging), low ambient cooling operation down to 30°F (-1°C) without additional controls
- ◆ Belt driven supply air blowers statically and dynamically balanced with permanently lubricated sleeve bearings, and adjustable pulley for speed selection
- ◆ Supply air motor is overload protected and equipped with ball bearings
- ◆ 1 Year warranty on parts
- ◆ 5 Year warranty on compressor

## Optional Accessories

Item	CHA16-072	CHA16-090	CHA16-120	CHA16-150
<b>Bottom Power Entry</b>			LB-55757CA <b>(34G70)</b> - 12 lbs. (5 kg)	
<b>Coil Guard</b> - PVC coated steel wire guards to protect outdoor coil. Not used with Hail Guards.		<b>60L31</b>		<b>60L32</b>
<b>Crankcase Heaters</b> - Ensures proper compressor lubrication at all times. Temperature actuated.	208/230 volt 460 volt 575 volt	<b>67K90</b> <b>67K89</b> <b>42J85</b>	<b>90P12</b> <b>49K11</b> <b>49K12</b>	<b>67K90</b> <b>67K89</b> <b>42J85</b>
<b>Differential Enthalpy Control</b> - For use with economizer dampers, solid-state return air sensor allows selection between outdoor air and return air (whichever has lowest enthalpy)				<b>54G44</b>
<b>Diffusers (Step-Down)</b> - 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		<b>RTD11-95</b> 125 lbs. (57 kg) (29G04)		<b>RTD11-135</b> 205 lbs. (93 kg) (29G05)
<b>Diffusers (Flush)</b> - 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.		<b>FD11-95</b> 95 lbs. (57 kg) (29G08)		<b>FD11-135</b> 174 lbs. (79 kg) (29G09)
<b>Transitions (Supply and Return)</b> - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated		<b>SRT16-09</b> 38 lbs. (17 kg) (33G96)		<b>SRT 16-12</b> 38 lbs. (17 kg) (97H10)
<b>Economizer Dampers (Down-Flow)</b> - 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, gravity exhaust air dampers furnished, powdered enamel paint finish. NOTE: Fresh air/exhaust air hood with cleanable aluminum mesh frame filter is required and must be ordered separately for field installation (see below)	Model No. - Net Wt.	<b>REMD16M-09</b> 60 lbs. (27 kg) <b>(90J15)</b>	<b>REMD16M-12</b> 80 lbs. (36 kg) <b>(90J16)</b>	<b>REMD16M-15</b> 100 lbs. (45 kg) <b>(64L82)</b>
	Net face area	2.1 ft. <sup>2</sup> (0.20 m <sup>2</sup> )	2.8 ft. <sup>2</sup> (0.26 m <sup>2</sup> )	3.6 ft. <sup>2</sup> (0.33 m <sup>2</sup> )
<b>Economizer Damper Hood (Down-flow)</b> - For use with REMD16M economizer dampers (see above). Must be ordered separately.	Order No. No. & Size of Filters	<b>27L58</b> (1) 32 1/4 x 16 1/2 x 1 (819 x 419 x 25)	<b>27L60</b> (1) 32 1/4 x 21 1/4 x 1 (819 x 546 x 25)	<b>48L00</b> (1) 40 1/4 x 21 1/2 x 1 (1022 x 546 x 25)
<b>Economizer Dampers (Horizontal)</b> 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, galvanized steel cabinet, flanged air openings on return air section, powdered enamel paint finish, fully insulated. NOTE: Outdoor air hood with two cleanable aluminum mesh frame filters, is required and must be ordered separately for field installation (see below) Also requires optional Horizontal Supply and Return Air Kit for duct connection		<b>EMDH16M-09</b> 120 lbs. (54 kg) <b>(24H06)</b>	<b>EMDH16M-12</b> 135 lbs. (62 kg) <b>(24H07)</b>	<b>EMDH16M-15</b> 187 lbs. (85 kg) <b>(24H08)</b>
<b>Economizer Damper Hood (Horizontal)</b> - For use with EMDH16M economizer dampers (see above). Must be ordered separately.	Order No. No. & Size of Filters		<b>68G80</b> (2) 16 x 25 x 1 (406 x 635 x 25)	<b>68G77</b> (2) 20 x 25 x 1 (508 x 635 x 25)

## Optional Accessories

Item	CHA16-072	CHA16-090	CHA16-120	CHA16-150
<b>Economizer Gravity Exhaust Dampers (Horizontal)</b> - For use with EMDH16 horizontal economizer damper sections, two neoprene coated fiberglass dampers furnished, rainhoods furnished, bird screen furnished		<b>GED16-09/12</b> (5 lbs.) (2 kg) Net face area - 0.43 sq. ft. (0.04 m <sup>2</sup> ) used with EMDH16M <b>(96H84)</b>		
<b>Electric Heat</b> - 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	<b>ECH16-82/95</b> 10-15-20-30-40 kW (all voltages)		<b>ECH16-135</b> 15-20-30-40-50 kW (all voltages)	
<b>Hail Guards</b> - Heavy duty field installed coil guard protects coils from damage. Not used with Coil Guards.	<b>60L33</b>		<b>60L34</b>	
<b>Unit Fuse Block</b> - Required for electric heat installation, wiring harness and mounting screws furnished	208/230 volt	<b>50L22</b> (50 amp)		<b>50L25</b> (70 amp)
	460 volt	<b>50L24</b> (25 amp)		<b>50L26</b> (35 amp)
	575 volt	<b>50L23</b> (20 amp)	<b>50L24</b> (25 amp)	<b>50L27</b> (30 amp)
<b>Horizontal Supply and Return Air Kit</b> - Provides duct connection to unit, flanges furnished, hardware furnished, two filler panels furnished for unused air openings, filter access panel furnished	LB-55756BA <b>(34G71)</b> 30 lbs. (14 kg)	LB-55756BB <b>(35G42)</b> 35 lbs. (16 kg)	LB-55756BC <b>(51G27)</b> 39 lbs. (18 kg)	
<b>Low Ambient Controls</b> - Allows unit operation down to 0° F (-17.7°C)	LB-57113BC <b>(24H77)</b>	LB-57113BG <b>(15J80)</b>	LB-57113BW <b>(53L84)</b>	
<b>Outdoor Air Damper Section</b> - 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	Model No. - Net Wt.	<b>OAD16-09</b> 41 lbs. (19 kg)	<b>OAD16-12</b> 43 lbs. (20 kg)	<b>OAD16-15</b> 50 lbs. (23 kg)
	Hood		<b>35G24</b>	
	No. & Size of Filters	(1) 16 x 20 x 1 (406 x 508 x 25)	(1) 16 x 20 x 1 (406 x 508 x 25)	(1) 16 x 20 x 1 (406 x 508 x 25)
<b>Outdoor Air Damper Motorized Damper Kit</b> - 3 position damper actuator, plug-in connection		<b>35G21</b> 7 lbs. (3 kg)		
<b>Roof Mounting Frame</b> - Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down	<b>RMF16-09</b> 107 lbs. (49 kg) (32G90)	<b>RMF16-12</b> 119 lbs. (54 kg) (32G91)		
<b>Cycle Control</b> - Required with electro-mechanical thermostat system, provides timed-on and off function, prevents compressor short cycling.			<b>45L54</b>	

## Specifications

Model No.		CHA16-072	CHA16-090	CHA16-120	CHA16-150		
Nominal Tonnage		6	7.5	10	12		
Cooling Ratings	Gross capacity - Btuh (kW)	74,800 (21.9)	92,800 (27.2)	123,000 (36.0)	152,000 (44.5)		
	★Net cooling capacity - Btuh (kW)	72,000 (21.1)	88,000 (25.8)	117,000 (34.3)	144,000 (42.2)		
	Total unit kW	8.0	9.8	13.0	16.0		
	★EER (Btuh/Watts)	9.0					
	★Integrated Part Load Value	---	9.5	9.2	8.5		
	*Sound Rating Number (db)	86	86	82	88		
Refrigerant Charge (HCFC-22)	Circuit 1	9 lbs. 8 oz. (4.31 kg)	6 lbs. 0 oz. (2.72 kg)	7 lbs. 8 oz. (3.4 kg)	8 lbs. 8 oz. (3.9 kg)		
	Circuit 2	---	6 lbs. 0 oz. (2.72 kg)	7 lbs. 8 oz. (3.4 kg)	8 lbs. 8 oz. (3.9 kg)		
Evaporator Blower and Drive Selection	Blower wheel nominal dia. x width in. (mm)	12 x 12 (305 x 305)		15 x 15 (381 x 381)			
	Factory Installed <sup>1</sup> Drives	Nominal motor hp (kW)	2 (1.5)		3 (2.2)		
		Maximum usable hp (kW)	2.30 (1.7)		3.45 (2.6)		
	Voltage & phase	208/230/460v or 575v-3ph					
	RPM range	845 - 1130		735 - 1015			
Evaporator Coil	Net face area - sq. ft (m <sup>2</sup> )	7.75 (0.72)		9.46 (0.88)	11.92 (1.11)		
	Tube diameter - in. (mm) & No. of rows	3/8 (9.5) - 3					
	Fins per inch (m)	14 (551)					
	Expansion device type	Thermostatic Expansion Valve					
	Drain connection size mpt - in. (mm) PVC	1 (25.4)					
Condenser Coil	Net face area - sq. ft (m <sup>2</sup> )	13.0 (1.21)	15.67 (1.46)	24.0 (2.23)			
	Tube diameter - in. (mm) & No. of rows	3/8 (9.5) - 2					
	Fins per inch (m)	20 (787)					
Condenser Fan	Diameter - in. (mm) & No. of blades	(1) 24 (610) - 3	(1) 24 (610) - 4	(2) 20 (508) - 4	(2) 24 (610) - 3		
	Air volume - cfm (L/s)	4100 (1935)	5150 (2430)	6400 (3020)	8400 (3965)		
	Motor horsepower (W)	(1) 1/3 (249)	(1) 3/4 (560)	(2) 1/3 (249)	(2) 1/2 (373)		
	Motor rpm	1075					
	Motor watts	450	650		1250		
Filters (furnished)	Type of filter	Disposable, pleated					
	No. & Size - in. (mm)	(4) 16 x 20 x 2 (406 x 508 x 51)		(2) 16 x 25 x 2 (406 x 635 x 51) & (2) 16 x 20 x 2 (406 x 508 x 51)	(2) 20 x 25 x 2 (508 x 635 x 51) & (2) 20 x 20 x 2 (508 x 508 x 51)		
Net weight of basic unit - lbs. (kg)		660 (299)	810 (367)	1000 (454)	1100 (499)		
Shipping weight of basic unit - lbs. (kg) (1 package)		800 (363)	995 (451)	1185 (538)	1285 (583)		
Electrical characteristics							
208/230v, 460v, or 575v - 60 hertz - 3 phase							

\*Sound Rating Number in accordance with test conditions included in ARI Standard 270.

★Rated in accordance with ARI Standard 210/2400 (-072-090-120 models) or ARI Standard 340/360 (-150 model); 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air. Integrated Part Load Value rated at 80°F (27°C) outdoor air temperature.

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

<sup>1</sup>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 Armstrong 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.

## Electrical Data

Model No.			CHA16-072			CHA16-090			CHA16-120			CHA16-150		
Line voltage data - 60 Hz - 3 phase			208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v
*Recommended max. fuse or circuit breaker size (amps)			50	25	20	50	25	20	70	35	25	70	35	30
†Minimum Circuit Ampacity			34	17	14	42	21	17	58	28	21	59	29	24
Compressor(s)	No. of compressors		1			2			2			2		
	Rated load amps - each (total)		18.8	9.1	7.5	13.3 (26.6)	6.7 (13.4)	5.4 (10.8)	18.6 (37.2)	8.8 (17.7)	6.6 (13.2)	18.8 (37.6)	9.1 (18.2)	7.5 (15.0)
	Locked rotor amps - each (total)		156	70	54	91 (182)	46 (92)	37 (74)	128 (256)	63 (126)	49 (98)	156 (312)	70 (140)	54 (108)
Condenser Fan Motor(s)	No. of Fan Motors		1			1			2			2		
	Full load amps - each		2.4	1.3	1	3.7	1.9	1.6	4.8	2.6	2	6	3	2.4
	Locked rotor amps - each		4.7	2.4	1.9	7.3	3.7	2.9	9.4	4.8	3.8	12	6	5.8
Evaporator Blower Motor	Motor Output - hp (kW)		2 (1.5)			2 (1.5)			3 (2.2)			3 (2.2)		
	Full load amps		7.5	3.4	2.7	7.5	3.7	2.7	10.6	4.8	3.9	10.6	4.8	3.9
	Locked rotor amps		41	20.4	16.2	41	20.4	16.2	66	26.8	23.4	66	26.8	23.4

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

\*Where current does not exceed 100 amps, HACR type circuit breaker may be used in place of fuse (U.S. only).

NOTE - Extremes of operation range are plus and minus 10% of line voltage.

**Bold data indicates field furnished drive.**

## CHA16-072/090 Blower Performance

Air Volume cfm (L/s)	Static Pressure External to Unit - Inches Water Gauge (Pa)																							
	.20 (50)		.30 (75)		.40 (100)		.50 (125)		.60 (150)		.70 (175)		.80 (200)		.90 (225)									
	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)	RPM	BHP (kW)								
2000 (945)	<b>585</b> (26)	.35 (.26)	<b>630</b> (30)	.40 (.30)	<b>680</b> (34)	.45 (.37)	<b>725</b> (37)	.50 (.45)	<b>775</b> (45)	.60 (.48)	<b>820</b> (48)	.65 (.56)	865	.75 (.56)	910 (.60)	.80 (.67)	955 (.71)	1000 (.71)	.95 (.78)	1045 (.78)	1.05 (1.15)	1090 (.86)		
2200 (1040)	<b>625</b> (34)	.45 (.34)	<b>670</b> (37)	.50 (.37)	<b>710</b> (41)	.55 (.41)	<b>755</b> (48)	.65 (.52)	<b>795</b> (52)	.70 (.56)	<b>840</b> (56)	.75 (.67)	880	.85 (.63)	925 (.67)	.90 (.75)	965 (.75)	1005 (.78)	1.05 (1.15)	1050 (.86)	1.15 (1.25)	1090 (.93)		
2400 (1135)	<b>665</b> (41)	.55 (.41)	<b>705</b> (45)	.60 (.45)	<b>745</b> (52)	.70 (.56)	<b>785</b> (56)	.75 (.60)	<b>825</b> (60)	.80 (.60)	865	.90 (.71)	905	.95 (.71)	940 (.78)	1.05 (.82)	980 (.90)	1.10 (1.20)	1020 (1.20)	1.20 (1.30)	1055 (1.04)	1.30 (1.40)	1095 (1.04)	
2600 (1225)	<b>710</b> (52)	.70 (.52)	<b>745</b> (56)	.75 (.56)	<b>780</b> (60)	.80 (.60)	<b>820</b> (67)	.90 (.71)	855	.95 (.71)	890	1.05 (.78)	930	1.10 (.82)	965 (.90)	1.20 (.97)	1000 (1.01)	1.30 (1.03)	1035 (1.01)	1.35 (1.08)	1070 (1.08)	1.45 (1.55)	1105 (1.16)	1.55 (1.66)
2800 (1320)	<b>750</b> (63)	.85 (.63)	<b>785</b> (67)	.90 (.67)	<b>820</b> (71)	.95 (.71)	855	1.05 (.78)	890	1.10 (.82)	925	1.20 (.90)	955	1.30 (.97)	990 (1.01)	1.35 (1.08)	1025 (1.08)	1.45 (1.16)	1055 (1.16)	1.55 (1.23)	1090 (1.31)	1.65 (1.75)	1125 (1.31)	1.75 (1.86)
3000 (1415)	<b>795</b> (75)	1.00 (.75)	<b>830</b> (78)	1.05 (.78)	860	1.15 (.86)	890	1.20 (.90)	925	1.30 (.97)	955	1.40 (1.04)	985	1.45 (1.08)	1020 (1.16)	1.55 (1.23)	1050 (1.23)	1.65 (1.31)	1080 (1.31)	1.75 (1.38)	1115 (1.38)	1.85 (1.45)	<b>1145</b> (1.45)	1.95 (1.95)
3200 (1510)	<b>840</b> (90)	1.20 (.90)	870	1.25 (.93)	900	1.35 (1.01)	930	1.40 (1.04)	960	1.50 (1.12)	990	1.60 (1.19)	1020	1.70 (1.27)	1050 (1.31)	1.75 (1.38)	1080 (1.38)	1.85 (1.45)	1110 (1.45)	1.95 (2.05)	<b>1140</b> (1.53)	2.05 (2.15)	<b>1170</b> (1.60)	2.15 (2.15)
3400 (1605)	885	1.40 (1.04)	915	1.50 (1.12)	940	1.55 (1.16)	970	1.65 (1.23)	1000	1.75 (1.31)	1025	1.80 (1.34)	1055	1.90 (1.42)	1085	2.00 (1.49)	1110 (1.57)	2.10 (1.64)	<b>1140</b> (1.64)	2.20 (2.30)	<b>1165</b> (1.72)	2.30 (2.40)	<b>1195</b> (1.79)	2.40 (2.40)
3600 (1700)	930	1.65 (1.23)	960	1.75 (1.31)	985	1.80 (1.34)	1010	1.90 (1.42)	1040	2.00 (1.49)	1065	2.10 (1.57)	1090	2.20 (1.64)	1120	2.30 (1.72)	<b>1145</b> (1.79)	2.40 (1.87)	<b>1170</b> (1.87)	2.50 (2.09)	<b>1200</b> (1.94)	2.60 (2.09)	<b>1225</b> (2.01)	2.70 (2.25)
3800 (1795)	975	1.90 (1.42)	1005	2.00 (1.49)	1030	2.10 (1.57)	1055	2.20 (1.64)	1080	2.30 (1.72)	<b>1105</b> (1.79)	<b>2.40</b> (1.87)	<b>1130</b> (1.87)	<b>2.50</b> (1.94)	<b>1155</b> (1.94)	<b>2.60</b> (1.80)	<b>1180</b> (2.01)	<b>2.70</b> (2.09)	<b>1205</b> (2.09)	<b>2.80</b> (2.09)	<b>1230</b> (2.16)	<b>2.90</b> (2.25)	<b>1255</b> (2.24)	<b>3.00</b> (2.24)

NOTE - All data is measured external to the unit with dry coil and with the air filters in place. See pages 8 & 9 for Accessory Air Resistance.

NOTE - In Canada, maximum usable motor output is 2 hp (1.5 kW)

**CHA 16-120 Blower Performance**

**Bold data indicates field furnished drive.**

Air Volume cfm (L/s)	Static Pressure External to Unit - Inches Water Gauge (Pa)																											
	.20 (50)		.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)	
	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)		
3000 (1415)	<b>510</b> (.37)	.50 (.45)	550 (.45)	.60 (.48)	585 (.48)	.65 (.52)	620 (.52)	.70 (.52)	655 (.60)	.80 (.60)	690 (.63)	.85 (.71)	<b>720</b> (.71)	.95 (.75)	750 (.75)	1.00 (.78)	780 (.78)	1.05 (.86)	810 (.90)	1.15 (.90)	840 (.90)	1.20 (.90)	870 (.97)	1.30 (.97)	895 (1.04)	1.40 (1.04)	925 (1.08)	1.45 (1.08)
3200 (1510)	<b>535</b> (.45)	.60 (.52)	570 (.52)	.70 (.56)	605 (.56)	.75 (.60)	640 (.60)	.80 (.60)	670 (.67)	.90 (.67)	705 (.71)	.95 (.71)	735 (.78)	1.05 (.82)	765 (.82)	1.10 (.90)	795 (.90)	1.20 (.97)	825 (.97)	1.30 (1.01)	850 (1.08)	1.35 (1.08)	880 (1.12)	1.45 (1.12)	905 (1.12)	1.50 (1.12)	930 (1.19)	1.60 (1.19)
3400 (1605)	<b>560</b> (.52)	.70 (.60)	595 (.60)	.80 (.63)	630 (.63)	.85 (.71)	660 (.71)	.95 (.75)	690 (.75)	1.00 (.82)	<b>720</b> (.82)	1.10 (.82)	750 (.86)	1.15 (.93)	780 (.93)	1.25 (1.01)	810 (1.01)	1.35 (1.04)	835 (1.04)	1.40 (1.04)	865 (1.12)	1.50 (1.12)	890 (1.19)	1.60 (1.19)	915 (1.23)	1.65 (1.23)	940 (1.31)	1.75 (1.31)
3600 (1700)	<b>585</b> (.63)	.85 (.67)	620 (.67)	.90 (.75)	650 (.75)	1.00 (.78)	680 (.78)	1.05 (.86)	710 (.86)	1.15 (.86)	740 (.93)	1.25 (.97)	770 (.97)	1.30 (1.04)	795 (1.04)	1.40 (1.12)	825 (1.16)	1.50 (1.16)	850 (1.16)	1.55 (1.23)	875 (1.23)	1.65 (1.23)	900 (1.27)	1.70 (1.27)	925 (1.34)	1.80 (1.34)	950 (1.42)	1.90 (1.42)
3800 (1795)	<b>610</b> (.71)	.95 (.78)	645 (.78)	1.05 (.82)	670 (.82)	1.10 (.90)	700 (.90)	1.20 (.90)	<b>730</b> (.97)	1.30 (.97)	760 (1.04)	1.40 (1.04)	785 (1.08)	1.45 (1.16)	815 (1.16)	1.55 (1.23)	840 (1.23)	1.65 (1.27)	865 (1.27)	1.70 (1.34)	890 (1.34)	1.80 (1.42)	915 (1.42)	1.90 (1.49)	940 (1.49)	2.00 (1.49)	965 (1.57)	2.10 (1.57)
4000 (1890)	<b>640</b> (.82)	1.10 (.90)	665 (.90)	1.20 (.97)	695 (.97)	1.30 (1.01)	725 (1.01)	1.35 (1.08)	750 (1.08)	1.45 (1.08)	780 (1.16)	1.55 (1.23)	805 (1.23)	1.65 (1.27)	830 (1.27)	1.70 (1.34)	855 (1.34)	1.80 (1.42)	880 (1.42)	1.90 (1.49)	905 (1.49)	2.00 (1.49)	930 (1.57)	2.10 (1.57)	955 (1.64)	2.20 (1.64)	980 (1.72)	2.30 (1.72)
4200 (1980)	<b>665</b> (.97)	1.30 (1.01)	690 (1.01)	1.35 (1.08)	<b>720</b> (1.08)	1.45 (1.08)	745 (1.16)	1.55 (1.23)	775 (1.23)	1.65 (1.27)	800 (1.27)	1.70 (1.34)	825 (1.34)	1.80 (1.42)	850 (1.42)	1.90 (1.49)	875 (1.49)	2.00 (1.49)	900 (1.57)	2.10 (1.64)	920 (1.64)	2.20 (1.64)	945 (1.72)	2.30 (1.72)	970 (1.79)	2.40 (1.79)	990 (1.83)	2.45 (1.83)
4400 (2075)	<b>690</b> (1.08)	<b>715</b> (1.16)	745 (1.23)	1.65 (1.27)	770 (1.27)	1.70 (1.34)	795 (1.34)	1.80 (1.42)	820 (1.42)	1.90 (1.49)	845 (1.49)	2.00 (1.57)	870 (1.57)	2.10 (1.64)	895 (1.64)	2.20 (1.72)	915 (1.72)	2.30 (1.79)	940 (1.79)	2.40 (1.79)	960 (1.87)	2.50 (1.94)	985 (1.94)	2.60 (1.94)	1005 (2.01)	2.70 (2.01)		
4600 (2170)	<b>715</b> (1.23)	745 (1.31)	1.75 (1.31)	770 (1.38)	1.85 (1.45)	795 (1.53)	1.95 (1.45)	820 (1.53)	2.05 (1.57)	840 (1.57)	2.10 (1.64)	865 (1.64)	2.20 (1.72)	890 (1.72)	2.30 (1.79)	910 (1.79)	2.40 (1.87)	935 (1.87)	2.50 (1.94)	955 (1.94)	2.60 (2.05)	980 (2.05)	2.75 (2.05)	1000 (2.09)	2.80 (2.09)	<b>1025</b> (2.20)	<b>2.95</b> (2.20)	
4800 (2265)	745 (1.38)	770 (1.45)	1.95 (1.45)	795 (1.53)	2.05 (1.60)	825 (1.60)	2.15 (1.68)	840 (1.68)	2.25 (1.75)	865 (1.75)	2.35 (1.83)	885 (1.83)	2.45 (1.90)	910 (1.90)	2.55 (1.98)	930 (1.98)	2.65 (2.05)	955 (2.05)	2.75 (2.13)	975 (2.13)	2.85 (2.24)	1000 (2.24)	3.00 (2.24)	<b>1020</b> (2.31)	<b>3.10</b> (2.31)	<b>1040</b> (2.39)	<b>3.20</b> (2.39)	
5000 (2360)	770 (1.53)	795 (1.60)	2.15 (1.60)	820 (1.72)	2.30 (1.75)	840 (1.75)	2.35 (1.87)	865 (1.87)	2.50 (1.94)	885 (1.94)	2.60 (2.01)	910 (2.01)	2.70 (2.09)	930 (2.09)	2.80 (2.09)	955 (2.09)	2.90 (2.16)	975 (2.16)	3.00 (2.24)	995 (2.24)	3.10 (2.31)	1015 (2.42)	3.25 (2.42)	<b>1035</b> (2.50)	<b>3.35</b> (2.50)	<b>1055</b> (2.57)	<b>3.45</b> (2.57)	
5200 (2455)	800 (1.72)	820 (1.79)	2.40 (1.79)	845 (1.90)	2.55 (1.90)	865 (1.94)	2.60 (1.94)	890 (2.05)	2.75 (2.13)	910 (2.13)	2.85 (2.20)	930 (2.20)	2.95 (2.20)	955 (2.20)	3.10 (2.31)	975 (2.39)	3.20 (2.39)	995 (2.46)	3.30 (2.54)	1015 (2.54)	3.40 (2.54)	--	--	--	--	--	--	

NOTE - All data is measured external to the unit with dry coil and with the air filters in place. See page 8 & 9 for Accessory Air Restance.

NOTE - In Canada, maximum usable motor output is 3 hp (2.2 kW)

## CHA 16-150 Blower Performance

**Bold data indicates field furnished drive. Shaded data indicates field furnished motor.**

Air Volume cfm (L/s)	Static Pressure External to Unit - Inches Water Gauge (Pa)																														
	.20 (50)		.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)		
	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)					
3800 (1795)	<b>580</b> <b>(.67)</b>	<b>.90</b> <b>(.67)</b>	<b>615</b> <b>(.75)</b>	<b>1.00</b> <b>(.75)</b>	<b>650</b> <b>(.82)</b>	<b>1.10</b> <b>(.82)</b>	<b>680</b> <b>(.90)</b>	<b>1.20</b> <b>(.90)</b>	<b>710</b> <b>(.97)</b>	<b>1.30</b> <b>(.97)</b>	740	1.35 (1.01)	765	1.45 (1.08)	795	1.55 (1.16)	820	1.65 (1.23)	845	1.70 (1.27)	870	1.80 (1.34)	895	1.90 (1.42)	920	2.00 (1.49)	940	2.05 (1.53)	965	2.15 (1.60)	
3900 (1840)	<b>590</b> <b>(.75)</b>	<b>1.00</b> <b>(.75)</b>	<b>625</b> <b>(.78)</b>	<b>1.05</b> <b>(.78)</b>	<b>660</b> <b>(.86)</b>	<b>1.15</b> <b>(.86)</b>	<b>690</b> <b>(.93)</b>	<b>1.25</b> <b>(.93)</b>	<b>720</b> <b>(1.01)</b>	<b>1.35</b> <b>(1.01)</b>	750	1.45 (1.08)	775	1.55 (1.16)	805	1.65 (1.23)	830	1.75 (1.31)	855	1.80 (1.34)	880	1.90 (1.42)	900	2.00 (1.49)	925	2.10 (1.57)	950	2.20 (1.64)	970	2.25 (1.68)	
4000 (1890)	<b>605</b> <b>(.78)</b>	<b>1.05</b> <b>(.78)</b>	<b>640</b> <b>(.86)</b>	<b>1.15</b> <b>(.86)</b>	<b>670</b> <b>(.93)</b>	<b>1.25</b> <b>(.93)</b>	<b>700</b> <b>(1.01)</b>	<b>1.35</b> <b>(1.01)</b>	<b>730</b> <b>(1.08)</b>	<b>1.45</b> <b>(1.08)</b>	760	1.55 (1.16)	785	1.60 (1.19)	810	1.70 (1.27)	835	1.80 (1.34)	860	1.90 (1.42)	885	2.00 (1.49)	910	2.10 (1.57)	935	2.20 (1.64)	955	2.25 (1.68)	980	2.35 (1.75)	
4100 (1935)	<b>615</b> <b>(.82)</b>	<b>1.10</b> <b>(.82)</b>	<b>650</b> <b>(.90)</b>	<b>1.20</b> <b>(.90)</b>	<b>680</b> <b>(.97)</b>	<b>1.30</b> <b>(.97)</b>	<b>710</b> <b>(1.04)</b>	<b>1.40</b> <b>(1.04)</b>	740	1.50 (1.12)	765	1.60 (1.19)	795	1.70 (1.27)	820	1.80 (1.34)	845	1.90 (1.42)	870	2.00 (1.49)	895	2.10 (1.57)	915	2.20 (1.64)	940	2.30 (1.72)	965	2.40 (1.79)	985	2.45 (1.83)	
4200 (1980)	<b>630</b> <b>(.90)</b>	<b>1.20</b> <b>(.90)</b>	<b>660</b> <b>(.97)</b>	<b>1.30</b> <b>(.97)</b>	<b>690</b> <b>(1.04)</b>	<b>1.40</b> <b>(1.04)</b>	<b>720</b> <b>(1.12)</b>	<b>1.50</b> <b>(1.12)</b>	750	1.60 (1.19)	775	1.70 (1.27)	805	1.80 (1.34)	830	1.90 (1.42)	855	2.00 (1.49)	880	2.10 (1.57)	900	2.20 (1.64)	925	2.30 (1.72)	950	2.40 (1.79)	970	2.50 (1.87)	990	2.55 (1.90)	
4300 (2030)	<b>640</b> <b>(.93)</b>	<b>1.25</b> <b>(.93)</b>	<b>670</b> <b>(1.01)</b>	<b>1.35</b> <b>(1.01)</b>	<b>700</b> <b>(1.12)</b>	<b>1.50</b> <b>(1.12)</b>	<b>730</b> <b>(1.19)</b>	<b>1.60</b> <b>(1.19)</b>	760	1.70 (1.27)	785	1.80 (1.34)	810	1.90 (1.42)	840	2.00 (1.49)	860	2.10 (1.57)	885	2.20 (1.64)	910	2.30 (1.72)	935	2.40 (1.79)	955	2.50 (1.87)	980	2.60 (1.94)	1000	2.70 (2.01)	
4400 (2075)	<b>650</b> <b>(1.01)</b>	<b>1.35</b> <b>(1.01)</b>	<b>685</b> <b>(1.08)</b>	<b>1.45</b> <b>(1.08)</b>	<b>710</b> <b>(1.16)</b>	<b>1.55</b> <b>(1.16)</b>	740	1.65 (1.23)	770	1.80 (1.34)	795	1.90 (1.42)	820	2.00 (1.49)	845	2.10 (1.57)	870	2.20 (1.64)	895	2.30 (1.72)	920	2.40 (1.79)	940	2.50 (1.87)	965	2.60 (1.94)	985	2.70 (2.09)	1005	2.80 (2.09)	
4500 (2125)	<b>665</b> <b>(1.08)</b>	<b>1.45</b> <b>(1.08)</b>	<b>695</b> <b>(1.16)</b>	<b>1.55</b> <b>(1.16)</b>	<b>725</b> <b>(1.23)</b>	<b>1.65</b> <b>(1.23)</b>	750	1.75 (1.31)	780	1.90 (1.42)	805	2.00 (1.49)	830	2.10 (1.57)	855	2.20 (1.64)	880	2.30 (1.72)	905	2.40 (1.79)	925	2.50 (1.87)	950	2.60 (1.94)	970	2.70 (2.01)	995	2.85 (2.13)	1015	2.95 (2.20)	
4600 (2170)	<b>675</b> <b>(1.12)</b>	<b>1.50</b> <b>(1.12)</b>	<b>705</b> <b>(1.23)</b>	<b>1.65</b> <b>(1.23)</b>	735	1.75 (1.31)	760	1.85 (1.38)	790	1.95 (1.45)	815	2.10 (1.57)	840	2.20 (1.64)	865	2.30 (1.72)	890	2.40 (1.79)	910	2.50 (1.87)	935	2.60 (1.94)	960	2.75 (2.05)	980	2.85 (2.13)	1000	2.95 (2.20)	<b>1020</b> <b>(2.28)</b>		
4700 (2220)	<b>690</b> <b>(1.23)</b>	<b>1.65</b> <b>(1.23)</b>	<b>715</b> <b>(1.27)</b>	<b>1.70</b> <b>(1.27)</b>	745	1.85 (1.38)	775	1.95 (1.45)	800	2.10 (1.57)	825	2.20 (1.64)	850	2.30 (1.72)	875	2.40 (1.79)	900	2.55 (1.90)	920	2.60 (1.94)	945	2.75 (2.05)	965	2.85 (2.13)	990	2.95 (2.20)	<b>1030</b> <b>(2.39)</b>				
4800 (2265)	<b>700</b> <b>(1.27)</b>	<b>1.70</b> <b>(1.27)</b>	<b>730</b> <b>(1.38)</b>	<b>1.85</b> <b>(1.38)</b>	755	1.95 (1.45)	785	2.05 (1.53)	810	2.20 (1.64)	835	2.30 (1.72)	860	2.40 (1.79)	885	2.55 (1.90)	905	2.60 (1.94)	930	2.75 (2.05)	955	2.85 (2.13)	975	3.00 (2.24)	995	3.10 (2.31)	1015	3.20 (2.39)	<b>1040</b> <b>(2.46)</b>		
4900 (2310)	<b>710</b> <b>(1.34)</b>	1.80 (1.45)	740	2.05 (1.53)	770	2.15 (1.53)	795	2.30 (1.60)	820	2.30 (1.72)	845	2.40 (1.79)	870	2.50 (1.87)	895	2.65 (1.98)	915	2.75 (2.05)	940	2.85 (2.13)	960	3.00 (2.24)	985	3.10 (2.31)	1005	3.20 (2.39)	<b>1025</b> <b>(2.50)</b>	<b>3.35</b> <b>(2.57)</b>	<b>1045</b> <b>(2.57)</b>		
5000 (2360)	<b>725</b> <b>(1.42)</b>	1.90 (1.53)	755	2.05 (1.60)	780	2.15 (1.60)	805	2.30 (1.72)	830	2.40 (1.79)	855	2.50 (1.87)	880	2.65 (1.98)	905	2.75 (2.05)	925	2.85 (2.13)	950	3.00 (2.24)	970	3.10 (2.31)	990	3.20 (2.31)	1015	3.35 (2.50)	<b>1035</b> <b>(2.57)</b>	<b>3.45</b> <b>(2.57)</b>	<b>1055</b> <b>(2.69)</b>		
5100 (2405)	2.00 (1.49)	2.15 (1.60)	765 (1.68)	2.25 (1.68)	790 (1.68)	2.40 (1.79)	815 (1.79)	2.50 (1.87)	840 (1.87)	2.65 (1.98)	865 (1.98)	2.75 (2.05)	890 (2.05)	2.90 (2.16)	915 (2.16)	3.05 (2.24)	935 (2.24)	3.20 (2.45)	960 (2.45)	3.35 (2.55)	980 (2.42)	3.50 (2.61)	1020 (2.69)	3.60 (2.69)	1040 (2.69)	3.70 (2.76)	1060 (2.76)				
5200 (2455)	2.15 (1.60)	2.25 (1.68)	775 (1.68)	2.40 (1.79)	800 (1.79)	2.55 (1.90)	820 (1.90)	2.65 (1.98)	845 (1.98)	2.75 (2.05)	875 (2.05)	2.90 (2.16)	900 (2.16)	3.05 (2.28)	925 (2.28)	3.15 (2.35)	945 (2.35)	3.25 (2.54)	965 (2.54)	3.35 (2.71)	990 (2.61)	3.45 (2.80)	1010 (2.87)	3.55 (2.87)	1030 (2.87)	3.65 (2.87)	1050 (2.87)				
5300 (2500)	2.25 (1.68)	2.40 (1.79)	790 (1.79)	2.50 (1.87)	815 (1.87)	2.65 (1.98)	840 (1.98)	2.80 (2.09)	865 (2.09)	2.90 (2.16)	885 (2.16)	2.90 (2.24)	910 (2.24)	3.00 (2.35)	935 (2.35)	3.15 (2.42)	955 (2.42)	3.25 (2.54)	975 (2.54)	3.40 (2.65)	1000 (2.65)	3.55 (2.72)	<b>1020</b> <b>(2.72)</b>	<b>3.65</b> <b>(2.83)</b>	<b>1040</b> <b>(2.91)</b>	<b>3.80</b> <b>(3.09)</b>	<b>1060</b> <b>(3.09)</b>	<b>3.90</b> <b>(3.21)</b>	<b>1080</b> <b>(3.21)</b>	<b>4.05</b> <b>(3.45)</b>	
5400 (2550)	2.40 (1.79)	2.50 (1.87)	800 (1.87)	2.65 (1.98)	825 (1.98)	2.75 (2.05)	850 (2.05)	2.90 (2.16)	875 (2.16)	2.90 (2.24)	895 (2.24)	3.00 (2.35)	920 (2.35)	3.15 (2.46)	945 (2.46)	3.30 (2.54)	965 (2.54)	3.40 (2.54)	985 (2.54)	3.55 (2.65)	1010 (2.76)	3.70 (2.76)	<b>1030</b> <b>(2.83)</b>	<b>3.80</b> <b>(3.02)</b>	<b>1050</b> <b>(2.95)</b>	<b>3.95</b> <b>(3.02)</b>	<b>1070</b> <b>(3.02)</b>	<b>4.05</b> <b>(3.13)</b>	<b>1090</b> <b>(3.13)</b>		
5500 (2595)	2.50 (1.87)	2.60 (1.94)	810 (1.94)	2.75 (2.05)	835 (2.05)	2.90 (2.16)	860 (2.16)	3.05 (2.28)	885 (2.28)	3.15 (2.35)	910 (2.35)	3.30 (2.46)	930 (2.46)	3.45 (2.57)	955 (2.57)	3.45 (2.65)	975 (2.65)	3.55 (2.76)	995 (2.76)	3.70 (2.83)	1015 (2.83)	3.80 (2.83)	<b>1035</b> <b>(2.95)</b>	<b>3.95</b> <b>(3.02)</b>	<b>1055</b> <b>(3.02)</b>	<b>4.05</b> <b>(3.13)</b>	<b>1075</b> <b>(3.13)</b>	<b>4.20</b> <b>(3.25)</b>	<b>4.35</b> <b>(3.25)</b>		
5600 (2645)	2.60 (1.98)	2.75 (2.05)	825 (2.05)	2.90 (2.16)	850 (2.16)	3.05 (2.35)	875 (2.35)	3.15 (2.46)	900 (2.46)	3.30 (2.57)	920 (2.57)	3.45 (2.69)	940 (2.69)	3.60 (2.76)	965 (2.76)	3.70 (2.76)	985 (2.76)	3.80 (2.76)	1005 (2.76)	3.85 (2.87)	<b>1025</b> <b>(2.95)</b>	<b>3.95</b> <b>(3.06)</b>	<b>1045</b> <b>(3.06)</b>	<b>4.10</b> <b>(3.06)</b>	<b>4.25</b> <b>(3.06)</b>	<b>1065</b> <b>(3.06)</b>	<b>4.35</b> <b>(3.06)</b>	<b>1085</b> <b>(3.06)</b>	<b>4.45</b> <b>(3.06)</b>	<b>1105</b> <b>(3.06)</b>	<b>4.50</b> <b>(3.06)</b>
5700 (2690)	2.75 (2.05)	2.90 (2.16)	835 (2.16)	3.05 (2.28)	860 (2.28)	3.20 (2.39)	885 (2.39)	3.30 (2.46)	905 (2.46)	3.45 (2.57)	930 (2.57)	3.45 (2.65)	950 (2.65)	3.55 (2.80)	975 (2.80)	3.75 (2.87)	995 (2.87)	3.85 (2.87)	1015 (2.87)	4.00 (2.98)	<b>1035</b> <b>(3.06)</b>	<b>4.10</b> <b>(3.06)</b>	<b>1055</b> <b>(3.06)</b>	<b>4.25</b> <b>(3.06)</b>	<b>1075</b> <b>(3.06)</b>	<b>4.40</b> <b>(3.06)</b>	<b>1095</b> <b>(3.06)</b>	<b>4.55</b> <b>(3.06)</b>	<b>1115</b> <b>(3.06)</b>	<b>4.65</b> <b>(3.06)</b>	
5800 (2735)	2.90 (2.16)	3.05 (2.28)	850 (2.28)	3.15 (2.35)	870 (2.35)	3.30 (2.46)	900 (2.46)	3.45 (2.57)	920 (2.57)	3.																					

## Accessory Air Resistance

Unit Model No.	Air Volume		Total Resistance - inches water gauge (Pa)						FD11 Flush Diffuser
			Wet Evaporator Coil	REMD16M Down-Flow Economizer	EMDH16M Horizontal Economizer	RTD11 Step-Down Diffuser			
	cfm	L/s				2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
CHA16-072	2000	945	.10 (25)	.11 (27)	.02 (5)	.15 (37)	.12 (30)	.11 (27)	.08 (20)
	2200	1040	.11 (27)	.15 (37)	.03 (7)	.18 (45)	.15 (37)	.13 (32)	.11 (27)
	2400	1185	.12 (30)	.19 (47)	.03 (7)	.21 (52)	.18 (45)	.15 (37)	.14 (35)
	2600	1225	.13 (32)	.23 (57)	.04 (10)	.24 (60)	.21 (52)	.18 (45)	.17 (42)
	2800	1320	.14 (35)	.27 (67)	.04 (10)	.27 (67)	.24 (60)	.21 (52)	.20 (50)
	3000	1415	.16 (40)	.31 (77)	.05 (12)	.32 (80)	.29 (72)	.25 (62)	.25 (62)
	3200	1510	.18 (45)	.35 (87)	.05 (12)	.41 (102)	.37 (92)	.32 (80)	.31 (77)
	3400	1605	.19 (47)	.41 (102)	.06 (15)	.50 (124)	.45 (112)	.39 (97)	.37 (92)
	3600	1700	.21 (52)	.47 (117)	.06 (15)	.61 (152)	.54 (134)	.48 (119)	.44 (109)
	3800	1795	.23 (57)	.57 (142)	.07 (17)	.73 (182)	.63 (157)	.57 (142)	.51 (127)
CHA16-090	3600	1700	.12 (30)	.14 (35)	.03 (7)	.36 (90)	.28 (70)	.23 (57)	.15 (37)
	3800	1795	.13 (32)	.15 (37)	.04 (10)	.40 (99)	.32 (80)	.26 (65)	.18 (45)
	4000	1890	.14 (35)	.16 (40)	.04 (10)	.44 (109)	.36 (90)	.29 (72)	.21 (52)
	4200	1980	.15 (37)	.17 (42)	.05 (12)	.49 (122)	.40 (99)	.33 (82)	.24 (60)
	4400	2075	.16 (40)	.18 (45)	.05 (12)	.54 (134)	.44 (109)	.37 (92)	.27 (67)
	4600	2170	.17 (42)	.20 (50)	.06 (15)	.60 (149)	.49 (122)	.42 (104)	.31 (77)
	4800	2265	.18 (45)	.22 (55)	.07 (17)	.65 (162)	.53 (132)	.46 (114)	.35 (87)
	5000	2360	.19 (47)	.24 (60)	.09 (22)	.69 (172)	.58 (144)	.50 (124)	.39 (97)
	5200	2455	.20 (50)	.27 (67)	.10 (25)	.75 (186)	.62 (154)	.54 (134)	.43 (107)
	4200	1980	.17 (42)	.18 (45)	.06 (15)	.22 (55)	.19 (47)	.16 (40)	.10 (25)
CHA16-120	4400	2075	.18 (45)	.20 (50)	.07 (17)	.28 (70)	.24 (60)	.20 (50)	.12 (30)
	4600	2170	.20 (50)	.21 (52)	.07 (17)	.34 (85)	.29 (72)	.24 (60)	.15 (37)
	4800	2265	.21 (52)	.23 (57)	.08 (20)	.40 (99)	.34 (85)	.29 (72)	.19 (47)
	5000	2360	.22 (55)	.26 (65)	.08 (20)	.46 (114)	.39 (97)	.34 (85)	.23 (57)
	5200	2455	.24 (60)	.31 (77)	.09 (22)	.52 (129)	.44 (109)	.39 (97)	.27 (67)
	5400	2550	.25 (62)	.34 (85)	.10 (25)	.58 (144)	.49 (122)	.43 (107)	.31 (77)
	5600	2640	.26 (65)	.38 (94)	.12 (30)	.64 (159)	.54 (134)	.47 (117)	.35 (87)
	5800	2735	.28 (70)	.40 (99)	.13 (32)	.70 (174)	.59 (147)	.51 (127)	.39 (97)
	4200	1980	.17 (42)	.18 (45)	.06 (15)	.22 (55)	.19 (47)	.16 (40)	.10 (25)
	4400	2075	.18 (45)	.20 (50)	.07 (17)	.28 (70)	.24 (60)	.20 (50)	.12 (30)
CHA16-150	4600	2170	.20 (50)	.21 (52)	.07 (17)	.34 (85)	.29 (72)	.24 (60)	.15 (37)
	4800	2265	.21 (52)	.23 (57)	.08 (20)	.40 (99)	.34 (85)	.29 (72)	.19 (47)
	5000	2360	.22 (55)	.26 (65)	.08 (20)	.46 (114)	.39 (97)	.34 (85)	.23 (57)
	5200	2455	.24 (60)	.31 (77)	.09 (22)	.52 (129)	.44 (109)	.39 (97)	.27 (67)
	5400	2550	.25 (62)	.34 (85)	.10 (25)	.58 (144)	.49 (122)	.43 (107)	.31 (77)
	5600	2640	.26 (65)	.38 (94)	.12 (30)	.64 (159)	.54 (134)	.47 (117)	.35 (87)
	5800	2735	.28 (70)	.40 (99)	.13 (32)	.70 (174)	.59 (147)	.51 (127)	.39 (97)
	4200	1980	.17 (42)	.18 (45)	.06 (15)	.22 (55)	.19 (47)	.16 (40)	.10 (25)
	4400	2075	.18 (45)	.20 (50)	.07 (17)	.28 (70)	.24 (60)	.20 (50)	.12 (30)
	4600	2170	.20 (50)	.21 (52)	.07 (17)	.34 (85)	.29 (72)	.24 (60)	.15 (37)

NOTE - Electric heat has no appreciable air resistance.

## Ceiling Diffuser Air Throw Data

Model No.	Air Volume		Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	cfm	L/s	ft.	m	ft.	m
CHA16-072	2625	1240	24 - 29	7 - 9	22 - 26	7 - 8
	3000	1415	27 - 33	8 - 10	25 - 30	8 - 9
	3375	1595	30 - 37	9 - 11	28 - 34	9 - 10
	3750	1770	34 - 41	10 - 12	31 - 38	9 - 12
CHA16-120	4400	2075	34 - 42	10 - 13	32 - 40	10 - 12
	4950	2335	38 - 47	12 - 14	36 - 45	11 - 14
	5500	2595	43 - 52	13 - 16	40 - 50	12 - 15
CHA16-150	4200	1980	39 - 46	12 - 14	40 - 48	12 - 15
	5000	2360	41 - 50	12 - 15	43 - 52	13 - 16
	5800	2735	43 - 52	13 - 16	45 - 54	14 - 16

<sup>1</sup>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.

## Cooling Ratings

### CHA16-072

Entering Wet Bulb Temp.	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)				95°F (35°C)				105°F (41°C)				115°F (46°C)											
	Total Cooling Capacity	Comp. Motor kW Input	Sensible to Total Ratio (S/T)		Total Cooling Capacity	Comp. Motor kW Input	Sensible to Total Ratio (S/T)		Total Cooling Capacity	Comp. Motor kW Input	Sensible to Total Ratio (S/T)		Total Cooling Capacity	Comp. Motor kW Input	Sensible to Total Ratio (S/T)		Total Cooling Capacity	Comp. Motor kW Input	Sensible to Total Ratio (S/T)							
			Dry Bulb				Dry Bulb				Dry Bulb				Dry Bulb				Dry Bulb							
	cfm	L/s	kBtuh	kW	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	75°F (24°C)	80°F (27°C)	85°F (29°C)				
63°F (17°C)	1900	895	70.7	20.7	.523	.71	.84	.96	68.3	20.0	5.86	.72	.86	.97	65.6	19.2	6.58	.73	.87	.99	62.8	18.4	.739	.75	.89	1.00
	2400	1135	73.5	21.5	5.31	.76	.91	1.00	71.0	20.8	5.93	.78	.93	1.00	68.2	20.0	6.65	.79	.94	1.00	65.3	19.1	.746	.81	.96	1.00
	2900	1370	75.7	22.2	5.35	.81	.97	1.00	73.1	21.4	5.99	.83	.98	1.00	70.5	20.7	6.71	.85	.99	1.00	67.6	19.8	.754	.86	1.00	1.00
67°F (19°C)	1900	895	75.1	22.0	5.34	.56	.69	.81	72.5	21.2	5.97	.57	.70	.82	69.7	20.4	6.69	.57	.71	.84	66.7	19.5	.751	.58	.72	.86
	2400	1135	77.6	22.7	5.41	.59	.74	.88	74.8	21.9	6.05	.60	.75	.90	71.9	21.1	6.76	.61	.77	.91	68.7	20.1	.757	.62	.78	.93
	2900	1370	79.3	23.2	5.46	.62	.79	.94	76.5	22.4	6.09	.63	.81	.96	73.5	21.5	6.81	.64	.82	.97	70.2	20.6	.764	.65	.84	.99
71°F (22°C)	1900	895	79.9	23.4	5.47	.42	.54	.66	77.2	22.6	6.11	.42	.55	.67	74.2	21.7	6.83	.43	.56	.68	71.0	20.8	.766	.43	.56	.70
	2400	1135	82.3	24.1	5.54	.43	.58	.72	79.4	23.3	6.18	.44	.58	.73	76.3	22.4	6.91	.44	.59	.75	73.0	21.4	.773	.44	.60	.76
	2900	1370	83.9	24.6	5.59	.45	.61	.77	80.9	23.7	6.23	.45	.62	.79	77.8	22.8	6.95	.45	.63	.80	74.3	21.8	.779	.46	.64	.82

## Cooling Ratings

### CHA16-090 - One Compressor Operating

Entering Wet Bulb Temper- ature	Total Air Volume	Outdo or Air Temperature Entering Outdoor Coil																								
		65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)						
		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		
		cfm	L/s	kBtuh	kW	Dry Bulb		kBtuh	kW	Dry Bulb		75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Dry Bulb		75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Dry Bulb		
63°F (17°C)	2500	1180	46.4	13.6	2.73	.69	.82	.93	45.1	13.2	3.04	.70	.83	.94	43.7	12.8	3.39	.71	.84	.96	42.2	12.4	3.80	.72	.85	.97
	3000	1415	47.8	14.0	2.76	.72	.87	.98	46.4	13.6	3.07	.73	.88	.99	44.9	13.2	3.42	.75	.89	1.00	43.4	12.7	3.84	.76	.91	1.00
	3500	1650	48.9	14.3	2.79	.76	.91	1.00	47.5	13.9	3.10	.77	.92	1.00	46.0	13.5	3.45	.79	.94	1.00	44.4	13.0	3.87	.80	.95	1.00
67°F (19°C)	2500	1180	49.3	14.4	2.79	.55	.67	.79	47.8	14.0	3.10	.55	.67	.80	46.3	13.6	3.46	.56	.68	.81	44.7	13.1	3.87	.56	.69	.82
	3000	1415	50.5	14.8	2.82	.57	.70	.84	49.0	14.4	3.14	.57	.71	.85	47.4	13.9	3.49	.58	.72	.86	45.7	13.4	3.90	.58	.73	.88
	3500	1650	51.4	15.1	2.85	.59	.74	.88	49.8	14.6	3.16	.59	.75	.90	48.2	14.1	3.52	.60	.76	.91	46.5	13.6	3.93	.61	.78	.93
71°F (22°C)	2500	1180	52.3	15.3	2.87	.42	.53	.64	50.7	14.9	3.18	.42	.54	.65	49.1	14.4	3.55	.42	.54	.66	47.4	13.9	3.96	.42	.55	.67
	3000	1415	53.5	15.7	2.90	.42	.55	.68	51.9	15.2	3.22	.43	.56	.69	50.2	14.7	3.58	.43	.56	.70	48.4	14.2	4.00	.43	.57	.71
	3500	1650	54.4	15.9	2.93	.43	.58	.72	52.8	15.5	3.25	.43	.58	.73	51.0	14.9	3.61	.44	.59	.74	49.2	14.4	4.02	.44	.60	.76

### CHA16-090 - All Compressors Operating

Entering Wet Bulb Temper- ature	Total Air Volume	Outdo or Air Temperature Entering Outdoor Coil																								
		85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)						
		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW Input		Sensible to Total Ratio (S/T)		
		cfm	L/s	kBtuh	kW	Dry Bulb		kBtuh	kW	Dry Bulb		75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Dry Bulb		75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Dry Bulb		
63°F (17°C)	2500	1180	88.9	26.1	6.80	.72	.85	.97	85.8	25.1	7.62	.73	.87	.98	82.6	24.2	8.57	.74	.88	.99	79.0	23.2	9.65	.75	.90	1.00
	3000	1415	91.4	26.8	6.87	.76	.91	1.00	88.3	25.9	7.70	.77	.92	1.00	84.8	24.9	8.64	.79	.94	1.00	81.2	23.8	9.75	.80	.96	1.00
	3500	1650	93.6	27.4	6.93	.80	.95	1.00	90.3	26.5	7.76	.81	.96	1.00	86.9	25.5	8.71	.83	.98	1.00	83.4	24.4	9.81	.85	.99	1.00
67°F (19°C)	2500	1180	94.1	27.6	6.94	.56	.69	.82	90.8	26.6	7.76	.57	.70	.84	87.2	25.6	8.71	.58	.72	.85	83.4	24.4	9.81	.58	.73	.87
	3000	1415	96.3	28.2	7.00	.59	.74	.88	92.8	27.2	7.83	.59	.75	.89	89.2	26.1	8.78	.60	.76	.91	85.1	24.9	9.89	.61	.78	.93
	3500	1650	97.9	28.7	7.06	.61	.78	.92	94.4	27.7	7.88	.62	.79	.94	90.6	26.6	8.84	.63	.81	.96	86.5	25.4	9.95	.64	.83	.98
71°F (22°C)	2500	1180	99.8	29.2	7.12	.42	.55	.67	96.3	28.2	7.95	.43	.55	.68	92.5	27.1	8.91	.43	.56	.69	88.5	25.9	10.01	.43	.57	.71
	3000	1415	102.0	29.9	7.19	.43	.57	.71	98.3	28.8	8.02	.43	.58	.73	94.4	27.7	8.99	.44	.59	.74	90.2	26.4	10.09	.44	.60	.76
	3500	1650	103.5	30.3	7.24	.44	.60	.76	99.8	29.2	8.07	.44	.61	.77	95.7	28.0	9.03	.45	.62	.79	91.4	26.8	10.15	.45	.63	.81

## Cooling Ratings

### CHA16-120 - One Compressor Operating

Entering Wet Bulb Temper- ature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)					
			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb		Dry Bulb						
	cfm	L/s	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)
63°F (17°C)	3200	1510	62.9	18.4	3.73	.64	.78	.92	61.3	18.0	4.13	.65	.79	.93	59.4	17.4	4.60	.65	.81	.95	57.2	16.8	5.13	.66	.83	.97
	4000	1890	65.1	19.1	3.78	.68	.86	.99	63.5	18.6	4.19	.69	.87	1.00	61.5	18.0	4.66	.71	.89	1.00	59.2	17.3	5.19	.72	.91	1.00
	4800	2265	66.9	19.6	3.83	.74	.93	1.00	65.2	19.1	4.24	.75	.94	1.00	63.2	18.5	4.71	.77	.96	1.00	61.0	17.9	5.24	.78	.97	1.00
67°F (19°C)	3200	1510	66.6	19.5	3.81	.51	.62	.74	64.9	19.0	4.23	.51	.62	.76	62.9	18.4	4.69	.51	.63	.77	60.6	17.8	5.22	.52	.64	.79
	4000	1890	68.5	20.1	3.86	.53	.66	.82	66.8	19.6	4.27	.54	.67	.84	64.7	19.0	4.74	.54	.68	.85	62.3	18.3	5.27	.55	.70	.87
	4800	2265	69.9	20.5	3.90	.56	.72	.89	68.1	20.0	4.31	.56	.73	.91	66.0	19.3	4.78	.57	.74	.93	63.5	18.6	5.31	.58	.76	.94
71°F (22°C)	3200	1510	70.5	20.7	3.91	.39	.49	.60	68.8	20.2	4.33	.39	.49	.60	66.7	19.5	4.80	.39	.50	.61	64.3	18.8	5.33	.39	.50	.62
	4000	1890	72.4	21.2	3.96	.39	.52	.64	70.7	20.7	4.38	.39	.52	.65	68.5	20.1	4.85	.40	.53	.66	66.0	19.3	5.38	.40	.53	.67
	4800	2265	73.7	21.6	4.00	.40	.55	.69	71.9	21.1	4.41	.41	.55	.70	69.7	20.4	4.88	.41	.56	.72	67.1	19.7	5.41	.41	.57	.74

### CHA16-120 - All Compressors Operating

Entering Wet Bulb Temper- ature	Total Air Volume		Outdoor Air Temperature Entering Outdoor Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)			Total Cooling Capacity		Comp. Motor kW	Sensible to Total Ratio (S/T)		
						Dry Bulb						Dry Bulb						Dry Bulb		Dry Bulb						
	cfm	L/s	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	75°F (24°C)	80°F (27°C)	85°F (29°C)
63°F (17°C)	3200	1510	117.3	34.4	9.08	.70	.84	.98	112.9	33.1	10.12	.71	.86	.99	108.4	31.8	11.28	.72	.88	1.00	104.0	30.5	12.58	.74	.90	1.00
	4000	1890	121.4	35.6	9.19	.75	.92	1.00	116.9	34.3	10.24	.77	.94	1.00	112.3	32.9	11.41	.78	.96	1.00	107.8	31.6	12.71	.80	.98	1.00
	4800	2265	124.8	36.6	9.29	.81	.98	1.00	120.4	35.3	10.33	.82	1.00	1.00	115.9	34.0	11.50	.84	1.00	1.00	111.3	32.6	12.82	.86	1.00	1.00
67°F (19°C)	3200	1510	124.2	36.4	9.25	.55	.68	.81	119.6	35.1	10.30	.56	.69	.82	114.7	33.6	11.46	.56	.70	.84	109.9	32.2	12.78	.57	.71	.86
	4000	1890	127.7	37.4	9.35	.58	.73	.89	123.0	36.0	10.40	.59	.74	.91	117.9	34.6	11.58	.60	.76	.93	112.8	33.1	12.90	.61	.78	.95
	4800	2265	130.3	38.2	9.43	.61	.78	.95	125.4	36.8	10.47	.62	.80	.97	120.2	35.2	11.66	.63	.82	.99	115.1	33.7	12.97	.64	.84	1.00
71°F (22°C)	3200	1510	131.7	38.6	9.47	.41	.53	.65	127.0	37.2	10.51	.42	.54	.66	121.8	35.7	11.70	.42	.55	.68	116.7	34.2	13.03	.42	.56	.69
	4000	1890	135.2	39.6	9.57	.42	.57	.71	130.3	38.2	10.62	.43	.57	.72	124.9	36.6	11.80	.43	.58	.74	119.4	35.0	13.14	.43	.60	.75
	4800	2265	137.6	40.3	9.63	.44	.60	.76	132.4	38.8	10.67	.44	.61	.78	126.9	37.2	11.87	.44	.62	.80	121.4	35.6	13.22	.45	.63	.82

## Cooling Ratings

### CHA16-150 - One Compressor Operating

Entering Wet Bulb Temper- ature	Total Air Volume	Outdo or Air Temperature Entering Outdoor Coil																								
		65°F (18°C)						75°F (24°C)						85°F (29°C)						95°F (35°C)						
		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		
		cfm	L/s	kBtuh	kW	Input	Dry Bulb	kBtuh	kW	Input	Dry Bulb	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	Dry Bulb	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	Dry Bulb	75°F (24°C)
63°F (17°C)	3840	1810	73.4	21.5	4.53	.69	.82	.93	71.3	20.9	5.05	.70	.83	.94	69.1	20.3	5.63	.71	.84	.96	66.7	19.5	6.30	.72	.85	.97
	4800	2265	76.3	22.4	4.61	.74	.88	.99	74.1	21.7	5.12	.75	.89	1.00	71.8	21.0	5.70	.76	.91	1.00	69.3	20.3	6.37	.77	.92	1.00
	5760	2720	78.7	23.1	4.66	.79	.94	1.00	76.4	22.4	5.17	.80	.95	1.00	74.0	21.7	5.76	.81	.97	1.00	71.5	21.0	6.43	.83	.98	1.00
67°F (19°C)	3840	1810	77.9	22.8	4.64	.55	.67	.78	75.7	22.2	5.16	.55	.68	.80	73.3	21.5	5.74	.56	.68	.81	70.7	20.7	6.41	.56	.69	.82
	4800	2265	80.6	23.6	4.72	.58	.72	.85	78.2	22.9	5.23	.58	.73	.86	75.6	22.2	5.81	.59	.74	.88	73.0	21.4	6.48	.60	.75	.90
	5760	2720	82.5	24.2	4.77	.60	.77	.91	80.0	23.4	5.28	.61	.78	.93	77.4	22.7	5.86	.62	.79	.94	74.6	21.9	6.53	.63	.81	.96
71°F (22°C)	3840	1810	83.0	24.3	4.78	.42	.53	.64	80.5	23.6	5.29	.42	.54	.65	78.0	22.9	5.87	.42	.54	.66	75.3	22.1	6.55	.42	.55	.67
	4800	2265	85.6	25.1	4.85	.43	.56	.69	83.0	24.3	5.36	.43	.57	.70	80.3	23.5	5.95	.43	.57	.71	77.4	22.7	6.62	.43	.58	.73
	5760	2720	87.3	25.6	4.90	.44	.59	.74	84.6	24.8	5.41	.44	.60	.76	81.8	24.0	5.99	.45	.61	.77	78.9	23.1	6.66	.45	.62	.78

### CHA16-150 - All Compressors Operating

Entering Wet Bulb Temper- ature	Total Air Volume	Outdo or Air Temperature Entering Outdoor Coil																								
		85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)						
		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		Total Cooling Capacity		Comp. Motor kW		Sensible to Total Ratio (S/T)		
		cfm	L/s	kBtuh	kW	Input	Dry Bulb	kBtuh	kW	Input	Dry Bulb	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	Dry Bulb	75°F (24°C)	80°F (27°C)	85°F (29°C)	kBtuh	kW	Input	Dry Bulb	75°F (24°C)
63°F (17°C)	3840	1810	142.3	41.7	11.29	.71	.84	.97	137.4	40.3	12.63	.72	.86	.98	132.2	38.7	14.15	.73	.87	.99	126.7	37.1	15.86	.74	.89	1.00
	4800	2265	147.7	43.3	11.43	.76	.92	1.00	142.6	41.8	12.78	.77	.93	1.00	137.3	40.2	14.30	.79	.95	1.00	131.7	38.6	16.03	.81	.97	1.00
	5760	2720	152.3	44.6	11.56	.82	.98	1.00	147.3	43.2	12.91	.83	.99	1.00	142.0	41.6	14.44	.85	1.00	1.00	136.5	40.0	16.20	.87	1.00	1.00
67°F (19°C)	3840	1810	150.7	44.2	11.52	.56	.68	.81	145.4	42.6	12.87	.56	.69	.83	139.9	41.0	14.40	.57	.71	.84	134.0	39.3	16.11	.58	.72	.86
	4800	2265	155.4	45.5	11.66	.59	.74	.89	150.0	44.0	13.00	.60	.75	.90	144.2	42.3	14.53	.60	.77	.92	137.9	40.4	16.27	.61	.78	.94
	5760	2720	158.9	46.6	11.75	.62	.80	.95	153.2	44.9	13.11	.63	.81	.97	147.2	43.1	14.64	.64	.83	.98	140.9	41.3	16.38	.65	.85	1.00
71°F (22°C)	3840	1810	160.3	47.0	11.79	.42	.54	.66	154.8	45.4	13.14	.42	.55	.67	148.8	43.6	14.69	.42	.55	.68	142.5	41.8	16.42	.43	.56	.70
	4800	2265	164.8	48.3	11.94	.43	.57	.72	158.9	46.6	13.28	.43	.58	.73	152.8	44.8	14.81	.44	.59	.75	146.2	42.8	16.57	.44	.60	.76
	5760	2720	167.9	49.2	12.02	.44	.61	.77	161.9	47.4	13.38	.45	.62	.79	155.5	45.6	14.92	.45	.63	.81	148.7	43.6	16.65	.46	.65	.83

## Electric Heat Data - Fuse Block Required

### CHA16-072 Models

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity
ECH16-82/95-10 208/230v ( <b>61H68</b> ) 460v ( <b>61H73</b> ) 575v ( <b>61H78</b> ) 38 lbs. (17 kg)	1	208	7.5	25,600	40
		220	8.4	28,700	
		230	9.2	31,400	
		240	10.0	34,100	
	1	440	8.4	28,700	20
		460	9.2	31,400	
		480	10.0	34,100	
	1	550	8.4	28,700	16
		575	9.2	31,400	
		600	10.0	34,100	
	1	208	11.3	38,600	49
		220	12.6	43,000	
		230	13.5	46,100	
		240	15.0	51,200	
	1	440	12.6	43,000	27
		460	13.8	46,100	
		480	15.0	51,200	
	1	550	12.6	43,000	22
		575	13.8	46,100	
		600	15.0	51,200	
ECH16-82/95-15 208/230v ( <b>61H69</b> ) 460v ( <b>61H74</b> ) 575v ( <b>61H79</b> ) 38 lbs. (17 kg)	1	208	15.0	51,200	62
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	35
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	28
		575	18.4	62,800	
		600	20.0	68,300	
	1 <sup>2</sup>	208	22.5	76,800	88
		220	25.2	86,000	
		230	27.5	93,900	
		240	30.0	102,400	
	1	440	25.2	86,000	50
		460	27.6	93,900	
		480	30.0	102,400	
	1	550	25.2	86,000	40
		575	27.6	93,900	
		600	30.0	102,400	
ECH16-82/95-30 208/230v ( <b>61H71</b> ) 460v ( <b>61H76</b> ) 575v ( <b>61H81</b> ) 42 lbs. (19 kg)	1 <sup>2</sup>	208	30.0	102,400	114
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	1	440	33.6	114,700	65
		460	36.8	125,600	
		480	40.0	136,500	
	1 <sup>2</sup>	550	33.6	114,700	52
		575	36.8	125,600	
		600	40.0	136,500	
	1 <sup>3</sup>	208	33.6	114,700	130
		220	36.8	125,600	
		230	40.0	136,500	
	1 <sup>2</sup>	440	33.6	114,700	65
		460	36.8	125,600	
		480	40.0	136,500	
	1 <sup>2</sup>	550	33.6	114,700	52
		575	36.8	125,600	
		600	40.0	136,500	

\*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).

<sup>1</sup>May be used with two stage control.

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity
ECH16-82/95-10 208/230v ( <b>61H68</b> ) 460v ( <b>61H73</b> ) 575v ( <b>61H78</b> ) 38 lbs. (17 kg)	1	208	7.5	25,600	42
		220	8.4	28,700	
		230	9.2	31,400	
		240	10.0	34,100	
	1	440	8.4	28,700	21
		460	9.2	31,400	
		480	10.0	34,100	
	1	550	8.4	28,700	17
		575	9.2	31,400	
		600	10.0	34,100	
	1	208	11.3	38,600	49
		220	12.6	43,000	
		230	13.5	46,100	
		240	15.0	51,200	
	1	440	12.6	43,000	27
		460	13.8	46,100	
		480	15.0	51,200	
	1	550	12.6	43,000	22
		575	13.8	46,100	
		600	15.0	51,200	
ECH16-82/95-15 208/230v ( <b>61H69</b> ) 460v ( <b>61H74</b> ) 575v ( <b>61H79</b> ) 38 lbs. (17 kg)	1	208	11.3	38,600	49
		220	12.6	43,000	
		230	13.5	46,100	
		240	15.0	51,200	
	1	440	12.6	43,000	27
		460	13.8	46,100	
		480	15.0	51,200	
	1	550	12.6	43,000	22
		575	13.8	46,100	
		600	15.0	51,200	
	1 <sup>2</sup>	208	15.0	51,200	62
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	35
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	28
		575	18.4	62,800	
		600	20.0	68,300	
ECH16-82/95-20 208/230v ( <b>61H70</b> ) 460v ( <b>61H75</b> ) 575v ( <b>61H80</b> ) 42 lbs. (19 kg)	1 <sup>2</sup>	208	15.0	51,200	62
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	35
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	28
		575	18.4	62,800	
		600	20.0	68,300	
	1 <sup>3</sup>	208	22.5	76,800	88
		220	25.2	86,000	
		230	27.5	93,900	
		240	30.0	102,400	
	1	440	25.2	86,000	50
		460	27.6	93,900	
		480	30.0	102,400	
	1	550	25.2	86,000	40
		575	27.6	93,900	
		600	30.0	102,400	
ECH16-82/95-30 208/230v ( <b>61H71</b> ) 460v ( <b>61H76</b> ) 575v ( <b>61H81</b> ) 42 lbs. (19 kg)	1 <sup>2</sup>	208	22.5	76,800	100
		220	25.2	86,000	
		230	27.5	93,900	
		240	30.0	102,400	
	1	440	25.2	86,000	50
		460	27.6	93,900	
		480	30.0	102,400	
	1	550	25.2	86,000	40
		575	27.6	93,900	
		600	30.0	102,400	
	1 <sup>3</sup>	208	30.0	102,400	114
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	1 <sup>2</sup>	440	33.6	114,700	65
		460	36.8	125,600	
		480	40.0	136,500	
	1 <sup>2</sup>	550	33.6	114,700	52
		575	36.8	125,600	
		600	40.0	136,500	

\*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).

<sup>1</sup>May be used with two stage control.

***Electric Heat Data - Fuse Block Required******CHA16-120 Models******CHA16-150 Models***

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity
ECH16-135-15 208/230v ( <b>72G21</b> ) 460v ( <b>72G26</b> ) 575v ( <b>72G31</b> ) 38 lbs. (17 kg)	1	208	11.3	38,600	59
		220	12.6	43,000	
		230	13.5	46,100	
		240	15.0	51,200	
	1	440	12.6	43,000	29
		460	13.8	46,100	
		480	15.0	51,200	
	1	550	12.6	43,000	23
		575	13.8	46,100	
		600	15.0	51,200	
	1	208	15.0	51,200	74
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	37
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	29
		575	18.4	62,800	
		600	20.0	68,300	
ECH16-135-20 208/230v ( <b>72G22</b> ) 460v ( <b>72G27</b> ) 575v ( <b>72G32</b> ) 42 lbs. (19 kg)	1	208	15.0	51,200	74
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	37
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	29
		575	18.4	62,800	
		600	20.0	68,300	
	12	208	22.5	76,800	104
		220	25.2	86,000	
		230	27.5	93,900	
		240	30.0	102,400	
	12	440	25.4	86,000	52
		460	27.5	93,900	
		480	30.0	102,400	
	12	550	25.2	86,000	41
		575	27.6	93,900	
		600	30.0	102,400	
ECH16-135-30 208/230v ( <b>72G23</b> ) 460v ( <b>72G28</b> ) 575v ( <b>72G33</b> ) 42 lbs. (19 kg)	12	208	30.0	102,400	104
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	12	440	33.6	114,700	52
		460	36.8	125,600	
		480	40.0	136,500	
	12	550	33.6	114,700	41
		575	36.8	125,600	
		600	40.0	136,500	
	12	208	30.0	102,400	134
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	12	440	33.6	114,700	67
		460	36.8	125,600	
		480	40.0	136,500	
	12	550	33.6	114,700	53
		575	36.8	125,600	
		600	40.0	136,500	
ECH16-135-40 208/230v ( <b>72G24</b> ) 460v ( <b>72G29</b> ) 575v ( <b>72G34</b> ) 53 lbs. (24 kg)	12	208	30.0	102,400	134
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	12	440	33.6	114,700	67
		460	36.8	125,600	
		480	40.0	136,500	
	12	550	33.6	114,700	53
		575	36.8	125,600	
		600	40.0	136,500	
	12	208	37.5	128,000	134
		220	42.0	143,300	
		230	46.0	157,000	
		240	50.0	170,600	
	12	440	43.8	149,500	67
		460	46.0	157,000	
		480	50.0	170,600	
	12	550	43.8	149,500	53
		575	46.0	157,000	
		600	50.0	170,600	
ECH16-135-50 208/230v ( <b>72G25</b> ) 460v ( <b>72G30</b> ) 575v ( <b>72G35</b> ) 58 lbs. (26 kg)	12	208	37.5	128,000	134
		220	42.0	143,300	
		230	46.0	157,000	
		240	50.0	170,600	
	12	440	43.8	149,500	67
		460	46.0	157,000	
		480	50.0	170,600	
	12	550	43.8	149,500	53
		575	46.0	157,000	
		600	50.0	170,600	

\*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).

<sup>1</sup>May be used with two stage control.

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit & Electric Heat Minimum Circuit Ampacity
ECH16-135-15 208/230v ( <b>72G21</b> ) 460v ( <b>72G26</b> ) 575v ( <b>72G31</b> ) 38 lbs. (17 kg)	1	208	11.3	38,600	59
		220	12.6	43,000	
		230	13.5	46,100	
		240	15.0	51,200	
	1	440	12.6	43,000	29
		460	13.8	46,100	
		480	15.0	51,200	
	1	550	12.6	43,000	23
		575	13.8	46,100	
		600	15.0	51,200	
	1	208	15.0	51,200	74
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	37
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	29
		575	18.4	62,800	
		600	20.0	68,300	
ECH16-135-20 208/230v ( <b>72G22</b> ) 460v ( <b>72G27</b> ) 575v ( <b>72G32</b> ) 42 lbs. (19 kg)	1	208	15.0	51,200	74
		220	16.8	57,300	
		230	18.4	62,800	
		240	20.0	68,300	
	1	440	16.8	57,300	37
		460	18.4	62,800	
		480	20.0	68,300	
	1	550	16.8	57,300	29
		575	18.4	62,800	
		600	20.0	68,300	
	12	208	22.5	76,800	104
		220	25.2	86,000	
		230	27.5	93,900	
		240	30.0	102,400	
	12	440	25.4	86,000	52
		460	27.5	93,900	
		480	30.0	102,400	
	12	550	25.2	86,000	41
		575	27.6	93,900	
		600	30.0	102,400	
ECH16-135-30 208/230v ( <b>72G23</b> ) 460v ( <b>72G28</b> ) 575v ( <b>72G33</b> ) 42 lbs. (19 kg)	12	208	30.0	102,400	104
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	12	440	33.6	114,700	52
		460	36.8	125,600	
		480	40.0	136,500	
	12	550	33.6	114,700	41
		575	36.8	125,600	
		600	40.0	136,500	
	12	208	30.0	102,400	134
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,500	
	12	440	33.6	114,700	67
		460	36.8	125,600	
		480	40.0	136,500	
	12	550	33.6	114,700	53
		575	36.8	125,600	
		600	40.0	136,500	
ECH16-135-40 208/230v ( <b>72G24</b> ) 460v ( <b>72G29</b> ) 575v ( <b>72G34</b> ) 53 lbs. (24 kg)	12	208	30.0	102,400	134
		220	33.6	114,700	
		230	36.8	125,600	
		240	40.0	136,5	

## Guide Specifications

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

**General** - Furnish and install 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 (downflow) 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.<sup>3</sup> (kg/m<sup>3</sup>) 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.

**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. (m<sup>2</sup>) (evaporator) and .....sq. ft. (m<sup>2</sup>) (condenser). Condenser coil shall be formed coil construction.

Compressor shall be resiliently mounted and have overload protection. The refrigeration system shall have suction and liquid line service gauge ports, high pressure switches (072 and 090 only), driers, freezestats and full refrigerant charge. Control option available shall consist of low ambient controls. Shall be rated in accordance with ARI Standard 210/240-94 (072-090-120) and ARI Standard 340/360-93 (150).

**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 optional.

**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 with ball bearings. 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 Fan(s)** - Direct drive propeller type condenser fan(s) 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. Fan(s) shall have a safety guard.

**Air Filters** - Disposable filters furnished shall have not less than .....sq. ft. (m<sup>2</sup>) 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 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. Downflow economizer shall have gravity exhaust. 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).

**Gravity Exhaust Dampers** - Optional pressure operated dampers shall be available for field installation in EMDH16 horizontal economizer damper section. Neoprene coated fiberglass dampers shall prevent blow-back and outdoor air infiltration during off cycle. Shall be equipped with rainhoods and bird screen. Shall be furnished with downflow economizer.

**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 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.

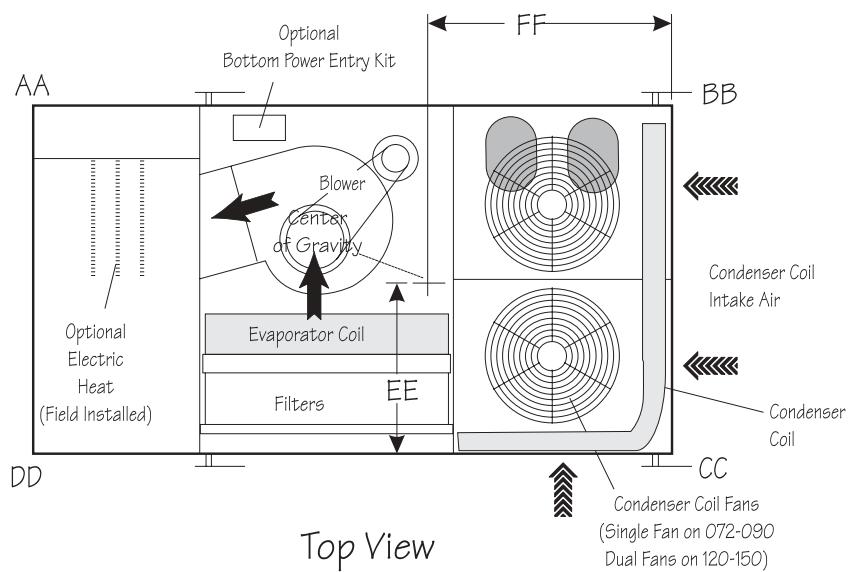
## **Basic Unit Dimensions - Inches (mm)**

### **Corner Weights**

### **Center of Gravity**

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA16-072	156	71	186	84	172	78	147	67
CHA16-090	201	91	289	131	189	86	131	59
CHA16-120	233	106	302	137	255	116	210	95
CHA16-150	246	112	333	151	293	133	228	103

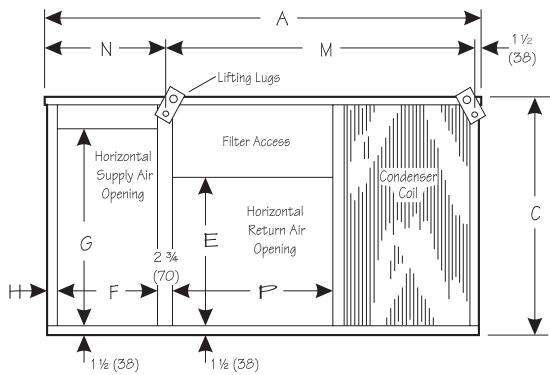
Model Number	EE		FF	
	inch	mm	inch	mm
CHA16-072	27 1/2	699	39 1/2	1003
CHA16-090	29	737	36 1/2	921
CHA16-120	37	940	39 1/2	1003
CHA16-150	35 3/4	908	41 1/2	1054



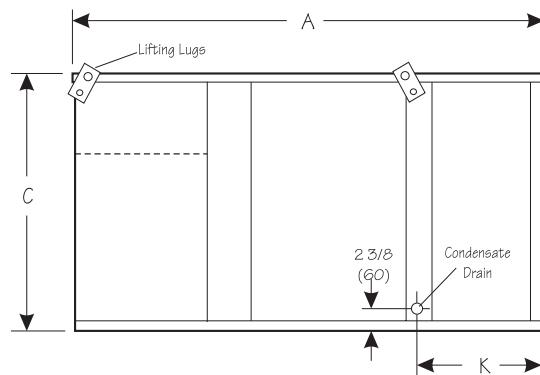
## Basic Unit Dimensions - Inches (mm)

Model No.	A		B		C		D		E		F		G	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
CHA16-072	88 1/2	2248	48	1219	39	991	16 1/2	419	24 5/8	625	19 7/16	494	32 1/8	816
CHA16-090														
CHA16-120	94	2388	60	1524	46	1168	24	610	31 5/8	803	25 1/4	641	39 1/8	994
CHA16-150	102	2591	60	1524	46	1168	24	610	31 5/8	803	25 1/4	641	39 1/8	994

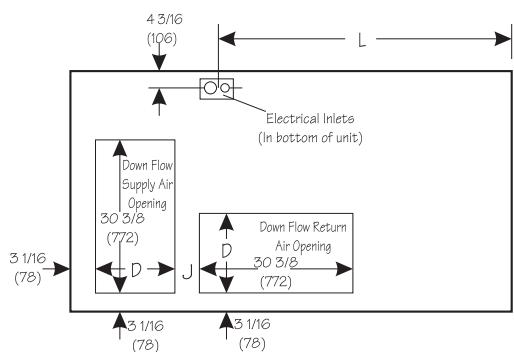
Model No.	H		J		K		L		M		N		P	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
CHA16-072	1 5/8	41	5 5/8	143	25	635	54 1/2	1384	64 7/8	1648	22 1/8	562	33	838
CHA16-090														
CHA16-120	2	51	4 7/16	113	31 1/8	791	57 1/2	1461	68	1727	28 1/2	724	33	838
CHA16-150	2	51	4 7/16	113	31 1/8	791	65 1/2	1664	76	1930	28 1/2	724	41	1041



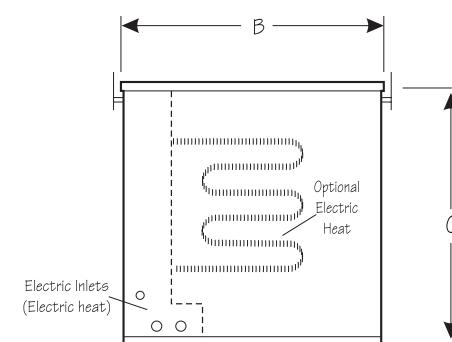
Back View  
with Horizontal Supply & Return Air Opening



Front View



Top View Base Section



Heat Section End View

## Accessory Dimensions - inches (mm)

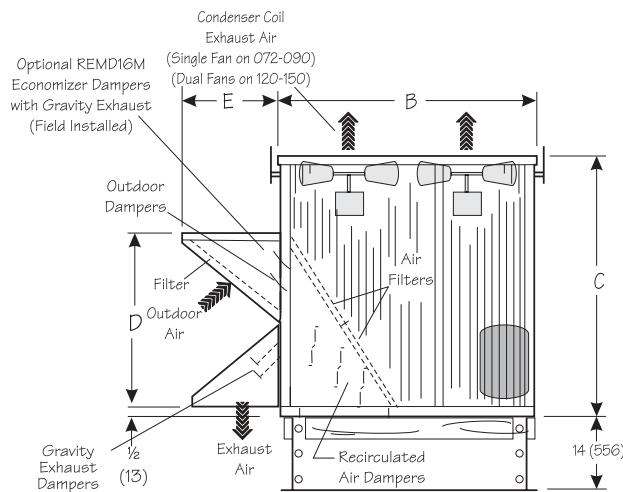
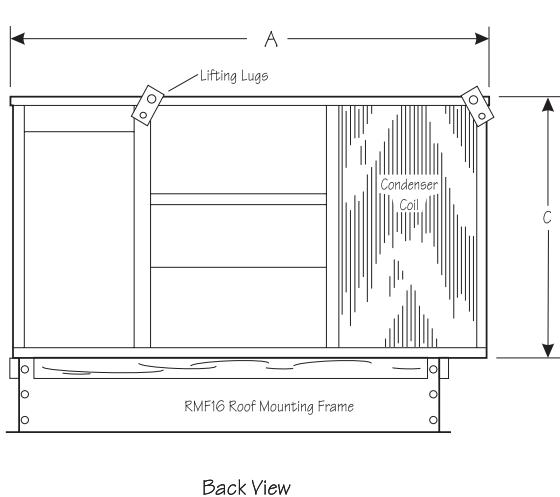
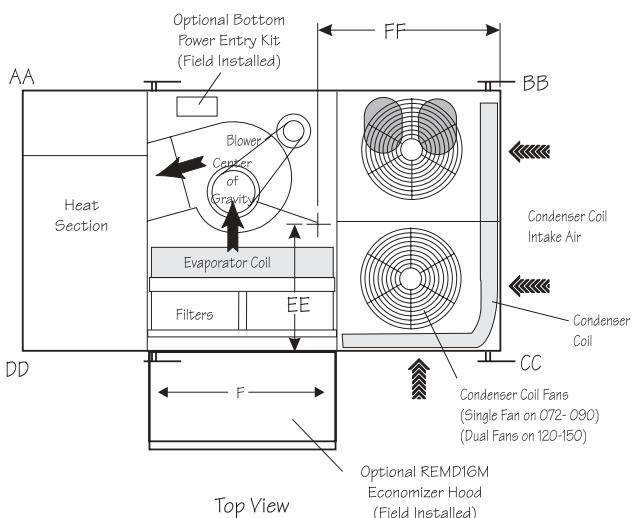
**Basic Unit with REMD16M (Downflow) Economizer Damper Section & RMF16 Roof Mounting Frame**

### Corner Weights

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA16-072	197	89	217	98	210	95	181	82
CHA16-090	204	93	271	123	260	118	196	89
CHA16-120	253	115	325	147	288	131	234	106
CHA16-150	267	121	359	163	329	149	254	115

### Center of Gravity

Model Number	EE		FF	
	inch	mm	inch	mm
CHA16-072	24 1/2	622	39 1/2	1003
CHA16-090	24 1/2	622	38	965
CHA16-120	39	991	39 1/2	1003
CHA16-150	37 3/4	958	41 1/2	1054



Model No.	A		B		C		D		E		F	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
CHA16-072	88 1/2	2248	48	1219	39	991	25 3/4	654	15 1/2	394	32 1/2	826
CHA16-090												
CHA16-120	94	2388	60	1524	46	1168	33 1/8	841	18 1/4	464	32 1/2	826
CHA16-150	102	2591	60	1524	46	1168	33 1/8	841	18 1/4	464	40 1/2	1029

## Accessory Dimensions - inches (mm)

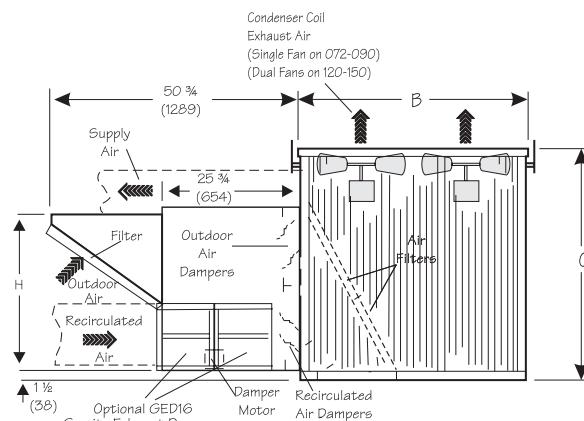
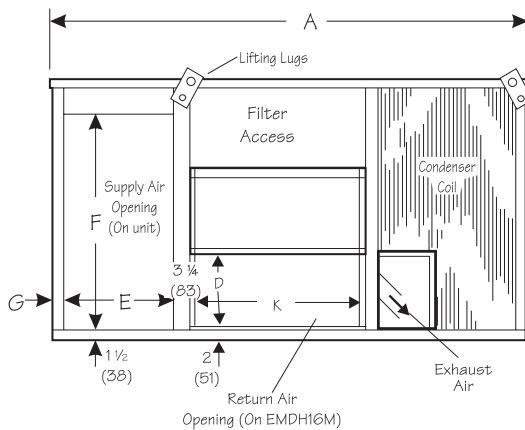
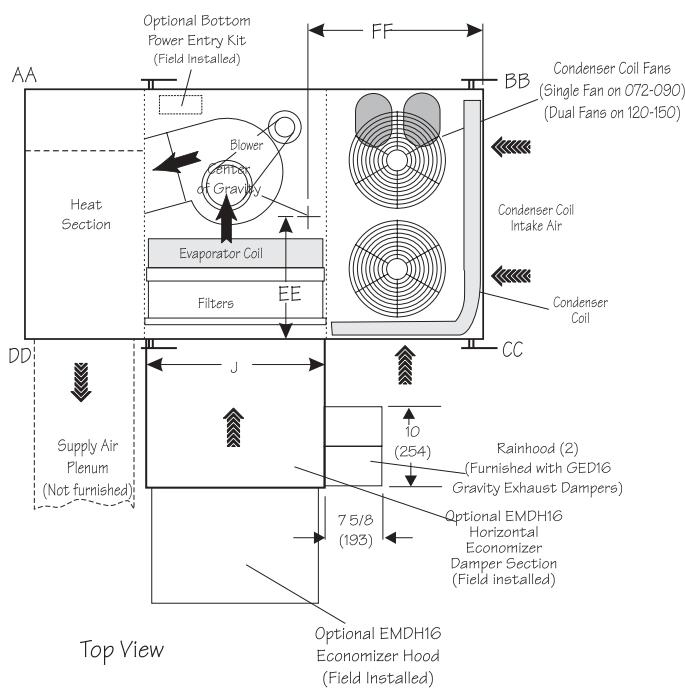
### Basic Unit with EMDH16M (Horizontal) Economizer Damper Section

#### Corner Weights

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA16-072	173	78	204	93	202	92	171	78
CHA16-090	233	107	325	147	244	111	175	79
CHA16-120	279	127	293	133	270	122	259	117
CHA16-150	266	121	355	161	333	151	256	116

#### Center of Gravity

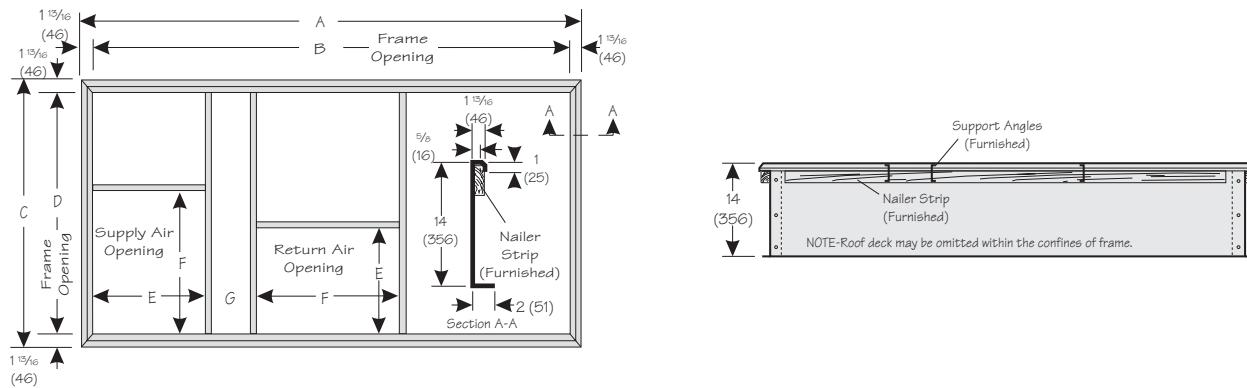
Model Number	EE		FF	
	in.	mm	in.	mm
CHA16-072	24 1/2	622	39 1/2	1003
CHA16-090	27 1/2	700	37	940
CHA16-120	34	864	39 1/2	1003
CHA16-150	32 3/4	832	41 1/2	1054



Model No.	A		B		C		D		E		F		G		H		J		K	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
CHA16-072	88 1/2	2248	48	1219	39	991	13 1/4	337	19 7/16	494	32 1/2	816	1 5/8	41	28 3/4	730	32 9/16	827	31 1/2	800
CHA16-090																				
CHA16-120	94	2388	60	1524	46	1168	19 1/4	489	25 1/4	641	39 1/8	994	2	51	34 3/4	883	32 9/16	827	31 1/2	800
CHA16-150	102	2591	60	1524	46	1168	19 1/4	489	25 1/4	641	39 1/8	994	2	51	34 3/4	883	40 9/16	1030	39 1/2	1003

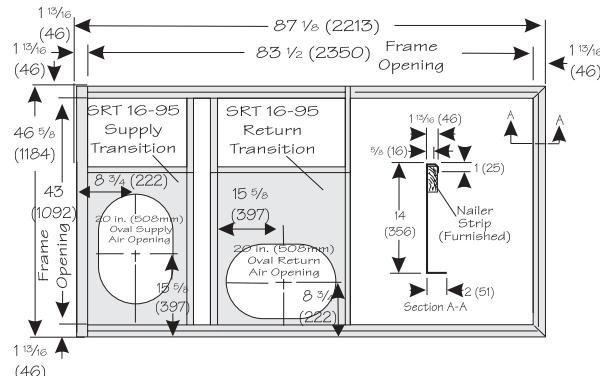
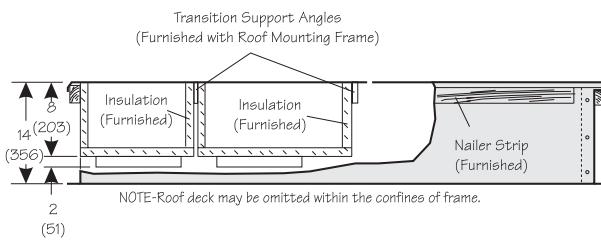
## Accessory Dimensions - inches (mm)

### RMF16 Series Roof Mounting Frame with Double Duct Opening

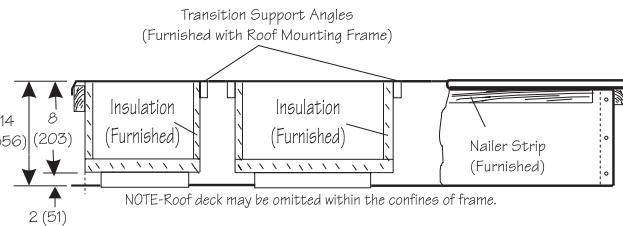
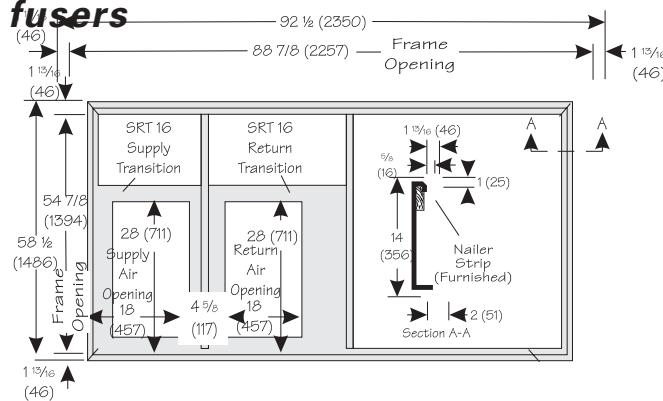


Model No.	A		B		C		D		E		F		G	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RMF16-09	87 1/8	2213	83 1/2	2121	46 5/8	1184	43	1092	17 15/16	456	31 1/2	800	4	102
RMF16-12	92 1/2	2350	88 7/8	2257	58 1/2	1486	54 7/8	1394	25 1/4	641	31 1/2	800	3 3/16	81

### RMF16-09 Series Roof Mounting Frame with SRT16-09 Supply and Return Air Transitions for FD11-95 & RTD11-95 Ceiling Diffusers

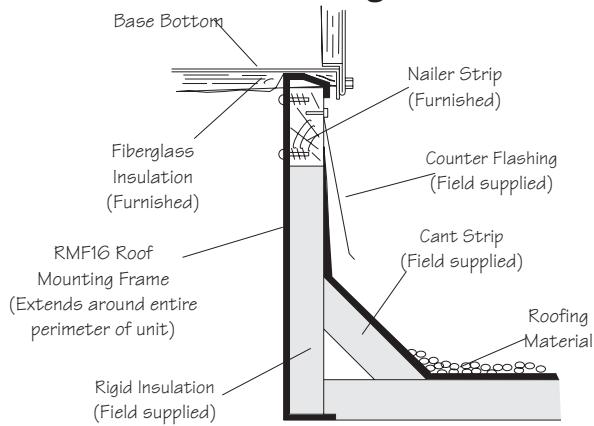


### RMF16-12 Series Roof Mounting Frame with SRT16-12 Supply and Return Air Transitions for FD11-135 & RTD11-135 Ceiling Diffusers



## Accessory Dimensions - inches (mm)

### Typical Flashing Detail for RMF16 Roof Mounting Frame



### Roof Mounting Frame Specifications

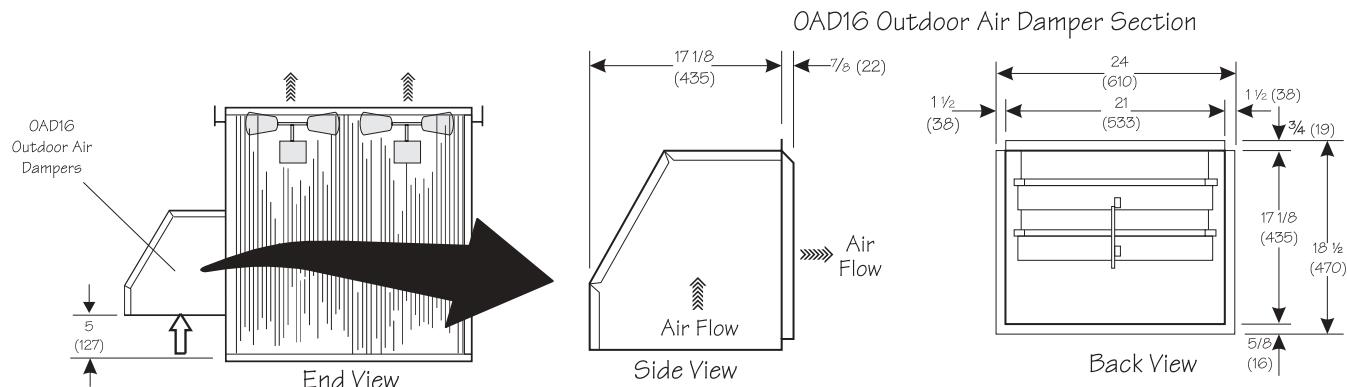
**Roof Mounting frame is rigid enough to be spanned over its entire length or cantilevered if supported on both sides of center of gravity.**

Roof Mounting Frames	RMF16
*Moment of Inertia (I) (in. <sup>4</sup> ) (cm <sup>4</sup> )	42 (1748)
*Section modulus I/C (in. <sup>3</sup> ) (cm <sup>3</sup> )	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.

### CHA16 Unit with OAD16 Outdoor Air Damper Section Downflow Supply and Return Air

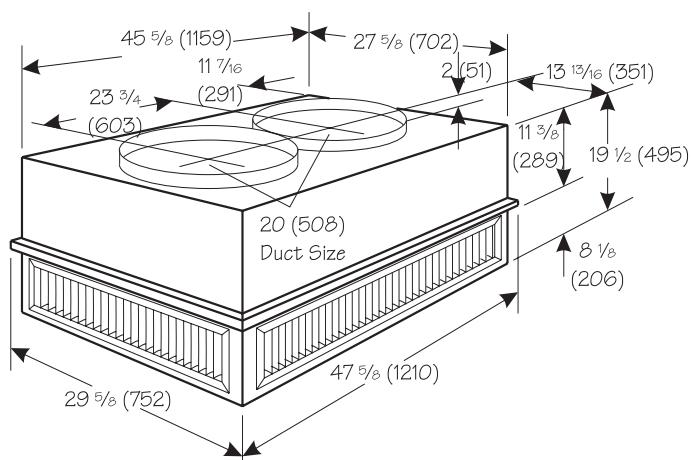
**Note- For Horizontal (Side) Supply and Return Air, OAD16 Field Installs on Return Air Duct**



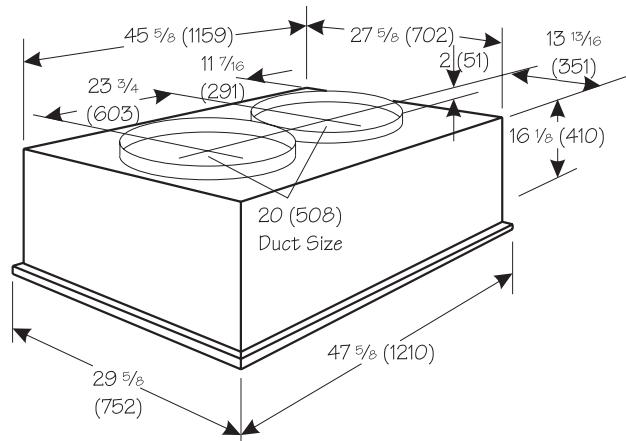
## **Accessory Dimensions - inches (mm)**

### **Combination Ceiling Supply and Return Diffusers**

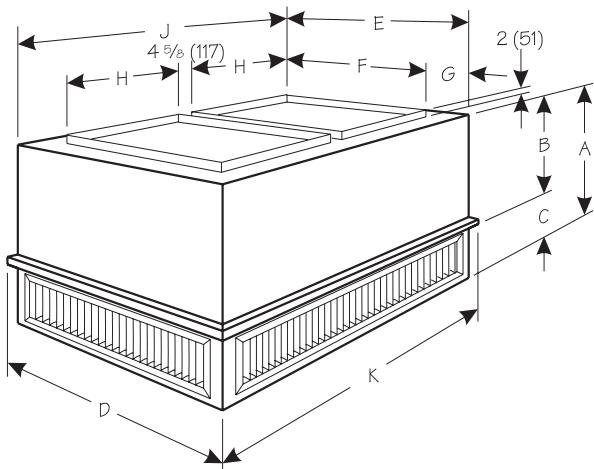
**RTD11-95 Step-Down Ceiling Diffuser**



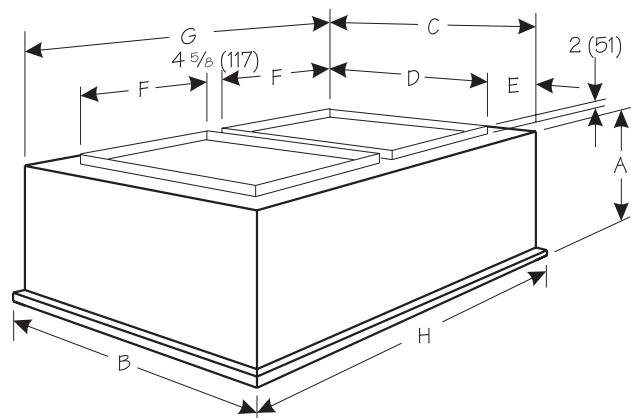
**FD11-95 Flush Ceiling Diffuser**



**RTD11-135 Step-Down Ceiling Diffuser**



**FD11-135 Flush Ceiling Diffuser**



Model Number	A		B		C		D		E	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RTD11-135	28	711	18 7/8	479	9 1/8	232	35 5/8	905	33 5/8	854

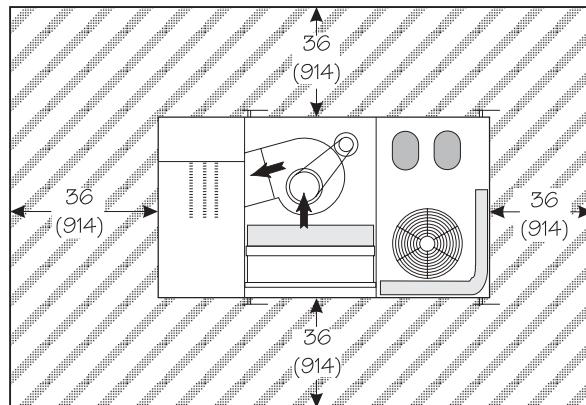
Model Number	A		B		C		D	
	in.	mm	in.	mm	in.	mm	in.	mm
FD11-135	24 1/8	613	35 5/8	905	33 5/8	854	28	711

Model Number	F		G		H		J		K	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
RTD11-135	28	711	2 13/16	71	18	457	45 5/8	1159	47 5/8	1210

Model Number	E		F		G		H	
	in.	mm	in.	mm	in.	mm	in.	mm
FD11-135	2 13/16	71	18	457	45 5/8	1159	47 5/8	1210

## ***Installation Clearances - inches (mm)***

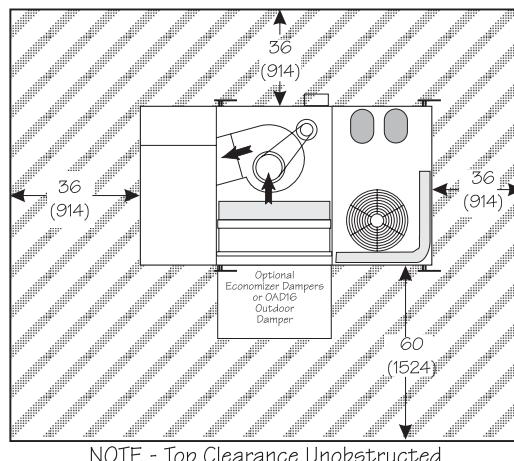
### ***CHA16 Basic Unit***



NOTE - Top Clearance Unobstructed

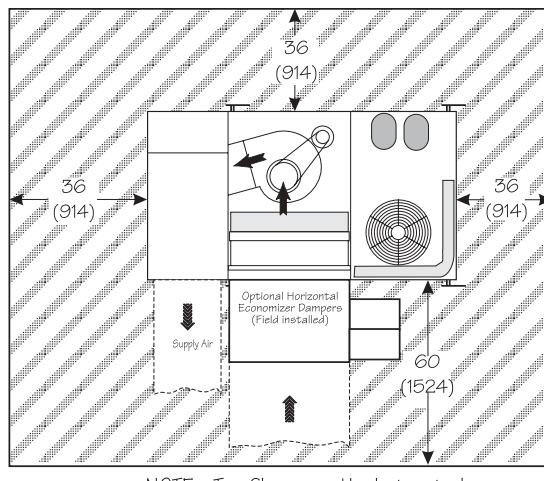
NOTE - Entire perimeter of unit requires support when elevated above mounting surface.

### ***CHA16 Unit with REMD16M Economizer Damper Section or OAD16 Outdoor Air Damper Section***



NOTE - Top Clearance Unobstructed

### ***CHA16 Unit with EMDH16M Horizontal Economizer Damper Section***



NOTE - Top Clearance Unobstructed

All specifications are subject to change  
without notice.



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