

15 and 20 Tons Cooling Capacity**38,600 to 256,000 Btuh Optional
Electric Heating Capacity****CHA16-180-240****FEATURES**

- ◆ Down-flow or horizontal supply and return air configuration
- ◆ Developed in accordance with ISO9002 Quality Standards
- ◆ 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
- ◆ ARI Standard 340/360-2000 certified
- ◆ Heavy gauge galvanized steel cabinet, fully insulated, prepainted enamel paint finish, large removable access panels, electrical inlets in cabinet base and evaporator section, control box with factory installed controls, full perimeter base rails with forklift slots and holes for rigging, lifting brackets furnished for handling and lifting
- ◆ 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
- ◆ Reciprocating type, hermetically sealed, overload protected (180 models), Copeland® Compliant Scroll® compressor type, hermetically sealed (240 models)

- ◆ Condenser fans have low operating sound levels complimented with a PVC coated fan guard
- ◆ Condenser fan motors are overload protected, permanently lubricated with ball bearings
- ◆ Disposable 2" pleated filters furnished
- ◆ Refrigeration system consists of compressors, condenser coil and direct drive fans, evaporator coil and belt drive blower, expansion valves, high capacity filter driers, 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 blower 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	CHA16-180	CHA16-240
Coil Guard - PVC coated steel wire guards to protect outdoor coil. Not used with Hail Guards.		78L49
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).		54G44
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.	RTD11-185 392 lbs. (178 kg) (29G06)	RTD11-275 403 lbs. (183 kg) (29G07)
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.	FD11-185 289 lbs. (131 kg) (29G10)	FD11-275 363 lbs. (165 kg) (29G11)
Transitions (Supply and Return) - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated.	SRT16-18 75 lbs. (34 kg) (97H12)	SRT16-24 120 lbs. (54 kg) (78L47)
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 sensor, solid-state adjustable outdoor air enthalpy control, 0 to 100% outdoor air adjustable, powdered enamel paint finish.	Model No. - Net Wt.	REMD16M-18/24 Dampers 95 lbs. (43 kg) (81L43)
NOTE - Economizer Damper Hood is required and must be ordered separately (see below).	Net face area	5.3 sq. ft. (.49 m ²)
NOTE - Gravity Exhaust Dampers are required for down-flow applications and must be ordered separately (see below).		
Economizer Damper Hood - Required with REMD16M economizer dampers (see above). Installs over outdoor air dampers. Includes cleanable aluminum mesh frame filters.	Model No. - Net Wt.	REMD16M-18/24 Damper Hood (81L45) 36 lbs. (16 kg)
	No. & Size of Filters	(2) 25 x 25 x 1 in. (635 x 635 x 25 mm)
Economizer Gravity Exhaust Dampers - Required with PED16-18/24 and REMD16 economizer dampers in down-flow applications. Optional for horizontal applications. Neoprene coated fiberglass dampers. Includes rain hood. Field installs on economizer for down-flow applications. Field installs on return air duct for horizontal supply and return air applications. See dimension drawings.		GED16-18/24 23 lbs. (10 kg) (81L44)

Model Number Guide

CHA	16	-	180	-	3HP	-	1	Y
Unit Type								Voltage
CHA = Packaged Cooling Unit								Y = 208/230v-3 phase-60hz
Series								G = 460v-3 phase-60hz
Cooling Capacity Tons (kW)								J = 575v-3 phase-60hz
180 = 15 (52.8)								
240 = 20 (70.3)								
								Minor Revision Number
								Blower Motor Horsepower
								3hp = 3 hp (2.24 kW)
								5hp = 5 hp (3.73 kW)
								7.5hp = 7.5 hp (5.60 kW)

Optional Accessories

Item		CHA16-180	CHA16-240
Economizer Power Exhaust Fans - For use with REMD16M economizer dampers and GED16 Gravity Exhaust Dampers (see above). Provides pressure relief. Installs between economizer and gravity exhaust dampers (required). Interlocked to run when return air dampers are closed and supply air blowers are operating. Overload protected.	Model No. - Net Wt.	PED16-18/24 80 lbs(36 kg) Y Volt - (81L40) G Volt - (81L41) J Volt - (81L42)	
	Dia. - in. (mm) - No. of blades	20 (508) - 5	
	Total air volume - cfm (L/s)	6000 (2830)	
	Motor horsepower (W)	(2) - 1/3 (250)	
	Total Watts input	850	
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. (Refer to Electric Heat Data on Page 6)		ECH16-185-15 15 kW (all voltages) ECH16-185/300 30-45-60 kW (all voltages) 75 kW (460/575v)	ECH16-185/300 30-45-60 kW (all voltages) 75 kW (460/575v)
Unit Fuse Block - Required for electric heat installation, wiring harness and mounting screws furnished.	208/230v - 3 phase	3 hp (2.2 kW) 84L19 (90 amp)	---
		5 hp (3.7 kW) 84L19 (90 amp)	84L24 (110 amp)
		7.5 hp (5.7 kW) ---	89L37 (125 amp)
	460v - 3 phase	3 hp (2.2 kW) 84L20 (45 amp)	---
		5 hp (3.7 kW) 84L22 (50 amp)	84L22 (50 amp)
		7.5 hp (5.7 kW) ---	84L22 (50 amp)
	575v - 3 phase	3 hp (2.2 kW) 84L21 (30 amp)	---
		5 hp (3.7 kW) 84L23 (35 amp)	84L25 (40 amp)
		7.5 hp (5.7 kW) ---	84L20 (45 amp)
Hail Guards - Heavy duty field installed coil guard protects coils from damage. Not used with Coil Guards.			78L48
Horizontal Supply and Return Air Kit - Provides duct connection to unit, flanges furnished, hardware furnished, two filter panels furnished for unused air opening in unit base.			HDK16-18/24 55 lbs. (25 kg) (71L81)
Low Ambient Controls - Allows unit operation down to 0°F (-17.7°C)			(85L42)
Outdoor Air Damper/Hood Section - Linked mechanical dampers, 0 to 25% (fixed) outdoor air adjustable, cleanable aluminum mesh frame type filter furnished in hood, section installs on unit for down-flow applications with Outdoor Air Damper Panel Kit (required must be ordered separately - see below). Damper/Hood section field installs in return air duct for horizontal supply and return air applications, panel kit not required for horizontal applications. Minimum mixed air temperature: Electric heat mode - 30°F (-1°C). Maximum mixed air temperature: Cooling mode - 90°F (32°C).			OAD16-18/24 Damper/Hood (81L38) 52 lbs. (24 kg) (Order Air Damper/Hood and Damper Panel Kit for complete assembly for down-flow applications)
Outdoor Air Damper Panel Kit (Down-Flow Applications) - Required with OAD16 Damper/Hood. Interchangeable unit panel.			OAD16-18/24 Panel Kit (81L39) 20 lbs. (9 kg)
Outdoor Air Damper Motorized Damper Kit - 3 position damper actuator, plug-in connection.			35G21 - 7 lbs. (3 kg)
Roof Mounting Frame - Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down.			RMF16-18/24 154 lbs. (70 kg) (63L81)
Cycle Control - Required with Electro-Mechanical Thermostat System, provides timed-on and off function, prevents compressor short cycling.			45L54

Specifications

Model No.		CHA16-180	CHA16-240
Nominal Tonnage		15	20
Cooling Ratings	Gross cooling capacity - Btuh (kW)	183,200 (53.7)	226,600 (66.4)
	*Total cooling capacity - Btuh (kW)	176,000 (51.6)	216,000 (63.3)
	*Total unit kW	19.5	24
	*EER (Btuh/Watts)	9	9
	*Integrated Part Load Value	9.2	9.2
Refrigerant Charge Furnished (HCFC-22)	Circuit 1	7 lbs. 8 oz. (3.40 kg)	8 lbs. 8 oz. (3.86 kg)
	Circuit 2	7 lbs. 8 oz. (3.40 kg)	8 lbs. 8 oz. (3.86 kg)
	Circuit 3	7 lbs. 8 oz. (3.40 kg)	8 lbs. 8 oz. (3.86 kg)
Evaporator Blower and Drive Selection	Blower wheel nominal diameter x width - in. (mm)	18 x 18 (457 x 457)	
	3 hp Motor and Factory Installed ¹ Drives	Nominal motor hp (kW)	3 (2.24)
		Maximum usable hp (kW)	3.45 (2.57)
		Voltage & phase	208/230/460v or 575v-3 ph
		RPM range	645-845
	5 hp Motor and Factory Installed ¹ Drives	Nominal motor hp (kW)	5 (3.73)
		Maximum usable hp (kW)	5.75 (4.29)
		Voltage & phase	208/230/460v or 575v-3 ph
		RPM range	765-965
	7.5 hp Motor and Factory Installed ¹ Drives	Nominal motor hp (kW)	7.5 (5.60)
		Maximum usable hp (kW)	8.6 (6.42)
		Voltage & phase	208/230/460v or 575v 3ph
		RPM range	895-1120
Evaporator Coil	Net face area - sq. ft. (m ²)	17.9 (1.66)	
	Tube diameter - in (mm) & No. of rows	3/8 (9.5) - 3	3/8 (9.5) - 4
	Fins per inch (m)	14 (551)	
	Expansion device type	Thermostatic Expansion Valve	
	Drain connection size mpt - in. (mm)	1 (25.4)	
Condenser Coil	Net face area - sq. ft. (m ²)	29.5 (2.74)	
	Tube diameter - in (mm) & No. of rows	3/8 (9.5) - 2	
	Fins per inch (m)	20 (787)	
Condenser Fans	Diameter - in. (mm) & No. of blades	(2) 24 (610) - 4	(2) 26 (660) - 4
	Air volume - cfm (L/s)	10,000 (4720)	
	Motor horsepower (W)	3/4 (560)	1 (746)
	Motor rpm	1075	1140
	Motor watts	1200	2050
Filters (furnished)	Type of filter	Disposable, pleated	
	No. & size - in. (mm)	(6) 18 x 24 x 2 (457 x 610 x 51)	
Net weight of basic unit - lbs. (kg)		1450 (658)	1575 (714)
Shipping weight of basic unit - lbs. (kg) (1 Package)		1620 (735)	1745 (792)
Electrical characteristics		208/230v, 460v or 575v - 60 hertz 3 phase	

*Certified in accordance with the ULE certification program, which is based on ARI Standard 340/360-93; 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator air. NOTE - 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.

¹Using 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 limitation outline in the motor nameplate.

Electrical Data

Model No.			CHA16-180				CHA16-240						
Line voltage data - 60 Hz. - 3 phase			208/230V		460V		575V		208/230V		460V		575V
Compressor (3)	Rated load amps each (total)		16.7 (50.1)		8.6 (25.8)		6.0 (18.1)		18.8 (56.4)		9.1 (27.3)		7.5 (22.5)
	Locked rotor amps each (total)		110.0 (330.0)		55.0 (165.0)		44.0 (132.0)		156.0 (468.0)		75.0 (225.0)		54.0 (162.0)
Condenser Fan Motor (2)	Full load amps (total)		3.7 (7.4)		1.9 (3.8)		1.6 (3.2)		9.6 (19.6)		4.8 (9.6)		4.0 (8.0)
	Locked rotor amps each (total)		7.3 (14.6)		3.7 (7.4)		2.9 (5.8)		23.0 (46.0)		11.5 (23)		8.9 (17.8)
Evaporator Blower Motor	Motor Output	hp kW	3 2.2	5 3.7	3 2.2	5 3.7	3 2.2	5 3.7	5 2.2	7.5 3.7	5 3.7	7.5 5.6	5.6
	Full load amps		10.6	16.7	4.8	7.6	3.9	6.1	16.7	24.2	7.6	11	6.1
	Locked rotor amps		66	105	26.8	45.6	23.4	36.6	105	152	45.6	66	36.6
Rec. max. fuse size (amps)	With Exhaust Fan		90	90	45	50	30	35	110	125	50	50	40
	Less Exhaust Fan		80	90	45	45	30	35	100	110	50	50	40
Minimum Circuit Ampacity	With Exhaust Fan		78	84	40	42	29	31	93	100	45	48	37
	Less Exhaust Fan		73	79	37	40	27	29	88	95	42	46	35
Optional Power Exhaust Fan	(No.) Horsepower (W)		(2) - 1/3 (250)										
	Full load amps (total)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)		2.4 (4.8)		1.3 (2.6)		1.0 (2.0)
	Locked rotor amps (total)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)		4.7 (9.4)		2.4 (4.8)		1.9 (3.8)

Optional Electric Heat Data**CHA16-180**

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Input	Btuh Output	*Total Unit with Power Exhaust Fans & Electric Heat Minimum Circuit Ampacity	
					3 hp (2.2 kW)	5 hp (3.7 kW)
ECH16-185-15 208/230v (24H27) 460v (24H32) 575v (24H38) 47 lbs. (21 kg)	1	208	11.3	38,600	78	84
	1	220	12.6	43,000		
	1	230	13.8	47,100		
	1	240	15.0	51,200		
	1	440	12.6	43,000	40	42
	1	460	13.8	47,100		
	1	480	15.0	51,200		
	1	550	12.6	43,000		
	1	575	13.8	47,100	29	31
	1	600	15.0	51,200		
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575 v (24H39) 51 lbs. (23 kg)	'2	208	22.5	76,800	110	118
	'2	220	25.2	86,000		
	'2	230	27.6	93,900		
	'2	240	30.0	102,400		
	1	440	25.2	86,000	55	58
	1	460	27.6	93,900		
	1	480	30.0	102,400		
	1	550	25.2	86,000		
	1	575	27.6	93,900	44	47
	1	600	30.0	102,400		
ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	'2	208	33.8	115,300	155	163
	'2	220	37.8	129,000		
	'2	230	41.3	141,000		
	'2	240	45.0	153,600		
	'2	440	37.8	129,000	77	81
	'2	460	41.3	141,000		
	'2	480	45.0	153,600		
	'2	550	37.8	129,000		
	'2	575	41.3	141,000	62	65
	'2	600	45.0	153,600		
ECH15-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	'2	208	45.1	153,900	164	172
	'2	220	50.4	172,000		
	'2	230	55.1	188,000		
	'2	240	60.0	204,800		
	'2	440	50.4	172,000	82	85
	'2	460	55.1	188,000		
	'2	480	60.0	204,800		
	'2	550	50.4	172,000		
	'2	575	55.1	188,000	66	68
	'2	600	60.0	204,700		
ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs.(40 kg)	'2	440	63.0	215,000	100	103
	'2	460	68.9	235,100		
	'2	480	75.0	256,000		
	'2	550	63.0	215,000		
	'2	575	68.9	235,100	80	83
	'2	600	75.0	256,000		

*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).

¹May be used with two stage control.

CHA16-240

Electric Heat Model No. & Net Weight	No. of Steps	Volts Input	kW Inp-ut	Btuh Output	*Total Unit with Power Exhaust Fans & Electric Heat Minimum Circuit Ampacity	
					5 hp (3.7 kW)	7.5 hp (5.7 kW)
ECH16-185/300-30 208/230v (24H28) 460v (24H33) 575 v (24H39) 51 lbs. (23 kg)	'2	208	22.5	76,800	118	127
	'2	220	25.2	86,000		
	'2	230	27.6	93,900		
	'2	240	30.0	102,400		
	1	440	25.2	86,000	58	63
	1	460	27.6	93,900		
	1	480	30.0	102,400		
	1	550	25.2	86,000		
	1	575	27.6	93,900	47	50
	1	600	30.0	120,400		
ECH16-185/300-45 208/230v (24H29) 460v (24H34) 575v (24H40) 62 lbs. (28 kg)	'3	208	33.8	115,300	163	172
	'3	220	37.8	129,000		
	'3	230	41.3	141,000		
	'3	240	45.0	153,600		
	'2	440	37.8	129,000	81	85
	'2	460	41.3	141,000		
	'2	480	45.0	153,600		
	'2	550	37.8	129,000		
	'2	575	41.3	141,000	65	68
	'2	600	45.0	153,600		
ECH16-185/300-60 208/230v (24H30) 460v (24H35) 575v (24H41) 67 lbs. (30 kg)	'4	208	45.1	153,900	172	181
	'4	220	50.4	172,000		
	'4	230	55.1	188,000		
	'4	240	60.0	204,800		
	'2	440	50.4	172,000	85	90
	'2	460	55.1	188,000		
	'2	480	60.0	204,800		
	'2	550	50.4	172,000		
	'2	575	55.1	188,000	68	72
	'2	600	60.0	204,800		
ECH16-185/300-75 460v (24H36) 575v (24H42) 88 lbs. (40 kg)	'3	440	63.0	215,000	103	108
	'3	460	68.9	235,100		
	'3	480	75.0	256,000		
	'3	550	63.0	215,000		
	'3	575	68.9	235,100	83	86
	'3	600	75.0	256,000		
	'3	600	75.0	256,000		

*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).

¹May be used with two stage control.

Cooling Ratings

CHA16-180 - Two Compressors 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)		Total Cooling Capacity	Comp. Motor kW	Sensible to Total Ratio (S/T)				
			cfm	L/s		kBtuh	kW			Dry Bulb																
						75°F (24°C)	80°F (27°C)	85°F (29°C)																		
63°F (17°C)	4800	2265	127.8	37.5	8.42	.68	.81	.93	122.8	36.0	9.00	.69	.82	.94	117.4	34.4	9.70	.70	.84	.96	111.4	32.6	10.46	.72	.86	.98
	6000	2830	132.8	38.9	8.54	.72	.87	.99	127.6	37.4	9.16	.74	.89	1.00	121.8	35.7	9.88	.75	.91	1.00	115.6	33.9	10.66	.77	.93	1.00
	7200	3400	136.8	40.1	8.62	.77	.93	1.00	131.2	38.5	9.26	.78	.95	1.00	125.4	36.8	10.00	.80	.97	1.00	119.2	34.9	10.82	.83	.99	1.00
67°F (19°C)	4800	2265	136.2	39.9	8.60	.54	.65	.77	130.8	38.3	9.24	.54	.66	.79	124.8	36.6	9.98	.55	.68	.81	118.4	34.7	10.80	.56	.69	.83
	6000	2830	140.6	41.2	8.70	.56	.70	.84	134.8	39.5	9.38	.57	.71	.86	128.6	37.7	10.14	.58	.73	.88	121.8	35.7	10.96	.59	.75	.90
	7200	3400	143.8	42.1	8.76	.59	.75	.90	137.8	40.4	9.46	.60	.76	.92	131.4	38.5	10.24	.61	.78	.94	124.4	36.5	11.08	.62	.81	.96
71°F (22°C)	4800	2265	145.0	42.5	8.78	.41	.52	.63	139.2	40.8	9.50	.41	.53	.64	132.8	38.9	10.30	.41	.53	.65	126.0	36.9	11.16	.42	.54	.67
	6000	2830	149.4	43.8	8.88	.42	.55	.67	143.2	42.0	9.62	.42	.56	.69	136.6	40.0	10.46	.42	.56	.71	129.4	37.9	11.34	.43	.58	.72
	7200	3400	152.6	44.7	8.96	.43	.58	.72	146.0	42.8	9.72	.43	.59	.74	139.0	40.7	10.56	.44	.60	.76	131.8	38.6	11.46	.44	.61	.78

CHA16-180 - 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)		Total Cooling Capacity	Comp. Motor kW	Sensible to Total Ratio (S/T)				
			cfm	L/s		kBtuh	kW			Dry Bulb																
						75°F (24°C)	80°F (27°C)	85°F (29°C)																		
63°F (17°C)	4800	2265	176.5	51.7	14.54	.70	.84	.97	167.6	49.1	15.68	.72	.86	.98	158.5	46.5	16.88	.73	.89	1.00	149.5	43.8	18.06	.75	.91	1.00
	6000	2830	183.2	53.7	14.81	.75	.91	1.00	173.9	51.0	15.98	.77	.94	1.00	164.5	48.2	17.22	.80	.96	1.00	155.3	45.5	18.48	.82	.99	1.00
	7200	3400	188.6	55.3	14.99	.80	.97	1.00	179.3	52.5	16.23	.83	.99	1.00	170.3	49.9	17.55	.85	1.00	1.00	161.3	47.3	18.89	.88	1.00	1.00
67°F (19°C)	4800	2265	187.6	55.0	14.96	.55	.68	.81	178.1	52.2	16.18	.56	.69	.83	168.1	49.3	17.43	.57	.71	.85	158.5	46.5	18.68	.58	.73	.88
	6000	2830	193.3	56.7	15.19	.58	.73	.88	183.2	53.7	16.43	.59	.75	.90	172.9	50.7	17.72	.60	.77	.93	162.7	47.7	18.98	.62	.80	.96
	7200	3400	197.5	57.9	15.35	.61	.78	.94	187.0	54.8	16.61	.62	.81	.97	176.5	51.7	17.93	.64	.83	.99	166.0	48.6	19.22	.66	.86	1.00
71°F (22°C)	4800	2265	199.7	58.5	15.44	.41	.53	.65	189.5	55.5	16.73	.42	.54	.67	179.2	52.5	18.08	.42	.55	.69	169.0	49.5	19.40	.42	.57	.71
	6000	2830	205.3	60.2	15.67	.42	.57	.71	194.5	57.0	16.99	.43	.58	.73	183.7	53.8	18.35	.43	.59	.75	172.9	50.7	19.70	.44	.61	.77
	7200	3400	209.0	61.3	15.82	.44	.60	.76	198.1	58.1	17.17	.44	.61	.78	186.9	54.8	18.55	.45	.63	.81	175.8	51.5	19.90	.46	.65	.84

Cooling Ratings

CHA16-240 - Two Compressors 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		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	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)	5760	2720	153.0	44.8	8.64	.69	.82	.94	148.6	43.6	9.64	.69	.83	.95	143.8	42.1	10.76	.70	.84	.97	138.6	40.6	12.04	.71	.85	.98
	7200	3400	158.8	46.5	8.82	.73	.89	1.00	154.0	45.1	9.80	.74	.90	1.00	149.0	43.7	10.92	.76	.92	1.00	143.8	42.1	12.22	.77	.93	1.00
	8640	4080	163.4	47.9	8.96	.78	.95	1.00	158.6	46.5	9.96	.80	.96	1.00	153.6	45.0	11.10	.81	.98	1.00	148.2	43.4	12.40	.83	.99	1.00
67°F (19°C)	5760	2720	162.0	47.5	8.92	.54	.66	.78	157.2	46.1	9.90	.55	.67	.79	152.0	44.5	11.04	.55	.68	.81	146.4	42.9	12.34	.56	.69	.82
	7200	3400	167.0	48.9	9.08	.57	.71	.85	161.8	47.4	10.08	.57	.72	.87	156.6	45.9	11.22	.58	.73	.88	150.8	44.2	12.50	.59	.75	.90
	8640	4080	170.6	50.0	9.22	.60	.76	.92	165.4	48.5	10.20	.61	.78	.94	159.8	46.8	11.36	.62	.79	.95	153.8	45.1	12.66	.62	.81	.97
71°F (22°C)	5760	2720	171.6	50.3	9.26	.41	.53	.64	166.6	48.8	10.26	.41	.53	.64	161.0	47.2	11.40	.42	.54	.65	155.2	45.5	12.70	.42	.54	.67
	7200	3400	176.4	51.7	9.44	.42	.56	.69	171.0	50.1	10.44	.42	.56	.70	165.4	48.5	11.58	.43	.57	.71	159.4	46.7	12.88	.43	.58	.73
	8640	4080	179.6	52.6	9.58	.43	.59	.74	174.0	51.0	10.58	.44	.60	.76	168.2	49.3	11.72	.44	.61	.77	162.0	47.5	13.02	.44	.62	.79

CHA16-240 - 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		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	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)	5760	2720	216.1	63.3	16.13	.70	.84	.97	208.4	61.1	18.04	.71	.86	.98	200.3	58.7	20.20	.72	.87	1.00	191.3	56.1	22.68	.74	.90	1.00
	7200	3400	224.0	65.6	16.37	.76	.92	1.00	216.2	63.4	18.31	.77	.93	1.00	207.5	60.8	20.49	.79	.95	1.00	198.8	58.3	22.98	.81	.97	1.00
	8640	4080	230.9	67.7	16.63	.81	.98	1.00	222.8	65.3	18.58	.83	.99	1.00	214.5	62.9	20.77	.85	1.00	1.00	205.8	60.3	23.29	.87	1.00	1.00
67°F (19°C)	5760	2720	228.5	67.0	16.54	.55	.68	.81	220.1	64.5	18.49	.56	.69	.82	211.3	61.9	20.66	.56	.70	.84	202.0	59.2	23.13	.57	.72	.86
	7200	3400	235.3	69.0	16.81	.58	.73	.89	226.6	66.4	18.72	.59	.75	.91	217.3	63.7	20.94	.60	.77	.93	207.5	60.8	23.42	.61	.78	.95
	8640	4080	240.1	70.4	17.01	.62	.79	.96	231.1	67.7	18.96	.63	.81	.97	221.8	65.0	21.12	.64	.83	.99	211.6	62.0	23.63	.65	.85	1.00
71°F (22°C)	5760	2720	242.0	70.9	17.08	.42	.54	.66	233.3	68.4	19.03	.42	.54	.67	224.2	65.7	21.25	.42	.55	.68	214.3	62.8	23.73	.42	.56	.69
	7200	3400	248.5	72.8	17.35	.43	.57	.71	239.5	70.2	19.30	.43	.58	.73	229.6	67.3	21.54	.43	.59	.74	219.4	64.3	24.02	.44	.60	.76
	8640	4080	252.7	74.1	17.56	.44	.61	.77	243.3	71.3	19.50	.44	.62	.79	233.2	68.3	21.72	.45	.63	.81	222.7	65.3	24.23	.45	.65	.83

Blower Data - CHA16-240*Bold Indicates Field Furnished Drive*Blower table includes resistance for Base Unit Only with dry indoor coil & air filters in place. For all units add:1 - **Wet indoor coil air resistance of selected unit.**

2 - Any field installed accessories air resistance (electric heat, economizer, duct resistance, diffuser, etc.)

Then determine from blower table blower motor output.

See Page 12 for wet coil and optional accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT. *Units require 4900 cfm (2310 L/s) minimum air with electric heat.

Air Volume cfm (L/s)	Static Pressure External to Unit - Inches Water Gauge (Pa)																	
	.20 (50)		.40 (100)		.60 (150)		.80 (200)		1.00 (250)		1.20 (300)		1.40 (350)		1.60 (400)		1.80 (450)	
	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)	560	1.70 (1.27)	610	1.95 (1.45)	660	2.20 (1.64)	710	2.45 (1.83)	755	2.75 (2.05)	795	3.00 (2.24)	840	3.30 (2.46)	880	3.60 (2.69)	915	3.85 (2.87)
6100 (2880)	565	1.75 (1.31)	620	2.05 (1.53)	670	2.30 (1.72)	715	2.55 (1.90)	760	2.85 (2.13)	800	3.10 (2.31)	845	3.40 (2.54)	885	3.70 (2.76)	920	3.95 (2.95)
6200 (2925)	575	1.85 (1.38)	625	2.10 (1.57)	675	2.35 (1.75)	720	2.65 (1.98)	765	2.90 (2.16)	805	3.20 (2.39)	850	3.50 (2.61)	885	3.75 (2.80)	925	4.10 (3.06)
6300 (2975)	580	1.90 (1.42)	635	2.20 (1.64)	680	2.45 (1.83)	725	2.75 (2.05)	770	3.00 (2.24)	815	3.30 (2.46)	850	3.60 (2.69)	890	3.90 (2.91)	930	4.20 (3.13)
6400 (3020)	590	2.00 (1.49)	640	2.30 (1.72)	685	2.55 (1.90)	735	2.85 (2.13)	775	3.10 (2.31)	820	3.45 (2.57)	855	3.70 (2.76)	895	4.00 (2.98)	935	4.35 (3.25)
6500 (3065)	595	2.10 (1.57)	645	2.35 (1.75)	695	2.65 (1.98)	740	2.95 (2.20)	780	3.20 (2.39)	825	3.55 (2.65)	860	3.80 (2.83)	900	4.10 (3.06)	940	4.45 (3.32)
6600 (3115)	605	2.20 (1.64)	655	2.45 (1.83)	700	2.75 (2.05)	745	3.05 (2.28)	785	3.30 (2.46)	830	3.65 (2.72)	865	3.90 (2.91)	905	4.25 (3.17)	940	4.55 (3.39)
6700 (3160)	610	2.25 (1.68)	660	2.55 (1.90)	705	2.85 (2.13)	750	3.15 (2.35)	795	3.45 (2.57)	835	3.75 (2.80)	870	4.00 (2.98)	910	4.35 (3.25)	945	4.65 (3.47)
6800 (3210)	620	2.35 (1.75)	665	2.65 (1.98)	715	2.95 (2.20)	755	3.25 (2.42)	800	3.55 (2.65)	840	3.85 (2.87)	880	4.20 (3.13)	915	4.50 (3.36)	950	4.80 (3.58)
6900 (3255)	625	2.45 (1.83)	675	2.75 (2.05)	720	3.05 (2.28)	765	3.35 (2.50)	805	3.65 (2.72)	845	3.95 (2.95)	885	4.30 (3.21)	920	4.60 (3.43)	955	4.90 (3.66)
7000 (3305)	635	2.55 (1.90)	680	2.85 (2.13)	725	3.15 (2.35)	770	3.45 (2.57)	810	3.75 (2.80)	850	4.10 (3.06)	890	4.40 (3.28)	925	4.75 (3.54)	960	5.05 (3.77)
7100 (3350)	640	2.65 (1.98)	690	3.00 (2.24)	735	3.30 (2.46)	775	3.60 (2.69)	815	3.90 (2.91)	855	4.20 (3.13)	895	4.55 (3.39)	930	4.85 (3.62)	965	5.20 (3.88)
7200 (3400)	650	2.80 (2.09)	695	3.05 (2.28)	740	3.40 (2.54)	780	3.70 (2.76)	820	4.00 (2.98)	860	4.35 (3.25)	900	4.70 (3.51)	935	5.00 (3.73)	970	5.35 (3.99)
7300 (3445)	655	2.85 (2.13)	705	3.20 (2.39)	745	3.50 (2.61)	790	3.85 (2.87)	830	4.15 (3.10)	865	4.45 (3.32)	905	4.80 (3.58)	940	5.15 (3.84)	975	5.45 (4.07)
7400 (3490)	665	3.00 (2.24)	710	3.30 (2.46)	755	3.65 (2.72)	795	3.95 (2.95)	835	4.30 (3.21)	870	4.60 (3.43)	910	4.95 (3.69)	945	5.25 (3.92)	980	5.60 (4.18)
																	1015	5.95 (4.44)

(Continued on Page 11)

Blower Data - CHA16-240

Bold Indicates Field Furnished Drive

Blower table includes resistance for Base Unit Only with dry indoor coil & air filters in place. For all units add:

1 - Wet indoor coil air resistance of selected unit.

2 - Any field installed accessories air resistance (electric heat, economizer, duct resistance, diffuser, etc.)

Then determine from blower table blower motor output.

See Page 12 for wet coil and optional accessory air resistance data.

MINIMUM AIR VOLUME REQUIRED FOR USE WITH OPTIONAL ELECTRIC HEAT. *Units require 4900 cfm (2310 L/s) minimum air with electric heat.

Air Volume cfm (L/s)	Static Pressure External to Unit - Inches Water Gauge (Pa)																			
	.20 (50)		.40 (100)		.60 (150)		.80 (200)		1.00 (250)		1.20 (300)		1.40 (350)		1.60 (400)		1.80 (450)		2.00 (495)	
	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)
7500 (3540)	675	3.10 (2.31)	715	3.40 (2.54)	760	3.75 (2.80)	800	4.05 (3.02)	840	4.40 (3.28)	880	4.75 (3.54)	915	5.05 (3.77)	950	5.40 (4.03)	985	5.75 (4.29)	1020	6.10 (4.55)
7600 (3585)	680	3.20 (2.39)	725	3.55 (2.65)	765	3.85 (2.87)	805	4.20 (3.13)	845	4.50 (3.36)	885	4.90 (3.66)	920	5.20 (3.88)	955	5.55 (4.14)	990	5.90 (4.40)	1020	6.20 (4.63)
7700 (3635)	690	3.35 (2.50)	730	3.65 (2.72)	775	4.00 (2.98)	815	4.35 (3.25)	850	4.65 (3.47)	890	5.00 (3.73)	925	5.35 (3.99)	960	5.70 (4.25)	995	6.05 (4.51)	1025	6.40 (4.77)
7800 (3680)	695	3.45 (2.57)	740	3.80 (2.83)	780	4.15 (3.10)	820	4.45 (3.32)	860	4.80 (3.58)	895	5.15 (3.84)	930	5.50 (4.10)	965	5.85 (4.36)	1000	6.20 (4.63)	1030	6.55 (4.89)
7900 (3730)	705	3.60 (2.69)	745	3.90 (2.91)	785	4.25 (3.17)	825	4.60 (3.43)	865	4.95 (3.69)	900	5.30 (3.95)	935	5.65 (4.21)	970	6.00 (4.48)	1005	6.35 (4.74)	1035	6.70 (5.00)
8000 (3775)	710	3.70 (2.76)	755	4.05 (3.02)	795	4.40 (3.28)	835	4.75 (3.54)	870	5.10 (3.80)	905	5.45 (4.07)	940	5.80 (4.33)	975	6.15 (4.59)	1010	6.50 (4.85)	1040	6.85 (5.11)
8100 (3820)	720	3.85 (2.87)	760	4.20 (3.13)	800	4.55 (3.39)	840	4.90 (3.66)	875	5.25 (3.92)	915	5.60 (4.18)	950	6.00 (4.48)	980	6.30 (4.70)	1015	6.70 (5.00)	1045	7.05 (5.26)
8200 (3870)	730	4.00 (2.98)	770	4.35 (3.25)	810	4.70 (3.51)	845	5.05 (3.77)	885	5.40 (4.03)	920	5.75 (4.29)	955	6.15 (4.59)	985	6.45 (4.81)	1020	6.85 (5.11)	1050	7.20 (5.37)
8300 (3915)	735	4.15 (3.10)	775	4.45 (3.32)	815	4.85 (3.62)	855	5.20 (3.88)	890	5.55 (4.14)	925	5.90 (4.40)	960	6.30 (4.70)	995	6.65 (4.96)	1025	7.00 (5.22)	1055	7.35 (5.48)
8400 (3965)	745	4.30 (3.21)	785	4.65 (3.47)	825	5.00 (3.73)	860	5.35 (3.99)	895	5.70 (4.25)	930	6.05 (4.51)	965	6.45 (4.81)	1000	6.85 (5.11)	1030	7.20 (5.37)	1065	7.60 (5.67)
8500 (4010)	750	4.40 (3.28)	790	4.75 (3.54)	830	5.15 (3.84)	865	5.50 (4.10)	900	5.85 (4.36)	940	6.25 (4.66)	970	6.60 (4.92)	1005	7.00 (5.22)	1035	7.35 (5.48)	1070	7.80 (5.82)
8600 (4060)	760	4.60 (3.43)	800	4.95 (3.69)	835	5.30 (3.95)	875	5.70 (4.25)	910	6.05 (4.51)	945	6.45 (4.81)	975	6.75 (5.04)	1010	7.15 (5.33)	1040	7.55 (5.63)	1075	7.95 (5.93)
8700 (4105)	765	4.70 (3.51)	805	5.10 (3.80)	845	5.45 (4.07)	880	5.85 (4.36)	915	6.20 (4.63)	950	6.60 (4.92)	985	7.00 (5.22)	1015	7.35 (5.48)	1045	7.70 (5.74)	1080	8.15 (6.08)
8800 (4155)	775	4.90 (3.66)	815	5.25 (3.92)	850	5.60 (4.18)	885	6.00 (4.48)	920	6.35 (4.74)	955	6.75 (5.04)	990	7.15 (5.33)	1020	7.50 (5.60)	1055	7.95 (5.93)	1085	8.35 (6.23)
8900 (4200)	785	5.05 (3.77)	820	5.40 (4.03)	860	5.80 (4.33)	895	6.20 (4.63)	930	6.55 (4.89)	960	6.90 (5.15)	995	7.35 (5.48)	1025	7.70 (5.74)	1060	8.15 (6.08)	1090	8.55 (6.38)
9000 (4245)	790	5.20 (3.88)	830	5.60 (4.18)	865	5.95 (4.44)	900	6.35 (4.74)	935	6.75 (5.04)	970	7.15 (5.33)	1000	7.50 (5.60)	1035	7.95 (5.93)	1065	8.30 (6.19)	1095	8.70 (6.49)

Accessory Air Resistance

Unit Model No.	Air Volume		Total Resistance - Inches water gauge (Pa)						FD11 Flush Diffuser	
	cfm	L/s	Wet Evaporator Coil	Electric Heat	REMD16M Down-Flow Economizer	RTD11 Step-Down Diffuser				
						2 Ends Open	1 Side 2 Ends Open	All ends & Sides Open		
CHA16-180	4800	2265	.14 (35)	.15 (37)	.03 (7)	.46 (114)	.40 (99)	.36 (90)	.24 (60)	
	5000	2360	.14 (35)	.17 (42)	.03 (7)	.51 (127)	.44 (109)	.39 (97)	.27 (67)	
	5200	2455	.15 (.37)	.20 (50)	.03 (7)	.56 (139)	.48 (119)	.42 (104)	.30 (75)	
	5400	2550	.16 (40)	.22 (55)	.04 (10)	.61 (152)	.52 (129)	.45 (112)	.33 (82)	
	5600	2645	.17 (42)	.22 (55)	.04 (10)	.66 (164)	.56 (139)	.48 (119)	.36 (90)	
	5800	2735	.18 (45)	.25 (62)	.05 (12)	.71 (177)	.59 (147)	.51 (127)	.39 (97)	
	6000	2830	.19 (47)	.26 (64)	.05 (12)	.76 (189)	.63 (157)	.55 (137)	.42 (104)	
	6200	2925	.20 (50)	.29 (72)	.05 (12)	.80 (199)	.68 (169)	.59 (147)	.46 (114)	
	6400	3020	.21 (52)	.31 (77)	.06 (15)	.86 (214)	.72 (179)	.63 (157)	.50 (124)	
	6600	3115	.22 (55)	.32 (80)	.06 (15)	.92 (229)	.77 (191)	.67 (167)	.54 (134)	
	6800	3210	.23 (57)	.33 (82)	.07 (17)	.99 (246)	.83 (206)	.72 (174)	.58 (144)	
	7000	3305	.24 (60)	.33 (82)	.07 (17)	1.03 (256)	.87 (216)	.76 (189)	.62 (154)	
	7200	3400	.25 (62)	.34 (85)	.08 (20)	1.09 (271)	.92 (229)	.80 (199)	.66 (164)	
CHA16-240	6000	2830	.24 (60)	.26 (64)	.05 (12)	.36 (90)	.31 (77)	.27 (67)	.29 (72)	
	6500	3065	.28 (70)	.32 (80)	.06 (15)	.42 (104)	.36 (90)	.31 (77)	.34 (85)	
	7000	3305	.31 (77)	.33 (82)	.07 (17)	.49 (122)	.41 (102)	.36 (90)	.40 (99)	
	7500	3540	.34 (85)	.40 (99)	.09 (22)	.51 (127)	.46 (114)	.41 (102)	.45 (112)	
	8000	3775	.38 (94)	.42 (104)	.10 (25)	.59 (147)	.49 (122)	.43 (107)	.50 (124)	
	8500	4010	.42 (104)	.50 (124)	.11 (27)	.69 (172)	.58 (144)	.50 (124)	.57 (142)	
	9000	4245	.46 (114)	.58 (144)	.13 (32)	.79 (196)	.67 (167)	.58 (144)	.66 (164)	

PED16-18/234 Power Exahust Fans Performance

Model No.	Air Volume		Return Air System Static Pressure	
	cfm	L/s	In. w.g.	Pa
PED16-18/24	6000	2830	.00	0
	5700	2690	.05	12
	5300	2500	.10	25
	5000	2360	.15	37
	4700	2210	.20	50
	4200	1980	.25	62
	3600	1700	.30	75

Ceiling Diffuser Air Throw Data

Model No.	Air Volume		Effective Throw Range			
			RTD11 Step-Down		FD11 Flush	
	cfm	L/s	ft.	m	ft.	m
CHA16-180	5600	2645	39 - 49	12 - 15	28 - 37	9 - 11
	5800	2740	42 - 51	13 - 16	29 - 38	9 - 12
	6000	2830	44 - 54	13 - 17	40 - 50	12 - 15
	6200	2925	45 - 55	14 - 17	42 - 51	13 - 16
	6400	3020	46 - 55	14 - 17	43 - 52	13 - 16
	6600	3115	47 - 56	14 - 17	45 - 56	14 - 17
CHA16-240	7200	3400	33 - 38	10 - 12	26 - 35	8 - 11
	7400	3490	35 - 40	11 - 12	28 - 37	9 - 11
	7600	3585	36 - 41	11 - 13	29 - 38	9 - 12
	7800	3680	38 - 43	11 - 13	40 - 50	12 - 15
	8000	3775	39 - 44	12 - 13	42 - 51	13 - 16
	8200	3870	41 - 46	12 - 14	43 - 52	13 - 16
	8400	3965	43 - 49	13 - 15	44 - 54	13 - 17
	8600	4060	44 - 50	13 - 15	46 - 57	14 - 17
	8800	4155	47 - 55	14 - 17	48 - 59	15 - 18

¹Throw is the horizontal or vertical distance an air stream 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

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 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.

Approvals - All electrical components shall have U.L. and C.S.A. listing. All wiring shall be in compliance with NEC and CEC. Shall be rated and certified in accordance with ULE Certification Program which is based on ARI Standard 340/360-200.

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 coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested. Compressor shall be resiliently mounted and have overload protection. The refrigeration system shall have discharge, suction and liquid line service gauge ports, driers, freezestats and full refrigerant charge. Control option available shall consist of low ambient controls.

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. Bottom power entry shall be provided. Evaporator coil condensate drain extended outside cabinet shall be provided. Lifting holes in full perimeter base rails shall be provided for rigging.

Service Access - Large removeable panels shall allow complete service access to compressor/heating/controls, blower and air filter/economizer compartments.

Supply Air Blowers - Centrifugal supply air blower shall have permanently lubricated ball bearings and adjustable belt drive. Motor mount base shall permit ease of motor changeover and belt tension adjustment with a belt tensioning lead screw. Blower wheel shall be statically and dynamically balanced. Supply air blower motor shall have ball bearings.

Condenser Fan(s) - Direct drive propeller type condenser fans shall discharge vertically. Fan motor shall have ball bearings and be permanently lubricated and inherently protected. Fans shall have a safety guard.

Air Filters - Disposable 2 inch (51 mm) thick pleated filters shall be furnished.

Optional Accessories

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

Economizer Damper Section - Furnish and install economizer 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. Damper hood (required and ordered separately) with filters shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Gravity exhaust dampers shall be required and ordered separately for down-flow air applications and optional for horizontal applications.

Economizer Gravity Exhaust Dampers - Pressure operated dampers shall be required for field installation on economizer in down-flow air applications. Dampers shall be available as an option for field installation in return air duct for horizontal air applications. Neoprene coated fiberglass dampers shall prevent blow-back and outdoor air infiltration during off cycle.

Economizer Power Exhaust Fans - Shall be available for all models with economizer (down-flow applications only). Direct drive propeller type fans shall exhaust air through optional gravity exhaust dampers (required). Motor shall be overload protected. Fans shall be field installed between economizer and gravity exhaust dampers.

Outdoor Air Damper Section - Outdoor dampers shall be available to provide outdoor air requirements of up to 25%. Shall be available for manual or automatic (with optional motorized damper kit) operation. Hood with filters shall be galvanized steel with a powdered enamel paint finish electrostatically bonded to the metal. Damper/hood assembly section shall be field installed external to the unit in down-flow applications. Optional panel kit that replaces unit panel shall be required for damper/hood installation in down-flow applications. Damper/hood assembly shall be field installed in return air duct in horizontal applications.

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. Supply and return transitions shall be available, for field installation in the roof mounting frame, to provide duct connection to the diffuser.

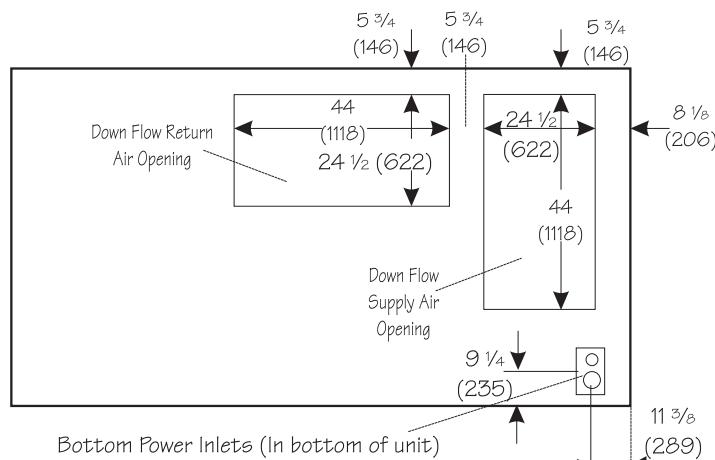
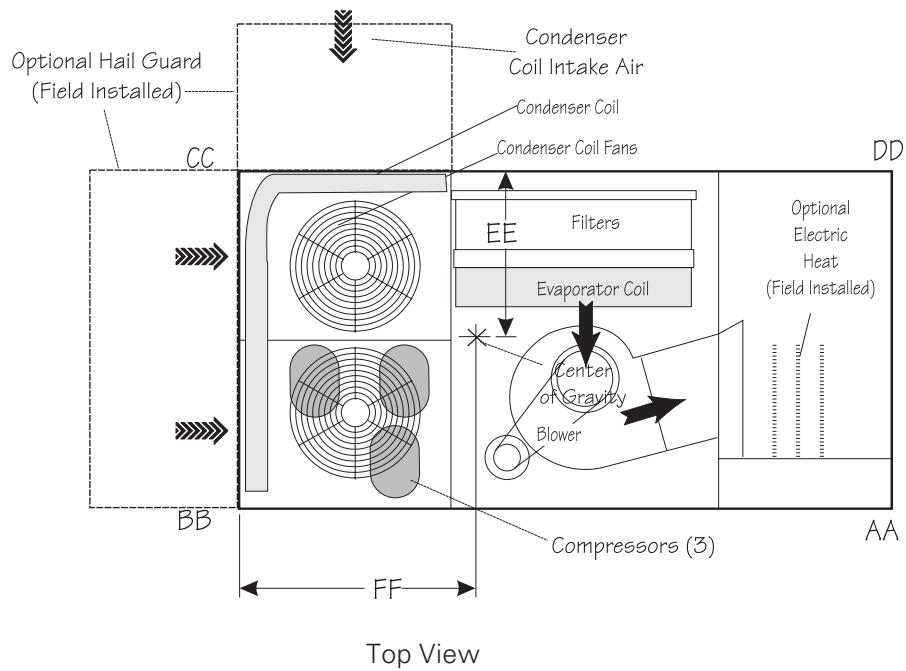
Unit Dimensions - Inches (mm)

Corner Weights

Model No.	AA		BB		CC		DD	
	Ibs.	kg	Ibs.	kg	Ibs.	kg	Ibs.	kg
CHA16-180	322	146	432	196	392	178	302	138
CHA16-240	343	156	479	217	429	195	323	147

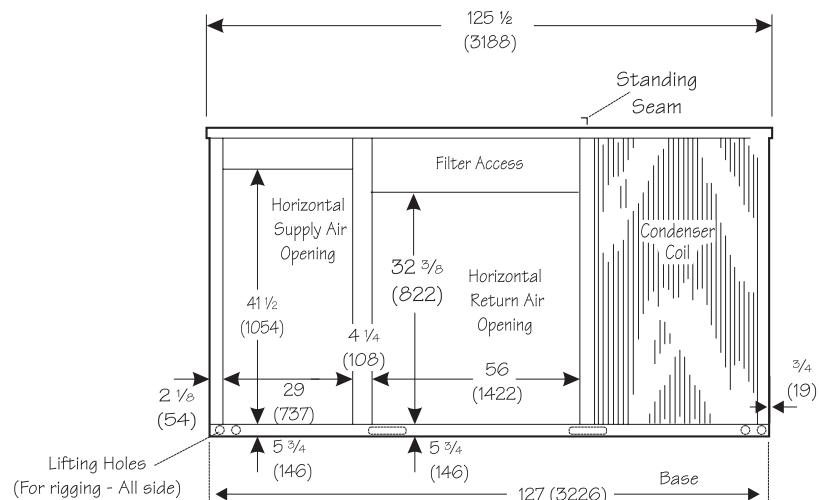
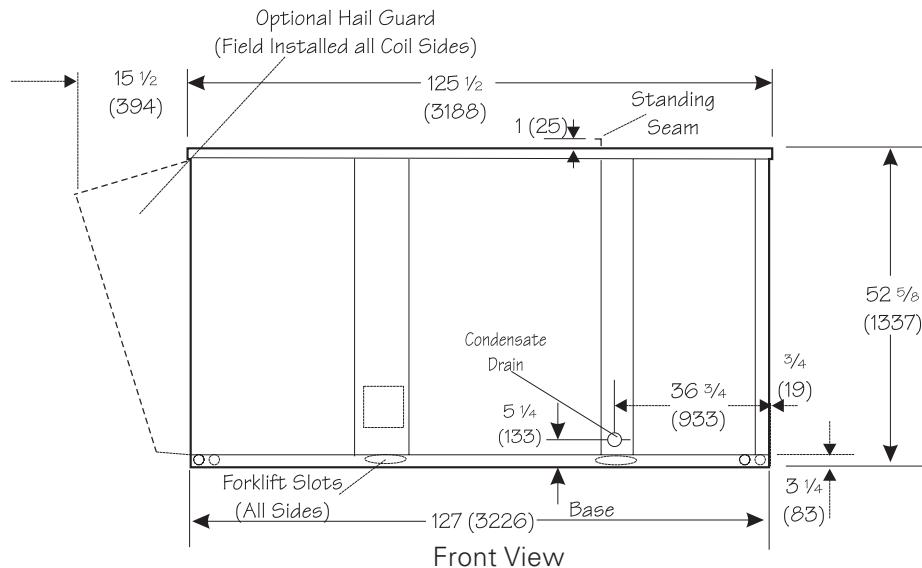
Center of Gravity

Model No.	EE		FF	
	In.	mm	in.	mm
CHA16-180	40 3/8	1026	52 1/4	1327
CHA16-240	40 7/8	1038	50 3/4	1289

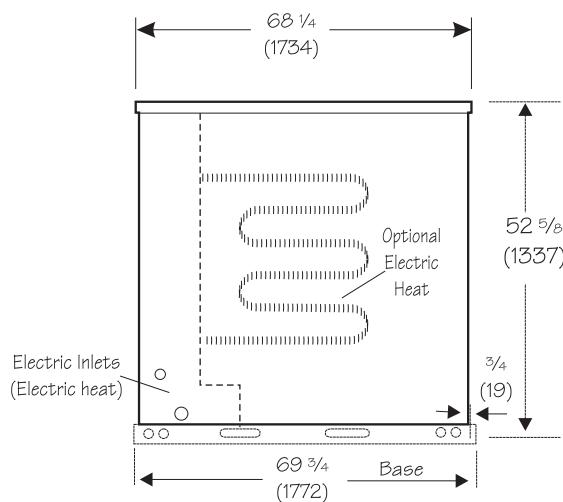


Top View Base Section

Unit Dimensions - Inches (mm)



Back View with Horizontal Supply & Return Air Opening



Heat Section End View

Accessory Dimensions - Inches (mm)

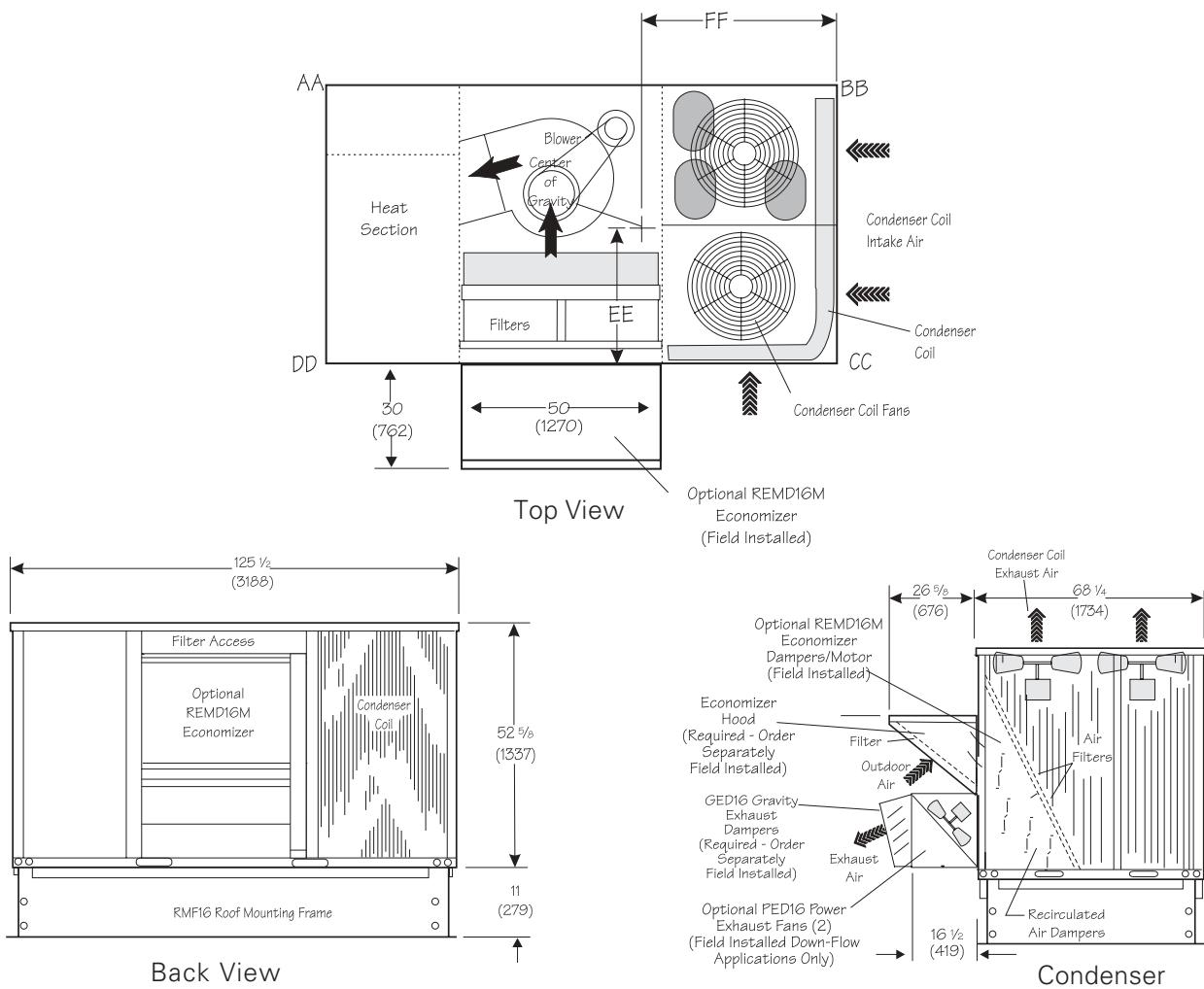
**Basic Unit with REMD16M Economizer & RMF16 Roof Mounting Frame
(Down-Flow Application)**

Corner Weights

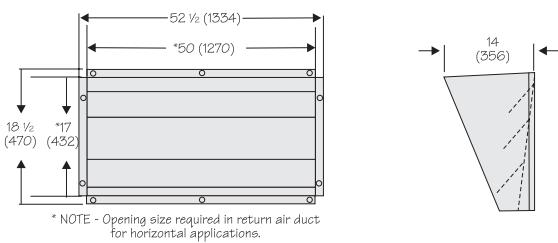
Model No.	AA		BB		CC		DD	
	Lbs.	kg	Lbs.	kg	Lbs.	kg	Lbs.	kg
CHA16-180	363	165	476	216	480	218	365	166
CHA16-240	383	174	522	237	522	237	383	174

Center of Gravity

Model No.	EE		FF	
	In.	mm	in.	mm
CHA16-180	34 3/8	873	52 1/4	1327
CHA16-240	34 7/8	886	50 3/4	1289



GED16 Gravity Exhaust Dampers



Front View

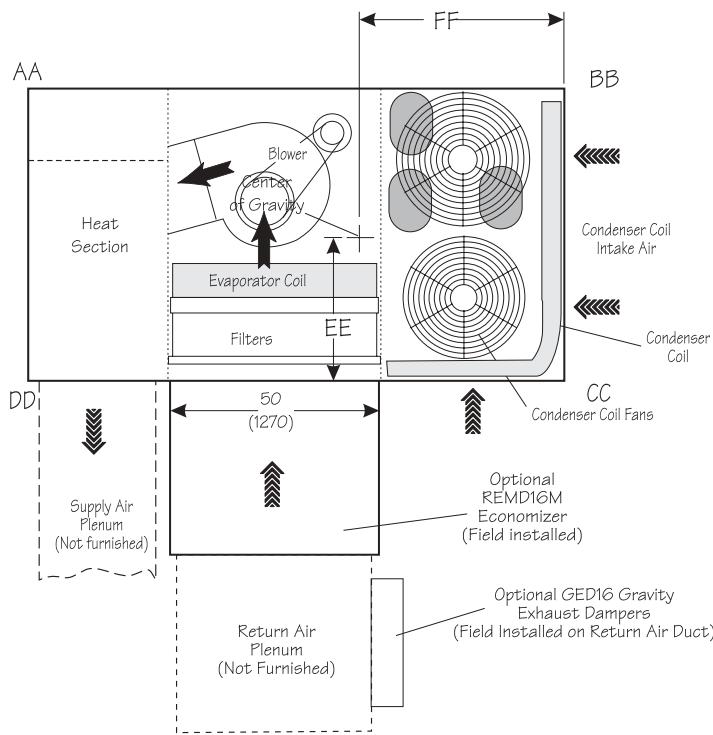
Side View

Accessory Dimensions - Inches (mm)

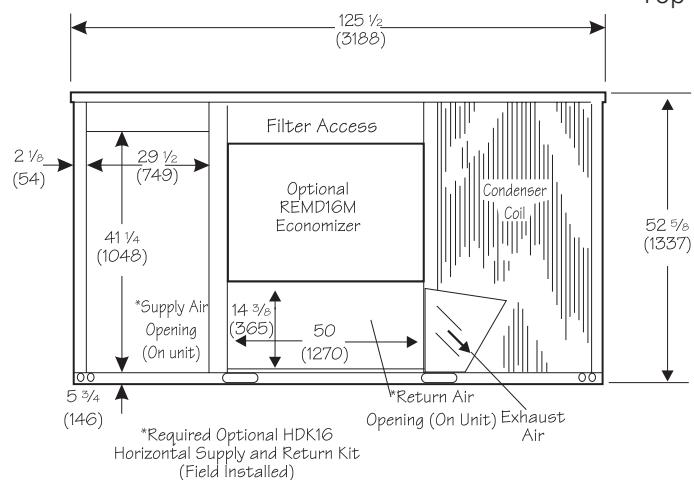
Basic Unit with REMD16M Economizer (Horizontal Application)

Corner Weights

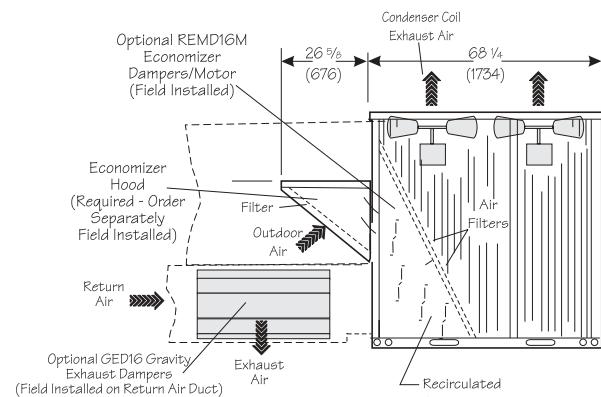
Center of Gravity



Top View



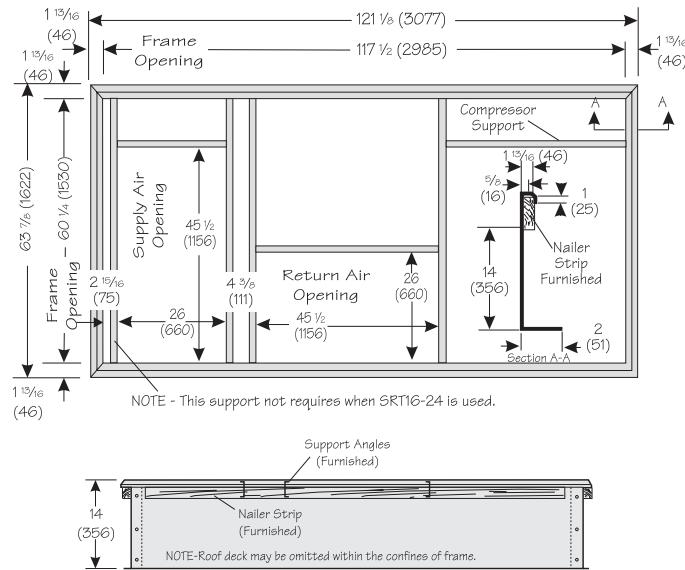
Back View with Horizontal Supply & Return Air Opening



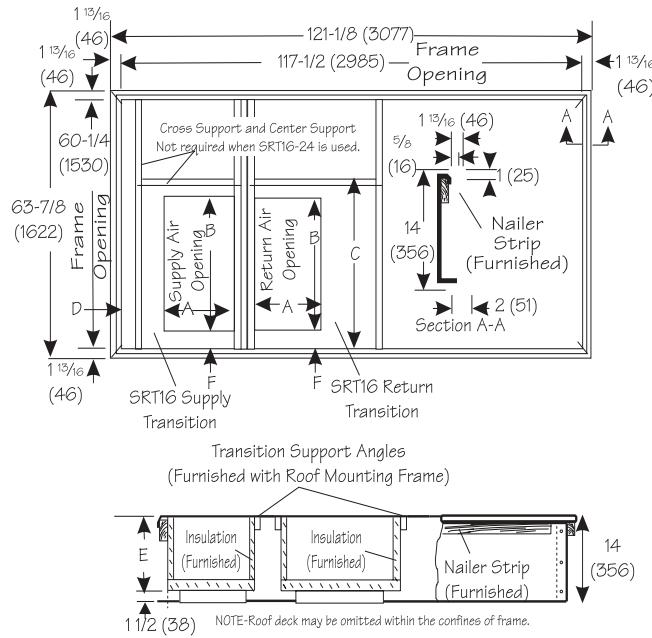
Condenser Section End View

Accessory Dimensions - inches (mm)

RMF16-18/24 Roof Mounting Frame with Double Duct Opening

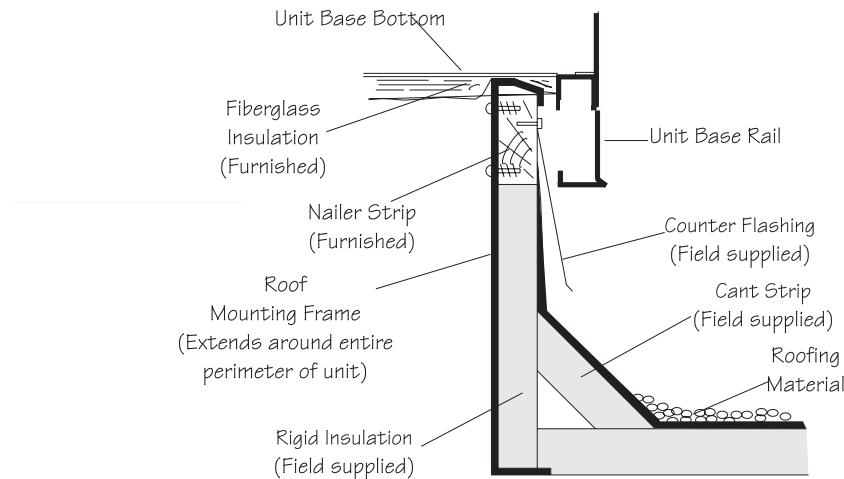


RMF16-18/24 Roof Mounting Frame with SRT16-18/24 Supply and Return Air Transitions for FD11 & RTD11Ceiling Diffusers



Accessory Dimensions - inches (mm)

Typical Flashing Detail for RMF16 Roof Mounting Frame



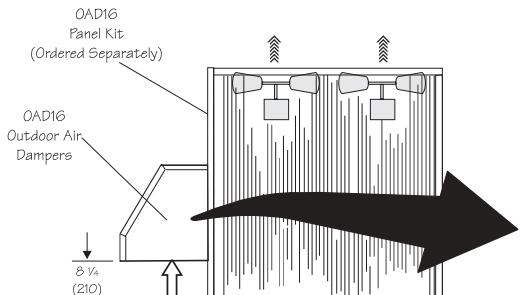
Roof Mounting Frame Specifications

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

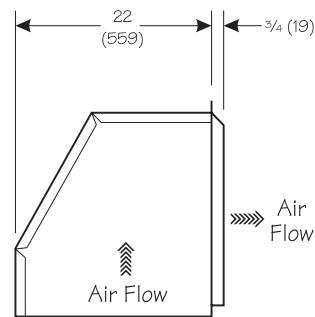
CHA16 Unit with OAD16 Outdoor Air Damper Section Downflow Supply and Return Air

Note- For Horizontal (Side) Supply and Return Air, OAD16 Field Installs on Return Air Duct - Panel Kit not required for horizontal applications.

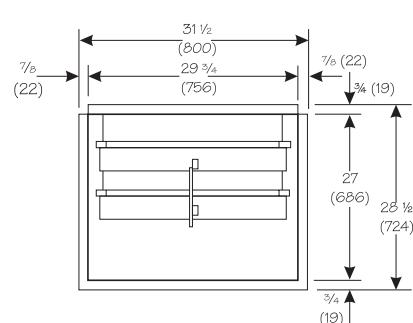
OAD 16 Outdoor Air Damper Section



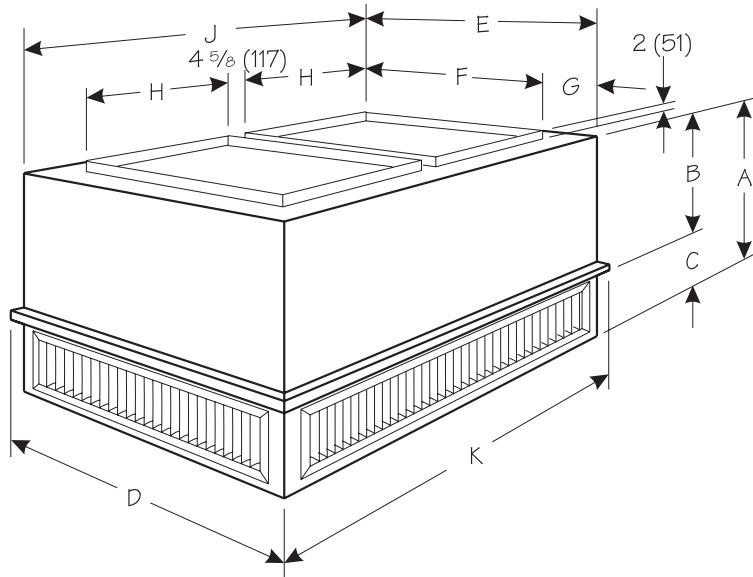
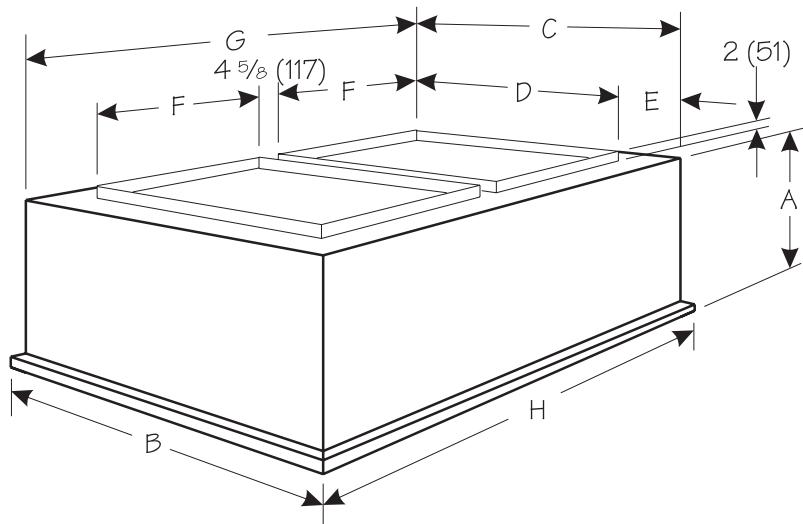
End View



Side View

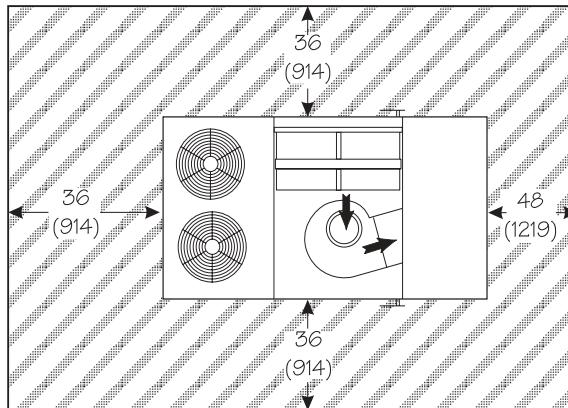


Back View

Accessory Dimensions - inches (mm)**Combination Ceiling Supply and Return Diffusers****Step-Down Ceiling Diffuser****Flush Ceiling Diffuser**

Installation Clearances - inches (mm)

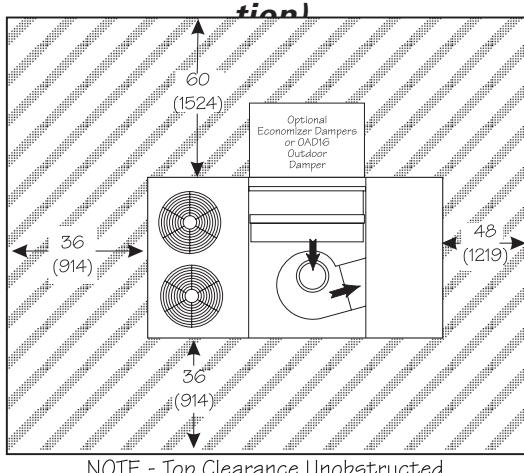
CHA16 Basic Unit



NOTE - Top Clearance Unobstructed

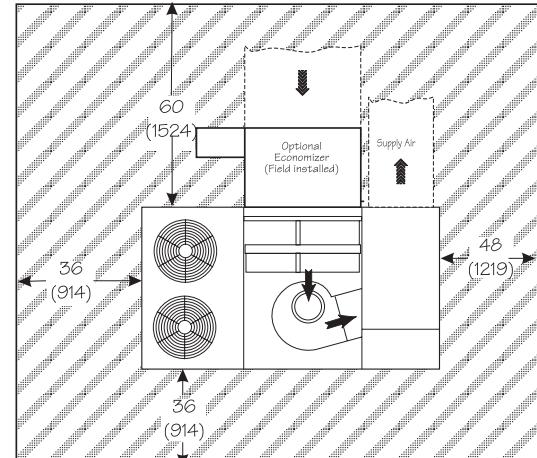
NOTE - Entire perimeter of unit requires support when elevated above mounting surface.

CHA16 Unit with REMD16M Economizer Damper Section or OAD16 Outdoor Air Damper Section (Down-Flow Application)



NOTE - Top Clearance Unobstructed

CHA16 Unit with REMDH16M Damper Section (Horizontal Installation)



NOTE - Top Clearance Unobstructed

All specifications are subject to change
without notice.



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