AAC COMMERCIAL

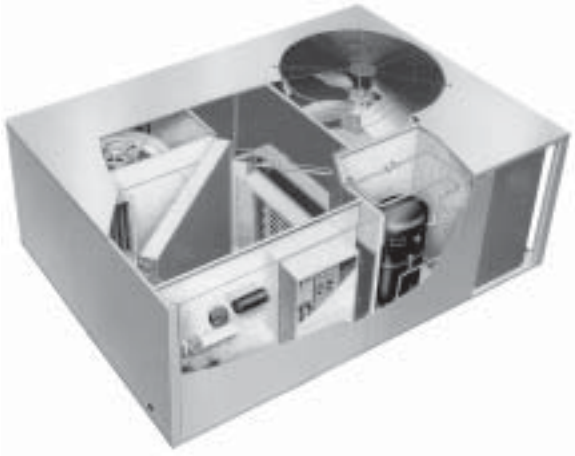
Packaged Unit

Cooling & Electric Heat

2 - 5 Ton Cooling Capacity

12,800 to 85,300 Btuh (5 - 25kW) Optional Electric Heating Capacity

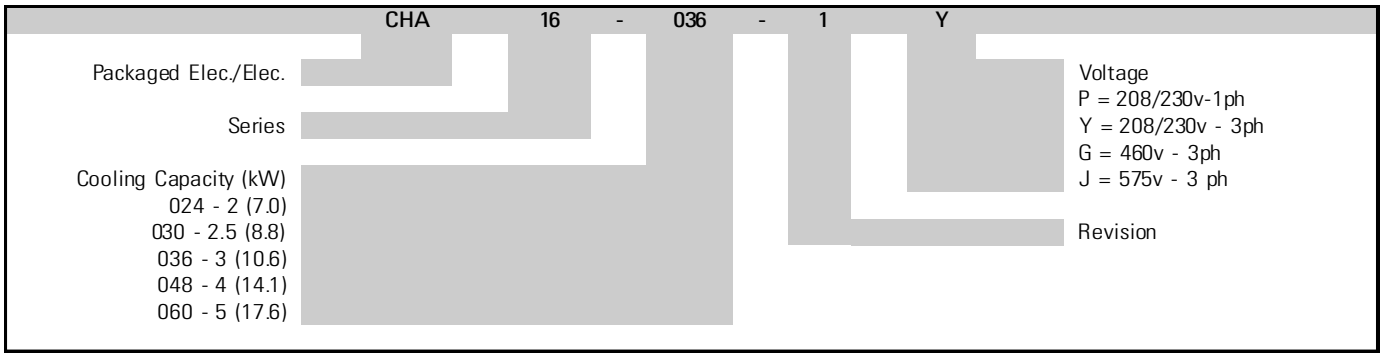
CHA16-024-030-036-048-060



FEATURES

- Designed for outdoor rooftop or ground level installations
- Down-flow or horizontal supply and return air configuration
- U.L. and U.L.C. listed, components bonded for grounding to meet safety standards for servicing by U.L., and National and Canadian Electrical codes
- U.S.E. certified based on ARI Standard 210/240-94
- Sound tested in accordance with conditions included in ARI 270-95
- Heavy gauge galvanized steel cabinet, base section and cabinet panels exposed to conditioned air are lined with insulation, powdered enamel paint finish, large removable access panels for ease of service, electrical inlets furnished for entry into cabinet, control box with factory installed controls located for easy service
- Factory sealed refrigeration system consists of compressor, condenser coil and fan, evaporator coil and blower, liquid line strainer, suction and liquid line service gauge ports and full refrigerant charge. All models have factory installed high pressure switch (manual reset), expansion valve and freezestat.
- Coil constructed of copper tube, and lanced ripple-edged aluminum fins for maximum heat transfer and low air resistance, high pressure factory tested
- Lifting brackets are factory installed
- Condenser fan is direct drive. Permanently lubricated, PSC motor is totally enclosed for maximum protection. All models have a corrosion resistant PVC coated steel wire fan guard.
- Cleanable polyurethane one inch (25 mm) thick filter and rack is furnished for installation in all models for downflow applications. Filter rack will accept up to two inch (51 mm) thick filter. For horizontal applications without economizer, filters must be field installed in return air duct.
- Rugged and reliable compressor is hermetically sealed, suction cooled, overload protected and equipped with internal pressure relief valve. Compressor is installed on resilient rubber mounts for quiet and vibration free operation. Models 024-030 have an immersible self-regulating temperature actuated crankcase heater. Scroll compressor on 036-060 models.
- Direct drive centrifugal blower statically and dynamically balanced for maximum efficiency and minimal noise level. Multiple speed permanent split capacitor (PSC) motor is resiliently mounted.
- Economizer wiring is factory furnished for ease of installation.
- 1 Year warranty on parts
- 5 Year warranty on compressor

Model Number Guide



Specifications

Model No.			CHA16-024	CHA16-030	CHA16-036	CHA16-048	CHA16-060
Nominal Tonnage (kW)			2 (7.0)	2.5 (8.8)	3 (10.5)	4 (14.0)	5 (17.5)
Cooling Ratings	*Cooling capacity - Btuh (kW)		22,200 (6.5)	27,600 (8.1)	35,200 (10.3)	45,000 (13.2)	57,000 (16.5)
	Total unit watts		2550	3210	4045	4890	6065
	SEER (Btuh/Watts)		10.0				10.25
	EER (Btuh/Watts)		8.7	8.6	8.7	9.2	9.4
**Sound Rating Number (db)			80			82	
Refrigerant Charge (HCFC-22)			3 lbs. 3 oz. (1.45 kg)	4 lbs. 6 oz. (1.98 kg)	4 lbs. 13 oz. (2.18 kg)	5 lbs. 8 oz. (2.49 kg)	7 lbs. 7 oz. (3.37 kg)
Evaporator Blower	Blower wheel nominal diameter x width in. (mm)		9 x 8 (229 x 203)	10 x 7 (254 x 178)		10 x 8 (254 x 203)	11 1/2 x 9 (292 x 229)
	Motor horsepower (W)		1/3 (249)			1/2 (373)	3/4 (560)
Evaporator Coil	Net face area - sq. ft. (m^2)		3.2 (0.30)		4.1 (0.38)	5.8 (0.54)	
	Tube diameter - in. (mm) & No. of rows		3/8 (9.5) - 2				
	Fins per inch (m)		15 (591)	17 (669)		15 (591)	
Condenser Coil	Net face area sq. ft. (m^2)	Outer coil	8.6 (0.80)			14.3 (1.33)	
		Inner coil	---	8.4 (0.78)		5.9 (0.55)	13.8 (1.28)
	Tube diameter - in. (mm) & No. of rows		3/8 (9.5) - 1	3/8 (9.5) - 2		3/8 (9.5) - 2	3/8 (9.5) - 2
	Fins per inch (m)		20 (787)				
Condenser Fan	Diameter - in. (mm) & No. of blades		20 (508) - 4			24 (610) - 4	
	Air volume cfm (L/s)		2400 (1135)	2200 (1040)		4000 (1890)	3600 (1700)
	Motor horsepower (W)		1/6 (124)			1/4 (187)	
	Motor watts		230	220		340	330
Optional Electric Heat Ratings	ECH16R-5 ECH16-5	Output - Btuh (kW)	19,000 (5.6)			---	
		*A.F.U.E.	99%			---	
	ECH16R-7 ECH16-7	Output - Btuh (kW)	26,000 (7.6)	27,000 (7.9)	26,000 (7.6)	27,000 (7.9)	
		*A.F.U.E.	99%				
	ECH16R-10 ECH16-10	Output - Btuh (kW)	36,000 (10.5)	37,000 (10.8)	36,000 (10.5)	37,000 (10.8)	
		*A.F.U.E.	99%				
	ECH16-15	Output - Btuh (kW)	53,000 (15.5)	54,000 (15.8)	53,000 (15.5)	54,000 (15.8)	
		*A.F.U.E.	99%				
	ECH16-20	Output - Btuh (kW)	---		70,000 (20.5)	71,000 (20.8)	
		*A.F.U.E.	---		99%		
	ECH16-25	Output - Btuh (kW)	---			88,000 (25.8)	
		*A.F.U.E.	---			99%	
Condensate drain size mpt - in. (mm)			3/4 (19)				
***No. & size of filters - in. (mm)			(1) 16 x 25 x 1 (406 x 635 x 25)			(1) 20 x 25 x 1 (508 x 635 x 25)	
Net weight of basic unit - lbs. (kg)			300 (136)	331 (150)	320 (145)	438 (199)	473 (215)
Shipping weight of basic unit - lbs (kg) 1 package			385 (175)	413 (187)	407 (185)	547 (248)	582 (264)
Electrical characteristics - (60 hz)			208/230v - 1 ph		208/230v - 1ph, 208/230v, 460v or 575v - 3 ph		

*Certified in accordance with USE certification program, which is based on ARI Standard 210/240 and DOE 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19°C) wb entering evaporator coil air.

**Sound Rating Number in accordance with test conditions included in ARI Standard 270-95.

***Cleanable polyurethane filter.

Optional Accessories

Model No.		CHA16-024	CHA16-030	CHA16-036	CHA16-048	CHA16-060
Coil Guards - PVC coated steel wire guards to protect outdoor coil **Note: Not for use with Hail Guards.**		**(47J23)** 2 guards per order			**(47J24)** 3 guards per order	
Hail Guards - Heavy duty field installed coil guard protects coils from damage. **Note: Not for use with Coil Guards.**		**(90N90)** 2 guards per order			**(90N91)** 3 guards per order	
Diffusers - Aluminum grilles, 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 - Net Weight	**Step-Down** - double deflection louvers	**RTD9-65** - 67 lbs. (30 kg) **(27G87)**				
	Flush - fixed blade louvers	**FD9-65** - 37 lbs. (17 kg) **(27G86)**				
Transitions (Supply and Return) - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated - Net Weight		**SRT16** - 20 lbs. (9 kg) **(15H02)**				
Economizer with Gravity Exhaust Dampers (Down-Flow) - Installs direclty in cabinet, recirculated air dampers with pressure operated gravity exhaust damper, formed, gasketed damper blades, nylon bearings, 24v damper motor has adjustable minimum position switch, electronic discharge air sensor, adjustable outdoor air enthalpy control. Utilizes filter furnished with unit, filter rack will accept up to 2 in. (51 mm) filter. Removable exhaust air hood and outdoor air intake hood with aluminum mesh filter. Choice of economizer controls. Model No. - Net Weight - No., size of filter, in., (mm)	**3 Position**	**REMD16-41** 48 lbs. (22 kg) **(58H73)**			**REMD16-65** 66 lbs. (30 kg) **(58H75)**	
	Modulating	**REMD16M-41** 48 lbs. (22 kg) **(58H72)**			**REMD16M-65** 66 lbs. (30 kg) **(58H74)**	
	[1]Indoor	(1) 16 x 25 x 1 (406 x 635 x 25)			(1) 20 x 25 x 1 (508 x 635 x 25)	
	Outdoor	(1) 14 x 25 x 1 (356 x 635 x 25)			(1) 18 x 25 x 1 (457 x 635 x 25)	
Economizer Dampers (Horizontal) - Installs directly in cabinet, combination outdoor air and recirculated air damper, formed, gasketed damper blades, nylon bearings, 24v damper motor has adjustable minimum position switch, electronic discharge air sensor, adjustable outdoor air enthalpy control. 1 in (25 mm) fiberglass filter furnished, filter rack will accept up to 2 in. (51 mm) filter, outdoor air intake hood with aluminum mesh filter. Choice of economizer controls. Model No. - Net Weight - No. & size of filter, in. (mm)	**3 Position**	**EMDH16-41** 110 lbs. (50 kg) **(14H97)**			**EMDH16-65** 130 lbs. (59 kg) **(14H98)**	
	Modulating	**EMDH16M-41** 110 lbs. (50 kg) **(23H03)**			**EMDH16M-65** 130 lbs.(59 kg) **(23H02)**	
	Indoor	(1) 20 x 24 x 1 (508 x 610 x 25)			(1) 16 x 25 x 1 (406 x 635 x 25) (1) 14 x 25 x 1 (356 x 635 x 25)	
	Outdoor	(1) 8 x 24 x 1 (203 x 610 x 25)			(1) 8 x 28 x 1 (203 x 711 x 25)	
Enthalpy Control, Diferential - Used in conjunction with outdoor air enthalpy control. Determines and selects which air has the lowest enthalpy. Return air enthalpy sensor field installs in economizer damper section.		**(54G44)**				
Gravity Exhaust Dampers - For use with EMDH16. Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly. Includes bird screen - Net Weight.		**GEDH16-65** - 4 lbs. (2 kg) **(23H06)**				
Electric Heat - Field installed, helix wound nichrome elements, time delay for element staging, individual element limit controls, wiring harness, may be two-stage controlled.		See Electric Heat Data Tables				
ECH16R - Supplemental thermal cutoff safety fuses and thermal relay sequencer.		See Electric Heat Data Tables				
ECH16 - Supplemental secondary limits, heating control relay, fuse block, thermal relay sequencer (20-25 kW 208/230v-3ph) and glavanized steel control box.		See Electric Heat Data Tables				

[1]Indoor filter is not furnished with economizer. REMD16 utilizes existing filter furnished with CHA16 unit.

Optional Accessories

Model No.		CHA16-024	CHA16-030	CHA16-036	CHA16-048	CHA16-060
Electric Heat Single Point Power Source Sub-Fuse Box - Use with ECH16R electric heaters, use in conjunction with ECH16 fuse box for single point power source applications, installs internal to unit, fuses furnished, constructed of galvanized steel with prepunched mounting holes.		See Electric Heat Data Tables				
Unit Single Point Power Source Sub Fuse Box - Installs internal to unit, provides sub-fusing to the unit, used in conjunction with ECH16 or ECH16R for single point power source applications, fuses furnished, constructed of galanized steel with prepunched mounting holes and electrical inlet and outlet holes, hinged box cover.		See Electric Heat Data Tables				
Low Ambient Control Kit - Units operate down to 30°F (-1°C) outdoor air temperature in cooling mode without any additional controls. A Low Ambient Kit can be field installed, enabling unit to operate properly down to 0°F (-17.7°C).		**(24H77)**				
Roof Curb Power Entry Kit - Allows power entry through roof mounting frame, knockouts provided in roof frame, kit contains 40 in. (1016 mm) armored conduit and installation hardware, two kits are required, one for low voltage and one for high voltage. See Dimension Drawings.	**1/2 in.** (13 mm)	**(18H70)**				
	1 in. (26 mm)	**(18H71)**				
	1 1/2 in. (39 mm)	**(18H72)**				
Roof Mounting Frame - Nailer strip furnished, mates to unit, U.S. National Roofing Contractors Approved, shipped knocked down. RMF16-41 may be used on all sizes, with a slight unit overhang on CHP16-510 and CHP16-650 units - Net Weight **NOTE** - Sound Reduction Plate must be ordered separately for field installation.		**RMF16-41** - 75 lbs. (35 kg) **(97G59)** Plate (ordered separately) **(73H80)**			**RMF16-41** - 75 lbs. (35 kg) **(97G59)** Plate (ordered separately) **(73H80)** **RMF16-65** - 86 lbs. (39 kg) **(97G60)** Plate (ordered separately) **(73H82)**	
Outdoor Air Damper Section - For down-flow applications, damper assembly replaces blower access panel, manually adjustable, 0 - 25% (fixed) outdoor air, outdoor air hood with cleanable filter included, number and size of filter - Net Weight		**OAD16-41** - 12 lbs. (5 kg) **(15H00)** (1) 5 x 17 x 1 in. (127 x 432 x 25 mm)			**OAD16-65** - 12 lbs. (5 kg) **(15H01)** (1) 8 x 17 x 1 in. (203 x 432 x 25 mm)	
Outdoor Air Damper Section - For horizontal applications, installs in return air duct adjacent to unit, manually adjustable (fixed) outdoor air - Net Weight		**OAD3-46/65** - 8 lbs. (4 kg) **(23591)**				
Outdoor Thermostat Kit - Used to lock out some of the electric heating elements on indoor units where two stage control is applicable. Outdoor thermostat maintains the heating load on the low power input as long as possible before allowing the full power load to come on line.	**Thermostat Kit**	**(56A87)**				
	Mounting Box	**(31461)**				
Timed Off Control - Prevents compressor short-cycling and allows time for suction and discharge pressure to equalize, permitting the compressor to start in an unloaded condition. Automatic reset control provides a time delay between compressor shutoff and start-up.		**(47J27)**				
Unit Stand-Off Mounting Kit - Elevates horizontal application units above mounting surface. Includes six high impact polystyrene stand-off mounts. See dimension drawings.		**(38H18)**				

Electrical Data - Single Phase Voltage

Model No.		CHA16-024	CHA16-030	CHA16-036	CHA16-048	CHA16-060
Line voltage data - 60 hz.		208/230v - 1 phase				
Compressor	Rated load amps	10.1	13.0	17.7	21.8	26.1
	Locked rotor amps	60	69.4	100	131	170
Condenser Coil Fan Motor	Full load amps	1.1			2.3	
	Locked rotor amps	2.2			4.4	
Evaporator Blower Motor	Motor output -hp (W)	1/3 (249)			1/2 (373)	3/4 (560)
	Full load amps	2.2	3.0		3.9	5.2
	Locked rotor amps	4.2	6.2		8.3	10
Recommended maximum fuse size (amps)		25	30	40	50	60
* Minimum Circuit Ampacity		16	21	27	34	41

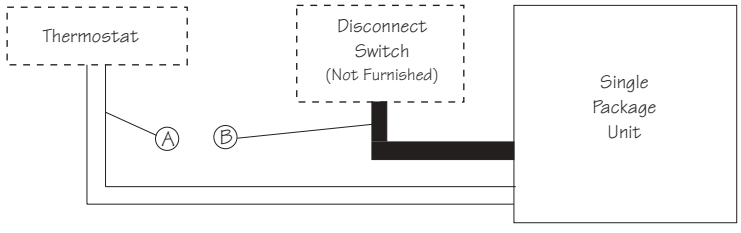
*Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
Note - Extremes of operating range are plus and minus 10% of line voltage.

Electrical Data - Three Phase Voltage

Model No.		CHA16-036			CHA16-048			CHA16-060		
Line voltage data - 60 hz. - 3 phase		208/230v	460v	575v	208/230v	460v	575v	208/230v	460v	575v
Compressor	Rated load amps	12.2	6.2	4.6	12.8	6.4	5.1	16.2	8	6.5
	Locked rotor amps	77	39	31	91	46	37	124	60	47.7
Condenser Coil Fan Motor	Full load amps	1.1	.73	*.73	2.3	1.1	*1.1	2.3	1.1	*1.1
	Locked rotor amps	2.2	1.3	*1.3	4.4	2.0	*2.0	4.4	2.0	*2.0
Evaporator Blower Motor	Motor output - hp (W)	1/3 (249)			1/2 (373)			3/4 (560)		
	Full load amps	3	1.8	*1.8	3.9	1.8	*1.8	5.2	2.7	*2.7
	Locked rotor amps	6.2	4.4	*4.4	8.3	4.4	*4.4	10.0	3.8	*3.8
Recommended maximum fuse size (amps)		30	15		35	15		40	20	15
** Minimum Circuit Ampacity		20	11	9	23	11	10	28	14	12

*Motors are rated at 460 volts. Full load amps shown are for step-down transformer output.
**Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.
Note - Extremes of operating range are plus and minus 10% of line voltage.

Field Wiring - Basic Models



A - *Four Wire Low Voltage (Electro-mechanical)
- *Five Wire Low Voltage (Electronic)
B - Two or Three Wire Power (See Electrical Data Table)
-Field Wiring Not Furnished-

*When economizer with two stage thermostat is used, one additional wire is required.

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

Electric Heat Data - CHA16-024-030 - Single Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes		Total Unit & Electric Heat	
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-024	**ECH16R-5 (31H46)** (4 lbs.) (2 kg)	1 step (1 phase)	208	23	3.8	12,800	ECH16R-26/41-5 **(31H26)**	ECH16-261 **(31H10)**	26	30
			220	26	4.2	14,300			29	30
			230	26	4.6	15,700			29	30
			240	26	5.0	17,100			29	30
	ECH16R-7 (31H47) (5 lbs.) (2 kg)		208	32	5.3	17,900	ECH16R-26/65-7 **(31H25)**		35	35
			220	37	5.9	20,100			40	40
			230	37	6.4	21,900			40	40
			240	37	7.0	23,900			40	40
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	46	7.5	25,600	ECH16R-26/65–10 **(31H24)**		48	50
			220	53	8.4	28,700			55	60
			230	53	9.2	31,300			55	60
			240	53	10.0	34,100			55	60
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	68	11.3	38,400	---		71	80
			220	79	12.6	43,000			81	90
			230	79	13.8	47,100			81	90
			240	79	15.0	51,200			81	90
CHA16-030	**ECH16R-5 (31H46)** (4 lbs.) (2 kg)	1 step (1 phase)	208	23	3.7	12,800	ECH16R-26/41-5 **(31H26)**	ECH16-311 **(31H11)**	27	30
			220	26	4.2	14,300			30	30
			230	26	4.6	15,700			30	30
			240	26	5.0	17,100			30	30
	ECH16R-7 (31H47) (5 lbs.) (2 kg)		208	32	5.3	17,900	ECH16R-26/65-7 **(31H25)**		36	40
			220	37	5.9	20,100			41	45
			230	37	6.4	21,800			41	45
			240	37	7.0	23,900			41	45
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	46	7.5	25,600	ECH16R-26/65–10 **(31H24)**		49	50
			220	53	8.4	28,700			56	60
			230	53	9.2	31,300			56	60
			240	53	10.0	34,100			56	60
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	68	11.3	38,400	---		72	80
			220	79	12.6	43,000			82	90
			230	79	13.8	47,100			82	90
			240	79	15.0	51,200			82	90

*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).

Electric Heat Data - CHA16-036 - Single Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes		Total Unit & Electric Heat	
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-036	**ECH16R-5 (31H46)** (4 lbs.) (2 kg)	1 step (1 phase)	208	23	3.7	12,600	ECH16R26/41-5 **(31H26)**	ECH16-411 **(31H12)**	27	40
			220	26	4.2	14,300			30	40
			230	26	4.6	15,700			30	40
			240	26	5.0	17,100			30	40
	ECH16R-7 (31H47) (5 lbs.) (2 kg)		208	32	5.3	18,100	ECH16R-25/65-7 **(31H25)**		36	40
			220	37	5.9	20,100			41	45
			230	37	6.4	21,800			41	45
			240	37	7.0	23,900			41	45
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	46	7.5	25,600	ECH16R-26/65-10 **(31H24)**		49	50
			220	53	8.4	28,700			56	60
			230	53	9.2	31,400			56	60
			240	53	10.0	34,100			56	60
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	68	11.3	38,600	---		72	80
			220	79	12.6	43,000			82	90
			230	79	13.8	47,100			82	90
			240	79	15.0	51,200			82	90
	ECH16-20 (31H28) (19 lbs.) (9kg)		208	91	15.0	51,200			95	100
			220	105	16.8	57,300			108	110
			230	105	18.4	62,800			108	110
			240	105	20.0	68,300			108	110

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

Electric Heat Data - CHA16-036 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes	Total Unit & Electric Heat	
							Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-036	**ECH16-5** 208/230v **(31H30)** (17lbs.) (9 kg)	1 step (3 phase)	208	13	3.8	12,800	ECH16-413 **(31H15)**	20	30
			220	15	4.2	14,300		20	30
			230	15	4.6	15,700		20	30
			240	15	5.0	17,100		20	30
	ECH16-7 208/230v **(31H31)** 460v **(31H36)** 575v **(31H41)** (17 lbs.) (8 kg)		208	18	5.3	18,000		22	30
			220	21	5.9	20,000		25	30
			230	21	6.4	22,000		25	30
			240	21	7.0	23,900		25	30
			440	11	5.8	19,800	ECH16-413 **(31H18)**	13	15
			460	11	6.5	22,200		13	15
			480	11	7.0	23,900		13	15
			550	8	5.8	19,800	ECH16-413/513 **(31H21)**	11	15
			575	8	6.4	21,800		11	15
			600	8	7.0	23,900		11	15
	ECH16-10 208/230v **(31H32)** 460v **(31H37)** 575v **(31H42)** (17 lbs.) (8 kg)		208	26	7.5	25,600	ECH16-413 **(31H15)**	30	30
			220	30	8.4	28,700		34	35
			230	30	9.2	31,400		34	35
			240	30	10.0	34,100		34	35
			440	15	8.4	28,700	ECH16-413 **(31H18)**	18	20
			460	15	9.2	31,400		18	20
			480	15	10.0	34,100		18	20
			550	12	8.4	28,700	ECH16-413/513 **(31H21)**	15	15
			575	12	9.2	31,400		15	15
			600	12	10.0	34,100		15	15
	ECH16-15 208/230v **(31H33)** 460v **(31H38)** 575v **(31H43)** (17 lbs.) (8 kg)		208	39	11.3	38,500	ECH16-413 **(31H15)**	43	45
			220	45	12.6	43,000		49	50
			230	45	13.8	47,100		49	50
			240	45	15.0	51,200		49	50
			440	23	12.6	43,000	ECH16-413 **(31H18)**	25	25
			460	23	13.8	47,100		25	25
			480	23	15.0	51,200		25	25
			550	18	12.6	43,000	ECH16-413/513 **(31H21)**	21	25
			575	18	13.7	47,100		21	25
			600	18	15.0	51,200		21	25
	ECH16-20 208/30v **(31H34)** 460v **(31H39)** 575v **(31H44)** (20 lbs.) (9 kg)	2 steps (3 phase)	208	52	15.0	51,300	ECH16-413 **(31H15)**	56	60
			220	60	16.8	57,300		64	70
			230	60	18.4	62,800		64	70
			240	60	20.0	68,300		64	70
		1 step (3 phase)	440	30	16.8	57,300	ECH16-413 **(31H18)**	33	35
			460	30	18.4	62,700		33	35
			480	30	20.0	68,300		33	35
			550	24	16.8	57,300	ECH16-413/513 **(31H21)**	27	30
			575	24	18.3	62,700		27	30
			600	24	20.0	68,300		27	30

*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).

Electric Heat Data - CHA16-048 - Single Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes		Total Unit & Electric Heat	
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-048	**ECH16R-7 (31H47)** (5 lbs.) (2 kg)	1 step (1 phase)	208	32	5.3	18,000	ECH16R-26/65-7 **(31H25)**	ECH16-511 **(31H13)**	37	50
			220	37	5.9	20,000			42	50
			230	37	6.4	22,000			42	50
			240	37	7.0	23,900			42	50
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	46	7.5	25,600	ECH16R-26/65-10 **(31H24)**		50	50
			220	53	8.4	28,700			57	60
			230	53	9.2	31,300			57	60
			240	53	10.0	34,100			57	60
	ECH16-15 (31H27) (18 lbs.) (8 kg)		208	68	11.3	38,500	---		73	80
			220	79	12.6	43,000			83	90
			230	79	13.8	47,000			83	90
			240	79	15.0	51,200			83	90
	ECH16-20 (31H28) (19 lbs.) (9 kg)		208	91	15.0	51,200			96	100
			220	105	16.8	57,300			109	110
			230	105	18.4	62,700			109	110
			240	105	20.0	68,200			109	110
	ECH16-25 (31H29) (19 lbs.) (9 kg)		208	113	18.8	64,200			118	125
			220	131	21.0	71,700			136	150
			230	131	23.0	78,500			136	150
			240	131	25.0	85,300			136	150

*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).

Electric Heat Data - CHA16-048 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes	Total Unit & Electric Heat	
							Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-048	**ECH16-7** 208/230v **(31H31)** 460v **(31H36)** 575v **(31H41)** (17 lbs.) (8 kg)	1 step (3 phase)	208	19	5.3	18,000	ECH16-513 **(31H16)**	24	35
			220	21	5.9	20,000		26	35
			230	21	6.4	22,000		26	35
			240	21	7.0	23,900		26	35
			440	11	5.8	19,800	ECH16-413/513 **(31H21)**	13	15
			460	11	6.5	22,200		13	15
			480	11	7.0	23,900		13	15
			550	9	5.8	19,800		11	15
			575	9	6.4	22,000		11	15
			600	9	7.0	23,900		11	15
	ECH16-10 208/230v **(31H32)** 460v **(31H37)** 575v **(31H42)** (17 lbs.) (8 kg)		208	27	7.5	25,600	ECH16-513 **(31H16)**	31	35
			220	31	8.4	28,700		35	35
			230	31	9.2	31,300		35	35
			240	31	10.0	34,100		35	35
			440	15	8.4	28,700	ECH16-413/513 **(31H21)**	18	15
			460	15	9.2	31,400		18	15
			480	15	10.0	34,100		18	15
			550	12	8.4	28,700		15	15
			575	12	9.2	31,400		15	15
			600	12	10.0	34,100		15	15
	ECH16-15 208/230v **(31H33)** 460v **(31H38)** 575v **(31H43)** (17 lbs.) (8 kg)		208	40	11.3	38,500	ECH16-513 **(31H16)**	44	45
			220	46	12.6	43,000		50	50
			230	46	13.8	47,100		50	50
			240	46	15.0	51,200		50	50
			440	23	12.6	43,000	ECH16-413/513 **(31H21)**	25	25
			460	23	13.8	47,100		25	25
			480	23	15.0	51,200		25	25
			550	18	12.6	43,000		21	25
			575	18	13.7	47,100		21	25
			600	18	15.0	51,200		21	25
	ECH16-20 208/230v **(31H34)** 460v **(31H39)** 575v **(31H44)** (20 lbs.) (9 kg)	2 steps (3 phase)	208	53	15.0	51,200	ECH16-513 **(31H16)**	57	60
			220	61	16.8	57,300		65	70
			230	61	18.4	62,700		65	70
			240	61	20.0	68,200		65	70
		1 step (3 phase)	440	31	16.8	57,300	ECH16-413/513 **(31H21)**	33	35
			460	31	18.4	62,800		33	35
			480	31	20.0	68,300		33	35
			550	24	16.8	57,300		27	30
			575	24	18.3	62,700		27	30
			600	24	20.0	68,200		27	30
	ECH16-25 208/230v **(31H35)** 460v **(31H40)** 575v **(31H45)** (20 lbs.) (9 kg)	2 steps (3 phase)	208	66	18.8	64,000	ECH16-513 **(31H16)**	70	70
			220	76	21.0	71,600		80	80
			230	76	22.9	78,300		80	80
			240	76	25.0	85,300		80	80
		1 step (3 phase)	440	40	21.0	71,800	ECH16-413/513 **(31H21)**	40	40
			460	40	22.9	78,300		40	40
			480	40	25.0	85,300		40	40
			550	31	21.1	71,800		33	35
			575	31	23.0	78,300		33	35
			600	31	25.0	85,300		33	35

*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).

Electric Heat Data - CHA16-060 - Single Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes		Total Unit & Electric Heat	
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-060	**ECH16R-7 (31H47)** (5 lbs.) (2 kg)	1 step (1 phase)	208	32	5.3	18,000	ECH16R-26/65-7 **(31H25)**	ECH16-651 **(31H14)**	41	60
			220	37	5.9	20,000			43	60
			230	37	6.4	22,000			43	60
			240	37	7.0	23,900			43	60
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	46	7.5	25,600	ECH16R-26/65-10 **(31H24)**		52	60
			220	53	8.4	28,700			59	60
			230	53	9.2	31,300			59	60
			240	53	10.0	34,100			59	60
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	68	11.3	38,500	---		75	80
			220	79	12.6	43,000			85	90
			230	79	13.8	47,000			85	90
			240	79	15.0	51,200			85	90
	ECH16-20 (31H28) (19 lbs.) (9 kg)		208	91	15.0	51,200			97	100
			220	105	16.8	57,300			111	125
			230	105	18.4	62,700			111	125
			240	105	20.0	68,200			111	125
	ECH16-25 (31H29) (19 lbs.) (9 kg)		208	113	18.8	64,200			120	125
			220	131	21.0	71,700			137	150
			230	131	23.0	78,500			137	150
			240	131	25.0	85,300			137	150

*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).

Electric Heat Data - CHA16-060 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Heater Only *Minimum Circuit Ampacity	Electric Heat kW Input	Electric Heat Btuh Input	Optional Single Point Power Source Boxes	Total Unit & Electric Heat	
							Unit Sub-Fuse Box	*Minimum Circuit Ampacity	Maximum Fuse Size
CHA16-060	**ECH16-7** 208/230v **(31H31)** 460v **(31H36)** 575v **(31H41)** (17 lbs.) (8 kg)	1 step (3 phase)	208	19	5.3	18,000	ECH16-653 **(58L07)**	28	40
			220	21	5.9	20,00		28	40
			230	21	6.4	22,000		28	40
			240	21	7.0	23,900		28	40
			440	11	5.9	20,000	ECH16-513/653 **(31H19)**	14	20
			460	11	6.5	22,000		14	20
			480	11	7.0	23,900		14	20
			550	9	5.9	20,000	ECH16-653 **(31H23)**	12	15
			575	9	6.5	22,000		12	15
			600	9	7.0	23,900		12	15
	ECH16-10 208/230v **(31H32)** 460v **(31H37)** 575v **(31H42)** (17 lbs.) (8 kg)		208	27	7.5	25,600	ECH16-653 **(58L07)**	33	40
			220	31	8.4	28,700		37	40
			230	31	9.2	31,300		37	40
			240	31	10.0	34,100		37	40
			440	15	8.4	28,600	ECH16-513/653 **(31H19)**	19	20
			460	15	9.2	31,300		19	20
			480	15	10.0	34,100		19	20
			550	12	8.4	28,600	ECH16-653 **(31H23)**	16	15
			575	12	9.2	31,300		16	15
			600	12	10.0	34,100		16	15
	ECH16-15 208/230v **(31H33)** 460v **(31H38)** 575v **(31H43)** (17 lbs.) (8 kg)		208	40	11.3	38,500	ECH16-653 **(58L07)**	46	50
			220	46	12.6	43,000		52	60
			230	46	13.8	47,100		52	60
			240	46	15.0	51,200		52	60
			440	23	12.6	43,000	ECH16-513/653 **(31H19)**	26	30
			460	23	13.8	47,100		26	30
			480	23	15.0	51,200		26	30
			550	18	12.6	47,100	ECH16-653 **(31H23)**	22	25
			575	18	13.8	51,200		22	25
			600	18	15.0	51,200		22	25
	ECH16-20 208/230v **(31H34)** 460v **(31H39)** 575v **(31H44)** (20 lbs.) (9 kg)	2 steps (3 phase)	208	53	15.0	51,200	ECH16-653 **(58L07)**	59	60
			220	61	16.8	57,300		67	70
			230	61	18.4	62,700		67	70
			240	61	20.0	68,200		67	70
		1 step (3 phase)	440	31	16.8	57,500	ECH16-513/653 **(31H19)**	34	35
			460	31	18.4	62,800		34	35
			480	31	20.0	68,200		34	35
			550	24	16.8	57,500	ECH16-653 **(31H23)**	28	30
			575	24	18.3	62,800		28	30
			600	24	20.0	68,200		28	30
	ECH16-25 208/230v **(31H35)** 460v **(31H40)** 575v **(31H45)** (20 lbs.) (9 kg)	2 steps (3 phase)	208	66	18.8	64,000	ECH16-653 **(58L07)**	72	80
			220	76	21.0	71,600		82	90
			230	76	22.9	78,100		82	90
			240	76	25.0	85,300		82	90
		1 step (3 phase)	440	38	21.0	71,800	ECH16-513/653 **(31H19)**	41	45
			460	38	22.9	78,300		41	45
			480	38	25.0	85,300		41	45
			550	31	21.0	71,800	ECH16-653 **(31H23)**	34	35
			575	31	22.9	78,300		34	35
			600	31	25.0	85,300		34	35

*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).

Ratings

CHA16-024 Cooling Capacity

Enter. Wet Bulb	Total Air Vol.		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)		
						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)	640	300	22.2	6.5	1.81	.71	.84	.96	21.0	6.2	1.95	.73	.87	.98	19.8	5.8	2.10	.75	.89	1.00	18.7	5.5	2.22	.77	.91	1.00
	800	380	23.1	6.8	1.84	.76	.90	1.00	21.9	6.4	1.99	.78	.93	1.00	20.7	6.1	2.13	.80	.95	1.00	19.5	5.7	2.27	.83	.97	1.00
	960	455	23.8	7.0	1.86	.80	.96	1.00	22.6	6.6	2.02	.83	.98	1.00	21.4	6.3	2.17	.85	1.00	1.00	20.3	5.9	2.31	.88	1.00	1.00
67°F (19°C)	640	300	23.7	6.9	1.86	.56	.69	.81	22.5	6.6	2.01	.57	.70	.83	21.2	6.2	2.16	.58	.72	.85	19.9	5.8	2.29	.59	.74	.88
	800	380	24.5	7.2	1.88	.59	.73	.87	23.2	6.8	2.04	.60	.75	.90	21.9	6.4	2.19	.61	.78	.92	20.6	6.0	2.33	.63	.80	.95
	960	455	25.1	7.4	1.90	.61	.78	.93	23.8	7.0	2.06	.63	.80	.95	22.4	6.6	2.21	.64	.83	.98	21.1	6.2	2.35	.66	.85	.99
71°F (22°C)	640	300	25.4	7.4	1.91	.43	.54	.66	24.1	7.1	2.07	.43	.55	.67	22.8	6.7	2.23	.43	.56	.69	21.5	6.3	2.37	.43	.57	.71
	800	380	26.2	7.7	1.93	.43	.57	.71	24.9	7.3	2.10	.43	.58	.73	23.5	6.9	2.26	.44	.60	.75	22.1	6.5	2.40	.45	.61	.77
	960	455	26.8	7.9	1.95	.44	.60	.76	25.4	7.4	2.12	.45	.61	.78	24.0	7.0	2.28	.45	.63	.80	22.5	6.6	2.42	.46	.65	.83

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

CHA16-030 Cooling Capacity

Enter. Wet Bulb	Total Air Vol.		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)		
						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)	800	380	27.9	8.2	2.23	.73	.86	.97	26.6	7.8	2.41	.74	.88	.99	25.1	7.4	2.59	.76	.90	1.00	23.7	6.9	2.77	.78	.93	1.00
	1000	470	29.0	8.5	2.26	.77	.92	1.00	27.7	8.1	2.44	.79	.94	1.00	26.2	7.7	2.62	.81	.96	1.00	24.7	7.2	2.82	.83	.99	1.00
	1200	565	29.9	8.8	2.28	.82	.97	1.00	28.5	8.4	2.47	.84	.99	1.00	27.1	7.9	2.66	.86	1.00	1.00	25.7	7.5	2.86	.89	1.00	1.00
67°F (19°C)	800	380	29.8	8.7	2.28	.57	.70	.82	28.4	8.3	2.46	.58	.71	.84	27.0	7.9	2.65	.59	.73	.86	25.4	7.4	2.84	.60	.75	.89
	1000	470	30.8	9.0	2.31	.60	.75	.89	29.3	8.6	2.49	.61	.76	.91	27.8	8.1	2.68	.62	.78	.93	26.2	7.7	2.87	.63	.81	.96
	1200	565	31.5	9.2	2.32	.62	.79	.94	29.9	8.8	2.52	.64	.82	.96	28.4	8.3	2.71	.65	.84	.98	26.8	7.9	2.90	.67	.86	1.00
71°F (22°C)	800	380	31.9	9.3	2.33	.43	.55	.67	30.4	8.9	2.53	.43	.56	.69	28.9	8.5	2.73	.43	.57	.70	27.3	8.0	2.93	.44	.58	.72
	1000	470	32.9	9.6	2.36	.44	.58	.72	31.3	9.2	2.56	.44	.59	.74	29.7	8.7	2.76	.45	.60	.76	28.0	8.2	2.97	.45	.62	.79
	1200	565	33.5	9.8	2.38	.45	.61	.77	31.9	9.3	2.58	.45	.63	.79	30.3	8.9	2.79	.46	.64	.82	28.5	8.4	3.00	.47	.66	.84

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

Ratings

CHA16-036 Cooling Capacity

Enter. Wet Bulb	Total Air Vol.		Outdoor Air Temperature Entering Condenser Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)		
						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)	960	455	34.9	10.2	2.87	.70	.84	.96	33.8	9.9	3.20	.71	.85	.97	32.6	9.6	3.59	.72	.87	.98	31.3	9.2	4.02	.73	.88	1.00
	1200	565	36.3	10.6	2.87	.75	.90	1.00	35.1	10.3	3.20	.76	.92	1.00	33.9	9.9	3.59	.78	.94	1.00	32.6	9.6	4.02	.79	.95	1.00
	1440	680	37.5	11.0	2.87	.80	.96	1.00	36.3	10.6	3.21	.82	.97	1.00	35.0	10.3	3.59	.83	.99	1.00	33.8	9.9	4.02	.85	1.00	1.00
67°F (19°C)	960	455	37.2	10.9	2.87	.55	.67	.80	35.9	10.5	3.20	.55	.68	.81	34.7	10.2	3.59	.56	.69	.83	33.3	9.8	4.03	.57	.70	.84
	1200	565	38.3	11.2	2.89	.58	.72	.87	37.1	10.9	3.22	.58	.74	.89	35.7	10.5	3.60	.59	.75	.91	34.4	10.1	4.03	.60	.76	.92
	1440	680	39.2	11.5	2.90	.61	.78	.93	37.9	11.1	3.24	.61	.79	.95	36.5	10.7	3.62	.62	.81	.96	35.1	10.3	4.05	.63	.83	.98
71°F (22°C)	960	455	39.6	11.6	2.91	.41	.53	.65	38.3	11.2	3.25	.41	.54	.66	37.0	10.8	3.63	.42	.54	.67	35.6	10.4	4.07	.42	.55	.68
	1200	565	40.7	11.9	2.93	.42	.56	.70	39.4	11.5	3.27	.43	.57	.71	38.0	11.1	3.65	.43	.58	.73	36.6	10.7	4.09	.43	.59	.74
	1440	680	41.5	12.2	2.95	.43	.59	.75	40.1	11.8	3.29	.44	.60	.77	38.7	11.3	3.67	.44	.61	.78	37.2	10.9	4.11	.45	.63	.80

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

CHA16-048 Cooling Capacity

Enter. Wet Bulb	Total Air Vol.		Outdoor Air Temperature Entering Condenser Coil																					
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)		
						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	8 2
63°F (17°C)	1280	605	45.0	13.2	3.40	.71	.84	.96	43.6	12.8	3.79	.71	.85	.97	42.0	12.3	4.23	.73	.87	.98	40.3	11.8	4.75	.74	.89	.
	1600	755	46.7	13.7	3.43	.76	.91	1.00	45.1	13.2	3.82	.77	.92	1.00	43.5	12.7	4.27	.78	.94	1.00	41.8	12.3	4.79	.80	.95	1
	1920	905	48.0	14.1	3.46	.80	.96	1.00	46.5	13.6	3.84	.82	.97	1.00	44.8	13.1	4.29	.83	.99	1.00	43.1	12.6	4.82	.85	1.00	1
67°F (19°C)	1280	605	47.8	14.0	3.45	.56	.68	.81	46.2	13.5	3.83	.56	.69	.82	44.5	13.0	4.28	.57	.70	.84	42.7	12.5	4.80	.57	.71	.
	1600	755	49.2	14.4	3.47	.58	.73	.88	47.6	14.0	3.86	.59	.74	.89	45.8	13.4	4.31	.60	.76	.91	43.9	12.9	4.84	.61	.78	.
	1920	905	50.3	14.7	3.49	.61	.78	.93	48.6	14.2	3.88	.62	.80	.95	46.7	13.7	4.34	.63	.82	.97	44.8	13.1	4.86	.64	.83	.
71°F (22°C)	1280	605	50.9	14.9	3.50	.42	.54	.66	49.2	14.4	3.89	.42	.54	.67	47.4	13.9	4.35	.42	.55	.68	45.5	13.3	4.87	.43	.56	.
	1600	755	52.3	15.3	3.53	.43	.57	.71	50.5	14.8	3.92	.43	.58	.72	48.7	14.3	4.37	.43	.58	.74	46.6	13.7	4.90	.44	.60	.
	1920	905	53.3	15.6	3.55	.44	.60	.76	51.5	15.1	3.94	.44	.61	.78	49.5	14.5	4.39	.45	.62	.79	47.4	13.9	4.93	.45	.63	.

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

Ratings

CHA16-060 Cooling Capacity

Enter. Wet Bulb	Total Air Vol.		Outdoor Air Temperature Entering Condenser Coil																							
			85°F (29°C)						95°F (35°C)						105°F (41°C)						115°F (46°C)					
			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)			Total Cool. Cap.		Comp. Motor kW Input	Sensible To Total Ratio (S/T)		
						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 (17.2°C)	1750	825	58.8	17.2	4330	.72	.88	.99	56.3	16.5	4660	.74	.89	1.00	53.7	15.7	4970	.75	.91	1.00	50.5	14.8	5270	.77	.94	1.00
	2000	945	60.5	17.7	4380	.75	.91	1.00	57.2	16.8	4700	.77	.94	1.00	54.9	16.1	5020	.78	.95	1.00	52.3	15.3	5340	.80	.97	1.00
	2250	1060	61.5	18.0	4410	.78	.94	1.00	59.0	17.3	4750	.80	.96	1.00	55.9	16.4	5060	1.00	1.00	1.00	53.0	15.5	5370	.84	1.00	1.00
67°F (19.4°C)	1750	825	61.4	18.0	4410	.57	.72	.85	58.9	17.3	4740	.58	.73	.86	56.3	16.5	5080	.59	.74	.88	53.6	15.7	5400	.59	.76	.90
	2000	945	63.2	18.5	4460	.59	.74	.89	60.6	17.8	4800	.62	.76	.90	57.8	16.9	5140	.61	.77	.92	55.0	16.1	5470	.62	.79	.94
	2250	1060	64.7	19.0	4490	.61	.77	.93	61.9	18.1	4840	.62	.78	.94	59.1	17.3	5190	.63	.80	.97	56.2	16.5	5520	.64	.82	.99
71°F (21.7°C)	1750	825	63.9	18.7	4480	.43	.57	.71	61.4	18.0	4820	.43	.57	.73	58.7	17.2	5170	.43	.59	.74	56.0	16.4	5510	.44	.60	.75
	2000	945	65.7	19.3	4530	.43	.58	.74	63.0	18.5	4880	.44	.59	.75	60.3	17.7	5230	.44	.61	.77	57.4	16.8	5580	.45	.62	.78
	2250	1060	67.2	19.7	4560	.44	.60	.77	64.4	18.9	4920	.45	.61	.78	61.6	18.0	5280	.45	.63	.80	58.6	17.2	5630	.45	.64	.82

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

Blower Data

CHA16-024 Blower Performance @ 230 Volts (with Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1370	645	950	450	875	415	660	310
.05	12	1365	645	955	450	880	415	670	315
.10	25	1350	635	960	455	885	420	675	320
.15	37	1340	630	960	455	885	420	680	320
.20	50	1320	625	955	450	880	415	680	320
.25	62	1300	615	950	450	875	415	680	320
.30	75	1280	605	940	445	870	410	675	320
.40	100	1220	575	920	435	850	400	660	310
.50	125	1150	545	880	415	820	385	630	295
.60	150	1070	505	835	395	775	365	585	275
.70	175	975	460	780	370	725	340	535	250
.75	185	925	435	745	350	700	330	500	235

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

Blower Data

CHA16-024 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1405	665	905	425	820	385	620	295
.05	12	1400	660	935	440	845	400	640	300
.10	25	1385	655	955	450	865	410	655	310
.15	37	1370	645	975	460	880	415	665	315
.20	50	1355	640	985	465	890	420	670	315
.25	62	1335	630	990	465	895	420	670	315
.30	75	1310	620	985	465	890	420	670	315
.40	100	1260	595	965	455	870	410	650	305
.50	125	1195	565	915	430	830	390	615	290
.60	150	1120	530	840	395	865	410	560	265
.70	175	1035	490	740	350	675	320	490	230
.75	185	990	465	685	325	620	295	445	210

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

CHA16-030 Blower Performance @ 230 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1355	640	1255	590	1105	520	900	425
.05	12	1345	635	1250	590	1100	520	910	430
.10	25	1330	630	1245	590	1090	515	915	430
.15	37	1310	620	1235	585	1080	510	915	430
.20	50	1290	610	1220	575	1070	505	910	430
.25	62	1270	600	1205	570	1055	500	900	425
.30	75	1245	590	1180	555	1035	490	890	420
.40	100	1190	560	1130	535	990	465	855	405
.50	125	1125	530	1060	500	935	440	805	380
.60	150	1050	495	980	560	870	410	735	345
.70	175	960	455	885	420	790	375	655	310
.75	185	915	430	835	395	745	350	605	285

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

Blower Data

CHA16-030 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1445	680	1330	630	1105	520	900	425
.05	12	1435	680	1295	610	1105	520	910	430
.10	25	1420	670	1285	605	1105	520	915	430
.15	37	1400	660	1275	600	1100	520	920	435
.20	50	1380	650	1265	595	1095	515	920	435
.25	62	1360	640	1250	590	1085	510	915	430
.30	75	1335	630	1230	580	1070	505	905	425
.40	100	1280	605	1185	560	1035	490	880	415
.50	125	1220	575	1135	535	995	470	840	395
.60	150	1150	545	1070	505	935	440	790	375
.70	175	1070	505	995	470	870	410	720	340
.75	185	1025	485	955	450	830	390	680	320

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

CHA16-036 Blower Performance @ 230 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1415	670	1350	635	1135	530	915	430
.05	12	1395	660	1335	630	1125	530	905	425
.10	25	1375	650	1315	620	1115	525	895	420
.15	37	1360	640	1290	610	1110	525	890	420
.20	50	1355	640	1275	600	1105	520	885	420
.25	62	1325	625	1255	590	1095	515	875	415
.30	75	1310	620	1235	585	1085	510	865	410
.40	100	1265	595	1195	565	1060	500	845	400
.50	125	1220	575	1155	545	1020	480	825	390
.60	150	1170	550	1105	520	975	460	785	370
.70	175	1115	525	1045	495	925	435	725	340
.75	185	1085	510	1010	475	895	420	685	325

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

Blower Data

CHA16-036 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1490	705	1460	690	1145	540	920	435
.05	12	1470	695	1440	680	1135	535	910	430
.10	25	1450	685	1420	670	1125	530	900	425
.15	37	1435	675	1395	660	1120	530	895	420
.20	50	1430	675	1375	650	1115	525	890	420
.25	62	1400	660	1355	640	1105	520	880	415
.30	75	1380	650	1335	630	1095	515	870	410
.40	100	1335	630	1285	605	1070	505	850	400
.50	125	1285	605	1235	585	1030	485	830	390
.60	150	1235	585	1195	565	985	465	790	375
.70	175	1185	560	1140	540	935	440	730	345
.75	185	1160	545	1110	525	905	425	690	325

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

CHA16-036 Blower Performance @ 460/475 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	1625	765	1465	690	1100	520
.05	12	1600	755	1445	680	1100	520
.10	25	1570	740	1420	670	1100	520
.15	37	1555	735	1395	660	1095	515
.20	50	1525	720	1385	655	1090	515
.25	62	1485	700	1365	645	1075	505
.30	75	1465	690	1340	630	1070	505
.40	100	1400	660	1285	605	1035	490
.50	125	1335	630	1235	585	1005	475
.60	150	1260	595	1165	550	955	450
.70	175	1170	550	1085	510	875	415
.75	185	1100	520	1045	495	815	385

Note - All air data is measured external to the unit with dry coil and without air filter.

Blower Data

CHA16-036 Blower Performance @ 460/475 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	1710	805	1590	750	1105	520
.05	12	1685	795	1565	740	1105	520
.10	25	1655	780	1535	725	1105	520
.15	37	1630	770	1510	715	1100	520
.20	50	1610	760	1490	705	1095	515
.25	62	1570	740	1470	695	1085	510
.30	75	1540	725	1445	680	1075	505
.40	100	1475	695	1385	655	1040	490
.50	125	1405	665	1330	630	1010	475
.60	150	1335	630	1260	595	960	455
.70	175	1240	585	1185	560	885	420
.75	185	1180	555	1150	545	825	390

Note - All air data is measured external to the unit with dry coil and without air filter.

CHA16-048 Blower Performance @ 230 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2065	975	1715	810	1515	715	1305	615
.05	12	2055	970	1705	805	1505	710	1300	615
.10	25	2040	965	1690	800	1495	705	1300	615
.15	37	2020	955	1680	795	1485	700	1295	610
.20	50	2000	945	1665	785	1475	695	1290	610
.25	62	1975	930	1650	780	1470	695	1285	605
.30	75	1950	920	1635	770	1450	685	1280	605
.40	100	1885	890	1600	755	1425	670	1260	595
.50	125	1810	855	1565	740	1395	660	1225	580
.60	150	1730	815	1525	720	1360	640	1175	555
.70	175	1645	775	1600	755	1320	625	1110	525
.75	185	1600	755	1455	685	1295	610	1070	505

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

Blower Data

CHA16-048 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
in. w.g.	Pa	High		Medium High		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2140	1010	1785	840	1535	725	1305	615
.05	12	2115	1000	1770	835	1530	720	1300	615
.10	25	2090	985	1755	830	1520	715	1295	610
.15	37	2070	975	1745	825	1510	715	1290	610
.20	50	2045	965	1730	815	1500	710	1285	605
.25	62	2020	955	1715	810	1490	705	1280	605
.30	75	1995	940	1700	800	1480	700	1275	600
.40	100	1935	915	1665	785	1460	690	1260	595
.50	125	1875	885	1630	770	1430	675	1235	585
.60	150	1800	850	1585	750	1400	660	1205	570
.70	175	1710	805	1530	720	1370	645	1170	550
.75	185	1655	780	1495	705	1355	640	1150	545

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

CHA16-048 Blower Performance @ 460/475 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	2140	1010	1745	825	1175	555
.05	12	2120	1000	1730	815	1175	555
.10	25	2080	980	1720	810	1170	550
.15	37	2045	965	1710	805	1170	550
.20	50	2005	945	1695	800	1165	550
.25	62	1975	930	1680	795	1160	545
.30	75	1940	915	1665	785	1150	545
.40	100	1870	885	1625	765	1135	535
.50	125	1790	845	1580	745	1110	525
.60	150	1705	805	1515	715	1075	505
.70	175	1605	760	1430	675	1030	485
.75	185	1555	740	1375	650	1000	470

Note - All air data is measured external to the unit with dry coil and without air filter.

Blower Data

CHA16-048 Blower Performance @ 460/475 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	2160	1020	1815	855	1210	570
.05	12	2125	1005	1800	850	1210	570
.10	25	2095	990	1790	845	1200	565
.15	37	2060	970	1780	840	1200	565
.20	50	2025	955	1760	830	1195	565
.25	62	1990	940	1745	825	1190	560
.30	75	1955	925	1730	815	1185	560
.40	100	1885	890	1690	800	1170	550
.50	125	1805	850	1640	775	1140	540
.60	150	1715	810	1575	745	1105	520
.70	175	1615	760	1495	705	1065	505
.75	185	1560	735	1445	680	1040	490

Note - All air data is measured external to the unit with dry coil and without air filter.

CHA16-060 Blower Performance @ 230 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds									
in. w.g.	Pa	High		Medium High		Medium		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2725	1285	2490	1175	2235	1055	1940	915	1620	765
.05	12	2695	1270	2435	1150	2210	1045	1930	910	1625	765
.10	25	2665	1260	2430	1145	2185	1030	1925	910	1625	765
.15	37	2635	1245	2415	1140	2160	1020	1910	900	1610	760
.20	50	2600	1225	2395	1130	2140	1010	1895	895	1590	750
.25	62	2555	1205	2365	1115	2130	1005	1880	885	1580	745
.30	75	2510	1185	2335	1100	2115	1000	1865	880	1565	740
.40	100	2445	1155	2275	1075	2060	970	1830	865	1540	725
.50	125	2385	1125	2230	1050	2005	945	1765	835	1505	710
.60	150	2285	1080	2140	1010	1940	915	1725	815	1455	685
.70	175	2210	1045	2075	980	1880	885	1660	785	1405	665
.75	185	2175	1025	2030	960	1845	870	1615	760	1370	645

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

Blower Data

CHA16-060 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds									
in. w.g.	Pa	High		Medium High		Medium		Medium Low		Low	
		cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2850	1345	2530	1195	2255	1065	1970	930	1640	775
.05	12	2820	1330	2475	1170	2230	1050	1965	925	1645	775
.10	25	2790	1315	2475	1170	2205	1040	1955	925	1645	775
.15	37	2760	1300	2455	1160	2180	1030	1940	915	1630	770
.20	50	2725	1285	2435	1150	2160	1020	1925	910	1610	760
.25	62	2680	1265	2405	1135	2150	1015	1910	900	1600	755
.30	75	2630	1240	2375	1120	2135	1010	1895	895	1585	750
.40	100	2570	1215	2315	1090	2080	980	1860	880	1560	735
.50	125	2510	1185	2270	1070	2025	955	1795	845	1525	720
.60	150	2410	1135	2180	1030	1960	925	1755	830	1475	695
.70	175	2335	1100	2115	1000	1900	895	1690	800	1425	670
.75	185	2300	1085	2070	975	1865	880	1650	780	1390	655

Note - All air data is measured external to the unit with dry coil and without air filter.

Note - For 208v unit operation, derate air volume by 7%.

CHA16-060 Blower Performance @ 460/475 Volts (With Downflow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	2725	1285	2405	1135	1905	900
.05	12	2680	1265	2365	1115	1890	890
.10	25	2635	1245	2325	1095	1870	880
.15	37	2590	1220	2290	1080	1855	875
.20	50	2550	1205	2255	1065	1840	870
.25	62	2515	1185	2220	1050	1820	860
.30	75	2485	1175	2190	1035	1795	845
.40	100	2395	1130	2120	1000	1745	825
.50	125	2325	1095	2050	965	1680	795
.60	150	2235	1055	1970	930	1570	740
.70	175	2150	1015	1900	895	1560	735
.75	185	2100	990	1860	880	1515	715

Note - All air data is measured external to the unit with dry coil and without air filter.

Blower Data

CHA16-060 Blower Performance @ 460/475 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds					
in. w.g.	Pa	High		Medium		Low	
		cfm	L/s	cfm	L/s	cfm	L/s
0	0	2850	1345	2430	1145	1940	915
.05	12	2805	1325	2385	1125	1920	905
.10	25	2760	1300	2345	1105	1905	900
.15	37	2715	1280	2310	1090	1885	890
.20	50	2670	1260	2275	1075	1870	880
.25	62	2640	1245	2240	1055	1850	875
.30	75	2605	1230	2210	1045	1825	860
.40	100	2515	1185	2140	1010	1775	840
.50	125	2445	1155	2120	1000	1710	805
.60	150	2355	1110	1990	940	1600	755
.70	175	2270	1070	1920	905	1590	750
.75	185	2225	1050	1880	885	1545	730

Note - All air data is measured external to the unit with dry coil and without air filter.

Accessory Blower Data

Filter and Accessory Air Resistance

Unit Model No.	Air Volume		Total Air Resistance - inches water gauge (Pa)					
			1" (25 mm) Filter Furnished	REMD16 Down-Flow Economizer			EMDH16 Horizontal Economizer	
	cfm	L/s		Less Filter	With Optional Pleated Polyester 2" (51 mm) Filter	With Optional Fiberglass 2" (51mm) Filter	With Furnished 1" (25 mm) Filter	Less Filter
CHA16-024 CHA16-030 CHA16-036	800	380	.15 (37)	.05 (12)	.27 (67)	.13 (32)	.18 (45)	.10 (25)
	1000	470	.18 (45)	.06 (15)	.34 (85)	.18 (45)	.26 (65)	.15 (37)
	1200	565	.21 (52)	.09 (22)	.42 (104)	.24 (60)	.35 (87)	.21 (52)
	1400	660	.25 (62)	.15 (37)	.51 (127)	.31 (77)	.46 (114)	.29 (72)
CHA16-048 CHA16-060	1600	755	.15 (37)	.05 (12)	.40 (99)	.27 (67)	.30 (75)	.17 (42)
	1800	850	.17 (42)	.06 (15)	.48 (119)	.33 (82)	.35 (87)	.19 (47)
	2000	945	.20 (50)	.08 (20)	.56 (139)	.39 (97)	.40 (99)	.22 (55)
	2200	1040	.23 (57)	.13 (32)	.66 (164)	.46 (114)	.47 (117)	.26 (85)

Diffuser Air Resistance

Unit Model No.	Air Volume		Total Air Resistance - inches water gauge (Pa)			
			RTD9-65 Diffuser			FD9-65 Diffuser
	cfm	L/s	2 Ends Open	1 Side 2 Ends Open	All Ends & Sides Open	
CHA16-024 CHA16-030 CHA16-036	800	380	.15 (37)	.13 (32)	.11 (27)	.11 (27)
	1000	470	.19 (47)	.16 (40)	.14 (35)	.14 (35)
	1200	565	.25 (62)	.20 (50)	.17 (42)	.17 (42)
	1400	660	.33 (82)	.26 (65)	.20 (50)	.20 (50)
CHA16-048 CHA16-060	1600	755	.43 (107)	.32 (80)	.20 (50)	.24 (60)
	1800	850	.56 (139)	.40 (90)	.30 (75)	.30 (75)
	2000	945	.73 (182)	.50 (124)	.36 (90)	.36 (90)
	2200	1040	.95 (236)	.63 (157)	.44 (109)	.44 (109)

Accessory Blower Data

Step-Down Ceiling Diffuser Air Throw Data

Model No.		RTD9-65		FD9-65	
Air Volume		[1] Effective Throw		[1]Effective Throw	
cfm	L/s	ft.	m	ft.	m
1000	480	10-17	3-5	15-20	5-6
1200	565	11-18	4-6	16-22	5-7
1400	660	12-19	4-6	17-24	5-7
1600	755	12-20	4-6	18-25	5-8
1800	850	13-21	4-6	20-28	6-9
2000	945	14-23	4-7	21-29	6-9
2200	1040	16-25	5-8	22-30	7-9

[1]Effective throw based on terminal velocities of 75 ft. (22.9 m) per minute.

Wet Indoor Coil Air Resistance

Model Number	Air Volume		Air Resistance	
	cfm	L/s	in. w.g.	Pa
CHA16-024	800	380	.06	15
	1000	470	.07	17
	1200	565	.08	20
CHA16-030	800	380	.09	22
	1000	470	.10	25
	1200	565	.11	27
CHA16-036	800	380	.09	22
	1000	470	.10	25
	1200	565	.11	27
	1400	660	.12	30
CHA16-048	1600	755	.11	27
	1800	850	.12	30
	2000	945	.13	32
	2200	1040	.14	35
CHA16-060	1600	755	.08	20
	1800	850	.09	22
	2000	945	.10	25
	2200	1040	.11	27

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.^{3} (kg/m^3) density fiberglass or equivalent.

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

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

Cooling System - The total certified cooling capacity shall not be less than.....Btuh (kW) with an evaporator air volume of .....cfm (L/s), an entering wet bulb air temperature of .....°F (°C), an entering dry bulb air temperature of .....°F (°C) and a condenser entering temperature of .....°F (°C). The compressor power input shall not exceed .....kW at these conditions.

The coils shall be nonferrous construction with aluminum enhanced fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested. Coil face area shall be not less than .....sq. ft. (m^2) (evaporator) and .....sq. ft. (m^2) (condenser). Condenser coil shall be formed coil construction.

The compressor shall be resiliently mounted, have overload protection and internal pressure relief. 024 & 030 models shall have compressor crankcase heater. 036, 048 and 060 models shall have scroll compressors. The refrigeration system shall have suction and liquid line service gauge ports, liquid line strainer and full refrigerant charge. All models shall have high pressure switch and lfreezestat. Control options shall consist of thermostat, timed-off control and low ambient control. Shall be rated in accrodance with ARI Standard 210/240-94 and DOE test procedures.

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. All models shall have low voltage terminal strip.

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

Supply Air Blowers - Centrifugal supply air blower shall be driven by a multi-speed direct drive motor and be capable of delivering..... cfm (L/s) at an external static pressure .... inches water gauge (Pa) requiring .... bhp (W) and .... rpm. Blower shall be staticaly and dynamically balanced.

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 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^2) of free area.

Optional Accessories

Additive Electric Heaters - The certified total heating capacity output shall be .....Btuh with .....kW input at.....volts power supply. Optional electric heaters shall be field installed. Heating elements shall be nichrome bare wire exposed directly to the air stream. ECH16R safety devices shall consist of limit controls and thermal cut-off safety fuses. ECH16 safety devices shall consist of limit controls and fuse block. ECH16-20 and 24kW (208/230v-3ph) heaters shall have thermal time delay between each element. Heaters shall be U.L. and U.L.C. listed. Optional heater sub-fuse box shall be available for ECH16R electric heaters for single point power supply applications.

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 - Funish and install complete with controls an air mixing damper assembly including outdoor air and recirculated air dampers. REMD16 shall include pressure operated gravity exhaust dampers. The assembly shall provide for the introduction of outside air for minimum ventilation and free cooling. Damper motor shall be 24 volt fully modulating or three position spring return. Controls shall include electronic discharge air sensor, minimum position switch, and solid-state adjustable enthalpy control. Control option available shall consist of differential enthalpy control (return air sensor).

Horizontal Gravity Exhaust Dampers - Pressure operated dampers shall install in return air duct for horizontal applications. Damper blades shall ride in nylon bearings and be gasketed for tight seal and quiet operation.

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

Stand-Off Mounting Kit - Optional kit shall be available to elevate unit about mounting surface in horizontal applications.

Roof Curb Power Entry Kit - Optional kit shall provide power entry to the unit through thte roof mounting frame.

Ceiling Diffusers - Funish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser. It shall be capable of not less then ..... 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.

Single Point Power Source Sub-Fuse Box - Optional box shall field install internal to the unit and provide single point power source connection and sub-fusing for unit. Shall be galvanized steel with mounting holes, electrical inlets and hinged cover.

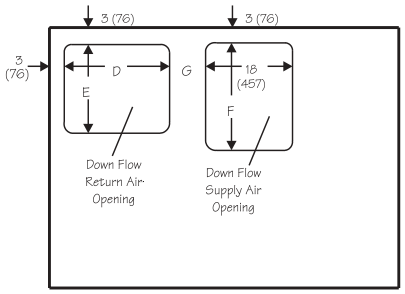
Basic Unit Dimensions - Inches (mm)

Corner Weights

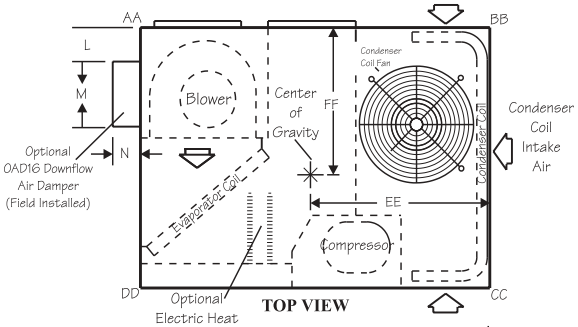
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA16-024	60	27	64	29	91	41	85	39
CHA16-030	66	30	71	32	100	46	94	43
CHA16-036	64	29	68	31	97	44	91	41
CHA16-048	85	39	91	42	135	61	126	57
CHA16-060	92	42	99	45	146	66	136	62

Center of Gravity

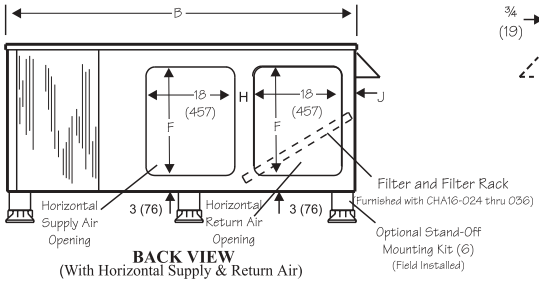
Model Number	EE		FF	
	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	29	737	27	686
CHA16-048 CHA16-060	35	889	31	787



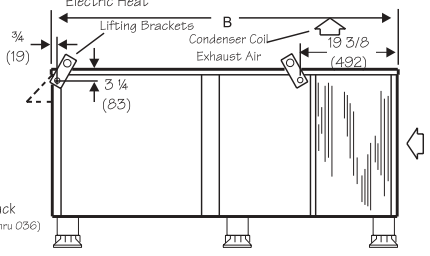
TOP VIEW BASE SECTION



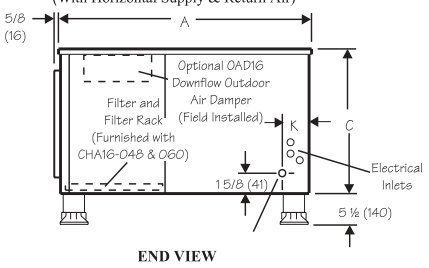
TOP VIEW



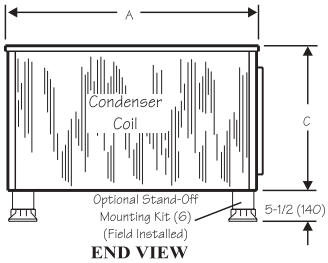
BACK VIEW
(With Horizontal Supply & Return Air)



FRONT VIEW



END VIEW



END VIEW

Model Number	A		B		C		D		E		F		G	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	46	1168	60	1524	23	584	18	457	13	330	13	330	10	254
CHA16-048 CHA16-060	52	1321	72 1/2	1842	29	737	22	559	18	457	22	559	7 1/2	191

Model Number	H		J		K		L		M		N	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	3	76	4	102	6 1/2	165	2	51	13 3/4	349	5	127
CHA16-048 CHA16-060	5	127	3	76	6 1/8	156	5	127	13 3/4	349	8	203

[1] Dimensions shown are for CHA16-511-513 unit. Dimension is 27 in. (686 mm) for CHA16-651-653 units.

Accessory Dimensions - inches (mm)

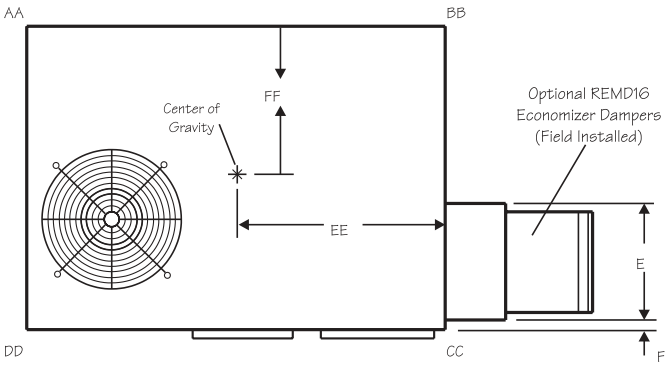
CHA16 Unit with REMD16 Economizer Damper Section and RMF16 Roof Mounting Frame

Corner Weights

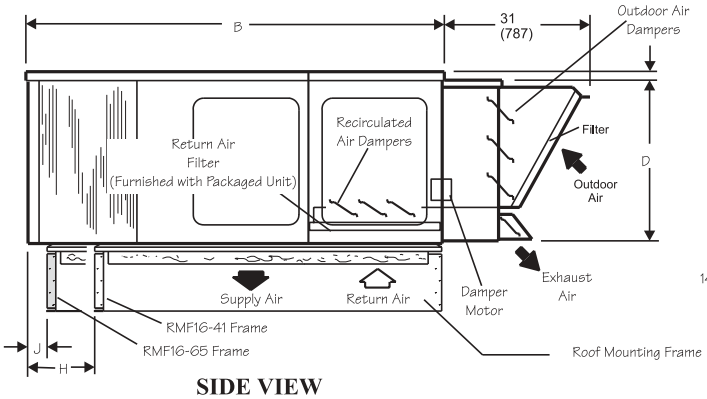
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHA16-024	102	46	121	55	108	49	92	42
CHA16-030	110	50	130	59	116	53	98	45
CHA16-036	107	49	126	57	113	52	96	44
CHA16-048	145	66	171	78	148	67	126	57
CHA16-060	154	70	181	82	157	71	133	60

Center of Gravity

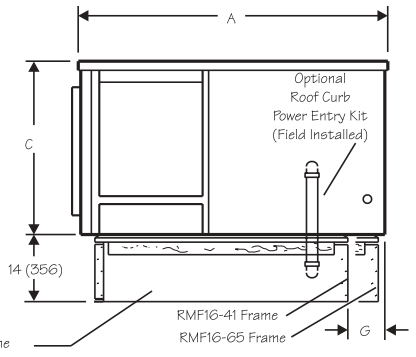
Model Number	EE		FF	
	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	27 1/2	699	21 3/4	552
CHA16-048 CHA16-060	33 1/4	845	24 1/8	613



TOP VIEW



SIDE VIEW



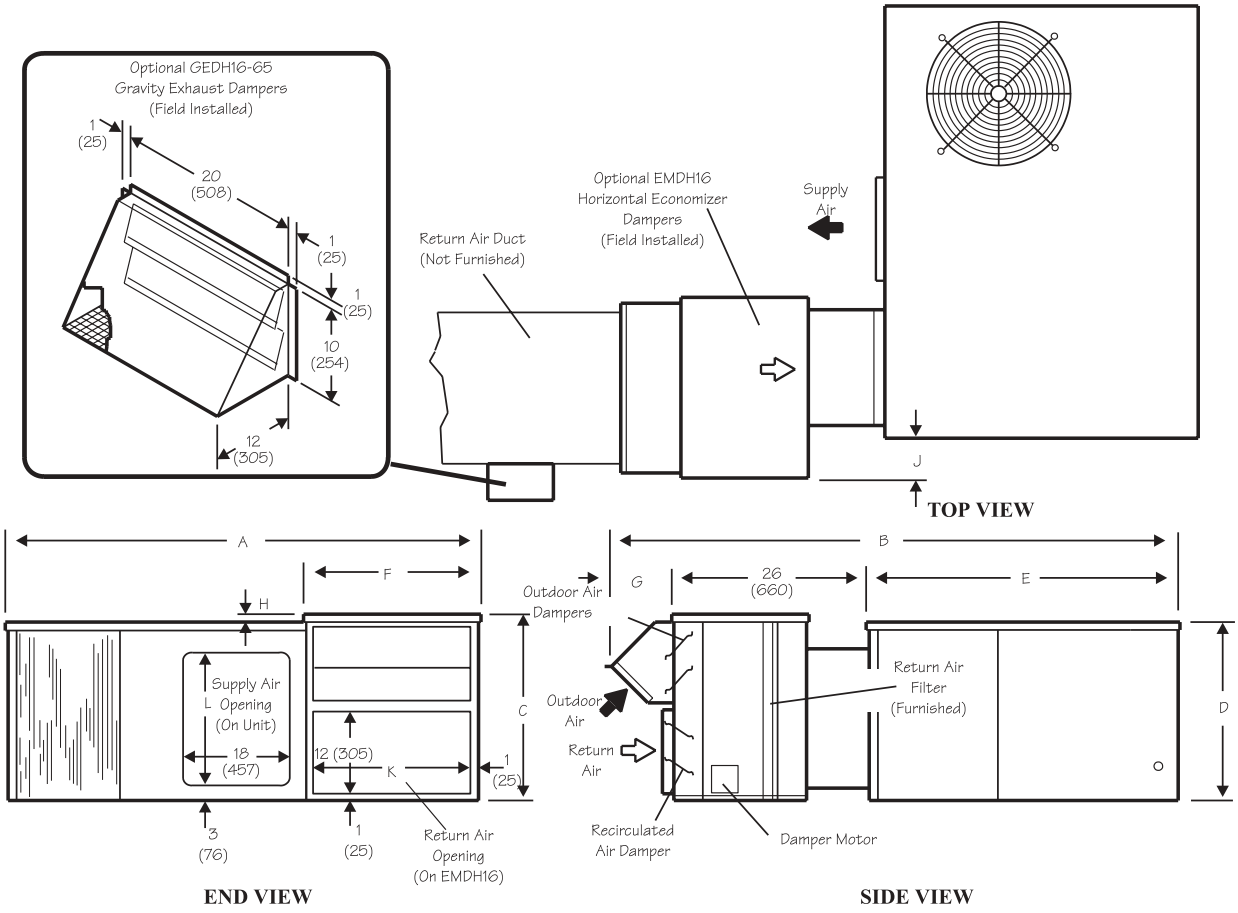
END VIEW

Model Number	A		B		C		D		E		F		*G		*H		J	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	46	1168	60	1524	23	584	21 3/4	552	16 1/8	410	3/4	19	---	---	---	---	---	---
CHA16-048 CHA16-060	52	1321	72 1/2	1842	29	737	27 3/4	705	20 1/4	514	1 1/2	38	7	178	16	406	3 1/2	89

*Dimensions reflect usage with RMF16-41 mounting frame.

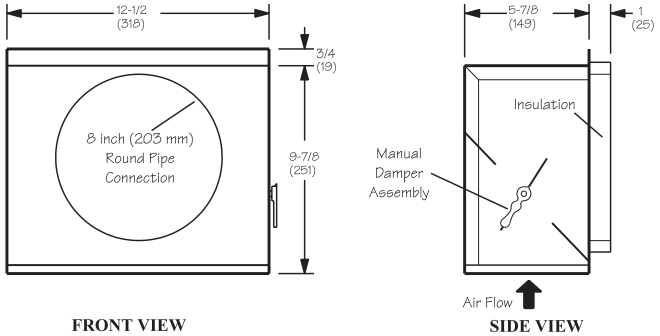
Accessory Dimensions - inches (mm)

CHA16 Unit with EMDH16 Horizontal Economizer Damper Section and GEDH16-65 Gravity Exhaust Dampers



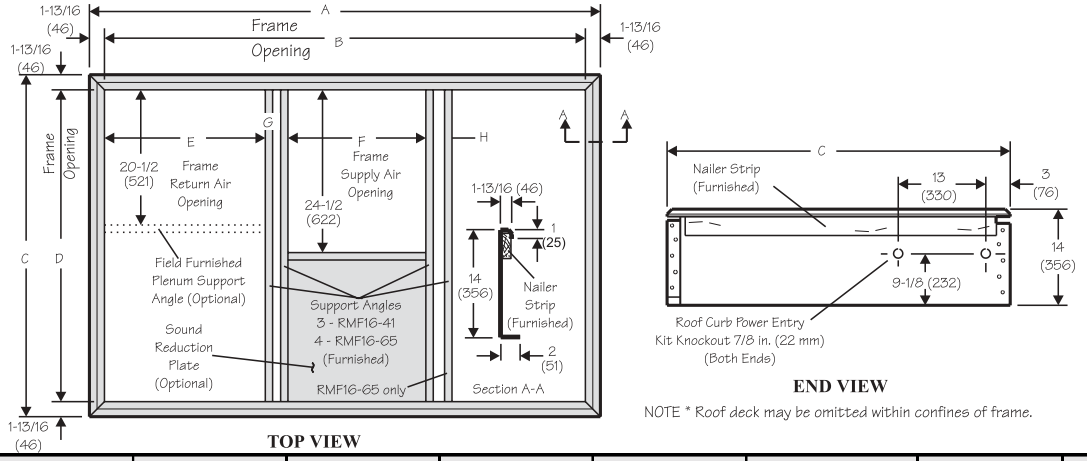
Model Number	A		B		C		D		E		F		G		H		J		K		L	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHA16-024 CHA16-030 CHA16-036	63	1600	81 1/2	2070	26	660	23	584	46	1168	26	660	9 1/2	241	3	76	3	76	24	610	13	330
CHA16-048 CHA16-060	79 1/2	2019	90	8100	30 3/8	772	29	737	52	1321	30 1/2	775	12	305	1 1/2	38	7	178	28 7/8	733	22	559

OAD3-46/65 Manual Minimum Outdoor Air Damper



Accessory Dimensions - inches (mm)

RMF16-41 & 65 Roof Mounting Frame with Double Duct Opening for CHA16 Units

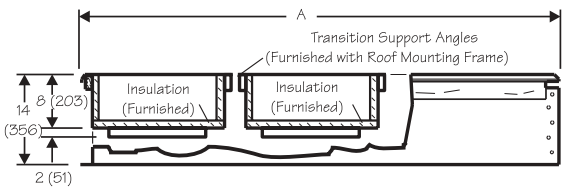


NOTE * Roof deck may be omitted within confines of frame.

Model Number	A		B		C		D		E		F		G		H	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41	56 3/8	1432	52 3/4	1340	44 1/8	1140	40 1/2	1048	24 3/8	619	20 9/16	522	*4	102	---	---
RMF16-65	69	1753	65 3/8	1661	50 1/2	1283	46 7/8	1191	24 1/4	616	20 1/2	521	4	102	4	102

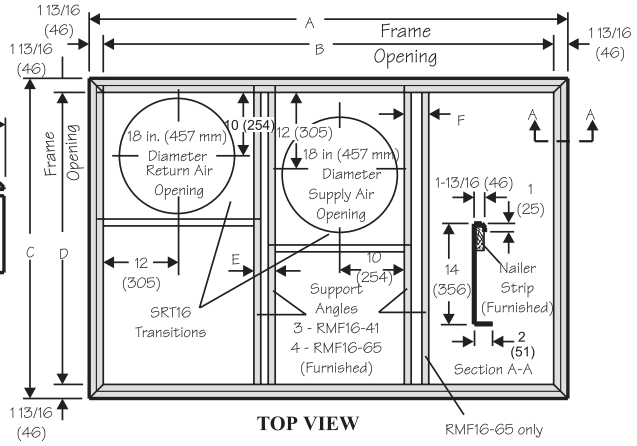
*3 1/4 inches (83mm) for CHA16-024, 030, 036.

RMF16-41 & 65 Roof Mounting Frames with SRT16-65 Supply and Return Air Transisitons for FD9-65 & RTD9-65 Ceiling Diffusers



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

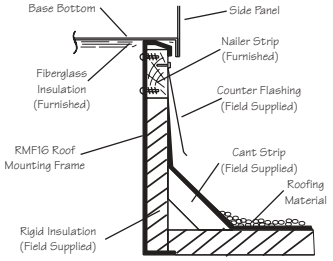
SIDE VIEW



Model Number	A		B		C		D		E		F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41 with SRT 16-65	56 3/8	1432	52 3/4	1340	44 7/8	1140	41 1/4	1048	*4	102	---	---
RMF16-65 with SRT16-65	69	1753	65 3/8	1661	50 1/2	1283	46 7/8	1191	4	102	4	102

*3 1/4 inches (83 mm) for CHA16-024, 030, 036.

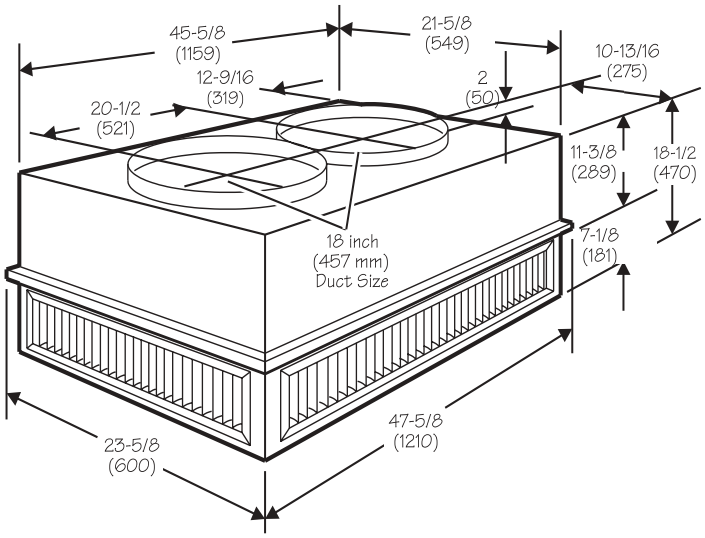
Typical Flashing Detail for RMF16 Roof Mounting Frame



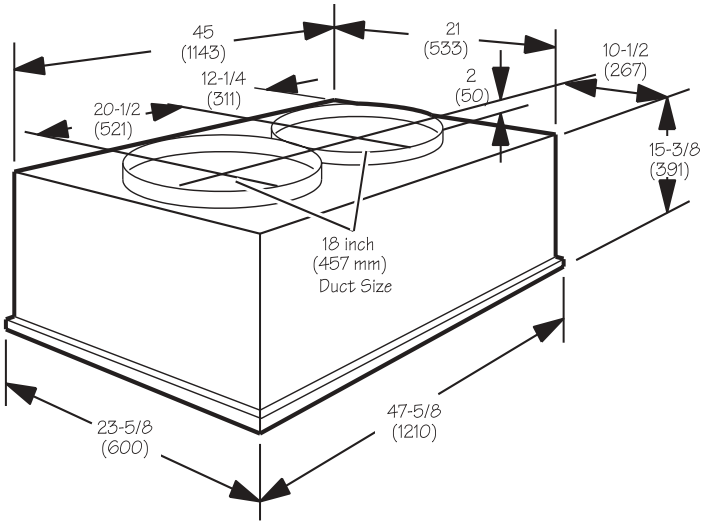
Accessory Dimensions - inches (mm)

Combination Ceiling supply and Return Diffusers

RTD9-65 STEP-DOWN CEILING DIFFUSER

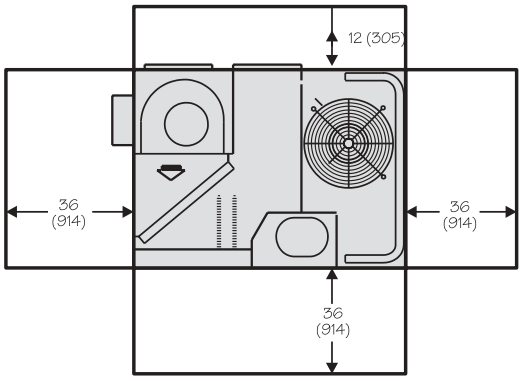


FD9-65 FLUSH CEILING DIFFUSER



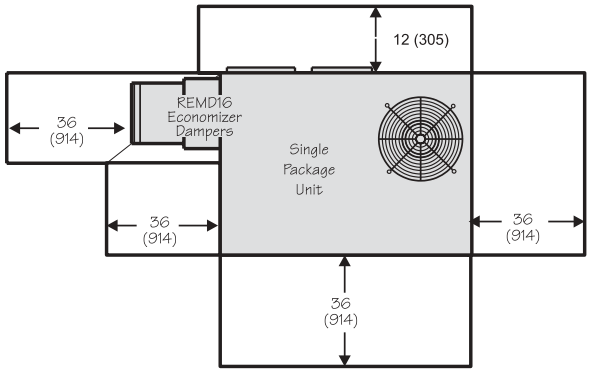
Installation Clearances - inches (mm)

CHA16 Basic Unit



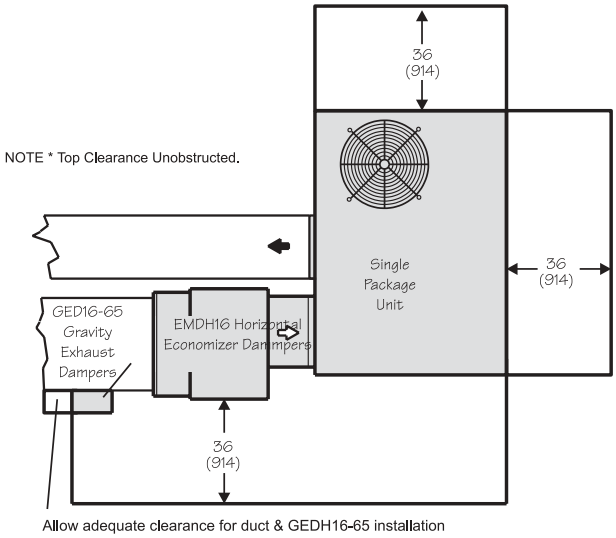
NOTE * Top Clearance 60 in. (1525 mm).

CHA16 with REMD16 Economizer Damper



NOTE * Top Clearance 60 in. (1525 mm)

CHA16 Unit with EMDH16 Horizontal Economizer and GEDH16-65 Gravity Exhaust Dampers



All specifications are subject to change without notice.

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