



## Packaged Unit

### Heat Pump

**2 - 5 Ton Cooling Capacity**

**23,000 - 57,500 Btuh Heating Capacity**

**12,800 - 85,300 Btuh (5 - 25 kW)**

**Optional Electric Heating Capacity**

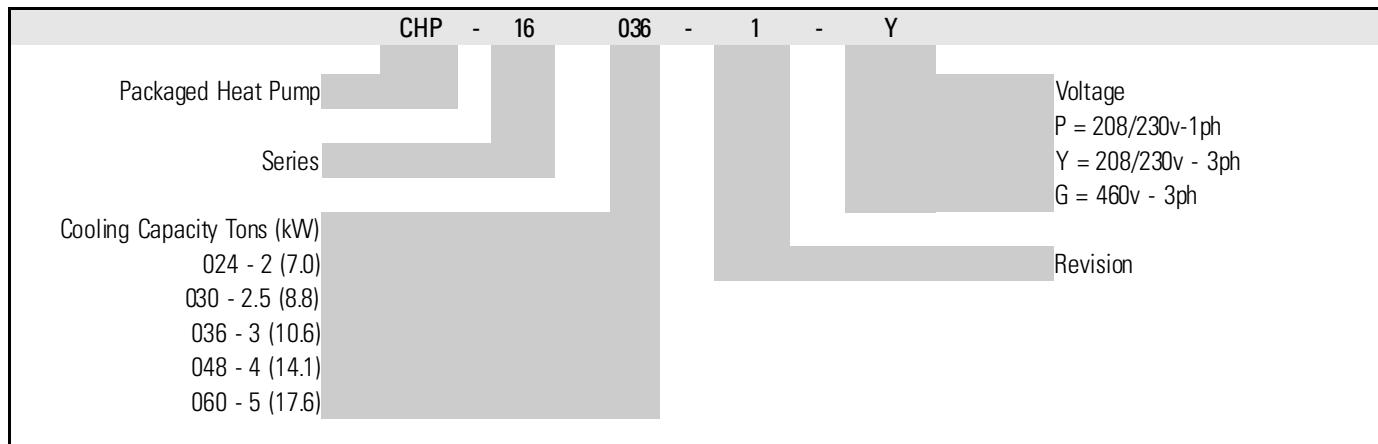
**CHP16-024-030-036-048-060**



### 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., U.L.C. and National and Canadian Electrical codes
- ◆ Certified in accordance with the USE certification program, which is 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 the cabinet, control box with factory installed controls located for easy service
- ◆ Coil constructed of copper tube and lanced enhanced aluminum fins for maximum heat transfer and low air resistance, high pressure factory tested
- ◆ 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), check/expansion valve and freezestat.
- ◆ 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.
- ◆ Lifting brackets are factory installed.
- ◆ Condenser fan is direct drive. Low operating sound levels. 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 down-flow applications. Filter rack will accept up to two inch (51 mm) filter. For horizontal applications without economizer, filters must be field installed in return air duct.
- ◆ 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.		CHP16-024	CHP16-030	CHP16-036	CHP16-048	CHP16-060				
<sup>1</sup> ARI Certified Cooling Ratings	Cooling Capacity - Btuh (kW)	23,800 (7.0)	29,000 (8.5)	34,600 (10.1)	46,500 (13.6)	55,000 (16.1)				
	Total unit watts	2615	3185	3870	4915	6225				
	SEER (Btuh/Watts)	10	10	10	10	10				
	EER (Btuh/Watts)	9.1	9.1	8.6	9.5	8.8				
<sup>1</sup> ARI Certified High Temperature Heating Ratings	Total capacity - Btuh (kW)	23,800 (7.0)	29,400 (8.6)	35,800 (10.5)	49,500 (14.5)	57,500 (16.8)				
	Total unit watts	2235	2780	3430	4605	5765				
	C.O.P. (Coefficient of Performance)	3.12	3.1	3.06	3.14	2.94				
	HSPF - Region IV (Region V)	6.6 (5.9)	6.6 (5.9)	6.6 (5.9)	6.6 (5.9)	6.6 (5.9)				
<sup>1</sup> ARI Certified Low Temperature Heating Ratings	Total capacity - Btuh (kW)	12,800 (3.7)	17,000 (5.0)	22,800 (6.7)	28,000 (8.2)	33,600 (9.8)				
	Total unit watts	1855	2330	3182	3800	5045				
	C.O.P. (Coefficient of Performance)	2.02	2.14	2.1	2.16	1.98				
<sup>2</sup> Sound Rating Number (db)		80			82					
Refrigerant Charge (HCFC-22)		5 lbs. 10 oz. (2.55 kg)	6 lbs. 0 oz. (2.72 kg)	7 lbs. 0 oz. (3.18 kg)	10 lbs. 12 oz. (4.88 kg)	10 lbs. 5 oz. (4.68 kg)				
Indoor Coil Blower	Blower wheel nominal diameter x width in. (mm)	9 x 8 (229 x 203)		10 x 7 (254 x 178)		11.5 x 8 (292 x 203)				
	Motor horsepower (W)	1/3 (249)			1/2 (373)	3/4 (560)				
Indoor Coil	Net face area - sq. ft. (m <sup>2</sup> )	3.2 (0.30)	4.1 (0.38)		5.8 (0.54)					
	Tube diameter - in. (mm) & No. of rows	3/8 (9.5) - 3								
	Fins per inch (m)	15 (591)								
Outdoor Coil	Net face area sq. ft. (m <sup>2</sup> )	8.6 (0.80)			14.3 (1.33)					
	Outer Coil Inner Coil	5.3 (0.49)	8.3 (0.77)		9.9 (0.92)	13.8 (1.28)				
	Tube diameter - in. (mm) & No. of rows	3/8 (9.5) - 1.6		3/8 (9.5) - 2						
	Fins per inch (m)	20 (787)								
Outdoor Coil Fan	Diameter - in. (mm) & No. of blades	20 (508) - 4			24 (610) - 4					
	Air volume - cfm (L/s)	2350 (1110)	2200 (1040)		3600 (1700)					
	Motor horsepower (W)	1/6 (124)			1/4 (187)					
	Motor watts	220			340					
Condensate drain size mpt - in. (mm)		3/4 (19)								
<sup>3</sup> 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)		332 (151)	340 (154)	354 (161)	535 (243)	535 (243)				
Shipping weight of basic unit - lbs. (kg) 1 package		417 (187)	426 (193)	436 (198)	610 (277)	610 (277)				
Electrical characteristics - (60 hz)		208/230v - 1 ph		208/230v - 1 ph, 208/230v or 460v - 3 ph						

<sup>1</sup>Certified in accordance with the USE certification, which is based on ARI Standard 210/240.

Cooling Ratings - 95°F (35°C) outdoor air temperatures and 80°F (27°C) db/67°F (19°C) wb entering indoor coil air.

High Temperature Heating Ratings - 47°F (8°C) db/43°F (6°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

Low Temperature Heating Ratings - 17°F (-8°C) db/15°F (-9°C) wb outdoor air temperature and 70°F (21°C) entering indoor coil air.

<sup>2</sup>Sound Rating Number in accordance with test conditions included in ARI Standard 270.

<sup>3</sup>Cleanable polyurethane filter.

## Optional Accessories

Model No.	CHP16-024	CHP16-030	CHP16-036	CHP16-048	CHP16-060
<b>Coil Guards</b> - PVC coated steel wire guards to protect outdoor coil	(47J23) 2 guards per order			(47J24) 3 guards per order	
<b>Hail Guards</b> - Heavy duty field installed coil guard protects coils from damage. <b>Note: Not for use with Coil Guards.</b>		<b>90N90</b> 2 guards per order		<b>90N91</b> 3 guards per order	
<b>Diffusers</b> - 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	<b>Step-Down</b> - double deflection louvers		<b>RTD9-65</b> - 67 lbs. (30 kg) (27G87)		
	<b>Flush</b> - fixed blade louvers		<b>FD9-65</b> - 37 lbs. (17 kg) (27G86)		
<b>Transitions (Supply and Return)</b> - Used with diffusers, installs in roof mounting frame, galvanized steel construction, flanges furnished for duct connection, fully insulated - Net Weight			<b>SRT16</b> - 20 lbs. (9 kg) (15H02)		
<b>Economizer with Gravity Exhaust Dampers (Down-Flow)</b> - Installs directly 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. Model No. - Net Weight - No. size of filter, in., (mm)	<b>3 Position</b>	<b>REMD16-41</b> - 48 lbs. (22 kg) (58H73)	<b>REMD16-65</b> - 66 lbs. (30 kg) (58H75)		
	<b>Modulating</b>	<b>REMD16M-41</b> - 48 lbs. (22 kg) (58H72)	<b>REMD16M-65</b> - 66 lbs. (30 kg) (58H74)		
	<b>Indoor</b>	(1) 16 x 25 x 1 (406 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)		
	<b>Outdoor</b>	(1) 14 x 25 x 1 (356 x 635 x 25)	(1) 18 x 25 x 1 (457 x 635 x 25)		
<b>Economizer Dampers (Horizontal)</b> - 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. Model No. - Net Weight - No. & size of filter, in. (mm)	<b>3 Position:</b>	<b>EMDH16-41</b> - 110 lbs. (50 kg) (14H97)	<b>EMDH16-65</b> - 30 lbs. (59 kg) (14H98)		
	<b>Modulating:</b>	<b>EMDH16M-41</b> - 110 lbs. (50 kg) (23H03)	<b>EMDH16M-65</b> - 130 lbs. (59 kg) (23H02)		
	<b>Indoor:</b>	(1) 20 x 24 x 1 (508 x 610 x 25)	(1) 16 x 25 x 1 (356 x 635 x 25) (1) 14 x 25 x 1 (356 x 635 x 1)		
	<b>Outdoor:</b>	(1) 8 x 24 x 1 (203 x 610 x 25)	(1) 8 x 28 x 1 (203 x 711 x 25)		
<b>Enthalpy Control, Differential</b> - 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.			<b>(54G44)</b>		
<b>Gravity Exhaust Dampers</b> - For use with EMDH16. Pressure operated assembly field installs in the return air duct adjacent to the economizer assembly. Includes bird screen - Net Weight		<b>GEDH16-65</b> - 4 lbs. (2 kg) (24H06) (23H06)			

<sup>1</sup>Indoor filter is not furnished with economizer. REMD16 utilizes existing filter furnished with 16 unit.

## Optional Accessories

Model No.	CHP16-024	CHP16-030	CHP16-036	CHP16-048	CHP16-060				
<b>Electric Heat</b> - 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								
<b>ECH16R</b> - Supplemental thermal cutoff safety fuses and thermal relay sequencer.	See Electric Heat Data Tables								
<b>ECH16</b> - Supplemental secondary limits, heating control relay, fuse block, thermal relay sequencer (20-25 kW 208/230v) and galvanized steel control box.	See Electric Heat Data Tables								
<b>Electric Heat Single Point Power Source Sub-Fuse Box</b> - 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								
<b>Unit Single Point Power Source Sub Fuse Box</b> - 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 galvanized steel with prepunched mounting holes and electrical inlet and outlet holes, hinged box cover.	See Electric Heat Data Tables								
<b>Low Ambient Control Kit</b> - Units operate down to 30°F (-1°C) outdoor air temperature in cooling mode without any additional controls. Kit is field installed, enabling unit to operate properly down to 0°F (-17.7°C).	(27J00)								
<b>Roof Curb Power Entry Kit</b> - 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.	<b>1/2 in.</b> (13 mm)	<b>18H70</b>							
	<b>1 in.</b> (26 mm)	<b>18H71</b>							
	<b>1 1/2 in.</b> (39 mm)	<b>18H72</b>							
<b>Roof Mounting Frame</b> - 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 CHP16-048 and CHP16-060 units - Net Weight <b>NOTE</b> - Sound Reduction Plate must be ordered separately for field installation.	<b>RMF16-41</b> - 75 lbs. (35 kg) <b>(97G59)</b> Plate (ordered separately) <b>(73H80)</b>			<b>RMF16-41</b> - 75 lbs. (35 kg) <b>(97G59)</b> Plate (ordered separately) <b>(73H80)</b>	<b>RMF16-41</b> - 75 lbs. (35 kg) <b>(97G59)</b> Plate (ordered separately) <b>(73H80)</b>				
<b>Outdoor Air Damper Section</b> - For <u>down-flow applications</u> , 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	<b>OAD16-41</b> - 12 lbs. (5 kg) <b>(15H00)</b> (1) 5 x 17 x 1 in. (127 x 432 x 25 mm)			<b>OAD16-65</b> - 12 lbs. (5 kg) <b>(15H01)</b> (97G60)(1) 8 x 17 x 1 in. (203 x 432 x 25 mm)	<b>OAD16-65</b> - 12 lbs. (5 kg) <b>(15H01)</b> (97G60)(1) 8 x 17 x 1 in. (203 x 432 x 25 mm)				
<b>Outdoor Air Damper Section</b> - For <u>horizontal applications</u> , installs in return air duct adjacent to unit, manually adjustable (fixed) outdoor air - Net Weight	<b>OAD3-46/65</b> - 8 lbs. (4 kg) <b>(23591)</b>								
<b>Outdoor Thermostat Kit</b> - 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.	<b>Thermo-stat Kit</b>	<b>(56A87)</b>							
	<b>Mounting Box</b>	<b>(31461)</b>							
<b>Timed Off Control</b> - 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.	<b>(47J27)</b>								
<b>Unit Stand-Off Mounting Kit</b> - Elevates horizontal application units above mounting surface. Includes six high impact polystyrene stand-off mounts. See dimension drawings.	<b>(38H18)</b>								

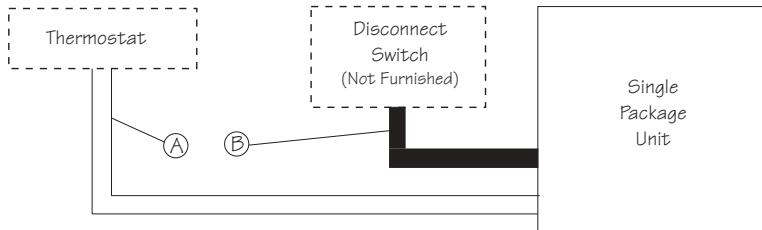
## Electrical Data

Model No.	CHP16-024	CHP16-030	CHP16-036			CHP16-048			CHP16-060		
Line voltage data - 60 hz	208/230v 1 phase	208/230v 1 phase	208/230v 3 phase	460v 3 phase	208/230v 1 phase	208/230v 3 phase	460v 3 phase	208/230v 1 phase	208/230v 3 phase	460v 3 phase	
Recommended maximum fuse size (amps)	25	30	40	30	15	50	35	15	60	40	20
<sup>1</sup> Minimum Circuit Ampacity	16	21	27	20	11	34	23	11	39	27	13
Compressor	Rated load amps	10.1	13.0	17.7	12.2	6.2	21.8	12.8	6.4	25.0	15.5
	Locked rotor amps	60	69.4	100	77	39	131	91	46	170	124
Outdoor Coil Fan Motor	Full load amps	1.1	1.1	1.1	1.1	0.73	2.3	2.3	1.1	2.3	1.1
	Locked rotor amps	2.2				1.3	4.4		2.0	4.4	
Indoor Coil Blower Motor	Motor output - hp (W)	1/3 (249)					1/2 (373)			3/4 (560)	
	Full load amps	2.1	3.0	3.0	3.0	1.8	3.9	3.9	1.8	4.6	2.4
	Locked rotor amps	4.2	6.2		4.4	8.3		4.4	10.0	3.8	3.8

<sup>1</sup>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 - CHP16-024-030 - Single Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btu/h Input	Heater Only *Minimum Circuit Ampacity	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes			
							Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box	Unit Sub-Fuse Box		
CHP16-024	ECH16R-5 (31H46) (4 lbs.) (2 kg)	1 step (1 phase)	208	3.8	12,800	23	39	40	ECH16R-26/41-5 (31H26)	ECH16-261 (31H10)		
			220	4.2	14,300	26	42	45				
			230	4.6	15,700	26	42	45				
			240	5.0	17,100	26	42	45				
	ECH16R-7 (31H47) (5 lbs.) (2 kg)		208	5.3	17,900	32	48	50	ECH16R-26/65-7 (31H25)			
			220	5.9	20,100	37	53	60				
			230	6.4	21,900	37	53	60				
			240	7.0	23,900	37	53	60				
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	7.5	25,600	46	61	70	ECH16R-26/65-10 (31H24)			
			220	8.4	28,700	53	68	70				
			230	9.2	31,300	53	68	70				
			240	10.0	34,100	53	68	70				
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	11.3	38,400	68	84	90	---			
			220	12.6	43,000	79	94	100				
			230	13.8	47,100	79	94	100				
			240	15.0	51,200	79	94	100				
CHP16-030	ECH16R-5 (31H46) (4 lbs.) (2 kg)	1 step (1 phase)	208	3.7	12,800	23	43	50	ECH16R-26/41-5 (31H26)	ECH16-311 (31H11)		
			220	4.2	14,300	26	47	50				
			230	4.6	15,700	26	47	50				
			240	5.0	17,100	26	47	50				
	ECH16R-7 (31H47) (5 lbs.) (2 kg)		208	5.3	17,900	32	52	60	ECH16R-26/65-7 (31H25)			
			220	5.9	20,100	37	57	60				
			230	6.4	21,800	37	57	60				
			240	7.0	23,900	37	57	60				
	ECH16R-10 (31H48) (5 lbs.) (2 kg)		208	7.5	25,600	46	66	70	ECH16R-26/65-10 (31H24)			
			220	8.4	28,700	53	73	80				
			230	9.2	31,300	53	73	80				
			240	10.0	34,100	53	73	80				
	ECH16R-15 (31H27) (18 lbs.) (8 kg)		208	11.3	38,400	68	89	90	---			
			220	12.6	43,000	79	99	100				
			230	13.8	47,100	79	99	100				
			240	15.0	51,200	79	99	100				

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

***Electric Heat Data - CHP160-036 - Single Phase***

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only *Minimum Circuit Ampacity	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes			
							Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box	Unit Sub-Fuse Box		
CHP16-036	<b>ECH16R-5 (31H46)</b> (4 lbs.) (2 kg)	1 step (1 phase)	208	3.7	12,600	23	50	60	ECH16R-26/41-5 (31H26)	ECH16-411 (31H12)		
			220	4.2	14,300	26	53	60				
			230	4.6	15,700	26	53	60				
			240	5.0	17,100	26	53	60				
	<b>ECH16R-7 (31H47)</b> (5 lbs.) (2 kg)		208	5.3	18,100	32	58	70	ECH16R-26/65-7 (31H25)			
			220	5.9	20,100	37	63	70				
			230	6.4	21,800	37	63	70				
			240	7.0	23,900	37	63	70				
	<b>ECH16R-10 (31H48)</b> (5 lbs.) (2 kg)		208	7.5	25,600	46	72	80	ECH16R-26/65-10 (31H24)			
			220	8.4	28,700	53	79	80				
			230	9.2	31,400	53	79	80				
			240	10.0	34,100	53	79	80				
	<b>ECH16R-15 (31H27)</b> (18 lbs.) (8 kg)		208	11.3	38,600	68	95	100	---			
			220	12.6	43,000	79	105	110				
			230	13.8	47,100	79	105	110				
			240	15.0	51,200	79	105	110				
	<b>ECH16-20 (31H28)</b> (19 lbs.) (9 kg)		208	15.0	51,200	91	117	125	---			
			220	16.8	57,300	105	131	150				
			230	18.4	62,800	105	131	150				
			240	20.0	68,300	105	131	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 - CHP16-036 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes		
							*Minimum Circuit Ampacity	Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box	Unit Sub-Fuse Box
CHP16-036	<b>ECH16-5</b> 208/230v <b>(31H30)</b> (17 lbs.) (9 kg)	1 step 3 phase	208	3.8	12,800	13	33	40		<b>ECH16-413</b> 208/230v <b>(31H15)</b>	
			220	4.2	14,300	15	35	40			
			230	4.6	15,700	15	35	40			
			240	5.0	17,100	15	35	40			
	<b>ECH16-7</b> 208/230v <b>(31H31)</b> 460v <b>(31H36)</b> (17 lbs.) (8 kg)		208	5.3	18,000	19	38	45		<b>ECH16-413</b> 460v <b>(31H18)</b>	
			220	5.9	20,000	21	41	45			
			230	6.4	22,000	21	41	45			
			240	7.0	23,900	21	41	45			
			440	5.8	19,800	11	21	25			
			460	6.5	22,200	11	21	25			
			480	7.0	23,900	11	21	25			
			208	7.5	25,600	27	46	50			
	<b>ECH16-10</b> 208/230v <b>(31H32)</b> 460v <b>(31H37)</b> (17 lbs.) (8 kg)		220	8.4	28,700	31	50	50		<b>ECH16-413</b> (208/230v <b>(31H15)</b> 460v <b>(31H18)</b>	
			230	9.2	31,400	31	50	50			
			240	10.0	34,100	31	50	50			
			440	8.4	28,700	15	25	30			
			460	9.2	31,400	15	25	30			
			480	10.0	34,100	15	25	30			
			208	11.3	38,500	40	59	60			
			220	12.6	43,000	46	65	70			
	<b>ECH16-15</b> 208/230v <b>(31H33)</b> 460v <b>(31H38)</b> (17 lbs.) (8 kg)		230	13.8	47,100	46	65	70		<b>ECH16-413</b> 208/230v <b>(31H15)</b> 460v <b>(31H18)</b>	
			240	15.0	51,200	46	65	70			
			440	12.6	43,000	23	33	35			
			460	13.8	47,100	23	33	35			
			480	15.0	51,200	23	33	35			
	2 steps 3 phase	208	15.0	51,300	53	72	80				
		220	16.8	57,300	61	80	80				
		230	18.4	62,800	61	80	80				
		240	20.0	68,300	61	80	80				
	<b>ECH16-20</b> 208/230v <b>(31H34)</b> 460v <b>(31H39)</b> (20 lbs.) (9 kg)	1 step 3 phase	440	16.8	57,300	31	41	45		<b>ECH16-413</b> 208/230v <b>(31H15)</b> 460v <b>(31H18)</b>	
			460	18.4	62,800	31	41	45			
			480	20.0	68,200	31	41	45			

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

## ***Electric Heat Data - CHP16-048 - Single Phase***

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only *Minimum Circuit Ampacity	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes			
							Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box	Unit Sub-Fuse Box		
CH16-048	<b>ECH16R-7 (31H47)</b> (5 lbs.) (2 kg)	1 step (1 phase)	208	5.3	18,000	32	66	80	<b>ECH16R-26/65-7 (31H25)</b>	<b>ECH16-511 (31H13)</b> --		
			220	5.9	20,000	37	70	80				
			230	6.4	22,000	37	70	80				
			240	7.0	23,900	37	70	80				
	<b>ECH16R-10 (31H48)</b> (5 lbs.) (2 kg)		208	7.5	25,600	46	79	90	<b>ECH16R-26/65-10 (31H24)</b>			
			220	8.4	28,700	53	86	90				
			230	9.2	31,300	53	86	90				
			240	10.0	34,100	53	86	90				
	<b>ECH16-15 (31H27)</b> (18 lbs.) (8 kg)		208	11.3	38,500	68	102	110	<b>ECH16-511 (31H13)</b> --			
			220	12.6	43,000	79	112	125				
			230	13.8	48,000	79	112	125				
			240	15.0	51,200	79	112	125				
	<b>ECH16-20 (31H28)</b> (19 lbs.) (9 kg)		208	15.0	51,200	91	124	125	<b>ECH16-511 (31H13)</b> --			
			220	16.8	57,300	105	138	150				
			230	18.4	62,700	105	138	150				
			240	20.0	68,200	105	138	150				
	<b>ECH16-25 (31H29)</b> (19 lbs.) (9 kg)		208	18.8	64,200	113	147	150	<b>ECH16-511 (31H13)</b> --			
			220	21.0	71,700	131	164	175				
			230	23.0	78,500	131	164	175				
			240	25.0	85,300	131	164	175				

\*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 - CHP16-048 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only *Minimum Circuit Ampacity	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes		
							Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box	Unit Sub-Fuse Box	
CHP16-048	<b>ECH16-7</b> 208/230v <b>(31H31)</b> 460v <b>(31H36)</b> (17 lbs.) (8 kg)	1 step (3 phase)	208	5.3	18,000	19	41	50	<b>ECH16-513</b> 208/230v <b>(31H16)</b> <b>ECH16-413/513</b> 460v <b>(31H21)</b>		
			220	5.9	20,000	21	44	50			
			230	6.4	22,000	21	44	50			
			240	7.0	23,900	21	44	50			
			440	5.8	19,800	11	22	25			
			460	6.5	22,200	11	22	25			
			480	7.0	23,900	11	22	25			
	<b>ECH16-10</b> 208/230v <b>(31H32)</b> 460v <b>(31H37)</b> (17 lbs.) (8 kg)		208	7.5	25,600	27	49	50	<b>ECH16-513</b> 208/230v <b>(31H16)</b> <b>ECH16-413/513</b> 460v <b>(31H21)</b>		
			220	8.4	28,700	31	53	60			
			230	9.2	31,300	31	53	60			
			240	10.0	34,100	31	53	60			
			440	8.4	28,700	15	26	30			
			460	9.2	31,400	15	26	30			
			480	10.0	34,100	15	26	30			
	<b>ECH16-15</b> 208/230v <b>(31H33)</b> 460v <b>(31H38)</b> (17 lbs.) (8 kg)		208	11.3	38,500	40	62	70	<b>ECH16-513</b> 208/230v <b>(31H16)</b> <b>ECH16-413/513</b> 460v <b>(31H21)</b>		
			220	12.6	43,000	46	68	70			
			230	13.8	47,100	46	68	70			
			240	15.0	51,200	46	68	70			
			440	12.6	43,000	23	34	35			
			460	13.8	47,100	23	34	35			
			480	15.0	51,200	23	34	35			
	<b>ECH16-20</b> 208/230v <b>(31H34)</b> 460v <b>(31H39)</b> (20 lbs.) (9 kg)	2 steps (3 phase)	208	15.0	51,200	53	75	80	<b>ECH16-513</b> 208/230v <b>(31H16)</b> <b>ECH16-413/513</b> 460v <b>(31H21)</b>		
			220	16.8	57,300	61	83	90			
			230	18.4	62,700	61	83	90			
			240	20.0	68,200	61	83	90			
		1 step (3 phase)	440	16.8	57,300	31	42	45			
			460	18.4	62,700	31	42	45			
			480	20.0	68,200	31	42	45			
	<b>ECH16-25</b> 208/230v <b>(31H35)</b> 460v <b>(31H40)</b> (20 lbs.) (9 kg)	2 steps (3 phase)	208	18.8	64,000	66	88	90	<b>ECH16-513</b> 208/230v <b>(31H16)</b> <b>ECH16-413/513</b> 460v <b>(31H21)</b>		
			220	21.0	71,600	76	98	100			
			230	22.9	78,300	76	98	100			
			240	25.0	85,300	76	98	100			
		1 step (3 phase)	440	21.0	71,800	38	49	50			
			460	22.9	78,300	38	49	50			
			480	25.0	85,300	38	49	50			

\*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 - CHP16-060 - Single Phase***

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes	
							*Minimum Circuit Ampacity	Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box
<b>CHP16-060</b>	<b>ECH16R-7 (31H47)</b> (5 lbs.) (2 kg)	1 step (1 phase)	208	5.3	18,000	32	70	80	<b>ECH16R-26/65-7 (31H25)</b>	<b>ECH16-651 (31H14)</b> --
	220		5.9	20,000	37	75	90			
	230		6.4	22,000	37	75	90			
	240		7.0	23,900	37	75	90			
	<b>ECH16R-10 (31H48)</b> (5 lbs.) (2 kg)		208	7.5	25,600	46	84	100	<b>ECH16R-26/65-10 (31H24)</b>	
	220		8.4	28,700	53	91	100			
	230		9.2	31,300	53	91	100			
	240		10.0	34,100	53	91	100			
	<b>ECH16-15 (31H27)</b> (18 lbs.) (8 kg)		208	11.3	38,500	68	106	110	<b>ECH16-651 (31H14)</b> --	
	220		12.6	43,000	79	117	125			
	230		13.8	47,000	79	117	125			
	240		15.0	51,200	79	117	125			
	<b>ECH16-20 (31H28)</b> (19 lbs.) (9 kg)		208	15.0	51,200	91	129	150		
	220		16.8	57,300	105	143	150			
	230		18.4	62,700	105	143	150			
	240		20.0	68,200	105	143	150			
	<b>ECH16-25 (31H29)</b> (19 lbs.) (9 kg)		208	18.8	64,200	113	151	150		
	220		21.0	71,700	131	169	175			
	230		23.0	78,500	131	169	175			
	240		25.0	85,300	131	169	175			

\*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 - CHP16-060 - Three Phase

Single Package Unit Model No.	Electric Heater Model No. & Net Weight	No. of Steps & Phase	Volts Input	Electric Heat kW Input	Electric Heat Btuh Input	Heater Only	*Total Unit & Electric Heat		Optional Single Point Power Source Boxes	
							*Minimum Circuit Ampacity	Minimum Circuit Ampacity	Maximum Fuse Size	Heater Sub-Fuse Box
CHP16-060	ECH16-7 208/230v <b>(31H31)</b> 460v <b>(31H36)</b> (17 lbs.) (8 kg)	1 step (3 phase)	208	5.3	18,000	19	45	50		ECH16-653 208/230v <b>(58L07)</b> <b>ECH16-513/653</b> 460v <b>(31H19)</b>
			220	5.9	20,000	21	48	50		
			230	6.4	22,000	21	48	50		
			240	7.0	23,900	21	48	50		
			440	5.8	20,000	11	24	30		
			460	6.5	22,000	11	24	30		
			480	7.0	23,900	11	24	30		
	ECH16-10 208/230v <b>(31H32)</b> 460v <b>(31H37)</b> (17 lbs.) (8 kg)		208	7.5	25,600	27	53	60	ECH16-653 208/230v <b>(58L07)</b> <b>ECH16-513/653</b> 460v <b>(31H19)</b>	
			220	8.4	28,700	31	57	60		
			230	9.2	31,300	31	57	60		
			240	10.0	34,100	31	57	60		
			440	8.4	28,600	15	28	35		
			460	9.2	31,300	15	28	35		
			480	10.0	34,100	15	28	35		
	ECH16-15 208/230v <b>(31H33)</b> 460v <b>(31H38)</b> (17 lbs.) (8 kg)		208	11.3	38,500	40	66	70	ECH16-653 208/230v <b>(58L07)</b> <b>ECH16-513/653</b> 460v <b>(31H19)</b>	
			220	12.6	43,000	46	72	80		
			230	13.8	47,100	46	72	80		
			240	15.0	51,200	46	72	80		
			440	12.6	43,000	23	36	40		
			460	13.8	47,100	23	36	40		
			480	15.0	51,200	23	36	40		
	ECH16-20 208/230v <b>(31H34)</b> 460v <b>(31H39)</b> (20 lbs.) (9 kg)	2 steps (3 phase)	208	15.0	51,200	53	79	80	ECH16-653 208/230v <b>(58L07)</b> <b>ECH16-513/653</b> 460v <b>(31H19)</b>	
			220	16.8	57,300	61	87	90		
			230	18.4	62,700	61	87	90		
			240	20.0	68,200	61	87	90		
		1 step (3 phase)	440	16.8	57,500	31	43	45		
			460	18.4	62,800	31	43	45		
			480	20.0	68,200	31	43	45		
	ECH16-25 208/230v <b>(31H35)</b> 460v <b>(31H40)</b> (20 lbs.) (9 kg)	2 steps (3 phase)	208	18.8	64,000	66	92	100	ECH16-653 208/230v <b>(58L07)</b> <b>ECH16-513/653</b> 460v <b>(31H19)</b>	
			220	21.0	71,600	76	102	110		
			230	22.9	78,100	76	102	110		
			240	25.0	85,300	76	102	110		
		1 step (3 phase)	440	21.0	71,800	38	51	60		
			460	22.9	78,300	38	51	60		
			480	25.0	85,300	38	51	60		

\*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).











## Blower Data

### CHP16-024 Blower Performance @ 230 Volts (with Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1385	655	1025	485	900	425	685	325
.05	12	1380	650	1035	490	915	430	700	330
.10	25	1365	645	1045	495	925	435	710	335
.15	37	1350	635	1045	495	930	440	715	335
.20	50	1330	630	1040	490	930	440	715	335
.25	62	1305	615	1030	485	925	435	715	335
.30	75	1275	600	1010	475	915	430	705	335
.40	100	1205	570	965	455	880	415	680	320
.50	125	1120	530	890	420	820	385	640	300
.60	150	1015	480	800	380	740	350	585	275
.70	175	900	425	685	325	640	300	510	240
.75	185	835	395	615	290	580	275	470	220

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

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

### CHP16-024 Blower Performance @ 230 Volts (with Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1435	675	1035	490	895	420	625	295
.05	12	1420	670	1050	495	915	430	645	305
.10	25	1400	660	1060	500	925	435	660	310
.15	37	1380	650	1060	500	935	440	670	315
.20	50	1360	640	1060	500	935	440	675	320
.25	62	1335	630	1050	495	930	440	675	320
.30	75	1305	615	1035	490	920	435	670	315
.40	100	1235	585	985	465	875	415	650	305
.50	125	1155	545	910	430	810	380	605	285
.60	150	1065	505	810	380	720	340	545	255
.70	175	960	455	690	325	605	285	465	220
.75	185	905	425	620	295	540	255	415	195

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

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

***Blower Data******CHP16-030 Blower Performance @ 230 Volts (with Down-Flow Air Openings)***

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1485	700	1250	590	1085	500	905	425
.05	12	1460	690	1250	590	1075	505	900	425
.10	25	1430	675	1240	585	1070	505	895	420
.15	37	1400	660	1235	585	1060	500	890	420
.20	50	1375	650	1225	580	1045	495	885	420
.25	62	1345	635	1215	575	1035	490	875	415
.30	75	1315	620	1200	565	1020	480	865	410
.40	100	1255	590	1165	550	990	465	835	395
.50	125	1190	560	1125	530	950	450	805	380
.60	150	1125	530	1075	510	910	430	770	365
.70	175	1060	500	1015	480	865	410	725	340
.75	185	1025	485	985	465	840	395	700	330

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

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

***CHP16-030 Blower Performance @ 230 Volts (with Horizontal Air Openings)***

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1485	700	1345	635	1115	525	920	435
.05	12	1480	700	1340	630	1120	530	930	440
.10	25	1465	690	1335	630	1120	530	940	445
.15	37	1455	685	1325	625	1115	525	945	445
.20	50	1435	675	1315	620	1110	525	945	445
.25	62	1420	670	1305	615	1105	520	940	445
.30	75	1400	660	1285	605	1095	515	935	440
.40	100	1350	635	1250	590	1065	505	910	430
.50	125	1295	610	1200	565	1025	485	875	415
.60	150	1230	580	1145	540	975	460	820	385
.70	175	1160	545	1075	505	915	430	755	355
.75	185	1120	530	1040	490	885	420	720	340

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

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

## Blower Data

### CHP16-036 Blower Performance @ 230 Volts (with Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1360	640	1270	600	1070	505	890	420
.05	12	1355	640	1250	590	1060	500	885	420
.10	25	1350	635	1230	580	1050	495	880	415
.15	37	1330	630	1220	575	1035	490	870	410
.20	50	1310	620	1210	570	1020	480	860	405
.25	62	1295	610	1190	560	1005	475	845	340
.30	75	1280	605	1170	550	990	470	830	390
.40	100	1230	580	1130	535	960	455	800	380
.50	125	1170	550	1070	505	910	430	760	360
.60	150	1100	520	990	465	850	400	700	330
.70	175	1020	480	890	420	780	370	620	295
.75	185	975	460	830	390	740	350	570	270

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

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

### CHP16-036 Blower Performance @ 230 Volts (with Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1450	685	1370	645	1080	510	900	425
.05	12	1430	675	1350	635	1070	505	890	420
.10	25	1410	665	1330	630	1060	500	880	415
.15	37	1395	660	1310	615	1055	500	875	415
.20	50	1380	650	1290	610	1050	495	870	410
.25	62	1360	640	1270	600	1040	490	860	405
.30	75	1340	630	1250	590	1030	485	850	400
.40	100	1300	615	1210	570	1010	475	830	390
.50	125	1250	590	1170	550	970	460	810	380
.60	150	1200	565	1120	530	930	440	770	365
.70	175	1150	545	1060	500	890	420	710	335
.75	185	1125	530	1025	485	870	410	670	315

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

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

## **Blower Data**

### **CHP16-036 Blower Performance @ 460 Volts (with Down-Flow Air Openings)**

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1560	735	1380	650	1070	505
.05	12	1555	735	1355	640	1075	505
.10	25	1540	725	1330	630	1080	510
.15	37	1510	715	1320	625	1070	505
.20	50	1475	695	1315	620	1060	500
.25	62	1450	685	1295	610	1040	490
.30	75	1430	675	1270	600	1025	485
.40	100	1360	640	1215	575	980	460
.50	125	1280	605	1145	540	925	435
.60	150	1185	560	1045	495	850	400
.70	175	1070	505	925	435	750	355
.75	185	990	465	860	405	680	320

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

### **CHP16-036 Blower Performance @ 460 Volts (with Horizontal Air Openings)**

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
0	0	1665	785	1490	705	1080	510
.05	12	1640	775	1465	690	1080	510
.10	25	1610	760	1440	680	1080	510
.15	37	1585	750	1420	670	1075	505
.20	50	1555	735	1400	660	1070	505
.25	62	1525	720	1380	650	1060	500
.30	75	1495	705	1355	640	1050	495
.40	100	1435	675	1300	615	1015	480
.50	125	1365	645	1250	590	985	465
.60	150	1295	610	1180	555	935	440
.70	175	1205	570	1100	520	860	405
.75	185	1145	540	1060	500	800	380

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

## Blower Data

### CHP16-048 Blower Performance @ 230 Volts (With Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2015	950	1610	760	1425	670	1240	585
.05	12	2000	945	1595	755	1420	670	1235	585
.10	25	1980	935	1580	745	1415	670	1235	585
.15	37	1960	925	1575	745	1415	670	1230	580
.20	50	1935	915	1560	735	1405	665	1225	580
.25	62	1910	900	1540	725	1395	660	1215	575
.30	75	1885	890	1520	715	1385	655	1205	570
.40	100	1825	860	1485	700	1355	640	1185	560
.50	125	1760	830	1445	680	1315	620	1160	550
.60	150	1690	800	1395	660	1260	595	1130	535
.70	175	1615	760	1335	630	1190	560	1095	515
.75	185	1575	745	1300	615	1145	540	1065	505

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

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

### CHP16-048 Blower Performance @ 230 Volts (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds							
		High		Medium-High		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2075	980	1675	790	1445	680	1275	600
.05	12	2060	970	1660	785	1440	680	1270	600
.10	25	2040	965	1645	775	1435	675	1270	600
.15	37	2020	955	1635	770	1435	675	1265	595
.20	50	1995	940	1620	765	1425	670	1260	595
.25	62	1965	930	1600	755	1415	670	1250	590
.30	75	1940	915	1580	745	1405	665	1240	585
.40	100	1880	890	1545	730	1375	650	1220	575
.50	125	1815	855	1500	710	1335	630	1195	565
.60	150	1740	820	1450	685	1280	605	1165	550
.70	175	1655	780	1395	660	1210	570	1130	535
.75	185	1605	755	1365	645	1165	550	1110	525

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

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

## **Blower Data**

### **CHP16-048 Blower Performance @ 460 Volts (With Down-Flow Air Openings)**

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2075	980	1650	780	1105	520
.05	12	2045	965	1635	770	1105	520
.10	25	2015	950	1625	765	1100	520
.15	37	1980	935	1615	760	1100	520
.20	50	1945	920	1600	755	1095	515
.25	62	1915	905	1585	750	1090	515
.30	75	1880	890	1570	740	1085	510
.40	100	1810	855	1535	725	1070	505
.50	125	1735	820	1490	705	1045	495
.60	150	1650	780	1430	675	1010	475
.70	175	1555	735	1355	640	965	455
.75	185	1500	710	1310	620	935	440

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

### **CHP16-048 Blower Performance @ 460 Volts (With Horizontal Air Openings)**

External Static Pressure		Air Volume at Various Blower Speeds					
		High		Medium		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2090	985	1755	830	1115	525
.05	12	2065	975	1740	820	1115	525
.10	25	2035	960	1720	810	1110	525
.15	37	2005	945	1705	805	1110	525
.20	50	1975	930	1685	795	1105	520
.25	62	1950	920	1675	790	1100	520
.30	75	1920	905	1650	780	1095	515
.40	100	1860	880	1600	755	1080	510
.50	125	1790	845	1555	735	1055	500
.60	150	1720	810	1495	705	1020	480
.70	175	1640	775	1425	670	975	460
.75	185	1595	755	1385	655	945	445

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







**RTD9-65 Step-Down  
Ceiling Diffuser Air Throw Data**

Model No.		RTD9-65		RD9-65	
Air Volume		1Effective Throw	1Effective Throw		
cfm	L/s	ft.	m	ft.	m
1000	470	10 - 17	3 - 5	15 - 20	5 - 6
1200	565	11 - 18	3 - 5	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

**Wet Indoor Coil Air Resistance**

Model Number	Air Volume		Air Resistance	
	cfm	L/s	in. w.g.	Pa
CHP16-024	600	285	0.05	12
	800	380	0.06	15
	1000	470	0.07	17
	1200	565	0.08	20
CHP16-030	800	380	0.09	22
	1000	470	0.10	25
	1200	565	0.11	27
CHP16-036	800	380	0.09	22
	1000	470	0.10	25
	1200	565	0.11	27
	1400	660	0.12	30
CHP16-048	1600	755	0.11	27
	1800	850	0.12	30
	2000	945	0.13	32
	2200	1040	0.14	35
CHP16-060	1600	755	0.08	20
	1800	850	0.09	22
	2000	945	0.10	25
	2200	1040	0.11	27

# Guide Specifications

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

**General** - Furnish and install single package heat pump unit, 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 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.

**Approvals** - All electrical components shall have U.L. and ULC Listing. All wiring shall be in compliance with NEC and CEC. Shall be rated and certified in accordance with the USE certification program which is based on ARI Standard 210/240-94.

**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.

**Refrigeration System** - The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coil shall be pressure leak tested. Outdoor coil shall be formed coil construction. Optional coil guards shall be available. Compressors shall be resiliently mounted, have overload protection and compressor crankcase heater, 036, 048 and 060 models shall have scroll compressors. The refrigeration system shall have discharge, suction and liquid line service gauge ports, freezestat, high pressure switch, liquid line filter drier, check and expansion valve and full refrigerant charge.

**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. Supply and return air openings shall be flanged. Indoor coil condensate drain shall be provided. Lifting brackets shall be factory installed.

**Economizer Wiring** - Economizer wiring harness shall be furnished factory installed.

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

**Supply Air Blowers** - Centrifugal conditioned air blower shall be direct driven by a multispeed motor. Blower shall be statically and dynamically balanced.

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

**Air Filters** - Cleanable 1 inch (25 mm) thick filters shall be furnished.

## Optional Accessories

**Electric Heaters** - 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 25kW (208/230v-3ph) heaters shall have thermal time delay relay to bring elements on and off in sequence with a time delay between each element. Heaters shall be U.L. and ULC 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** - Furnish and install complete with controls an air mixing damper assembly including outdoor air and recirculated air 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. Downflow models shall include Gravity Exhaust Dampers. Horizontal models shall require optional Gravity Exhaust Dampers. 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 the roof mounting frame.

**Ceiling Diffusers** - Furnish and install a (flush or stepdown) optional combination ceiling supply and return air diffuser.

**Ceiling Diffuser Supply and Return Air Transitions** - 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.



## Accessory Dimensions - inches (mm)

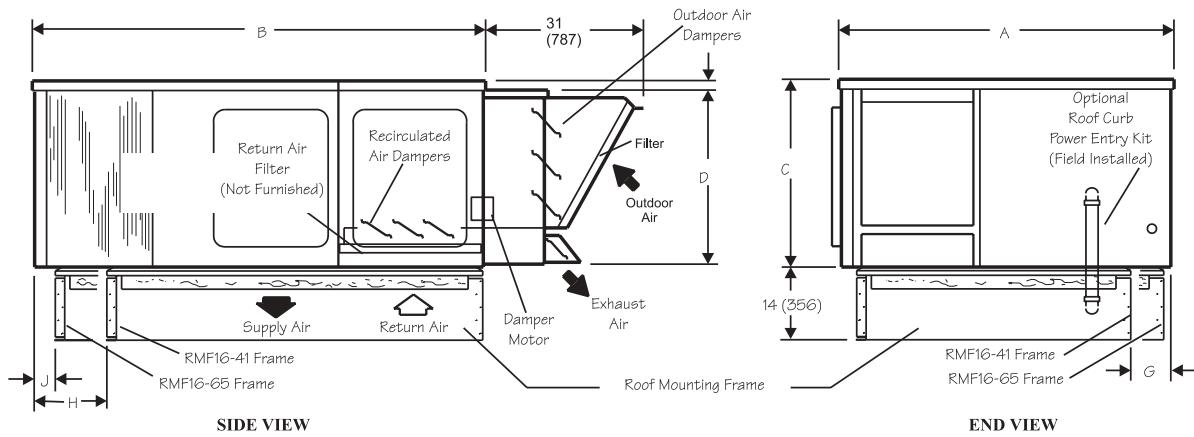
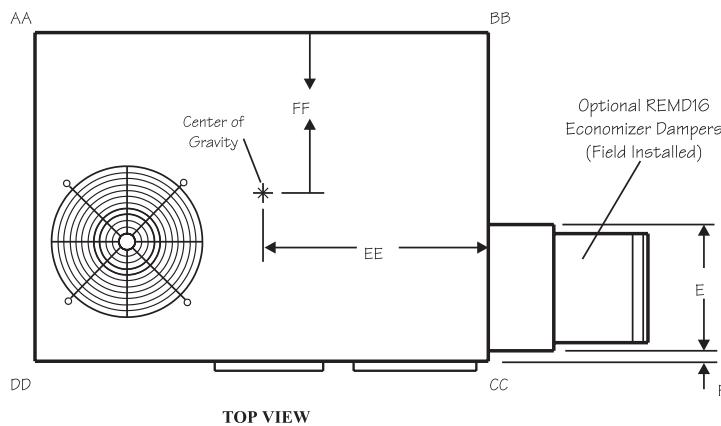
*CHP16 Unit with REMD16 Economizer Damper Section  
and RMF16 Roof Mounting Frame*

### Corner Weights

Model Number	AA		BB		CC		DD	
	Ibs.	kg	Ibs.	kg	Ibs.	kg	Ibs.	kg
CHP16-024	112	51	131	59	115	52	98	45
CHP16-030	114	52	133	60	117	53	100	45
CHP16-036	117	53	137	62	120	55	103	47
CHP16-048	174	79	199	91	168	76	146	66
CHP16-060								

### Center of Gravity

Model Number	EE		FF	
	inch	mm	inch	mm
CHP16-024				
CHP16-030	27 5/8	702	21 1/2	546
CHP16-036				
CHP16-048	33 3/4	857	23 3/4	603
CHP16-060				

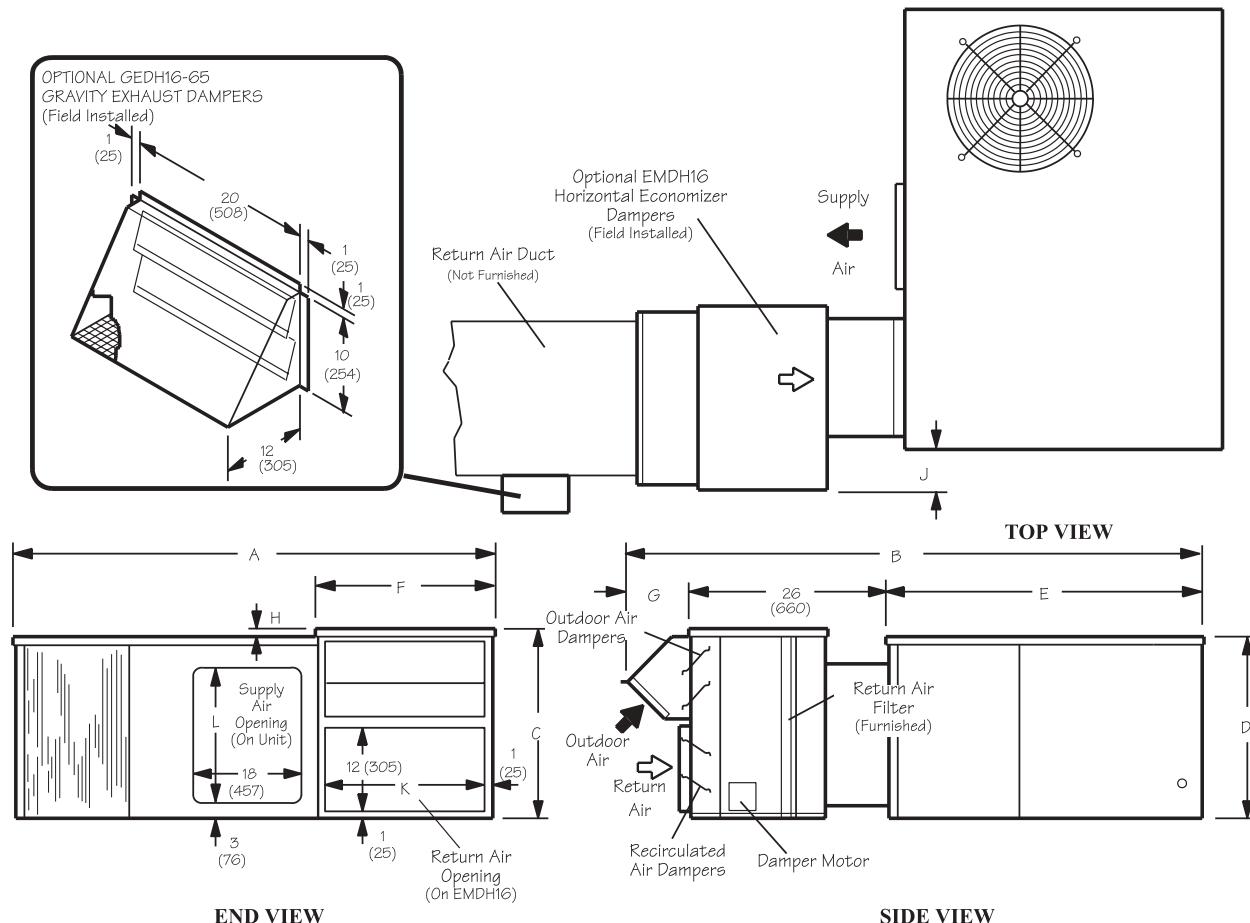


Model Number	A		B		C		D		E		F		<sup>1</sup> G		<sup>1</sup> H		J	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP16-024/030/036	46	1168	60	1524	23	584	21 3/4	552	16 1/4	413	3/4	19	-	-	-	-	-	-
CHP16-048/060	52	1321	72 1/2	1824	29	737	27 3/4	705	20 4/9	519	1 1/2	38	7	178	16	406	3 1/2	89

<sup>1</sup>Dimensions reflect usage with RMF16-41 mounting frame.

## Accessory Dimensions - inches (mm)

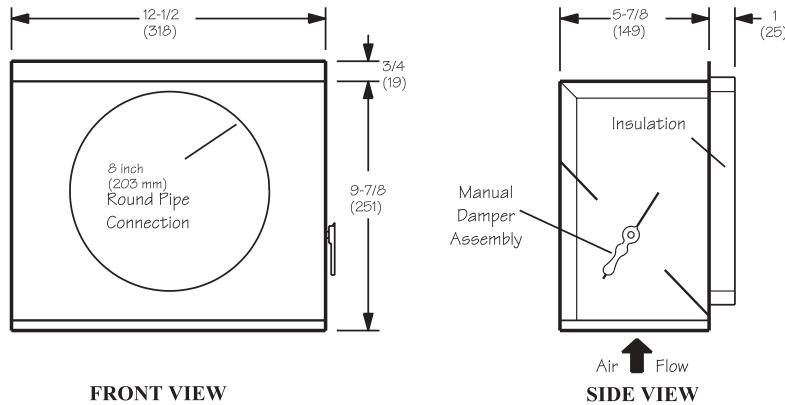
CHP16 Unit with EMDH16 Horizontal Economizer Damper Section and GEDH16-65 Gravity Exhaust Dampers



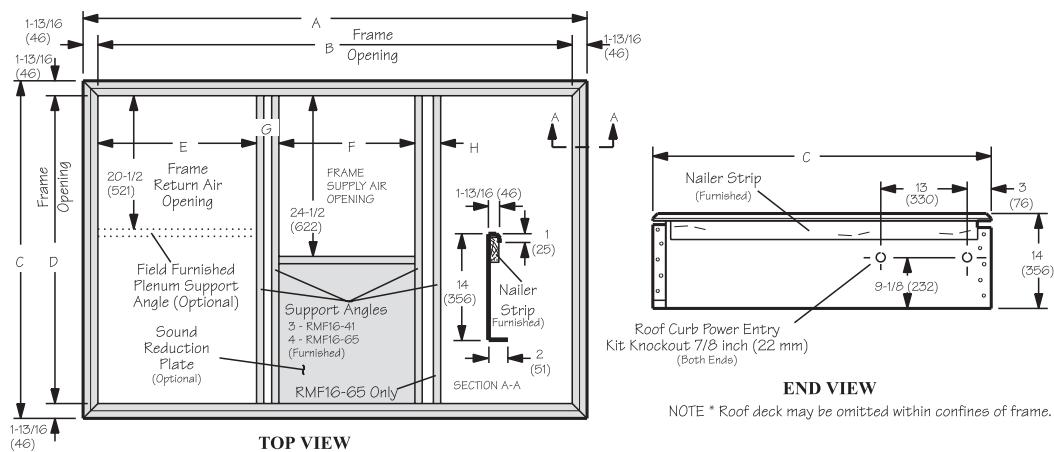
Model Number	A		B		C		D		E		F		G		H		J		K		
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	
CHP16-024/030/036	63	1600	81 1/2	2070	26	660	23	584	46	1168	26	660	9 1/2	241	3	76	3	76	24	610	13 330
CHP16-048/060	79 1/2	2019	90	8100	30 3/8	772	29	737	52	1321	30 1/2	775	12	305	1 1/2	38	7	178	28 7/8	733	22 559

## Accessory Dimensions - inches (mm)

*OAD3-46/65 Manual Minimum Outdoor Air Damper*



## RMF16-41 & 65 Roof Mounting Frame with Double Duct Opening for CHP16 Units

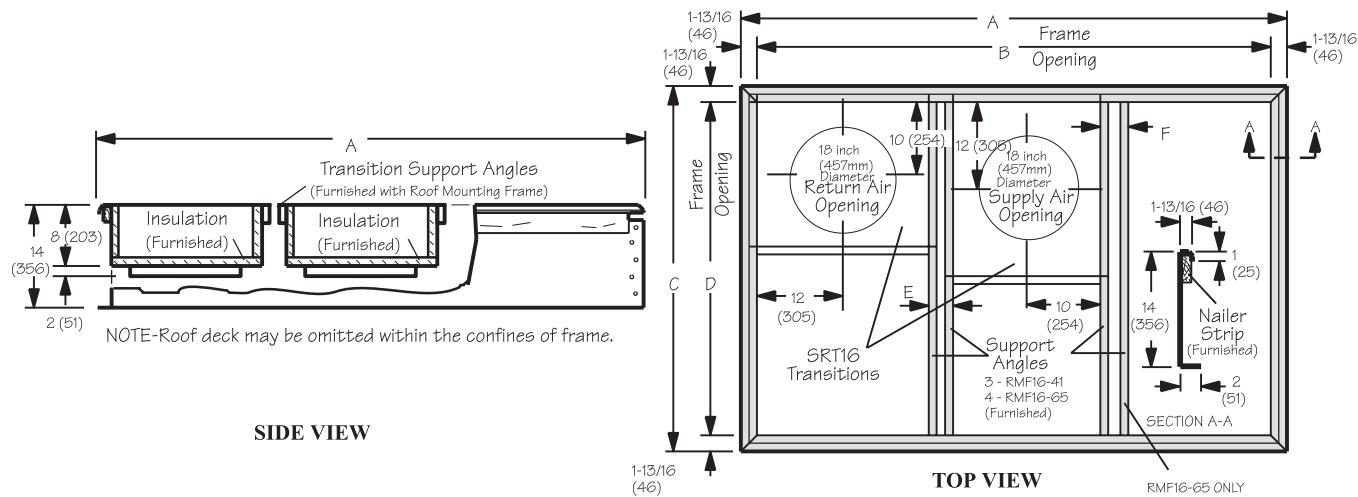


Model Number	A		B		C		D		E		F		G		H	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41	56 3/8	1432	52 3/4	1340	44 1/8	1140	40 1/2	1048	24 3/8	619	20 9/16	522	14	102	---	---
RMF16-65	69	1753	65 3/8	1661	50 1/2	1283	46 7/8	1191	24 1/4	616	20 1/2	521	4	102	4	102

<sup>1</sup>3 1/4 inches (83 mm) for CHP16-024-030-036.

## Accessory Dimensions - inches (mm)

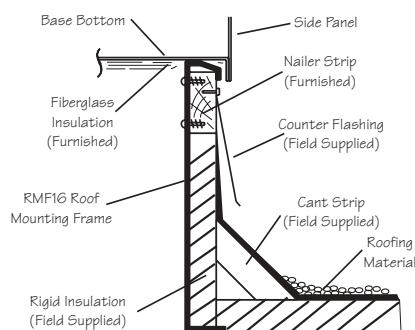
*RMF16-41 & 65 Roof Mounting Frames with SRT16-65 Supply and Return Air Transition for FD9-65 & RTD9-65 Ceiling Diffusers*



Model Number	A		B		C		D		E		F	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
RMF16-41 with SRT16-65	56 3/8	1432	52 3/4	1340	44 7/8	1140	41 1/4	1048	14	102	--	--
RMF16-65 with SRT16-65	69	1753	65 3/8	1661	50 1/2	1283	46 7/8	1191	4	102	4	102

<sup>13</sup> 1/4 inches (83 mm) for CHP16-024-030-036.

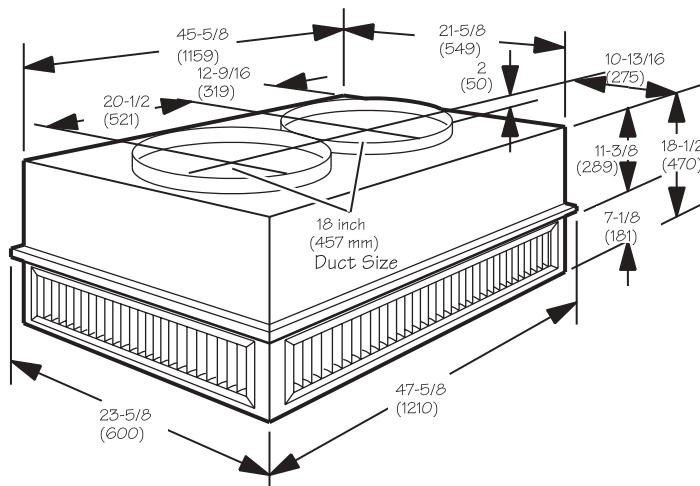
### Typical Flashing Detail for RMF16 Roof Mounting Frame



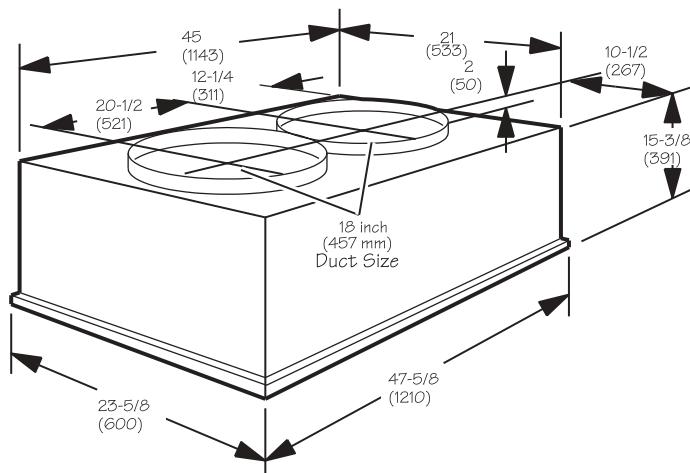
## Accessory Dimensions - inches (mm)

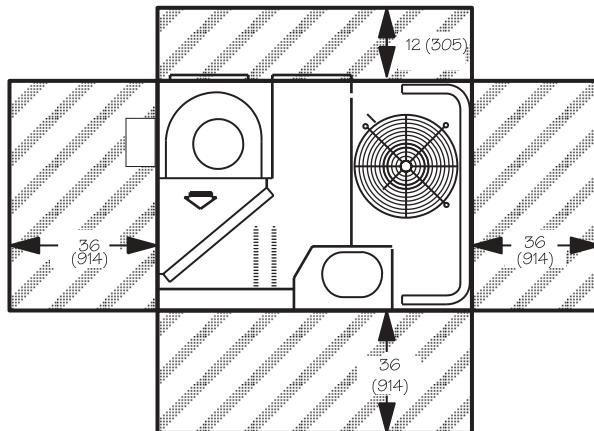
Combination Ceiling supply and Return Diffusers

RTD9-65 STEP-DOWN CEILING DIFFUSER

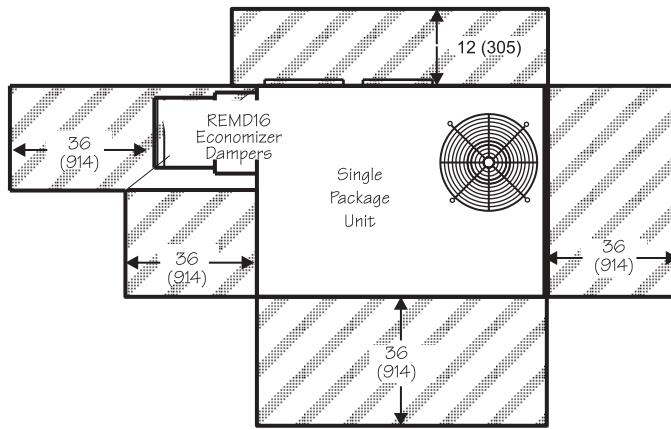


FD9-65 FLUSH CEILING DIFFUSER



***Installation Clearances - inches (mm)******CHP16 Basic Unit***

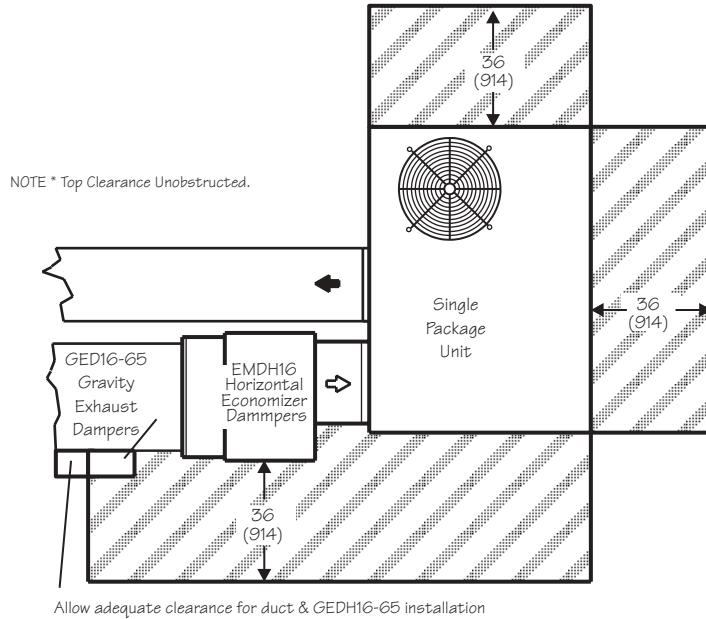
NOTE \* Top Clearance 60 in. (1525 mm).

***CHP16 with REMD16 Economizer Damper***

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

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

***CHP16 with EMDH16 Horizontal Economizer and  
GEDH16 Gravity Exhaust Dampers***



All specifications are subject to change  
without notice.



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