

CHP20H/R
(2 To 5 Ton)
(7.0 To 17.0 kW)

ELITE 11™

CHP20H-261-311

CHP20R-411-461-511-651

RESIDENTIAL PACKAGED HEAT PUMPS

*23,200 to 59,000 Btuh (6.8 to 17.3 kW) Cooling Capacity

*23,000 to 62,500 Btuh (6.7 to 18.3 kW) Heating Capacity

12,600 to 85,300 Btuh (3.7 to 25.0 kW) Optional Electric Heat

*ARI Standard 210/240 Ratings

Bulletin #210179

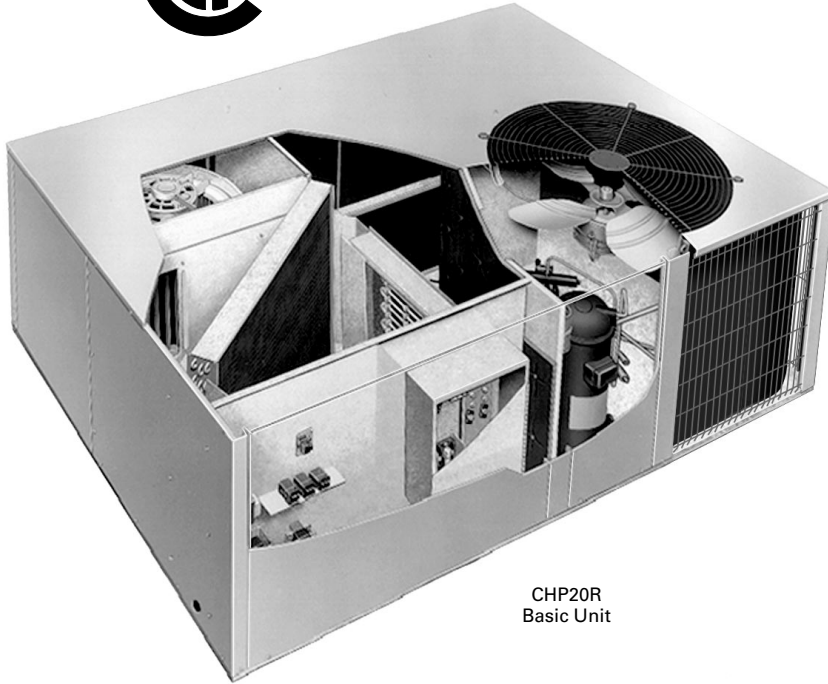
October 1997

Supersedes #480189

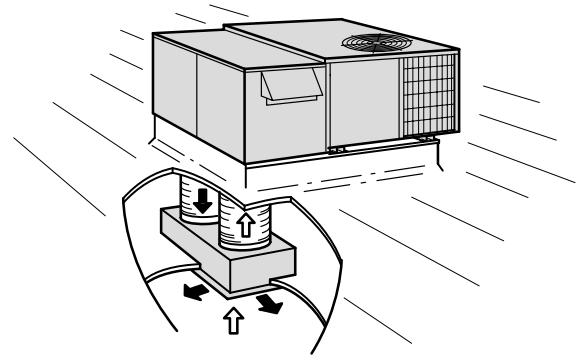
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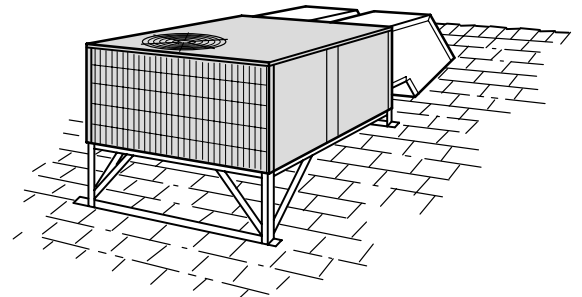
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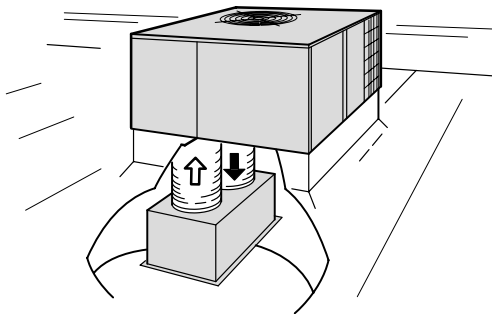
CHP20R
 Basic Unit



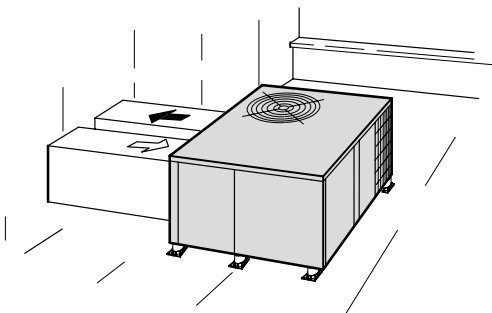
CHP20H Rooftop Installation With Combination
 Supply and Return Air System



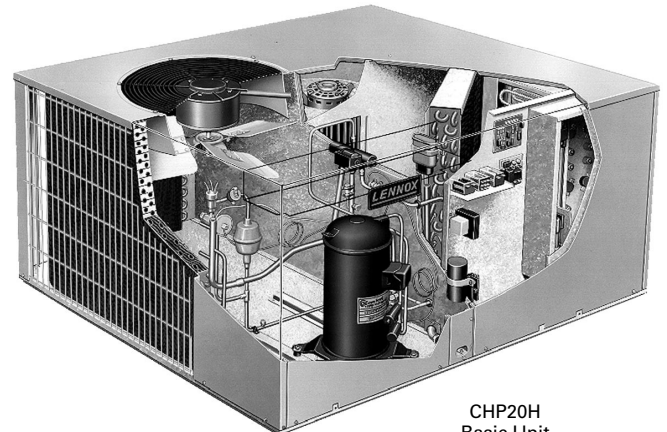
CHP20H Residential Rooftop Installation



CHP20R Rooftop Installation With Combination
 Supply and Return Air System



CHP20R Rooftop Installation



CHP20H
 Basic Unit

FEATURES

Application — Lennox single package CHP20H and CHP20R heat pump units are designed for outdoor rooftop or ground level installations in residential applications. Units are capable of delivering bottom (down-flow) or side (horizontal) handling of supply and return air. CHP20H-261 & 311 models are available in single phase voltage with 23,200 and 28,200 Btuh (6.8 and 8.3) cooling capacity and 23,000 and 28,200 Btuh (6.7 and 8.3 kW) heating capacity. CHP20R models are available in single phase voltage with 33,600 to 59,000 Btuh (9.8 to 17.3 kW) cooling capacity and 34,200 to 62,500 Btuh (10.0 to 18.3 kW) heating capacity.

Optional accessories include: supplemental electric heaters, lifting lug kit (H models only), down-flow filter adaptor kit (R models only), roof mounting frames, stand-off mounting kit, step-down or flush ceiling supply and return air diffusers and duct enclosure (H models only). See Optional Accessories tables.

Approvals — Units have been tested in the Lennox Research Laboratory environmental test room and rated according to Department of Energy (DOE) test procedures and in accordance with ARI Standard 210/240-94. In addition, units are tested and listed by Underwriter's Laboratories and have been sound rated in the Lennox reverberant sound test room in accordance with test conditions included in ARI Standard 270-95. DOE covered products are rated under 65,000 Btuh (19.0 kW) with single phase power input. Units and components within are bonded for grounding to meet safety standards for servicing required by U.L., C.S.A., NEC and CEC. Optional electric heaters are U.L. and C.S.A. listed and rated and tested according to DOE test procedures and Federal Trade Commission (FTC) labeling regulations. Blower data is from unit tests conducted in the Lennox Laboratory air test chamber.

Equipment Warranty — The compressor has a limited warranty for a full ten years. All other covered components have a limited warranty for five years. Refer to Lennox Equipment Limited Warranty furnished with the equipment for details.

Copeland® Compliant Scroll Compressor — High efficiency compressor features durability, steady uniform suction flow, constant discharge flow, high volumetric efficiency, quiet operation and the ability to start under any system load. Use of the scroll compressor eliminates the need for accumulator, start capacitor and start relay. The compliant scroll type compressor is a simple compression concept design consisting of two involute spiral coils matched together to create a series of crescent-shaped gas pockets between them. During compression, one scroll remains stationary while the other is allowed to orbit, not rotate, around the fixed one. As this motion occurs, gas is drawn into the outer pocket sealing off the open passage. As the spiral movement continues, the pockets between the scrolls are pushed to the center of the scrolls while simultaneously being reduced in volume. When the pocket reaches the center, the gas is now at high pressure and is forced out of a port located in the center of the fixed scroll. During compression, several pockets are being compressed simultaneously resulting in a smooth nearly continuous compression cycle. Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency. The scroll compressor is tolerant to the effects of liquid slugging and contaminants. Should this occur, the scrolls separate and allow the liquid or contaminants to be worked to the center and discharged. Low gas pulses during compression minimize operational sound level. Motor is inherently protected from excessive current and temperature. Compressor has a belly-band type crankcase heater. Compressor is installed on resilient rubber mounts, assuring vibration free operation.



Cabinet — Cabinet is constructed of heavy gauge galvanized steel and completely insulated with thick fiberglass insulation. Prepainted steel cabinets have an outside paint finish of mildly textured enamel with a primer coat on all unpainted inside surfaces. Large removable cabinet panels allow service access. Supply and return air openings have flanges for ease of duct connection. Control box with factory installed controls is conveniently located for service access. Electrical inlets are furnished for entry into the cabinet. Indoor coil drain pan is constructed of corrosion resistant painted galvanized steel and is equipped with a galvanized pipe (mpt) drain outlet. Coil guards are furnished on all models. Lifting brackets are factory installed on CHP20R models and may be ordered extra for CHP20H models.

Refrigeration System — Complete factory sealed refrigeration system consists of: compressor, outdoor coil and fan, indoor coil and blower, high pressure switch (manual reset), reversing valve, suction and liquid line service gauge ports and full operating charge of refrigerant. CHP20R-511 & -651 models have a check and expansion valve and thermometer well.

Defrost Control — A solid state clock timer defrost control provides a defrost cycle, if needed, every 30 or 60 or 90 minutes (adjustable) of compressor "on" time at outdoor temperature below 45°F. A thermostat mounted on the outdoor coil determines when the defrost cycle is required and also when to terminate a cycle.

Outdoor Coil Fan — Direct drive fan draws air through the outdoor coil and discharges it vertically, up and away from the building. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air movement through the coil results in high refrigerant cooling capacity. Permanently lubricated, inherently protected, PSC motor is totally enclosed for maximum protection from rain, dust and corrosion. All models are equipped with a corrosion resistant PVC coated steel wire fan guard.

Copper Tube/Enhanced Fin Indoor and Outdoor Coils — Extra large surface area and circuiting of Lennox designed coils provide maximum cooling efficiency, excellent heat transfer and low air resistance. Coils are constructed of precisely spaced ripple-edged aluminum fins fitted to durable copper tubes. Fins are equipped with collars that grip tubing for maximum contact area. Lanced fins provide maximum exposure of fin surface to air stream. Flared shoulder tubing connections and silver soldering provide tight, leakproof joints. Long life copper tubing is easy to field service. Coil is thoroughly factory tested under high pressure to insure leakproof construction. Indoor coils feature rifled copper tubing for superior refrigerant flow resulting in maximum heat transfer.

Blower — Units are equipped with direct drive centrifugal blower precisely matched to the unit for maximum efficiency and minimum noise level. Blower is statically and dynamically balanced as an assembly before being installed in the unit. Multiple speed permanent split capacitor (PSC) motor is resiliently mounted. A choice of blower speeds is available, see blower performance tables. Change in blower speed is easily accomplished by a simple field change in wiring.

Air Filters (Not Furnished) — Filters for basic unit only applications must be provided by the installer for installation in the return air system exterior to the unit cabinet. Optional DF16 Down-Flow Filter Adaptor is available for CHP20R models.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Thermostat (Optional) — Thermostat is not furnished. Units require a standard heat pump thermostat. See Thermostats bulletin in Thermostat & Controls section and Lennox Price Book.

Low Ambient Kit (Optional) — Units will operate satisfactorily in the cooling mode down to 45°F (7°C) outdoor air temperature without any additional controls. For cases where operation of the unit in the cooling mode is required at low ambients, a Low Ambient Control Kit LB-57113BM (27J00) (R models only) or LB-57113BF (71H34) (H models only) can be added in the field, enabling it to operate properly down to 30°F (-1°C).

Timed-Off Control (Optional) — Timed-off control LB-50709BA (32F21) is available for field installation. Prevents compressor short-cycling and also 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.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

RMF16 Roof Mounting Frame (Optional) – Roof mounting frame mates to the unit and provides a weather sealed rooftop installation. Shipped knocked down for ease of shipping and handling, it is easily field assembled. A wood nailer strip is secured to the frame sides to facilitate flashing. Design is approved by the National Roofing Contractor's Association. When RMF16 frame is used with CHP20H models, RDE16 Duct Enclosure is required. RMF16-41 may be used with all sizes of CHP20R models with slight unit overhang on the -461, -510 and -650 models. RMF16-65 frame exactly matches the CHP20R-461, -510 and -650 models.

Unit Stand-Off Mounting Kit (Optional) – Field installed kit (**38H18**) elevates horizontal application units above the mounting surface away from damaging moisture. Includes six high impact polystyrene stand-off mounts. Stand-offs are easily attached to unit and mounting surface. See dimension drawings.

Roof Curb Power Entry Kit (Optional) – Field installed kit is available for power entry to the unit through the roof mounting frame. Kit contains 40-inch (1.0 m) length of armored conduit and necessary installing hardware. Knockouts in end of roof mounting frame are provided for ease of installation. See dimension drawing. Three conduit sizes are available. Order kit No. (**18H70**) 1/2 inch (13 mm), (**18H71**) 1 inch (25 mm) and (**18H72**) 1-1/2 inch (38 mm).

Supplemental Electric Heat (Optional) – Additive electric heaters field install internal to the unit cabinet and are available in several Kw sizes, see Electric Heat Data tables. Heaters are factory assembled with controls installed and wired. Low voltage wiring only requires plug-in field connection. Helix wound nichrome heating elements are exposed directly in the air stream resulting in instant heat transfer, low element temperatures and long service life.

ECH16R heating elements are equipped with accurately located individual limit controls with fixed temperature off setting and automatic reset. Elements also have supplemental thermal cutoff safety fuses providing positive protection in case of excessive temperatures. Cutoff fuses are mounted external to the element face plate for quick and easy replacement. Heaters are also equipped with a thermal relay sequencer to bring the elements on and off line, in sequence, with a time delay between each element. Sequencer also initiates and terminates blower operation.

ECH16 heating elements are equipped with accurately located individual limit controls with fixed temperature off setting and automatic reset. Elements also have supplemental secondary limits providing positive protection in case of excessive temperatures. Secondary limits are mounted external to the element face plate for quick and easy replacement. Fuse block is also furnished. Heating control relay(s) is furnished as standard. Heater control box and access cover are constructed of heavy gauge galvanized steel.

Electric Heat Single Point Power Source Sub-Fuse Box (Optional) – Available for use with ECH16R electric heaters. Used in conjunction with ECH16 fuse box for single point power source applications. Field installs internal to the unit cabinet. Fuses are furnished with box. Box is constructed of galvanized steel with prepunched mounting holes and electrical inlet and outlet holes. Box cover is hinged for easy access. Shipping weight 4 lbs. (2 kg) See Electric Heat Data tables for usage.

Unit Single Point Power Source Sub-Fuse Box (Optional) – Field installs internal to the unit cabinet. Provides sub-fusing to the unit. Used in conjunction with the ECH16 electric heat control box or the ECH16R electric heat single point power source sub-fuse box, for single point power source applications. Fuses are furnished with box. Constructed of galvanized steel with prepunched mounting holes and electrical inlet and outlet holes. Box cover is hinged for easy access. Shipping weight 5 lbs. (2 kg) See Electric Heat Data tables for usage.

Outdoor Thermostat Kit (Optional) – An outdoor thermostat can be used to lock out some of the electric heating elements on ECH16-15, 20 and 25 Kw (208/240v-1ph) optional electric heaters. Outdoor thermostat maintains the heating load on the low power input as long as possible before allowing the full power load to come on the line. Thermostat kit LB-29740BA (**56A87**) and mounting box M-1595 (**31461**).

RTD9-65 Combination Ceiling Supply and Return Diffuser (Optional) – RTD9-65 step-down mount diffuser (**27G87**) extends slightly below ceiling level when installed and discharges conditioned air out through grilles on all four sides. Aluminum grilles are fitted with double deflection louvers for precise directional control of air flow. Return air enters through the large center grille. Assembly also includes insulated diffuser box with connection collars for round duct connection, hanging rings for suspending and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings.

FD9-65 Combination Ceiling Supply and Return Diffuser (Optional) – FD9-65 flush mount diffuser (**27G86**) installs almost flush with the ceiling level and discharges conditioned air out through fixed blade louvers on all four sides. Fixed blade louvers insure that air flow will be evenly distributed. Return air enters through large center grille. Assembly also includes insulated diffuser box with connection collars for round duct connection, support hanger eyelets at the top corners for secure installation and molded fiberglass interior transition to insure low static and even air flow on all four sides. Transition is sealed internally to prevent recirculation. Diffuser assembly is completely factory assembled. Diffuser readily adapts to T-bar ceiling grids and plaster ceilings.

SRTH16 and SRT16 Supply and Return Transitions (Optional) – Transitions field install in the roof mounting frame and provide segregated and simple duct connections to supply and return diffuser. Completely insulated galvanized steel transitions have collars for round duct connection. Round duct from the transitions to the diffuser is not furnished and must be provided by the installer. Transitions are completely factory assembled and easily field install in the roof mounting frame with minimum costs and labor requirement.

OPTIONAL ACCESSORIES (CHP20H Models)

Lifting Lug Kit (Optional for CHP20H Models Only) – Field installed kit LB-62125DB (**44H92**) facilitates handling and rigging of units. Reusable heavy gauge steel lifting lugs (4) are easily and quickly secured to unit by means of a sliding steel pin. See dimension drawings for locations.

RDE16-31 Duct Enclosure (Optional for CHP20H Models Only) – The duct enclosure mounts to the CHP20H unit and the RMF16-31 roof mount frame. Included with the duct enclosure is a unit mounting platform that mounts on top of the roof frame. Heavy gauge steel platform has support rails that elevate unit off the mounting surface. Duct enclosure is completely insulated with thick fiberglass insulation, has a baked-on enamel paint finish and is shipped factory assembled. Supply and return air openings are located in the bottom of the enclosure. Minimum outdoor air damper allows a fixed amount (0-25%) of outdoor air into the system. A one-inch (25 mm) thick frame type disposable filter is furnished in the enclosure. Filter rack will accept up to two inch (51 mm) thick filter. Access panel allows easy access to air filter.

OPTIONAL ACCESSORIES (CHP20R Models)

DF16 Down-Flow Filter Adaptor Kit (Optional for CHP20R Models Only) – Heavy gauge steel filter rails field install on down-flow return air opening. One-inch (25 mm) thick polyurethane cleanable frame type filter is furnished as standard. Filter rails are designed to accept up to two-inch (51 mm) thick filter. See Air Resistance table, page 13 for resistance data of two-inch (51 mm) pleated non-woven cotton fabric or two-inch (51 mm) fiberglass media filter. Filter access is accomplished by removing unit blower access panel. See Optional Accessories table for filter size.

SPECIFICATIONS

Model No.		CHP20H-261	CHP20H-311	CHP20R-411	CHP20R-461	CHP20R-511	CHP20R-651	
★ARI Cooling Ratings	Cooling Capacity – Btuh (kW)	23,200 (6.8)	28,200 (8.3)	33,600 (9.8)	43,000 (12.6)	46,500 (13.6)	59,000 (17.3)	
	Total unit watts	2290	2885	3535	4105	4875	6325	
	SEER (Btuh/Watts)	11.50	11.05	11.05	12.05	11.00	11.05	
	EER (Btuh/Watts)	10.2	9.8	9.5	10.5	9.5	9.4	
★ARI Certified High Temperature Heating Ratings	Total Capacity – Btuh (kW)	23,000 (6.7)	28,200 (8.3)	34,200 (10.0)	41,500 (12.2)	48,500 (14.2)	62,500 (18.3)	
	Total unit watts	2010	2495	3000	3880	4695	6180	
	C.O.P	3.36	3.36	3.34	3.20	3.04	2.98	
	HSPF – Region IV	7.35	7.25	7.35	7.90	7.55	6.85	
★ARI Certified Low Temperature Heating Ratings	Total Capacity – Btuh (kW)	13,800 (4.0)	17,400 (5.1)	21,400 (6.3)	26,200 (7.7)	31,600 (9.3)	38,600 (11.3)	
	Total unit watts	1840	2245	2725	3515	4225	5425	
	C.O.P	2.20	2.26	2.30	2.26	2.20	2.10	
*Sound Rating Number (db)		80			82		84	
Refrigerant Charge (HCFC-22)		4 lbs. 8 oz. (2.0 kg)	5 lbs. 0 oz. (2.28 kg)	6 lbs. 2 oz. (2.92 kg)	9 lbs. 12 oz. (4.42 kg)	10 lbs. 8 oz. (4.76 kg)	10 lbs. 5 oz. (4.68 kg)	
Indoor Coil Blower	Blower wheel nominal diameter x width – in. (mm)	9 x 7 (229 x 178)	9 x 8 (229 x 203)	10 x 7 (254 x 178)	10 x 8 (254 x 203)		12 x 8 (305 x 203)	
	Motor output – hp (W)	1/3 (249)			1/2 (373)		3/4 (560)	
Indoor 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) – 3						
	Fins per inch (m)	15 (591)						
Outdoor Coil	Net face area sq. ft. (m ²)	Outer coil	6.8 (0.63)	8.6 (0.80)	14.3 (1.33)			
		Inner coil	6.6 (0.61)	8.3 (0.77)	9.9 (0.92)	13.8 (1.28)		
	Tube diameter – in. (mm) & no. of rows	3/8 (9.5) – 2			3/8 (9.5) – 1.7	3/8 (9.5) – 2		
	Fins per inch (m)	20 (787)						
Outdoor Coil Fan	Diameter – in. (mm) & No. of blades		18 (457) – 4		20 (508) – 4		24 (610) – 4	
	Air Volume – cfm (L/s)		1900 (900)		2200 (1040)	3600 (1700)	3600 (1700)	4000 (1890)
	Motor output – hp (W)		1/6 (124)			1/4 (187)		
	Motor watts		180	190	220	340		430
Condensate drain size mpt – in. (mm)		3/4 (19)						
Net weight of basic unit – lbs. (kg)		238 (108)	275 (125)	368 (167)	455 (206)	470 (213)	521 (236)	
Shipping weight of basic unit – lbs. (kg)		298 (135)	338 (153)	419 (190)	565 (256)	593 (269)	601 (273)	
Electrical characteristics		208/230v – 60 hertz – 1 phase						

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

★Rated in accordance with ARI Standard 210/240.

Cooling Ratings— 95°F (35°C) outdoor air temperature and 80°F (27°C) db/67°F (19.5°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.

OPTIONAL ACCESSORIES (Must Be Ordered Extra)

Unit Model Number		CHP20H-261	CHP20H-311	CHP20R-411	CHP20R-461	CHP20R-511	CHP20R-651	
Electric Heat Model No. and Ratings	ECH16R-5 ECH16-5	Output Btuh	19,000 (5.6)			----		
		☆A.F.U.E.	99.0%			----		
	ECH16R-7 ECH16-7	Output Btuh	26,000 (7.6)	27,000	26,000 (7.6)	27,000 (7.9)		
		☆A.F.U.E.	99.0%					
	ECH16R-10 ECH16-10	Output Btuh	36,000 (10.5)	37,000 (10.8)	36,000 (10.5)	37,000 (10.8)		
		☆A.F.U.E.	99.0%					
	ECH16-15	Output Btuh	53,000 (15.6)	54,000 (15.8)	53,000 (15.6)	54,000 (15.8)		
		☆A.F.U.E.	99.0%					
	ECH16-20	Output Btuh	----		70,000 (20.5)	71,000 (20.8)		
		☆A.F.U.E.	----		99.0%			
	ECH16-25	Output Btuh	----			88,000 (25.8)		
		☆A.F.U.E.	----			99.0%		
Outdoor Thermostat Kit		Thermostat Kit	LB-29740BA (56A87)					
		Mounting Box	M-1595 (31461)					
Stand-off Mounting Kit		(38H18) contains six stand-offs						
Roof Mounting Frame – (Net Weight)		RMF16-31 (78 lbs.) (35 kg)	RMF16-41 (75 lbs.) (34 kg)	RMF16-41 (75 lbs.) (34 kg) or RMF16-65 (86 lbs.) (39 kg)				
Roof Curb Power Entry (conduit size)		1/2 in. (38 mm) (18H70) 1 in. (25 mm) (18H71) 1-1/2 in. (38 mm) (18H72)						
Lifting Lug Kit		LB-62125DB (44H92)			Furnished			
Down-Flow Filter Adaptor Kit	Model No.	----		DF16-41	DF16-65			
	‡No. & size of filters (in.)	----		(1) 16 x 25 x 1 (406 x 635 x 25)	(1) 20 x 25 x 1 (508 x 635 x 25)			
Duct Enclosure (Net Weight) Number and size of filters (in.)		RDE16-31 (94 lbs.) (43 kg) (1) 20 x 20 x 1 (fiberglass)	----		----			
Ceiling Supply and Return Air Diffusers – (Net Weight)	Step-down	RTD9-65 (67 lbs.) (30 kg)						
	Flush	FD9-65 (37 lbs.) (17 kg)						
	Transition	SRT16-65 (20 lbs.) (9 kg)			SRT16-65 (20 lbs.) (9 kg)			
Low Ambient Control Kit		LB-57113BF (71H34)			LB-57113BM (27J00)			
Timed-Off Control		LB-50709BA (32F21)						

☆Annual Fuel Utilization Efficiency based on DOE test procedures and FTC labeling regulations.

ELECTRICAL DATA

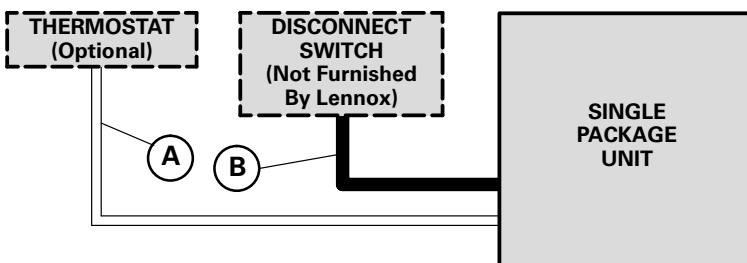
Model No.		CHP20H-261	CHP20H-311	CHP20R-411	CHP20R-461	CHP20R-511	CHP20R-651
Line voltage data – 60 Hz – 1 phase		208/230v					
Compressors	Rated load amps	12.2	13.5	16.1	18	23.7	28.8
	Locked rotor amps	61	72.5	88	106	129	169
Outdoor Coil Fan Motor	Full load amps	.90		1.1	2.3		
	Locked rotor amps	1.5		2.2	4.4	4.8	
Indoor Coil Blower Motor	Full load amps	2.1		3.0	3.9	4.6	
	Locked rotor amps	4.6		6.2	8.3	10.0	
▶ Recommended maximum fuse size (amps)		25	30	40	50	60	70
† Minimum Circuit Ampacity		18	20	25	32	36	43
Unit Power Factor		.97	.95	.95	.89	.91	.99

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

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

NOTE – Extremes of operating range are plus and minus 10% of line voltage

FIELD WIRING



- A – Five Wire Low Voltage (Electro-mechanical)
- Six Wire Low Voltage (Electronic)
- B – Two Wire Power (See Electrical Data Table)

– Field Wiring Not Furnished –

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

ELECTRIC HEAT DATA – CHP20H-261 & -311 and CHP20R-411

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		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP20H-261	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-261 (31H10)	40.0
			220	23.9	4.2	14,300			41.4
			230	24.9	4.6	15,700			42.4
			240	26.0	5.0	17,100			43.5
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		49.1
			220	33.5	5.9	20,100			51.0
			230	35.0	6.4	21,800			52.5
			240	36.5	7.0	23,900			54.0
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		62.6
			220	47.8	8.4	28,700			65.3
			230	50.0	9.2	31,400			67.5
			240	52.1	10.0	34,100			69.6
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		85.3
			220	71.6	12.6	43,000			89.1
			230	74.9	13.8	47,100			92.4
			240	78.1	15.0	51,200			95.6
CHP20H-311	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-311 (31H11)	42.4
			220	23.9	4.2	14,300			43.8
			230	24.9	4.6	15,700			44.8
			240	26.0	5.0	17,100			45.9
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		51.5
			220	33.5	5.9	20,100			53.4
			230	35.0	6.4	21,800			54.9
			240	36.5	7.0	23,900			56.4
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		65.0
			220	47.8	8.4	28,700			67.7
			230	50.0	9.2	31,400			69.9
			240	52.1	10.0	34,100			72.0
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		87.7
			220	71.6	12.6	43,000			91.5
			230	74.9	13.8	47,100			94.8
			240	78.1	15.0	51,200			98.0
CHP20R-411	ECH16R-5 (31H46) (4 lbs.)	1 step (1 phase)	208	22.5	3.7	12,600	ECH16R-26/41-5 (31H26)	ECH16-411 (31H12)	46.9
			220	23.9	4.2	14,300			48.1
			230	24.9	4.6	15,700			49.2
			240	26.0	5.0	17,100			50.2
	ECH16R-7 (31H47) (5 lbs.)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)		55.9
			220	33.5	5.9	20,100			57.7
			230	35.0	6.4	21,800			59.2
			240	36.5	7.0	23,900			60.7
	ECH16R-10 (31H48) (5 lbs.)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		69.4
			220	47.8	8.4	28,700			72.0
			230	50.0	9.2	31,400			74.2
			240	52.1	10.0	34,100			76.4
	ECH16-15 (31H27) (18 lbs.)	1 step (1 phase)	208	67.8	11.3	38,600	----		92.0
			220	71.6	12.6	43,000			95.9
			230	74.9	13.8	47,100			99.2
			240	78.1	15.0	51,200			102.4
ECH16-20 (31H28) (19 lbs.)	1 step (1 phase)	208	90.3	15.0	51,200	----	114.5		
		220	95.5	16.8	57,300		119.7		
		230	99.8	18.4	62,800		124.1		
		240	104.1	20.0	68,300		128.4		

*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 — CHP20R-461-511-651

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		
							Heater Sub-Fuse Box	Unit Sub-Fuse Box	Total Unit & Electric Heat *Minimum Circuit Ampacity
CHP20R-461	ECH16R-7 (31H47) (5 lbs.) (2kg)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)	ECH16-511 (31H13)	62.7
			220	33.5	5.9	20,100			64.5
			230	35.0	6.4	21,800			66.1
			240	36.5	7.0	23,900			67.6
	ECH16R-10 (31H48) (5 lbs.) (2kg)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		76.2
			220	47.8	8.4	28,700			78.8
			230	50.0	9.2	31,400			81.0
			240	52.1	10.0	34,100			83.2
	ECH16-15 (31H27) (18 lbs.) (8kg)	1 step (1 phase)	208	67.8	11.3	38,600	----		98.8
			220	71.6	12.6	43,000			102.7
			230	74.9	13.8	47,100			106.0
			240	78.1	15.0	51,200			109.2
	ECH16-20 (31H28) (19 lbs.) (9kg)	1 step (1 phase)	208	90.3	15.0	51,200	----		121.3
			220	95.5	16.8	57,300			126.5
			230	99.8	18.4	62,800			130.9
			240	104.1	20.0	68,300			135.2
	ECH16-25 (31H29) (19 lbs.) (9kg)	1 step (1 phase)	208	112.9	18.8	64,200	----		144.0
			220	119.4	21.0	71,700			150.5
			230	124.9	23.0	78,500			155.9
			240	130.3	25.0	85,300			161.3
CHP20R-511	ECH16R-7 (31H47) (5 lbs.) (2kg)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)	ECH16-511 (31H13)	67.5
			220	33.5	5.9	20,100			69.3
			230	35.0	6.4	21,800			70.8
			240	36.5	7.0	23,900			72.3
	ECH16R-10 (31H48) (5 lbs.) (2kg)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		81.0
			220	47.8	8.4	28,700			83.6
			230	50.0	9.2	31,400			85.8
			240	52.1	10.0	34,100			88.0
	ECH16-15 (31H27) (18 lbs.) (8kg)	1 step (1 phase)	208	67.8	11.3	38,600	----		103.6
			220	71.6	12.6	43,000			107.5
			230	74.9	13.8	47,100			110.8
			240	78.1	15.0	51,200			114.0
	ECH16-20 (31H28) (19 lbs.) (9kg)	1 step (1 phase)	208	90.3	15.0	51,200	----		126.1
			220	95.5	16.8	57,300			131.3
			230	99.8	18.4	62,800			135.7
			240	104.1	20.0	68,300			140.0
	ECH16-25 (31H29) (19 lbs.) (9kg)	1 step (1 phase)	208	112.9	18.8	64,200	----		148.7
			220	119.4	21.0	71,700			155.2
			230	124.9	23.0	78,500			160.7
			240	130.3	25.0	85,300			166.1
CHP20R-651	ECH16R-7 (31H47) (5 lbs.) (2kg)	1 step (1 phase)	208	31.6	5.3	18,100	ECH16R-26/65-7 (31H25)	ECH16-651 (31H14)	74.5
			220	33.5	5.9	20,100			76.3
			230	35.0	6.4	21,800			77.9
			240	36.5	7.0	23,900			79.4
	ECH16R-10 (31H48) (5 lbs.) (2kg)	1 step (1 phase)	208	45.1	7.5	25,600	ECH16R-26/65-10 (31H24)		88.0
			220	47.8	8.4	28,700			90.6
			230	50.0	9.2	31,400			92.8
			240	52.1	10.0	34,100			95.0
	ECH16-15 (31H27) (18 lbs.) (8kg)	1 step (1 phase)	208	67.8	11.3	38,600	----		110.7
			220	71.6	12.6	43,000			114.6
			230	74.9	13.8	47,100			117.8
			240	78.1	15.0	51,200			121.0
	ECH16-20 (31H28) (19 lbs.) (9kg)	1 step (1 phase)	208	90.3	15.0	51,200	----		133.2
			220	95.5	16.8	57,300			138.4
			230	99.8	18.4	62,800			142.7
			240	104.1	20.0	68,300			147.0
	ECH16-25 (31H29) (19 lbs.) (9kg)	1 step (1 phase)	208	112.9	18.8	64,200	----		155.8
			220	119.4	21.0	71,700			162.3
			230	124.9	23.0	78,500			167.8
			240	130.3	25.0	85,300			173.2

*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

CHP20H-261 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	1235	585	990	465	860	405	685	325
.05	12	1210	570	975	460	855	405	680	320
.10	25	1180	555	955	450	845	400	675	320
.15	37	1155	545	940	445	840	395	670	315
.20	50	1130	535	920	435	830	390	665	315
.25	62	1105	520	900	425	825	390	660	310
.30	75	1075	505	880	415	815	385	655	310
.40	100	1010	475	840	395	785	370	640	300
.50	125	940	445	790	375	740	350	610	290
.60	150	860	405	730	345	665	315	535	255
.70	175	770	365	660	310	580	275	415	195
.75	185	720	340	620	290	535	250	330	155

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

NOTE – For 208v applications, derate air volume by 7%.

CHP20H-311 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	1500	710	1060	500	895	420	720	340
.05	12	1450	685	1045	495	890	420	715	340
.10	25	1400	660	1030	485	880	415	710	335
.15	37	1360	640	1020	480	870	410	705	335
.20	50	1320	625	1010	475	865	410	705	335
.25	62	1285	605	1000	470	850	400	700	330
.30	75	1250	590	985	465	840	395	695	330
.40	100	1190	560	945	445	810	380	670	315
.50	125	1110	525	900	425	765	360	620	295
.60	150	1040	490	840	395	720	340	565	265
.70	175	980	460	765	360	650	305	505	240
.75	185	955	450	720	340	600	285	460	215

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

NOTE – For 208v applications, derate air volume by 7%.

CHP20R-411 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	390
.30	75	1280	605	1170	552	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 air filter.

NOTE – For 208v applications, derate air volume by 7%.

CHP20R-411 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 air filter.

NOTE – For 208v applications, derate air volume by 7%.

BLOWER DATA

CHP20R-461-511 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 air filter.

NOTE - For 208v applications, derate air volume by 7%.

CHP20R-461-511 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 air filter.

NOTE - For 208v applications, derate air volume by 7%.

CHP20R-651 BLOWER PERFORMANCE @ 230 VOLTS (With Down-Flow Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2450	1155	2200	1040	1990	940	1760	830	1460	690
.05	12	2430	1145	2180	1030	1980	935	1750	825	1470	695
.10	25	2410	1135	2170	1025	1970	930	1740	820	1490	705
.15	37	2390	1130	2160	1020	1960	925	1730	815	1500	710
.20	50	2360	1115	2140	1010	1950	920	1720	810	1490	705
.25	62	2340	1105	2120	1000	1930	910	1710	805	1490	705
.30	75	2320	1095	2100	990	1910	900	1700	800	1480	700
.40	100	2270	1070	2060	970	1880	885	1670	780	1470	695
.50	125	2230	1052	2010	950	1830	865	1640	775	1430	675
.60	150	2170	1025	1930	910	1780	840	1600	755	1390	655
.70	175	2120	1000	1890	890	1730	815	1550	730	1340	630
.75	185	2080	980	1850	875	1700	800	1530	720	1310	620

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

NOTE - For 208v applications, derate air volume by 7%.

CHP20R-651 BLOWER PERFORMANCE @ 230 VOLTS (With Horizontal Air Openings)

External Static Pressure		Air Volume at Various Blower Speeds									
		High		Medium-High		Medium		Medium-Low		Low	
in. w.g.	Pa	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s	cfm	L/s
0	0	2570	1215	2220	1050	2000	945	1780	840	1510	715
.05	12	2560	1210	2210	1045	1990	940	1780	840	1520	715
.10	25	2540	1200	2200	1040	1980	935	1770	835	1530	720
.15	37	2520	1190	2190	1035	1970	930	1770	835	1520	715
.20	50	2500	1180	2180	1030	1960	925	1760	830	1510	715
.25	62	2480	1170	2160	1020	1940	915	1750	825	1510	715
.30	75	2440	1150	2140	1010	1920	905	1740	820	1500	710
.40	100	2390	1130	2100	990	1900	895	1710	805	1470	695
.50	125	2320	1095	2060	970	1860	880	1670	790	1440	680
.60	150	2240	1055	2010	950	1810	855	1630	770	1400	660
.70	175	2160	1020	1950	920	1760	830	1580	745	1350	635
.75	185	2120	1000	1920	905	1720	810	1560	735	1330	630

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

NOTE - For 208v applications, derate air volume by 7%.

ACCESSORY BLOWER DATA

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	
CHP20H-261 CHP20H-311	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)
CHP20R-411	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)
CHP20R-461 CHP20R-511 CHP20R-651	1400	660	.33 (82)	.25 (62)	.19 (47)	.19 (47)
	1600	755	.43 (107)	.32 (80)	.24 (60)	.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)

RTD9-65 STEP-DOWN CEILING DIFFUSER AIR THROW DATA

Grille Vanes	Air Volume		Effective Throw — ft. (m)		
			Horizontal Vanes 180° Straight	Horizontal Vanes 22° Down	Horizontal Vanes 45° Down
	cfm	L/s			
2 Ends Open	600	285	21 (6.5)	20 (6.0)	14 (4.5)
	800	380	22 (6.5)	21 (6.5)	15 (4.5)
	1000	470	24 (7.5)	22 (6.5)	16 (5.0)
	1200	565	25 (7.5)	23 (7.0)	17 (5.0)
	1400	660	27 (8.0)	25 (7.5)	18 (5.5)
	1600	755	29 (9.0)	26 (8.0)	19 (6.0)
	1800	850	31 (9.5)	27 (8.0)	20 (6.0)
	2000	945	33 (10.0)	28 (8.5)	21 (6.5)
	2200	1040	35 (10.5)	30 (9.0)	22 (6.5)
	2400	1135	38 (11.5)	34 (10.5)	23 (7.0)
1 Side 2 Ends Open	600	285	15 (4.5)	14 (4.5)	8 (2.5)
	800	380	16 (5.0)	15 (4.5)	9 (2.5)
	1000	470	17 (5.0)	16 (5.0)	10 (3.0)
	1200	565	18 (5.5)	17 (5.0)	11 (3.5)
	1400	660	19 (6.0)	18 (5.5)	12 (3.5)
	1600	755	20 (6.0)	18 (5.5)	12 (3.5)
	1800	850	21 (6.5)	19 (6.0)	13 (4.0)
	2000	945	23 (7.0)	20 (6.0)	14 (4.5)
All Sides And Ends Open	600	285	11 (3.5)	10 (3.0)	7 (2.0)
	800	380	12 (3.5)	11 (3.5)	8 (2.5)
	1000	470	13 (4.0)	12 (3.5)	8 (2.5)
	1200	565	14 (4.5)	13 (4.0)	9 (2.5)
	1400	660	15 (4.5)	14 (4.5)	9 (2.5)
	1600	755	16 (5.0)	14 (4.5)	10 (3.0)
	1800	850	17 (5.0)	15 (4.5)	10 (3.0)
	2000	945	18 (5.5)	16 (5.0)	11 (3.5)
	2200	1040	19 (6.0)	17 (5.0)	12 (3.5)
	2400	1135	20 (6.0)	18 (5.5)	12 (3.5)

Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft (15m). per minute.

FD9-65 FLUSH CEILING DIFFUSER AIR THROW DATA

Air Volume		Effective Throw — ft. (m)
cfm	L/s	
600	285	7 (2.0)
800	380	8 (2.5)
1000	470	8 (2.5)
1200	565	9 (2.5)
1400	660	9 (2.5)
1600	755	10 (3.0)
1800	850	11 (3.5)
2000	945	12 (3.5)
2200	1040	12 (3.5)
2400	1135	13 (4.0)

Effective throw is determined at a point where conditioned air velocity has decreased to 50 ft. (15m) per minute.

WET INDOOR COIL AIR RESISTANCE

Model No.	Air Volume		Air Resistance	
	cfm	L/s	in. w.g.	Pa
CHP20H-261	600	285	.04	10
	800	380	.05	12
	1000	470	.06	15
CHP20H-311	800	380	.13	32
	1000	470	.14	35
CHP20R-411	1200	565	.15	37
	800	380	.07	17
CHP20R-461 CHP20R-511	1000	470	.08	20
	1200	565	.09	22
	1400	660	.12	30
	1600	755	.13	32
	1800	850	.14	35
CHP20R-651	2000	945	.15	37
	2200	1040	.16	40
	1600	755	.11	27
	1800	850	.12	30
CHP20R-651	2000	945	.13	32
	2200	1040	.14	35

ACCESSORY BLOWER DATA

FILTER AND ACCESSORY AIR RESISTANCE

Unit Model No.	Air Volume		Total Air Resistance — inches water gauge (Pa)			
			RDE16-31 Duct Enclosure With Furnished 1" (25mm) Filter	DF16 Down-Flow Filter Adaptor Kit		
	cfm	L/s		With Furnished 1" (25mm) Filter	With Optional Pleated 2" (51mm) Filter	With Optional Fiberglass 2" (51mm) Filter
CHP20H-261 CHP20H-311	800	380	.11 (27)	-----	-----	-----
	1000	470	.19 (47)	-----	-----	-----
	1200	565	.22 (55)	-----	-----	-----
CHP20R-411	800	380	-----	.15 (37)	.27 (67)	.13 (32)
	1000	470	-----	.18 (45)	.34 (85)	.18 (45)
	1200	565	-----	.21 (52)	.42 (104)	.24 (60)
	1400	660	-----	.25 (62)	.51 (129)	.31 (77)
CHP20R-461 CHP20R-511 CHP20R-651	1400	660	-----	.13 (32)	.29 (72)	.17 (42)
	1600	755	-----	.15 (37)	.35 (87)	.22 (55)
	1800	850	-----	.17 (42)	.42 (104)	.27 (67)
	2000	945	-----	.20 (50)	.49 (122)	.32 (80)
	2200	1040	-----	.23 (57)	.57 (142)	.37 (92)

NOTE — Electric heaters have no appreciable air resistance.

DIMENSIONS — inches (mm)

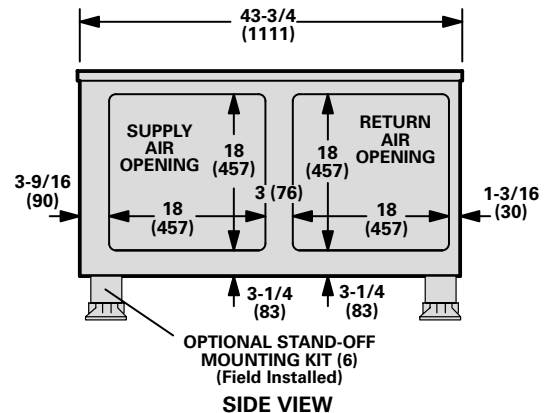
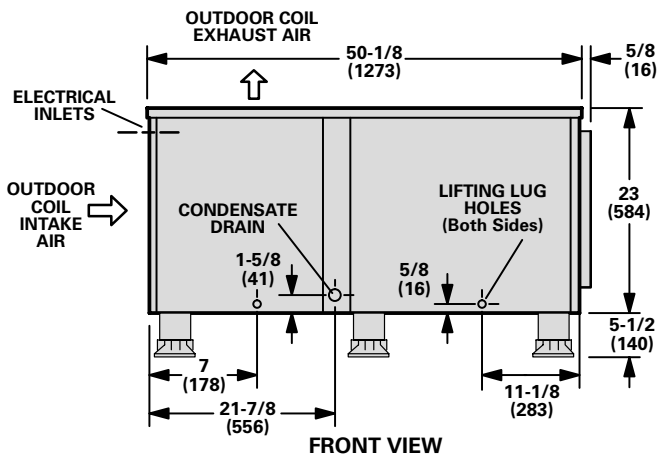
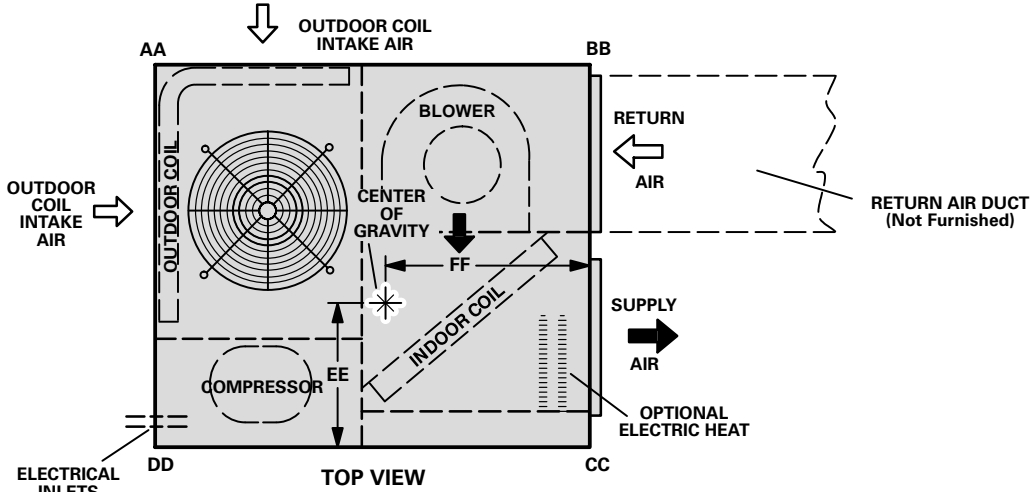
CHP20H-261 AND CHP20H-311 BASIC UNIT

CORNER WEIGHTS — lbs. (kg)

Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP20H-261	53	24	44	20	64	29	77	35
CHP20H-311	58	26	53	24	78	35	87	39

CENTER OF GRAVITY — inches (mm)

Model Number	EE		FF	
	inch	mm	inch	mm
CHP20H-261	17-7/8	454	27-5/16	694
CHP20H-311	17-5/8	448	26-5/16	668



ACCESSORY DIMENSIONS – inches (mm)

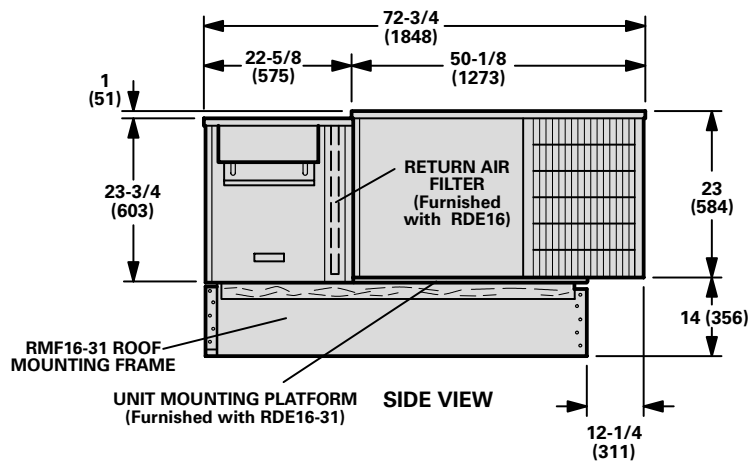
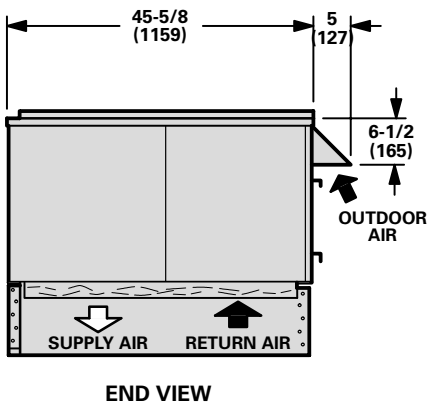
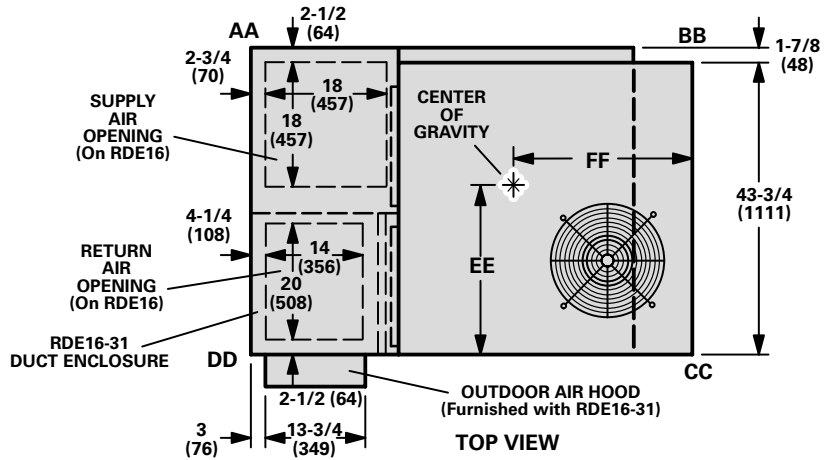
CHP20H-261 & 311 WITH RDE16-31 DUCT ENCLOSURE AND RMF16-31 ROOF MOUNTING FRAME

CORNER WEIGHTS – lbs. (kg)

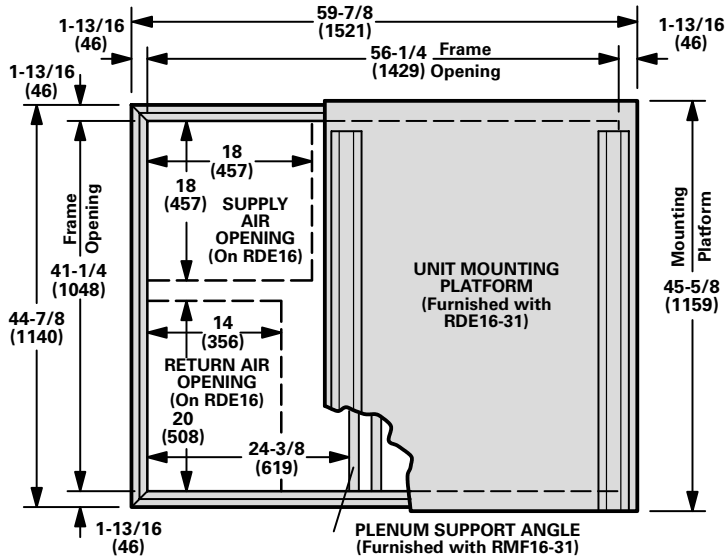
Model Number	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP20H-261	100	45	124	56	104	47	85	39
CHP20H-311	112	51	134	61	111	50	92	42

CENTER OF GRAVITY – inches (mm)

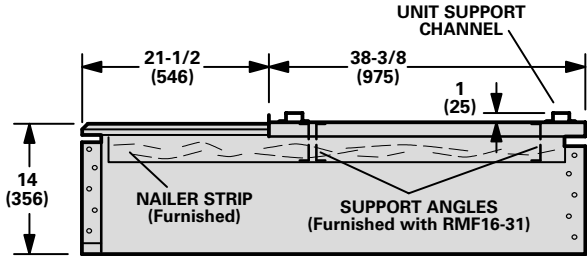
Model Number	EE		FF	
	inch	mm	inch	mm
CHP20H-261	24-3/4	629	32-7/16	824
CHP20H-311	24-15/16	633	33	838



RMF16-31 ROOF MOUNTING FRAME FOR CHP20H WITH RDE16-31 DUCT ENCLOSURE



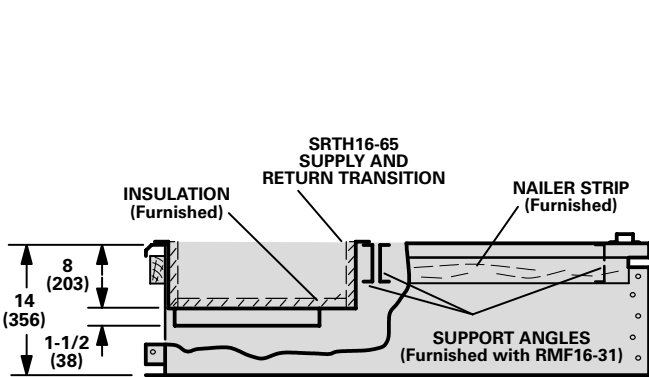
TOP VIEW



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

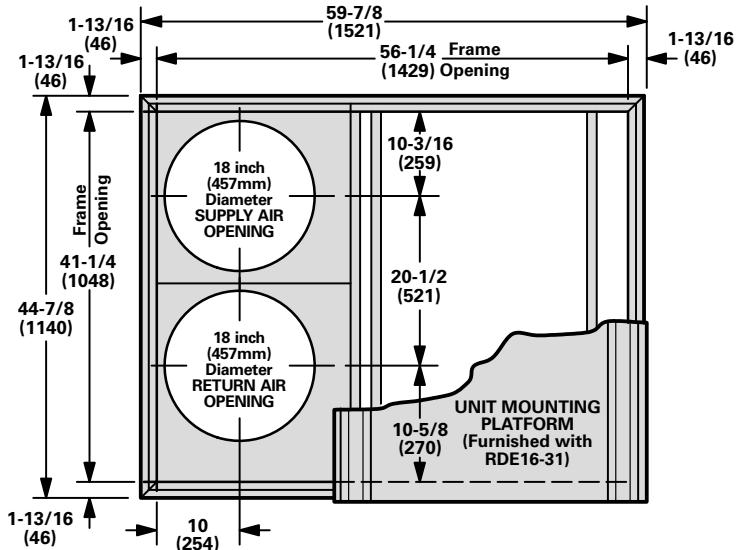
SIDE VIEW

RMF16-31 ROOF MOUNTING FRAME FOR CHP20H UNITS WITH SRTH16-65 SUPPLY AND RETURN AIR TRANSITIONS FOR FD9-65 AND RTD9-65 CEILING DIFFUSERS



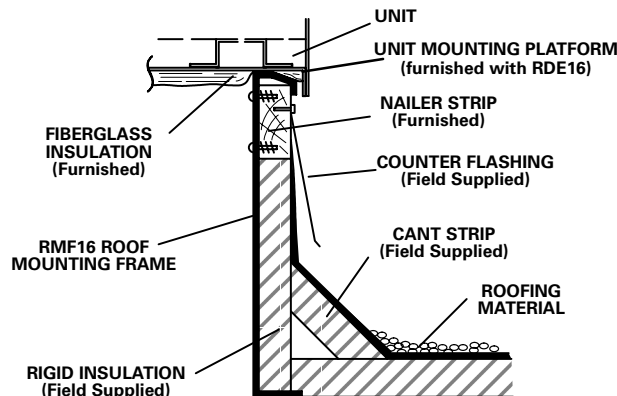
NOTE – Roof deck may be omitted within confines of frame.

SIDE VIEW



TOP VIEW

TYPICAL FLASHING FOR RMF16-31 ROOF MOUNTING FRAMES WITH CHP20H UNITS



UNIT DIMENSIONS – inches (mm)

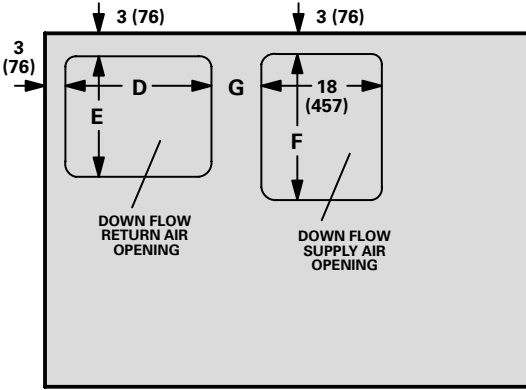
CHP20R BASIC UNIT

CORNER WEIGHTS – lbs. (kg)

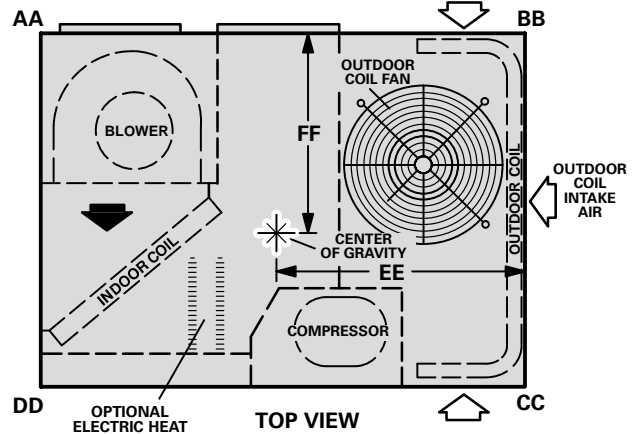
Model No.	AA		BB		CC		DD	
	lbs.	kg	lbs.	kg	lbs.	kg	lbs.	kg
CHP20R411	69	32	74	34	109	49	102	46
CHP20R-461	93	42	93	42	137	62	137	62
CHP20R-511	105	48	111	50	165	75	156	71
CHP20R-651	107	49	113	51	167	76	158	72

CENTER OF GRAVITY – in. (mm)

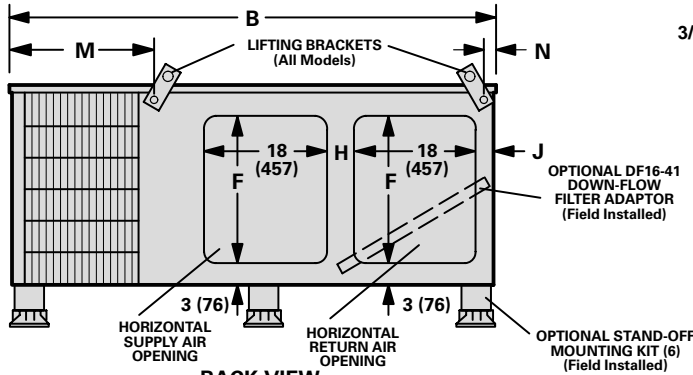
Model No.	EE		FF	
	inch	mm	inch	mm
CHP20R-411	29	737	27-3/8	695
CHP20R-461	36-1/4	921	31-7/16	799
CHP20R-511-651	35-1/4	895	31	787



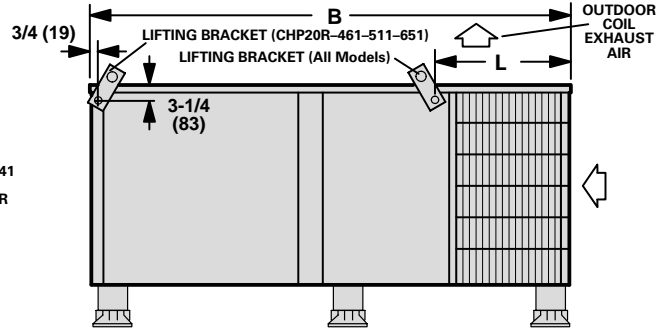
TOP VIEW BASE SECTION



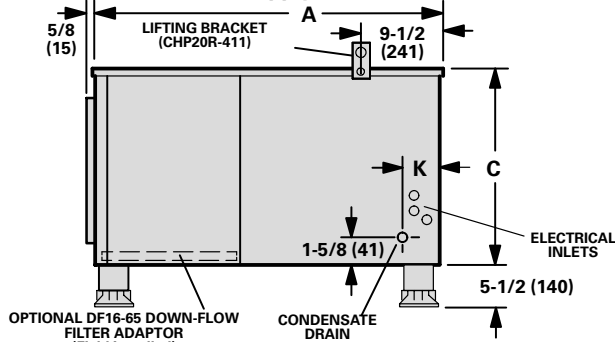
TOP VIEW



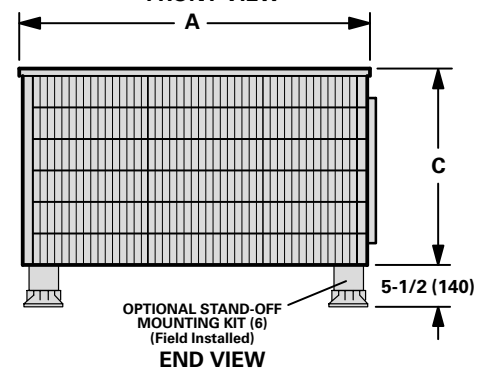
BACK VIEW
(With Horizontal Supply & Return Air)



FRONT VIEW



END VIEW



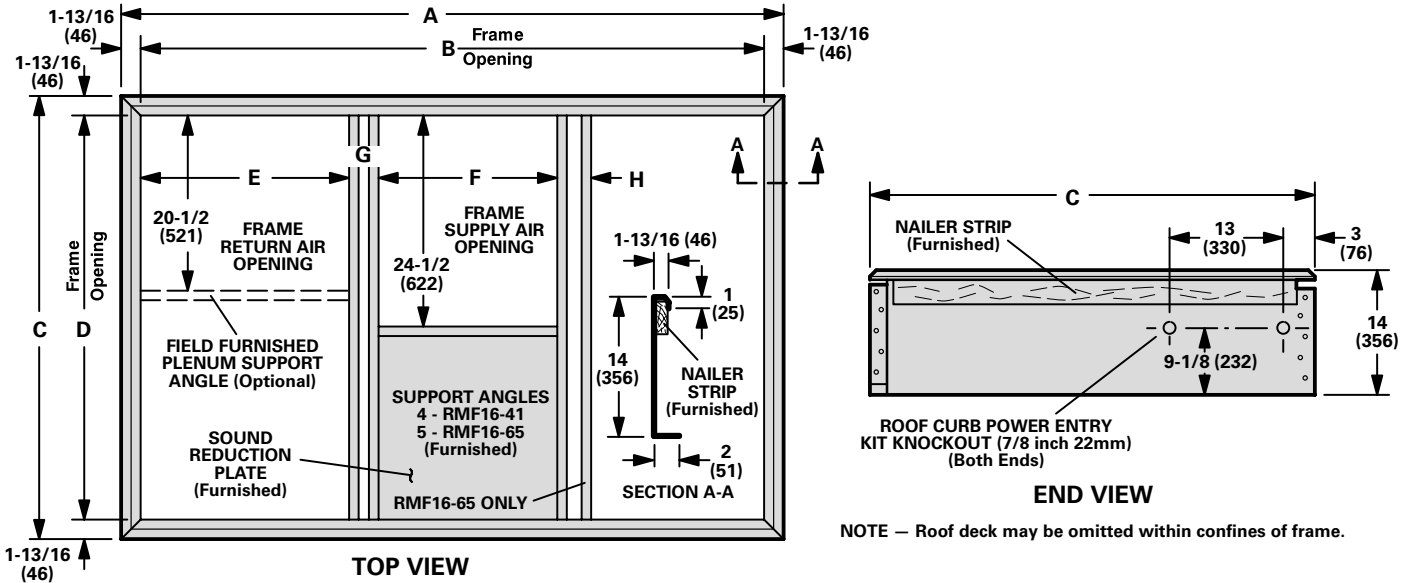
END VIEW

Model No.	A		B		C		D		E		F		G	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP20R-411	46	1168	60	1524	23	584	18	457	13	330	13	330	10	254
CHP20R-461 CHP20R-511-651	52	1321	72-1/2	1842	29	737	22	559	18	457	22	737	7-1/2	191

Model No.	H		J		K		L		M		N	
	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
CHP20R-411	3	76	4	102	6-1/2	165	20	508	16-5/8	422	4	102
CHP20R-461 CHP20R-511-651	5	127	3	76	6-1/8	156	19-3/8	492	19-3/8	492	3/4	19

ACCESSORY DIMENSIONS – inches (mm)

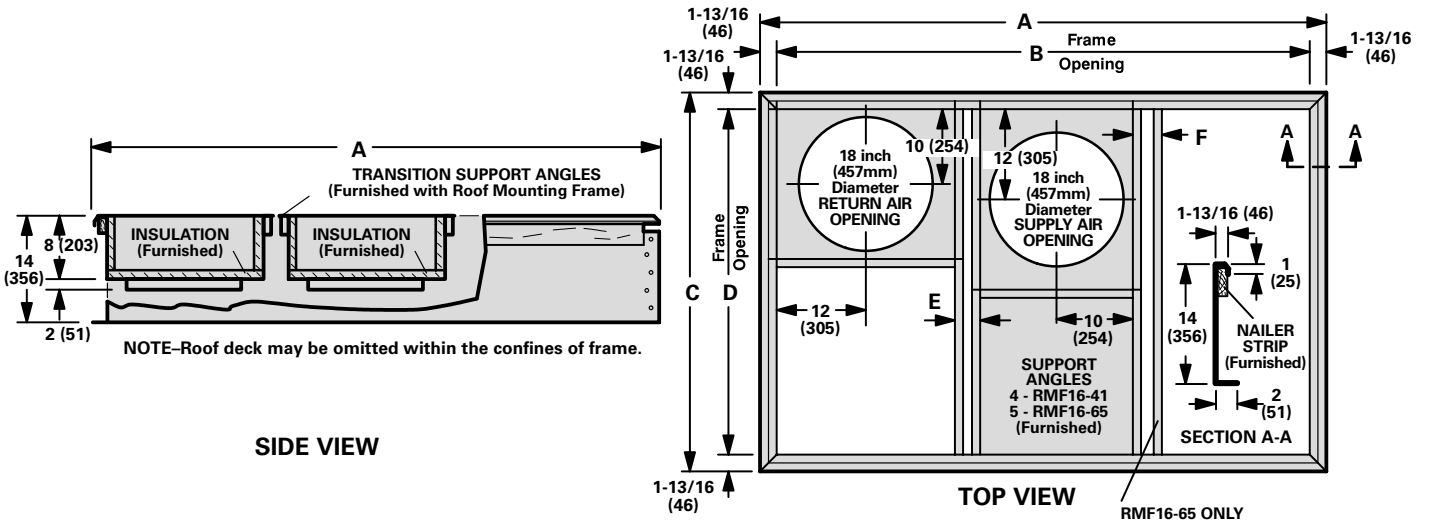
RMF16-41 & 65 ROOF MOUNTING FRAME WITH DOUBLE DUCT OPENING FOR CHP20R UNITS



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	44-7/8	1140	41-1/4	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 (83 mm) for CHP20R-411 model.

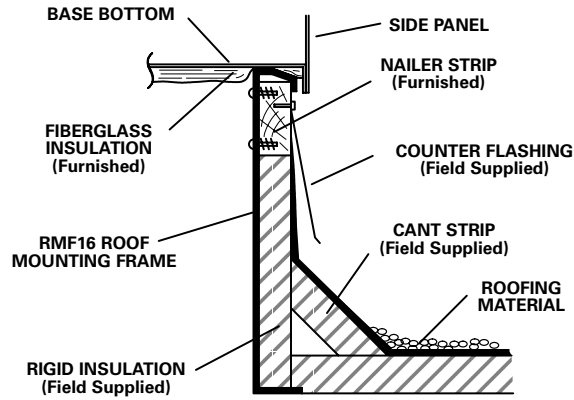
RMF16-41 & 65 ROOF MOUNTING FRAME FOR CHP20R UNITS WITH SRT16-65 SUPPLY AND RETURN AIR TRANSITIONS FOR FD9-65 & RTD9-65 CEILING DIFFUSERS



Model No.	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	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

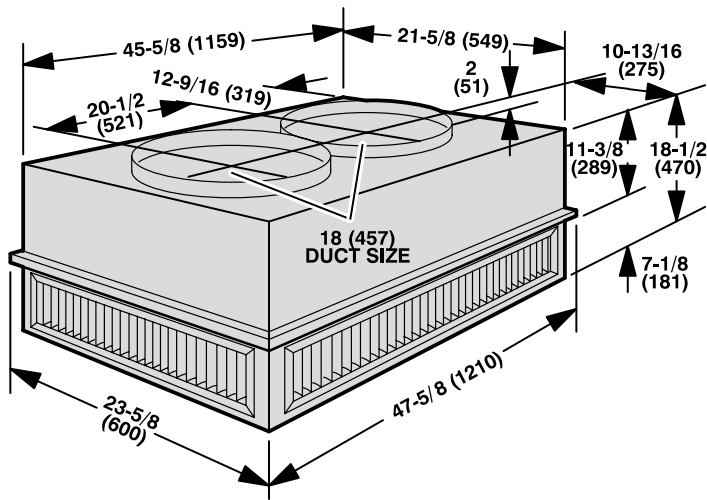
□ 3-1/4 inches (83 mm) for CHP20R-411 model.

**TYPICAL FLASHING FOR RMF16-41 & 65
ROOF MOUNTING FRAMES WITH CHP20R UNITS**

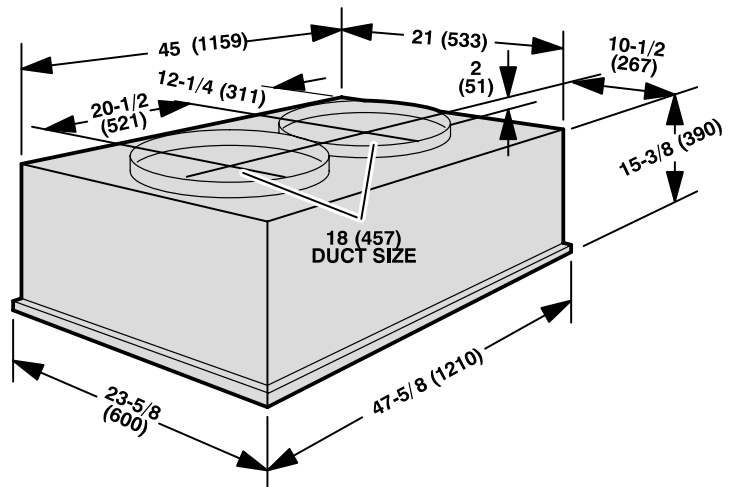


COMBINATION CEILING SUPPLY AND RETURN DIFFUSERS

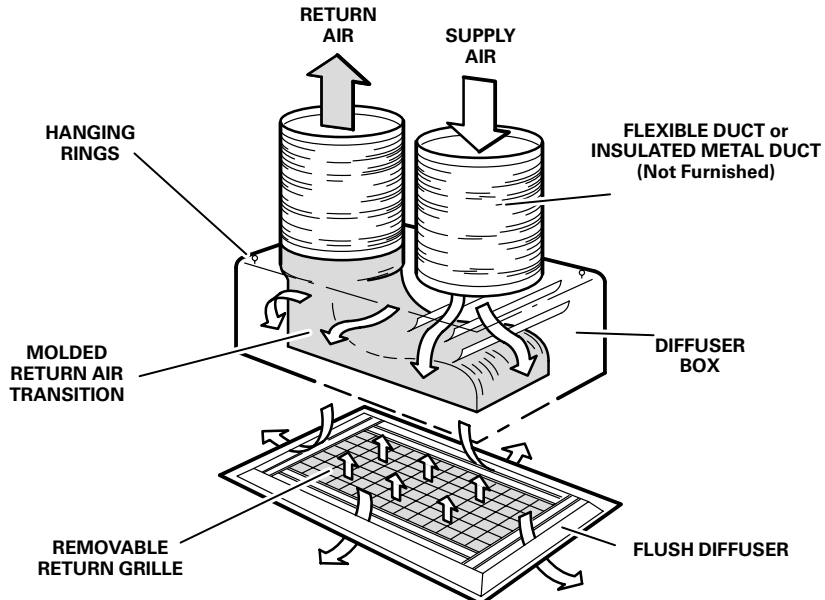
RTD9-65 STEP-DOWN DIFFUSER



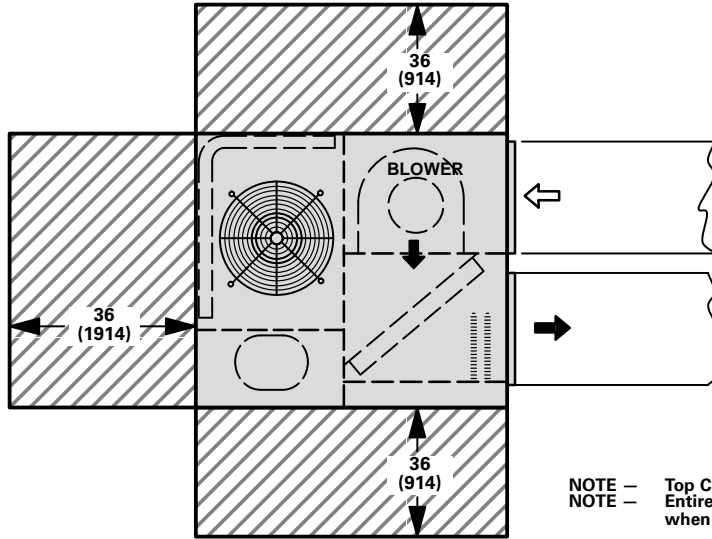
FD9-65 FLUSH DIFFUSER



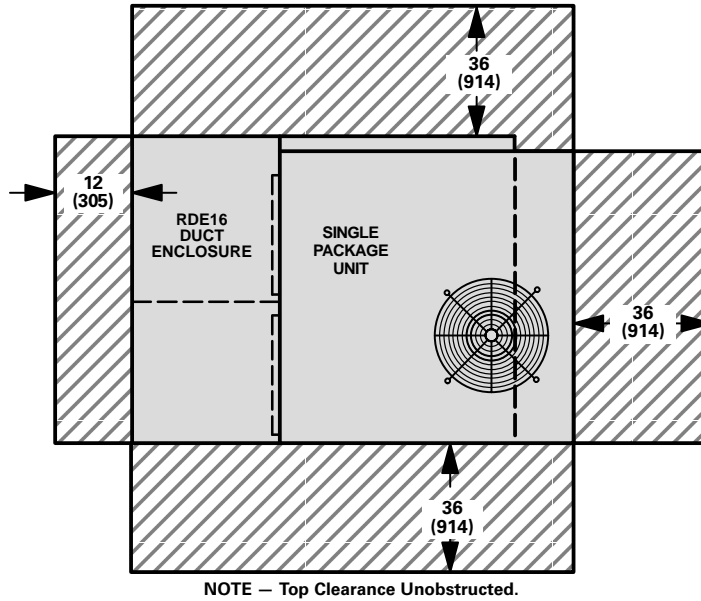
DIFFUSER AIR PATTERN



CHP20H BASIC UNIT



CHP20H UNIT WITH RDE16-31 DUCT ENCLOSURE



CHP20R BASIC UNIT

