



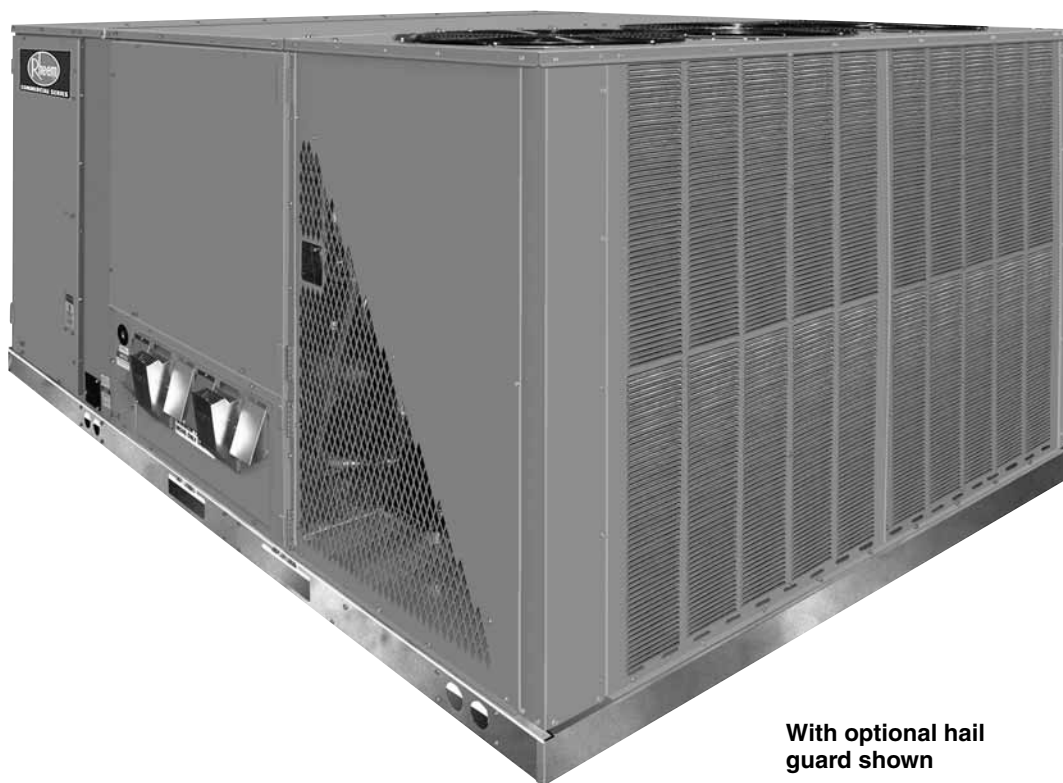
PACKAGE GAS / ELECTRIC ROOFTOP UNITS

FORM NO. R11-848

Featuring Industry Standard R-410A Refrigerant

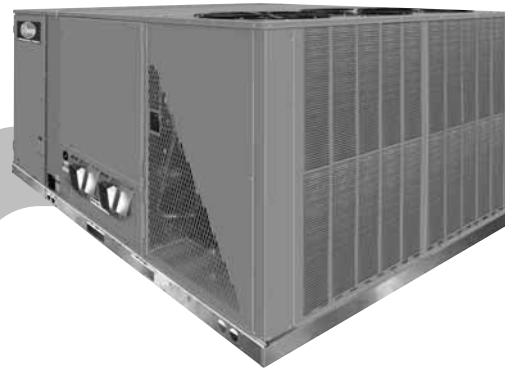
R-410A

RKKL-B STANDARD EFFICIENCY SERIES
NOMINAL SIZES 15 & 20 TONS [52.8 & 70.3 kW]
ASHRAE 90.1-2007 COMPLIANT MODEL



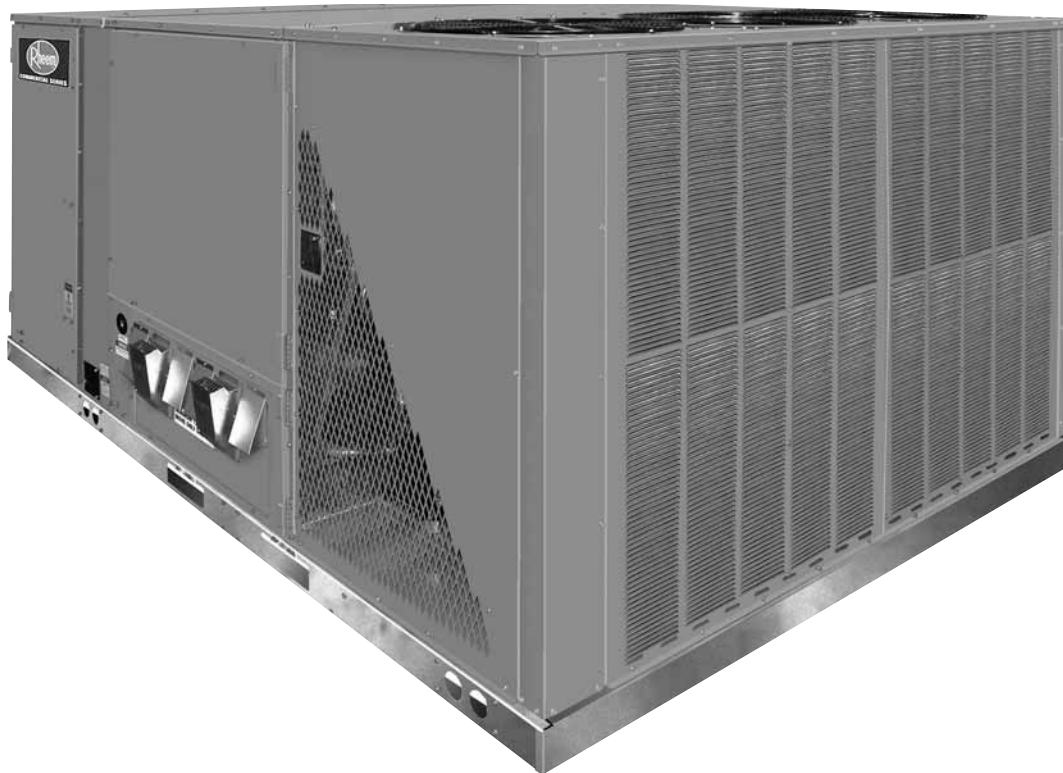
With optional hail guard shown





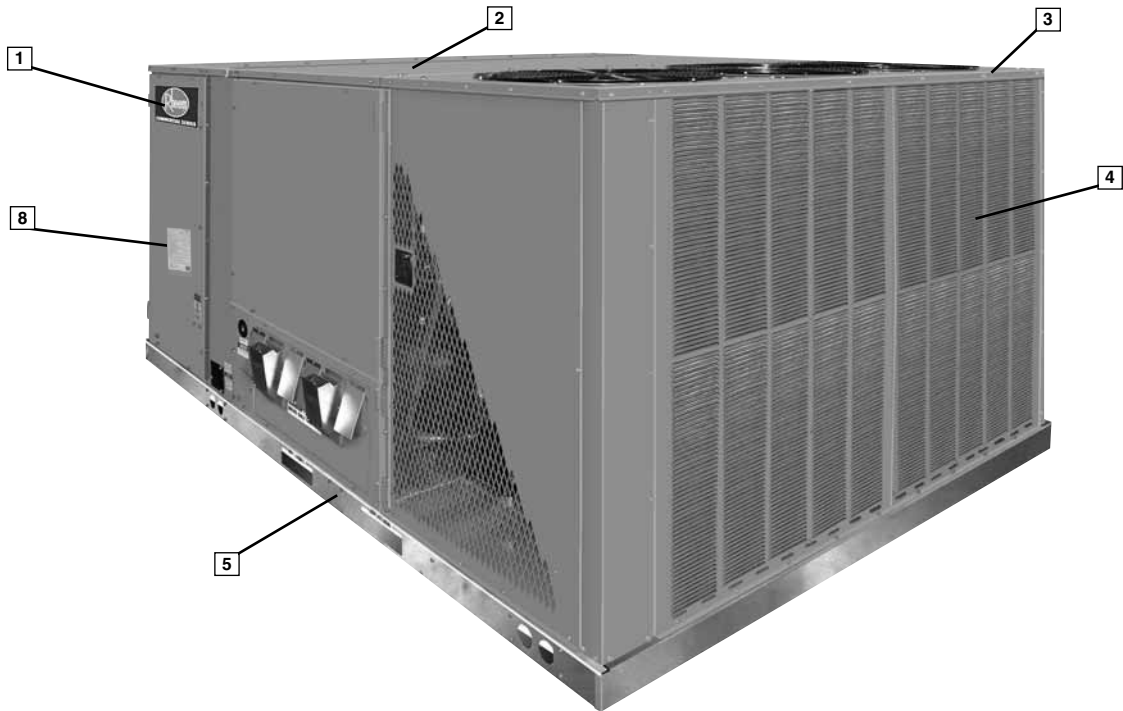
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These quality features are included in the Rheem Package Gas/Electric Unit



STANDARD FEATURES INCLUDE:

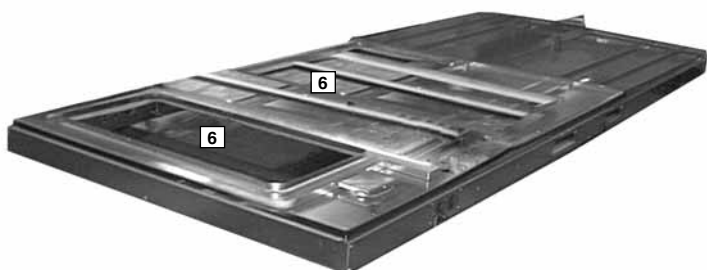
- R-410A HFC refrigerant.
- Complete factory charged, wired and run tested.
- Scroll compressors with internal line break overload and high-pressure protection.
- Two independent refrigerant circuits each with a scroll compressor provide two stage cooling operation.
- Convertible airflow – vertical downflow or horizontal sideflow.
- Capillary tube refrigerant metering system on each circuit.
- High Pressure and Low Pressure/Loss of charge protection standard on all models.
- Solid Core liquid line filter drier on each circuit.
- Single slab, single pass designed evaporator and condenser coils facilitate easy cleaning for maintaining high efficiencies.
- Cooling operation up to 125 degree F ambient.
- Foil faced insulation encapsulated throughout entire unit minimizes airborne fibers from the air stream.
- Hinged major access door with heavy-duty gasketing.
- Slide Out Indoor fan assembly for added service convenience.
- Powder Paint Finish meets ASTM B117 steel coated on each side for maximum protection. G90 galvanized.
- Base pan with drawn supply and return opening for superior water management.
- Forkable base rails for easy handling and lifting.
- Single point electrical connections.
- Internally sloped slide out condensate pan conforms to ASHRAE 62 standards.
- High performance belt drive motor with variable pitch pulleys and quick adjust belt system.
- Permanently lubricated evaporator, condenser and gas heat inducer motors.
- Condenser motors are internally protected, totally enclosed with shaft down design.
- 2 inch filter standard with slide out design.
- Two stage gas valve, direct spark ignition, and induced draft for efficiency and reliability.
- Tubular heat exchange for long life and induced draft for efficiency and reliability.
- Solid state furnace control with on board diagnostics.
- 24 volt control system with resettable circuit breakers.
- Colored and labeled wiring.
- Copper tube/Aluminum Fin indoor coil.
- Aluminum MicroChannel outdoor coil(s).



Rheem Package equipment is designed from the ground up with the latest features and benefits required to compete in today's market. The clean design stands alone in the industry and is a testament to the quality, reliability, ease of installation and serviceability that goes into each unit. Outwardly, the large Rheem *Commercial Series™* label (1) identifies the brand to the customer.

The sheet-metal cabinet (2) uses nothing less than 20-gauge material for structural components with an underlying coat of G90. To ensure the leak-proof integrity of these units, the design utilizes a top with a 1/8" drip lip (3), gasket-protected panels and screws. The (optional) hail guard protects the coil from hail damage (4). Every Rheem package unit uses the toughest finish in the industry, using electro deposition baked-on enamel tested to withstand a rigorous 1000-hour salt spray test, per ASTM B117.

Anything built to last must start with the right foundation. In this case, the foundation is 14-gauge, commercial-grade, full-perimeter base rails (5), which integrate fork slots and rigging holes to save set-up time on the job site. The base pan is stamped, which forms a 1-1/8" flange around the supply and return opening and has eliminated the worry of water entering the conditioned space (6). The drainpan (7) is made of material that resists the growth of harmful bacteria and is sloped for the latest IAQ benefits. Furthermore, the drainpan slides out for easy cleaning. The insulation has been placed on the underside of the basepan, removing areas that would allow for potential moisture accumulation, which can facilitate growth of harmful bacteria. All insulation is secured with both adhesive and mechanical fasteners, and all edges are hidden.



During development, each unit was tested to U.L. 1995, ANSI 21.47, AHRI 340-360 and other Rheem-required reliability tests. Rheem adheres to stringent ISO 9002 quality procedures, and each unit bears the U.L. and AHRI certification labels located on the unit nameplate (8). Contractors can rest assured that when a Rheem package unit arrives at the job, it is ready to go with a factory charge and quality checks.

Access to all major compartments is from the front of the unit, including the filter and electrical compartment, blower compartment, furnace section, and outdoor section. Each panel is permanently embossed with the compartment name (control/filter access, blower access and furnace access).

Electrical and filter compartment access is through a large, hinged-access panel. On the outside of the panel is the unit nameplate, which contains the model and serial number, electrical data and other important unit information.

The unit charging chart is located on the inside of the electrical and filter compartment door. Electrical wiring diagrams are found on the control box cover, which allows contractors to move them to more readable locations. To the right of the control box the model and serial number can be found. Having this information on the inside will assure model identification for the life of the product. The production line quality test assurance label is also placed in this location (9). The two-inch throwaway filters (10) are easily removed on a tracked system for easy replacement.





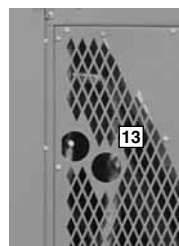
Inside the control box (11), each electrical component is clearly identified with a label that matches the component to the wire diagram for ease of troubleshooting. All wiring is numbered on each end of the termination and color-coded to match the wiring diagram. The integrated furnace control, used to control furnace operation, incorporates a flashing LED troubleshooting device. Flash codes are clearly outlined on the unit wiring diagram. The control transformer has a low voltage circuit breaker that trips if a low voltage electrical short occurs. There is a blower contactor and a contactor for each compressor.



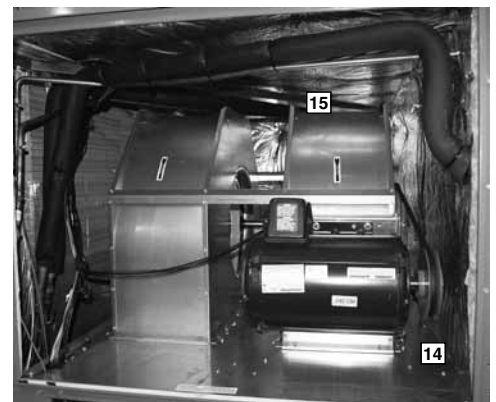
For added convenience in the field, a factory-installed convenience outlet and disconnect (12) are available. Low and High voltage can enter either from the side or through the base. Low-voltage connections are made through the low-voltage terminal strip. For ease of access, the U.L.-required low voltage barrier can be temporarily removed for low-voltage termination and then reinstalled. The high-voltage connection is terminated at the high-voltage terminal block. The suggested mounting for the field-installed disconnect is on the exterior side of the electrical control box.



In the outdoor section are the external gauge ports. (13). With gauge ports mounted externally, an accurate diagnostic of system operation can be performed quickly and easily.



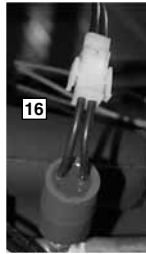
The blower compartment is to the right of the control box. To allow easy maintenance of the blower assembly, the entire assembly easily slides out by removing four #10 screws from the blower assembly. The adjustable motor pulley (14) can easily be adjusted by loosening the bolts on either side of the motor mount. Removing the bolts allows for easy removal of the blower pulley by pushing the blower assembly up to loosen the belt. Once the belt is removed, the motor sheave can be adjusted to the desired number of turns, ranging from 0 to 6 turns open. Where the demands for the job require high static, Rheem has high-static drives available that deliver nominal airflow up to 2" of static. By referring to the airflow performance tables listed in the installation instructions, proper static pressure and CFM requirements can be dialed in. The scroll housing (15) and blower scroll provide quiet and efficient airflow. The blower sheave is secured by an "H" bushing which firmly secures the pulley to the blower shaft for years of trouble-free operation. The "H" bushing allows for easy removal of the blower pulley from the shaft, as opposed to the use of a set screw, which can score the shaft, creating burrs that make blower-pulley removal difficult.



UNIT FEATURES & BENEFITS—RKKL-B SERIES



Also inside the blower compartment are the optional low-ambient controls (16). The low-ambient controls allow for operation of the compressor down to 0 degrees ambient temperature by cycling the outdoor fans on high pressure. Use of polarized plugs and schrader fittings allow for easy field or factory installation.

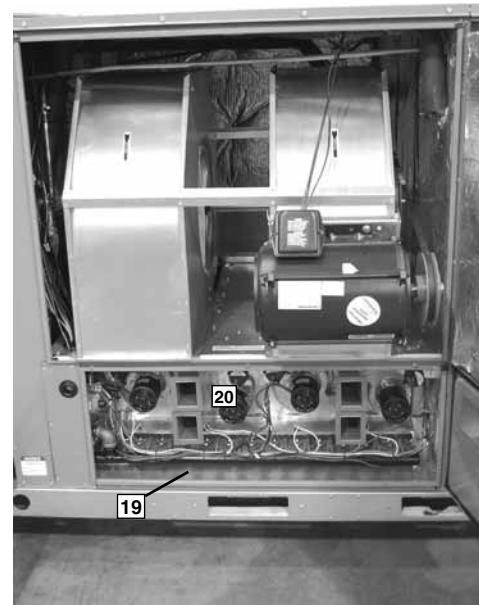


Inside the blower compartment the interlaced evaporator can also be viewed. The evaporator uses enhanced fin technology for maximum heat transfer. The capillary tube metering device assures even distribution of refrigerant throughout the evaporator.

Wiring throughout the unit is neatly bundled and routed. Where wire harnesses go through the condenser bulkhead or blower deck, a molded wire harness assembly (17) provides an air-tight and water-tight seal, and provides strain relief. Care is also taken to tuck raw edges of insulation behind sheet metal to improve indoor air quality.



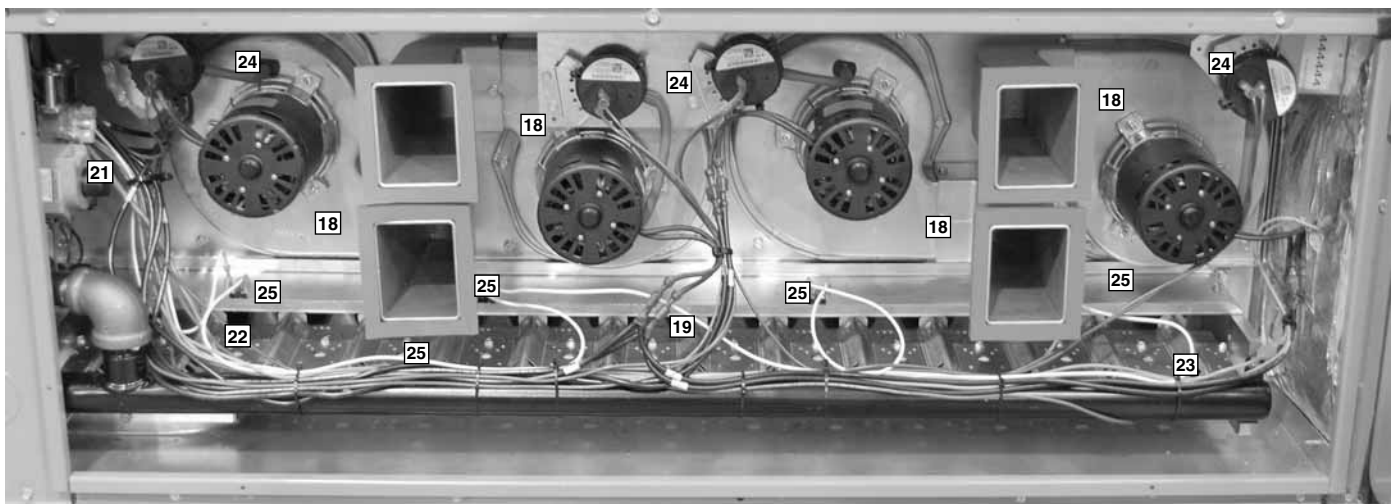
The furnace compartment contains the latest furnace technology on the market. The draft inducers (18) draw the flame from the Rheem exclusive in-shot burners (19) into the aluminized tubular heat exchanger (20) for clean, efficient gas heat. Stainless steel heat exchangers can be factory installed for those applications that have high fresh-air requirements, or applications in corrosive environments. Each furnace is equipped with a two-stage gas valve (21), which provides two stages of gas heat input. The first stage operates at 50% of the second stage (full fire). 81% steady state efficiency is maintained on both first and second stage by staging the multiple inducers to optimize the combustion airflow and maintain a near stoichiometric burn at each stage.

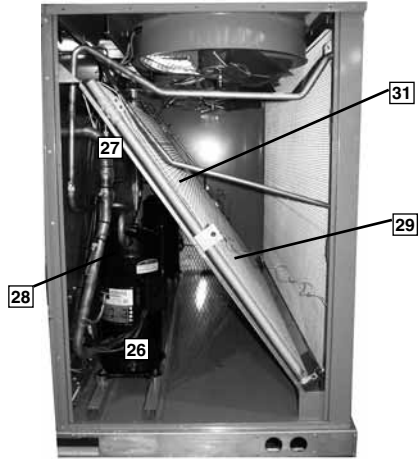


The direct spark igniter (22) assures reliable ignition in the most adverse conditions. This is coupled with remote flame sense (23) to assure that the flame has carried across the entire length of the burner assembly. Gas supply can be routed from the side or up through the base.

Each furnace has the following safety devices to assure consistent and reliable operation after ignition:

- Pressures switches (24) to assure adequate combustion airflow before ignition.
- Rollout switches (25) to assure no obstruction or cracks in the heat exchanger.
- A limit device that protects the furnace from over-temperature problems.

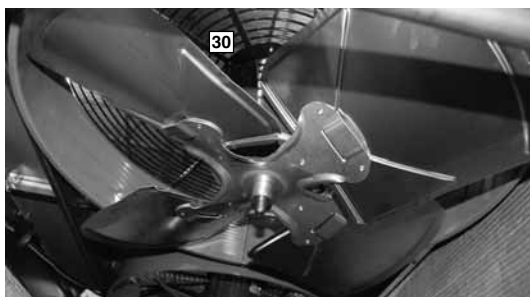




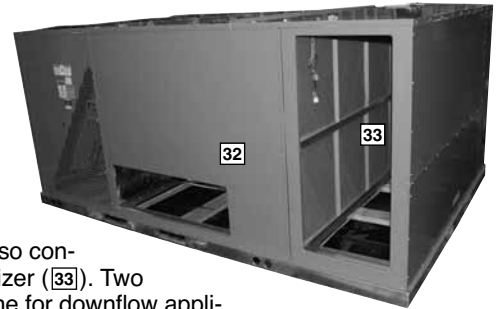
The compressor compartment houses the heartbeat of the unit. The scroll compressor (26) is known for its long life, and for reliable, quiet, and efficient operation. The suction and discharge lines are designed with shock loops (27) to absorb the strain and stress that the starting torque, steady state operation, and shut down cycle impose on the refrigerant tubing. Each compressor and circuit is independent for built-in redundancy, and each circuit is clearly marked throughout the system. Each unit has two stages of efficient cooling operation, first stage is approximately 50% of second stage.

The low-pressure switches (28) and high-pressure switches (29) are mounted on the appropriate refrigerant lines in the condenser section. The high-pressure switch will shut off the compressors if pressures exceeding 610 PSIG are detected as may occur if the outdoor fan motor fails. The low-pressure switches shut off the compressors if low pressure is detected due to loss of refrigerant charge. The optional freeze stats clip on the suction line above the compressor and wires into the low voltage plugs after removing a prewired jumper. The freeze stat protects the compressor if the evaporator coil gets too cold (below freezing) due to low airflow. Each factory-installed option is brazed into the appropriate high or low side and wired appropriately. Use of polarized plugs and schrader fittings allow for easy field installation.

The condenser fan motor (30) can easily be accessed and maintained by removing the protective fan grille. The polarized plug connection allows the motor to be changed quickly and eliminates the need to snake wires through the unit. The aluminum MicroChannel outdoor coil uses the latest enhanced fin design (31) for the most effective method of heat transfer with a reduction in refrigerant charge and unit weight. The outdoor coil is protected by optional louvered panels, which allow unobstructed airflow while protecting the unit from both Mother Nature and vandalism.



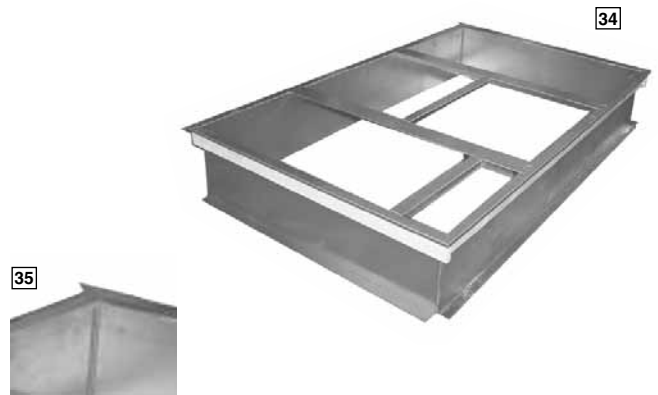
Each unit is designed for both downflow or horizontal applications (32) for job configuration flexibility. The return air compartment can also contain an economizer (33). Two models exits, one for downflow applications, and one for horizontal applications.



Each unit is pre-wired for the economizer to allow quick plug-in installation. The downflow economizer is also available as a factory-installed option. Power Exhaust is easily field-installed. The economizer, which provides free cooling when outdoor conditions are suitable and also provides fresh air to meet local requirements, comes standard with single enthalpy controls. The controls can be upgraded to dual enthalpy easily in the field. The direct drive actuator combined with gear drive dampers has eliminated the need for linkage adjustment in the field. The economizer control has a minimum position setpoint, an outdoor-air setpoint, a mix-air setpoint, and a CO² setpoint. Barometric relief is standard on all economizers. The power exhaust is housed in the barometric relief opening and is easily slipped in with a plug-in assembly.



The Rheem roofcurb (34) is made for toolless assembly at the jobsite by inserting a pin into a hinge in each corner of the adjacent curb sides (35), which makes the assembly process quick and easy.





To select an RKKL-B Cooling and Heating unit to meet a job requirement, follow this procedure, with example, using data supplied in this specification sheet.

1. DETERMINE COOLING AND HEATING REQUIREMENTS AND SPECIFIC OPERATING CONDITIONS FROM PLANS AND SPECS.

Example:

Voltage—	208/240V—3 Phase—60 Hz
Total Cooling Capacity—	205,000 BTUH [60.0 kW]
Sensible Cooling Capacity—	155,000 BTUH [45.4 kW]
Heating Capacity—	235,000 BTUH [68.8 kW]
*Condenser Entering Air—	95°F [35.0°C] DB
*Evaporator Mixed Air Entering—	65°F [18.3°C] WB; 78°F [25.6°C] DB
*Indoor Air Flow (vertical)—	7200 CFM [3398 L/s]
*External Static Pressure—	.70 in. WG [.17 kPa]

2. SELECT UNIT TO MEET COOLING REQUIREMENTS.

Since total cooling is within the range of a nominal 20 ton [70.3 kW] unit, enter cooling performance table at 95°F [35.0 °C] DB condenser inlet air. Interpolate between 63°F [17.2 °C] WB and 67°F [19.4 °C] WB to determine total and sensible capacity and power input for 65°F [18.3 °C] WB evaporator inlet air at 7825 CFM [3692 L/s] indoor air flow (table basis):

Total Cooling Capacity = 245,500 BTUH [71.88 kW]
Sensible Cooling Capacity = 201,150 BTUH [58.90 kW]
Power Input (Compressor and Cond. Fans) = 19,750 watts

Use formula in note (1) to determine sensible capacity at 78°F [25.6 °C] DB evaporator entering air:

$201,150 + (1.10 \times 7,200 \times (1 - 0.11) \times (78 - 80))$
Sensible Cooling Capacity = 187,052 BTUH [54.77 kW]

3. CORRECT CAPACITIES OF STEP 2 FOR ACTUAL AIR FLOW.

Select factors from airflow correction table at 7200 CFM [3398 L/s] and apply to data obtained in step 2 to obtain gross capacity:

Total Capacity = $245,500 \times 0.99 = 243,045$ BTUH [71.17 kW]
Sensible Capacity = $187,052 \times 0.95 = 177,699$ BTUH [52.03 kW]
Power Input = $19,750 \times 0.99 = 19,553$ Watts

These are Gross Capacities, not corrected for blower motor heat or power.

4. DETERMINE BLOWER SPEED AND WATTS TO MEET SYSTEM DESIGN.

Enter Indoor Blower performance table at 7200 CFM [3398 L/s]. Total ESP (external static pressure) per the spec of 0.70 in. WG [.17 kPa] includes the system duct and grilles. Add from the table “Component Air Resistance”, 0.01 in. WG [.00 kPa] for wet coil, 0.08 in. WG [.02 kPa] for downflow air flow, for a total selection static pressure of 0.79 (0.8) in. WG [.20 kPa], and determine:

RPM = 741
WATTS = 2,895
DRIVE = L (standard 5 H.P. motor)

5. CALCULATE INDOOR BLOWER BTUH HEAT EFFECT FROM MOTOR WATTS, STEP 4.

$$2,895 \times 3.412 = 9,878 \text{ BTUH [2.89 kW]}$$

6. CALCULATE NET COOLING CAPACITIES, EQUAL TO GROSS CAPACITY, STEP 3, MINUS INDOOR BLOWER MOTOR HEAT.

$$\begin{aligned} \text{Net Total Capacity} &= 243,045 - 9,878 = \\ &233,167 \text{ BTUH [68.27 kW]} \\ \text{Net Sensible Capacity} &= 177,699 - 9,878 = \\ &167,821 \text{ BTUH [49.14 kW]} \end{aligned}$$

7. CALCULATE UNIT INPUT AND JOB EER.

$$\begin{aligned} \text{Total Power Input} &= 19,553 \text{ (step 3)} + 2,895 \\ &\text{(step 4)} = 22,448 \text{ Watts} \end{aligned}$$

$$\text{EER} = \frac{\text{Net Total BTUH [kW]} \text{ (step 6)}}{\text{Power Input, Watts (above)}} = \frac{233,167}{22,448} = 10.39$$

8. SELECT UNIT HEATING CAPACITY.

From Physical Data Table read that gas heating output (input rating x efficiency) is:

$$\text{Heating Capacity} = 243,000 \text{ BTUH [71.2 kW]}$$

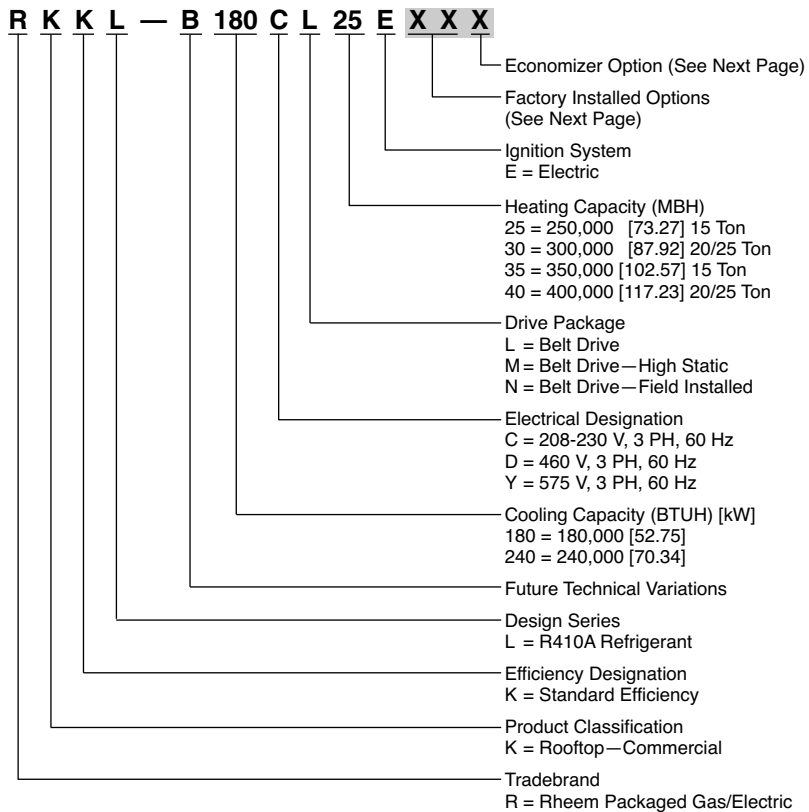
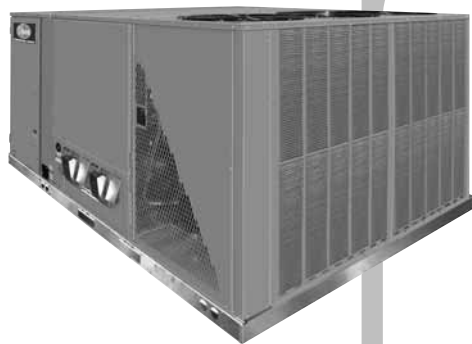
9. CHOOSE MODEL RKKL-B240CL30E

*NOTE: These operating conditions are typical of a commercial application in a 95°F/79°F [35°C/26°C] design area with indoor design of 76°F [24°C] DB and 50% RH and 10% ventilation air, with the unit roof mounted and centered on the zone it conditions by ducts.

[] Designates Metric Conversions



MODEL IDENTIFICATION—RKKL-B SERIES



[] Designates Metric Conversions



FACTORY INSTALLED OPTION CODES FOR RKKL-B 180/240

Option Code	Hail Guard	Stainless Steel Heat Exchanger	Non-Powered Convenience Outlet/ Unfused Service Disconnect	Low Ambient / Freeze Stat
AD	x			
AJ		x		
AH			x	
AP				x
BF	x		x	
BG	x	x		
BY	x			x
JB		x	x	
CR	x	x		x
DN	x	x	x	x

“x” indicates factory installed option.

ECONOMIZER SELECTION FOR RKKL-B 180/240

Option Code	No Economizer	Single Enthalpy Economizer* With Barometric Relief	Single Enthalpy Economizer* With Barometric Relief and Smoke Detector
A	x		
B		x	
C			x

“x” indicates factory installed option.

*Downflow economizer only.

Instructions for Factory Installed Option(s) Selection

Note: Three characters following the model number will be utilized to designate a factory-installed option or combination of options. If no factory option(s) is required, nothing follows the model number.

Step 1. After a basic rooftop model is selected, choose a *two-character* option code from the FACTORY INSTALLED OPTION SELECTION TABLE.

Proceed to Step 2.

Step 2. The last option code character is utilized for factory-installed economizers. Choose a character from the FACTORY INSTALLED ECONOMIZER SELECTION TABLE.

Example: RKKL-B240CL40E**XX** (where **XX** is factory installed option)

Example: No Options

RKKL-B240CL40E

Example: No option with factory installed economizer

RKKL-B240CL40EAAB

Example: Options with low ambient and freeze stat, unwired convenience outlet, unfused service disconnect, hail guard, and stainless steel heat exchanger with no factory installed economizer

RKKL-B240CL40EDNA

Example: Options same as above with factory installed economizer

RKKL-B240CL40EDNB



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B180CL25E	B180CL35E	B180CM25E	B180CM35E
Cooling Performance¹				
CONTINUED →				
Gross Cooling Capacity Btu [kW]	174,000 [50.98]	174,000 [50.98]	174,000 [50.98]	174,000 [50.98]
EER/SEER ²	10.9/NA	10.9/NA	10.9/NA	10.9/NA
Nominal CFM/AHRI Rated CFM [L/s]	6000/5500 [2831/2595]	6000/5500 [2831/2595]	6000/5500 [2831/2595]	6000/5500 [2831/2595]
AHRI Net Cooling Capacity Btu [kW]	170,000 [49.81]	170,000 [49.81]	170,000 [49.81]	170,000 [49.81]
Net Sensible Capacity Btu [kW]	125,400 [36.74]	125,400 [36.74]	125,400 [36.74]	125,400 [36.74]
Net Latent Capacity Btu [kW]	44,600 [13.07]	44,600 [13.07]	44,600 [13.07]	44,600 [13.07]
IEER ³	11.1	11.1	11.1	11.1
Net System Power kW	15.6	15.6	15.6	15.6
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	125,000/250,000 [36.62/73.25]	175,000/350,000 [51.27/102.55]	125,000/250,000 [36.62/73.25]	175,000/350,000 [51.27/102.55]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	101,500/203,000 [29.74/59.48]	142,000/284,000 [41.61/83.21]	101,500/203,000 [29.74/59.48]	142,000/284,000 [41.61/83.21]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	15-45 [8.3-25] / 15-45 [8.3-25]	30-60 [16.7-33.3] / 30-60 [16.7-33.3]	15-45 [8.3-25] / 15-45 [8.3-25]	30-60 [16.7-33.3] / 30-60 [16.7-33.3]
Steady State Efficiency (%)	81	81	81	81
No. Burners	10	14	10	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵				
	91	91	91	91
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	27.46 [2.55]	27.46 [2.55]	27.46 [2.55]	27.46 [2.55]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm]	Rifled	Rifled	Rifled	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]
Refrigerant Control	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
Motor RPM	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
	1075	1075	1075	1075
Indoor Fan—Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
No. Motors	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
Motor HP	1	1	1	1
Motor RPM	3	3	5	5
Motor Frame Size	1725	1725	1725	1725
	56	56	184	184
Filter—Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]				
	115/119 [3260/3374]	115/119 [3260/3374]	115/119 [3260/3374]	115/119 [3260/3374]
Weights				
Net Weight lbs. [kg]	1799 [816]	1812 [822]	1828 [829]	1841 [835]
Ship Weight lbs. [kg]	1926 [874]	1939 [880]	1955 [887]	1968 [893]

See Page 18 for Notes.

[] Designates Metric Conversions



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B180DL25E	B180DL35E	B180DM25E	B180DM35E
Cooling Performance¹				CONTINUED →
Gross Cooling Capacity Btu [kW]	174,000 [50.98]	174,000 [50.98]	174,000 [50.98]	174,000 [50.98]
EER/SEER ²	10.9/NA	10.9/NA	10.9/NA	10.9/NA
Nominal CFM/AHRI Rated CFM [L/s]	6000/5500 [2831/2595]	6000/5500 [2831/2595]	6000/5500 [2831/2595]	6000/5500 [2831/2595]
AHRI Net Cooling Capacity Btu [kW]	170,000 [49.81]	170,000 [49.81]	170,000 [49.81]	170,000 [49.81]
Net Sensible Capacity Btu [kW]	125,400 [36.74]	125,400 [36.74]	125,400 [36.74]	125,400 [36.74]
Net Latent Capacity Btu [kW]	44,600 [13.07]	44,600 [13.07]	44,600 [13.07]	44,600 [13.07]
IEER ³	11.1	11.1	11.1	11.1
Net System Power kW	15.6	15.6	15.6	15.6
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	125,000/250,000 [36.62/73.25]	175,000/350,000 [51.27/102.55]	125,000/250,000 [36.62/73.25]	175,000/350,000 [51.27/102.55]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	101,500/203,000 [29.74/59.48]	142,000/284,000 [41.61/83.21]	101,500/203,000 [29.74/59.48]	142,000/284,000 [41.61/83.21]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	15-45 [8.3-25] / 15-45 [8.3-25]	30-60 [16.7-33.3] / 30-60 [16.7-33.3]	15-45 [8.3-25] / 15-45 [8.3-25]	30-60 [16.7-33.3] / 30-60 [16.7-33.3]
Steady State Efficiency (%)	81	81	81	81
No. Burners	10	14	10	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵				
	91	91	91	91
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	27.46 [2.55]	27.46 [2.55]	27.46 [2.55]	27.46 [2.55]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm]	Rifled	Rifled	Rifled	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Refrigerant Control	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]
Drain Connection No./Size in. [mm]	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
Motor RPM	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
	1075	1075	1075	1075
Indoor Fan—Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
No. Motors	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
Motor HP	1	1	1	1
Motor RPM	3	3	5	5
Motor Frame Size	1725	1725	1725	1725
	56	56	184	184
Filter—Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]				
	115/119 [3260/3374]	115/119 [3260/3374]	115/119 [3260/3374]	115/119 [3260/3374]
Weights				
Net Weight lbs. [kg]	1799 [816]	1812 [882]	1828 [829]	1841 [835]
Ship Weight lbs. [kg]	1926 [874]	1939 [880]	1955 [887]	1968 [893]

See Page 18 for Notes.

[] Designates Metric Conversions



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B180YL35E	B180YM35E	B240CL30E	B240CL40E
Cooling Performance¹				
CONTINUED →				
Gross Cooling Capacity Btu [kW]	174,000 [50.98]	174,000 [50.98]	250,000 [73.25]	250,000 [73.25]
EER/SEER ²	10.9/NA	10.9/NA	10.5/NA	10.5/NA
Nominal CFM/AHRI Rated CFM [L/s]	6000/5500 [2831/2595]	6000/5500 [2831/2595]	8000/7825 [3775/3693]	8000/7825 [3775/3693]
AHRI Net Cooling Capacity Btu [kW]	170,000 [49.81]	170,000 [49.81]	240,000 [70.32]	240,000 [70.32]
Net Sensible Capacity Btu [kW]	125,400 [36.74]	125,400 [36.74]	175,000 [51.27]	175,000 [51.27]
Net Latent Capacity Btu [kW]	44,600 [13.07]	44,600 [13.07]	65,000 [19.04]	65,000 [19.04]
IEER ³	11.1	11.1	10.5	10.5
Net System Power kW	15.6	15.6	22.88	22.88
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	175,000/350,000 [51.27/102.55]	175,000/350,000 [51.27/102.55]	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	142,000/284,000 [41.61/83.21]	142,000/284,000 [41.61/83.21]	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	30-60 [16.7-33.3] / 30-60 [16.7-33.3]	30-60 [16.7-33.3] / 30-60 [16.7-33.3]	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81	81	81
No. Burners	14	14	12	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵				
	91	91	91	91
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	27.46 [2.55]	27.46 [2.55]	50.8 [4.72]	50.8 [4.72]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm]	Rifled	Rifled	Rifled	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Refrigerant Control	2 / 18 [7]	2 / 18 [7]	3 / 13 [5]	3 / 13 [5]
Drain Connection No./Size in. [mm]	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
Motor RPM	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
	1075	1075	1075	1075
Indoor Fan—Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
No. Motors	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
Motor HP	1	1	1	1
Motor RPM	3	5	5	5
Motor Frame Size	1725	1725	1725	1725
	56	184	184	184
Filter—Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]				
	115/119 [3260/3374]	115/119 [3260/3374]	200/219 [5670/6209]	200/219 [5670/6209]
Weights				
Net Weight lbs. [kg]	1827 [829]	1856 [841]	2021 [917]	2035 [923]
Ship Weight lbs. [kg]	1954 [886]	1983 [899]	2147 [974]	2162 [981]

See Page 18 for Notes.

[] Designates Metric Conversions



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B240CM30E	B240CM40E	B240CN30E	B240CN40E
Cooling Performance¹				CONTINUED →
Gross Cooling Capacity Btu [kW]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]
EER/SEER ²	10.5/NA	10.5/NA	10.5/NA	10.5/NA
Nominal CFM/AHRI Rated CFM [L/s]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]
AHRI Net Cooling Capacity Btu [kW]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]
Net Sensible Capacity Btu [kW]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]
Net Latent Capacity Btu [kW]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]
IEER ³	10.5	10.5	10.5	10.5
Net System Power kW	22.88	22.88	22.88	22.88
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81	81	81
No. Burners	12	14	12	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵	91	91	91	91
Outdoor Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Rows / FPI [FPcm]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]
Refrigerant Control	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
No. Motors/HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan—Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
Drive Type/No. Speeds	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
No. Motors	1	1	1	1
Motor HP	7 1/2	7 1/2	7 1/2	7 1/2
Motor RPM	1725	1725	1725	1725
Motor Frame Size	213	213	213	213
Filter—Type	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]
Weights				
Net Weight lbs. [kg]	2059 [934]	2073 [940]	2057 [933]	2072 [940]
Ship Weight lbs. [kg]	2185 [991]	2200 [998]	2184 [991]	2198 [997]

See Page 18 for Notes.

[] Designates Metric Conversions



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B240DL30E	B240DL40E	B240DM30E	B240DM40E
Cooling Performance¹				
	CONTINUED →			
Gross Cooling Capacity Btu [kW]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]
EER/SEER ²	10.5/NA	10.5/NA	10.5/NA	10.5/NA
Nominal CFM/AHRI Rated CFM [L/s]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]
AHRI Net Cooling Capacity Btu [kW]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]
Net Sensible Capacity Btu [kW]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]
Net Latent Capacity Btu [kW]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]
IEER ³	10.5	10.5	10.5	10.5
Net System Power kW	22.88	22.88	22.88	22.88
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81	81	81
No. Burners	12	14	12	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵				
	91	91	91	91
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Rows / FPI [FPcm]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm]	Rifled	Rifled	Rifled	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Refrigerant Control	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]
Drain Connection No./Size in. [mm]	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
Motor RPM	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
	1075	1075	1075	1075
Indoor Fan—Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
No. Motors	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
Motor HP	1	1	1	1
Motor RPM	5	5	7 1/2	7 1/2
Motor Frame Size	1725	1725	1725	1725
	184	184	184	213
Filter—Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]				
	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]
Weights				
Net Weight lbs. [kg]	2021 [917]	2073 [940]	2059 [934]	2073 [940]
Ship Weight lbs. [kg]	2147 [974]	2200 [998]	2185 [991]	2200 [998]

See Page 18 for Notes.

[] Designates Metric Conversions



NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]

Model RKKL- Series	B240DN30E	B240DN40E	B240YL40E	B240YM40E
Cooling Performance¹				CONTINUED →
Gross Cooling Capacity Btu [kW]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]	250,000 [73.25]
EER/SEER ²	10.5/NA	10.5/NA	10.5/NA	10.5/NA
Nominal CFM/AHRI Rated CFM [L/s]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]	8000/7825 [3775/3693]
AHRI Net Cooling Capacity Btu [kW]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]	240,000 [70.32]
Net Sensible Capacity Btu [kW]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]	175,000 [51.27]
Net Latent Capacity Btu [kW]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]	65,000 [19.04]
IEER ³	10.5	10.5	10.5	10.5
Net System Power kW	22.88	22.88	22.88	22.88
Heating Performance (Gas)⁴				
Heating Input Btu [kW] (1st Stage / 2nd Stage)	150,000/300,000 [43.95/87.9]	200,000/400,000 [58.6/117.2]	200,000/400,000 [58.6/117.2]	200,000/400,000 [58.6/117.2]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	121,500/243,000 [35.6/71.2]	162,000/324,000 [47.47/94.93]	162,000/324,000 [47.47/94.93]	162,000/324,000 [47.47/94.93]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	15-45 [8.3-25] / 15-45 [8.3-25]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81	81	81	81
No. Burners	12	14	14	14
No. Stages	2	2	2	2
Gas Connection Pipe Size in. [mm]	0.75 [19]	0.75 [19]	0.75 [19]	0.75 [19]
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁵	91	91	91	91
Outdoor Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]	50.8 [4.72]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Indoor Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]	26.67 [2.48]
Rows / FPI [FPcm]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]	3 / 13 [5]
Refrigerant Control	Capillary Tubes	Capillary Tubes	Capillary Tubes	Capillary Tubes
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Outdoor Fan—Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]	3/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	10000 [4719]	10000 [4719]	10000 [4719]	10000 [4719]
No. Motors/HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP	3 at 1/2 HP
Motor RPM	1075	1075	1075	1075
Indoor Fan—Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]	2/18x9 [457x229]
Drive Type/No. Speeds	Belt/Variable	Belt/Variable	Belt/Variable	Belt/Variable
No. Motors	1	1	1	1
Motor HP	7 1/2	7 1/2	5	7 1/2
Motor RPM	1725	1725	1725	1725
Motor Frame Size	184	213	184	213
Filter—Type	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]	200/219 [5670/6209]
Weights				
Net Weight lbs. [kg]	2057 [933]	2072 [940]	2055 [932]	2093 [949]
Ship Weight lbs. [kg]	2184 [991]	2198 [997]	2182 [990]	2220 [1007]

See Page 18 for Notes.

[] Designates Metric Conversions

**NOM. SIZES 15 & 20 TONS [52.8 & 70.3 kW]**

Model RKKL- Series	B240YN40E
Cooling Performance¹	
Gross Cooling Capacity Btu [kW]	250,000 [73.25]
EER/SEER ²	10.5/NA
Nominal CFM/AHRI Rated CFM [L/s]	8000/7825 [3775/3693]
AHRI Net Cooling Capacity Btu [kW]	240,000 [70.32]
Net Sensible Capacity Btu [kW]	175,000 [51.27]
Net Latent Capacity Btu [kW]	65,000 [19.04]
IEER ³	10.5
Net System Power kW	22.88
Heating Performance (Gas)⁴	
Heating Input Btu [kW] (1st Stage / 2nd Stage)	200,000/400,000 [58.6/117.2]
Heating Output Btu [kW] (1st Stage / 2nd Stage)	162,000/324,000 [47.47/94.93]
Temperature Rise Range °F [°C] (1st / 2nd Stage)	25-55 [13.9-30.6] / 25-55 [13.9-30.6]
Steady State Efficiency (%)	81
No. Burners	14
No. Stages	2
Gas Connection Pipe Size in. [mm]	0.75 [19]
Compressor	
No./Type	2/Scroll
Outdoor Sound Rating (dB)⁵	
	91
Outdoor Coil—Fin Type	
Tube Type	Louvered
MicroChannel Depth in. [mm]	MicroChannel
Face Area sq. ft. [sq. m]	1 [25.4]
Rows / FPI [FPcm]	50.8 [4.72]
	1 / 23 [9]
Indoor Coil—Fin Type	
Tube Type	Louvered
Tube Size in. [mm]	Rifled
Face Area sq. ft. [sq. m]	0.375 [9.5]
Rows / FPI [FPcm]	26.67 [2.48]
Refrigerant Control	3 / 13 [5]
Drain Connection No./Size in. [mm]	Capillary Tubes
	1/1 [25.4]
Outdoor Fan—Type	
No. Used/Diameter in. [mm]	Propeller
Drive Type/No. Speeds	3/24 [609.6]
CFM [L/s]	Direct/1
No. Motors/HP	10000 [4719]
Motor RPM	3 at 1/2 HP
	1075
Indoor Fan—Type	
No. Used/Diameter in. [mm]	FC Centrifugal
Drive Type/No. Speeds	2/18x9 [457x229]
No. Motors	Belt/Variable
Motor HP	1
Motor RPM	7 1/2
Motor Frame Size	1725
	213
Filter—Type	
Furnished	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes
	(8)2x25x20 [51x635x508]
Refrigerant Charge Oz. [g]	
	200/219 [5670/6209]
Weights	
Net Weight lbs. [kg]	2092 [949]
Ship Weight lbs. [kg]	2218 [1006]

See Page 18 for Notes.

[] Designates Metric Conversions



NOTES:

1. Cooling Performance is rated at 95° F ambient, 80° F entering dry bulb, 67° F entering wet bulb. Gross capacity does not include the effect of fan motor heat. AHRI capacity is net and includes the effect of fan motor heat. Units are suitable for operation to $\pm 20\%$ of nominal cfm. Units are certified in accordance with the Unitary Air Conditioner Equipment certification program, which is based on AHRI Standard 210/240 or 340/360.
2. EER and/or SEER are rated at AHRI conditions and in accordance with DOE test procedures.
3. IEER is rated in accordance with AHRI Standard 340/360.
4. Heating Performance limit settings and rating data were established and approved under laboratory test conditions using American National Standard Institute standards. Ratings shown are for elevations up to 2000 feet. For elevations above 2000 feet, ratings should be reduced at the rate of 4% for each 1000 feet above sea level.
5. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.



SYSTEMS PERFORMANCE—RKKL-B SERIES

GROSS SYSTEMS PERFORMANCE DATA—B180

ENTERING INDOOR AIR @ 80°F [26.7°C] dbE ①											
wbE		71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			
CFM [L/s]		7200 [3398]	5500 [2596]	4800 [2265]	7200 [3398]	5500 [2596]	4800 [2265]	7200 [3398]	5500 [2596]	4800 [2265]	
DR ①		0.04	0.1	0.13	0.04	0.1	0.13	0.04	0.1	0.13	
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW] Sens BTUH [kW] Power	205.5 [60.2] 133.5 [39.1] 12.1	194.6 [57.0] 105.8 [31.0] 11.8	190.1 [55.7] 95.3 [27.9] 11.7	197.3 [57.8] 162.0 [47.5] 12.0	186.8 [54.7] 131.1 [38.4] 11.6	182.5 [53.5] 119.3 [35.0] 11.5	190.6 [55.9] 184.8 [54.2] 11.8	180.5 [52.9] 151.4 [44.4] 11.5	176.3 [51.7] 138.5 [40.6] 11.3
	80 [26.7]	Total BTUH [kW] Sens BTUH [kW] Power	203.2 [59.6] 134.3 [39.4] 12.7	192.4 [56.4] 106.6 [31.3] 12.4	187.9 [55.1] 96.0 [28.1] 12.2	194.9 [57.1] 162.7 [47.7] 12.5	184.6 [54.1] 131.9 [38.7] 12.2	180.3 [52.8] 120.0 [35.2] 12.1	188.3 [55.2] 185.6 [54.4] 12.4	178.3 [52.3] 152.2 [44.6] 12.0	174.1 [51.0] 139.2 [40.8] 11.9
	85 [29.4]	Total BTUH [kW] Sens BTUH [kW] Power	200.3 [58.7] 134.3 [39.4] 13.4	189.7 [55.6] 106.8 [31.3] 13.0	185.3 [54.3] 96.3 [28.2] 12.9	192.1 [56.3] 162.8 [47.7] 13.2	181.8 [53.3] 132.0 [38.7] 12.8	177.6 [52.0] 120.2 [35.2] 12.7	185.4 [54.3] 185.4 [54.3] 13.0	175.5 [51.4] 152.3 [44.6] 12.7	171.5 [50.3] 139.5 [40.9] 12.5
	90 [32.2]	Total BTUH [kW] Sens BTUH [kW] Power	196.9 [57.7] 133.5 [39.1] 14.0	186.4 [54.6] 106.2 [31.1] 13.7	182.1 [53.4] 95.8 [28.1] 13.5	188.6 [55.3] 161.9 [47.5] 13.9	178.6 [52.3] 131.5 [38.5] 13.5	174.5 [51.1] 119.8 [35.1] 13.3	182.0 [53.3] 182.0 [53.3] 13.7	172.3 [50.5] 151.8 [44.5] 13.3	168.3 [49.3] 139.0 [40.7] 13.2
	95 [35]	Total BTUH [kW] Sens BTUH [kW] Power	192.9 [56.5] 131.8 [38.6] 14.8	182.6 [53.5] 104.9 [30.8] 14.4	178.4 [52.3] 94.7 [27.8] 14.2	184.6 [54.1] 160.2 [47.0] 14.6	174.8 [51.2] 130.2 [38.2] 14.2	170.8 [50.1] 118.7 [34.8] 14.0	178.0 [52.2] 178.0 [52.2] 14.4	168.5 [49.4] 150.5 [44.1] 14.0	164.6 [48.2] 137.9 [40.4] 13.9
	100 [37.8]	Total BTUH [kW] Sens BTUH [kW] Power	188.4 [55.2] 129.3 [37.9] 15.5	178.3 [52.3] 102.9 [30.2] 15.1	174.2 [51.1] 92.9 [27.2] 14.9	180.1 [52.8] 157.8 [46.3] 15.3	170.5 [50.0] 128.3 [37.6] 14.9	166.6 [48.8] 117.0 [34.3] 14.8	173.4 [50.8] 173.4 [50.8] 15.2	164.2 [48.1] 148.6 [43.6] 14.8	160.4 [47.0] 136.2 [39.9] 14.6
	105 [40.6]	Total BTUH [kW] Sens BTUH [kW] Power	183.3 [53.7] 126.0 [36.9] 16.3	173.5 [50.8] 100.3 [29.4] 15.9	169.5 [49.7] 90.6 [26.6] 15.7	175.0 [51.3] 154.5 [45.3] 16.1	165.7 [48.6] 125.7 [36.8] 15.7	161.9 [47.4] 114.7 [33.6] 15.5	168.3 [49.3] 168.3 [49.3] 16.0	159.4 [46.7] 146.0 [42.8] 15.5	155.7 [45.6] 133.8 [39.2] 15.4
	110 [43.3]	Total BTUH [kW] Sens BTUH [kW] Power	177.6 [52.0] 121.9 [35.7] 17.1	168.2 [49.3] 97.1 [28.5] 16.7	164.3 [48.2] 87.7 [25.7] 16.5	169.4 [49.6] 150.4 [44.1] 17.0	160.4 [47.0] 122.4 [35.9] 16.5	156.6 [45.9] 111.6 [32.7] 16.3	162.7 [47.7] 162.7 [47.7] 16.8	154.0 [45.1] 142.6 [41.8] 16.4	150.5 [44.1] 130.8 [38.3] 16.2
	115 [46.1]	Total BTUH [kW] Sens BTUH [kW] Power	171.4 [50.2] 116.8 [34.2] 18.0	162.3 [47.6] 93.0 [27.3] 17.5	158.6 [46.5] 84.0 [24.6] 17.4	163.2 [47.8] 145.3 [42.6] 17.9	154.5 [45.3] 118.3 [34.7] 17.4	150.9 [44.2] 107.9 [31.6] 17.2	156.5 [45.9] 156.5 [45.9] 17.7	148.2 [43.4] 138.6 [40.6] 17.2	144.8 [42.4] 127.2 [37.3] 17.0

GROSS SYSTEMS PERFORMANCE DATA—B240

ENTERING INDOOR AIR @ 80°F [26.7°C] dbE ①											
wbE		71°F [21.7°C]			67°F [19.4°C]			63°F [17.2°C]			
CFM [L/s]		9600 [4531]	7825 [3693]	6400 [3020]	9600 [4531]	7825 [3693]	6400 [3020]	9600 [4531]	7825 [3693]	6400 [3020]	
DR ①		0.06	0.11	0.15	0.06	0.11	0.15	0.06	0.11	0.15	
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW] Sens BTUH [kW] Power	295.2 [86.5] 188.5 [55.3] 17.0	283.5 [83.1] 158.8 [46.5] 16.6	274.1 [80.3] 136.7 [40.1] 16.4	281.3 [82.4] 226.4 [66.4] 16.7	270.2 [79.2] 193.6 [56.7] 16.4	261.3 [76.6] 169.0 [49.5] 16.1	271.4 [79.5] 261.1 [76.5] 16.4	260.6 [76.4] 225.3 [66.0] 16.1	252.0 [73.9] 198.3 [58.1] 15.8
	80 [26.7]	Total BTUH [kW] Sens BTUH [kW] Power	291.1 [85.3] 186.7 [54.7] 17.8	279.6 [81.9] 157.3 [46.1] 17.4	270.4 [79.2] 135.5 [39.7] 17.2	277.3 [81.3] 224.6 [65.8] 17.5	266.3 [78.0] 192.1 [56.3] 17.2	257.5 [75.5] 167.7 [49.2] 16.9	267.3 [78.3] 259.2 [76.0] 17.2	256.7 [75.2] 223.8 [65.6] 16.9	248.2 [72.7] 197.0 [57.7] 16.6
	85 [29.4]	Total BTUH [kW] Sens BTUH [kW] Power	286.3 [83.9] 184.3 [54.0] 18.7	275.0 [80.6] 155.4 [45.6] 18.3	265.9 [77.9] 133.9 [39.3] 18.0	272.5 [79.9] 222.3 [65.2] 18.4	261.7 [76.7] 190.2 [55.8] 18.0	253.0 [74.1] 166.1 [48.7] 17.7	262.5 [76.9] 256.9 [75.3] 18.1	252.1 [73.9] 221.9 [65.0] 17.7	243.7 [71.4] 195.4 [57.3] 17.4
	90 [32.2]	Total BTUH [kW] Sens BTUH [kW] Power	280.8 [82.3] 181.7 [53.3] 19.6	269.6 [79.0] 153.1 [44.9] 19.2	260.7 [76.4] 131.9 [38.7] 18.9	266.9 [78.2] 219.5 [64.3] 19.3	256.3 [75.1] 187.9 [55.1] 18.9	247.8 [72.6] 164.2 [48.1] 18.6	256.9 [75.3] 254.1 [74.5] 19.0	246.7 [72.3] 219.6 [64.4] 18.6	238.6 [69.9] 193.5 [56.7] 18.3
	95 [35]	Total BTUH [kW] Sens BTUH [kW] Power	274.4 [80.4] 178.4 [52.3] 20.6	263.6 [77.3] 150.5 [44.1] 20.2	254.9 [74.7] 129.7 [38.0] 19.8	260.6 [76.4] 216.3 [63.4] 20.3	250.3 [73.4] 185.3 [54.3] 19.9	242.0 [70.9] 162.0 [47.5] 19.6	250.6 [73.4] 250.6 [73.5] 20.0	240.7 [70.5] 217.0 [63.6] 19.6	232.7 [68.2] 191.2 [56.0] 19.3
	100 [37.8]	Total BTUH [kW] Sens BTUH [kW] Power	267.4 [78.4] 174.7 [51.2] 21.6	256.8 [75.3] 147.4 [43.2] 21.2	248.3 [72.8] 127.1 [37.3] 20.8	253.5 [74.3] 212.5 [62.3] 21.3	243.5 [71.4] 182.2 [53.4] 20.9	235.4 [69.0] 159.3 [46.7] 20.5	243.5 [71.4] 243.5 [71.4] 21.0	233.9 [68.5] 214.0 [62.7] 20.6	226.1 [66.3] 188.7 [55.3] 20.3
	105 [40.6]	Total BTUH [kW] Sens BTUH [kW] Power	259.6 [76.1] 170.6 [50.0] 22.7	249.3 [73.1] 144.0 [42.2] 22.2	241.0 [70.6] 124.2 [36.4] 21.9	245.7 [72.0] 208.5 [61.1] 22.4	236.0 [69.2] 178.8 [52.4] 21.9	228.2 [66.9] 156.5 [45.9] 21.6	235.7 [69.1] 235.7 [69.1] 22.1	226.4 [66.4] 210.5 [61.7] 21.7	218.9 [64.2] 185.7 [54.4] 21.3
	110 [43.3]	Total BTUH [kW] Sens BTUH [kW] Power	251.0 [73.6] 166.1 [48.7] 23.8	241.1 [70.7] 140.3 [41.1] 23.3	233.1 [68.3] 121.1 [35.5] 22.9	237.1 [69.5] 203.9 [59.8] 23.5	227.7 [66.7] 175.0 [51.3] 23.0	220.2 [64.5] 153.3 [44.9] 22.7	227.1 [66.6] 227.1 [66.6] 23.2	218.1 [63.9] 206.7 [60.6] 22.8	210.9 [61.8] 182.5 [53.5] 22.4
	115 [46.1]	Total BTUH [kW] Sens BTUH [kW] Power	241.7 [70.8] 161.0 [47.2] 25.0	232.1 [68.0] 136.0 [39.9] 24.5	224.4 [65.8] 117.4 [34.4] 24.1	227.8 [66.8] 198.8 [58.3] 24.7	218.8 [64.1] 170.8 [50.1] 24.2	211.5 [62.0] 149.6 [43.9] 23.8	217.8 [63.8] 217.8 [63.8] 24.4	209.2 [61.3] 202.5 [59.4] 23.9	202.3 [59.3] 179.0 [52.5] 23.5

DR —Depression ratio
dbE—Entering air dry bulb
wbE—Entering air wet bulb

Total —Total capacity x 1000 BTUH
Sens —Sensible capacity x 1000 BTUH
Power—KW input

NOTES: ① When the entering air dry bulb is other than 80°F [27°C], adjust the sensible capacity from the table by adding $[1.10 \times \text{CFM} \times (1 - \text{DR}) \times (\text{dbE} - 80)]$.

[] Designates Metric Conversions



AIRFLOW PERFORMANCE—15 TON [52.8 kW]—SIDEFLOW

Air Flow CFM [L/s]		External Static Pressure—Inches of Water [kPa]																																						
		0.1 [0.02]	0.2 [0.05]	0.3 [0.07]	0.4 [0.10]	0.5 [0.12]	0.6 [0.15]	0.7 [0.17]	0.8 [0.20]	0.9 [0.22]	1.0 [0.25]	1.1 [0.27]	1.2 [0.30]	1.3 [0.32]	1.4 [0.35]	1.5 [0.37]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]	2.0 [0.50]																			
4800 [2265]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5000 [2359]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5200 [2454]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5400 [2548]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5600 [2643]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5800 [2737]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6000 [2831]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6200 [2926]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6400 [3020]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6600 [3114]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6800 [3209]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
7000 [3303]	578	1927	601	2041	624	2157	646	2275	667	2395	688	2518	679	2643	730	2770	750	2899	769	3031	788	3165	807	3301	825	3439	843	3579	861	3722	878	3867	894	4014	911	4164	926	4315	—	—
7200 [3398]	589	2049	612	2165	634	2284	656	2405	677	2528	698	2654	719	2782	739	2912	759	3044	778	3178	797	3315	815	3454	833	3595	851	3739	868	3884	885	4032	901	4182	917	4335	—	—		

NOTE: L-Drive left of bold line, M-Drive right of bold line.

Drive Package	L							M																	
Motor H.P. [W]	3.0 [2237.1]							5.0 [3728.5]																	
Blower Sheave	BK105H							BK105H																	
Motor Sheave	1VL-44							1VP-56																	
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
RPM	733	701	669	640	605	572	927	903	873	840	808	775	620	600	580	560	540	520	500	480	460	440	420	400	380

NOTES: 1. Factory sheave settings are shown in bold type.

2. Do not set motor sheave below minimum turns open shown.

3. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum External Static Pressure.

4. Drive data shown is for horizontal airflow with dry coil. Add component resistance (below) to duct resistance to determine total External Static Pressure.

COMPONENT AIR RESISTANCE—15 TON [52.8 kW]

CFM [L/s]	Resistance — Inches of Water [kPa]														
	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]		
Wet Coil	0.03 [0.01]	0.04 [0.01]	0.05 [0.01]	0.06 [0.01]	0.07 [0.01]	0.08 [0.02]	0.09 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.14 [0.04]	0.15 [0.04]		
Downflow	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]	0.05 [0.01]		
Downflow Economizer R.A. Damper Open	0.09 [0.02]	0.10 [0.02]	0.10 [0.02]	0.11 [0.03]	0.12 [0.03]	0.13 [0.03]	0.14 [0.04]	0.15 [0.04]	0.16 [0.04]	0.17 [0.04]	0.18 [0.04]	0.19 [0.05]	0.20 [0.05]		
Horizontal Economizer R.A. Damper Open	0.00 [0.00]	0.01 [0.00]	0.01 [0.00]	0.02 [0.00]	0.02 [0.00]	0.03 [0.01]	0.03 [0.01]	0.04 [0.01]	0.04 [0.01]	0.05 [0.01]	0.05 [0.01]	0.06 [0.01]	0.06 [0.01]		
Concentric Grill RXRN-AD80 or RXRN-AD81 & Transition RXMC-CJ07	0.21 [0.05]	0.25 [0.06]	0.28 [0.07]	0.32 [0.08]	0.35 [0.09]	0.39 [0.10]	0.43 [0.11]	0.46 [0.11]	0.50 [0.12]	0.54 [0.13]	0.57 [0.14]	0.61 [0.15]	0.64 [0.16]		

NOTE: Add component resistance to duct resistance to determine total external static pressure.

AIRFLOW CORRECTION FACTORS—15 TON [52.8 kW]

ACTUAL—CFM [L/s]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	6000 [2831]	6200 [2926]	6400 [3020]	6600 [3114]	6800 [3209]	7000 [3303]	7200 [3398]
TOTAL MBH	0.98	0.98	0.99	1.00	1.00	1.01	1.02	1.02	1.03	1.04	1.04	1.05	1.06
SENSIBLE MBH	0.91	0.94	0.96	0.99	1.02	1.04	1.07	1.10	1.12	1.15	1.18	1.20	1.23
POWER kW	0.99	0.99	0.99	1.00	1.00	1.00	1.01	1.01	1.01	1.02	1.02	1.02	1.03

NOTES: Multiply correction factor times gross performance data—resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions



ELECTRICAL DATA – RKKL- SERIES							
		B180CL	B180CM	B180DL	B180DM	B180YL	B180YM
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506	518-633	518-633
	Volts	208/230	208/230	460	460	575	575
	Minimum Circuit Ampacity	75/75	78/78	38	40	28	30
	Minimum Overcurrent Protection Device Size	90/90	90/90	45	45	30	35
	Maximum Overcurrent Protection Device Size	90/90	100/100	50	50	35	35
Compressor Motor	No.	2	2	2	2	2	2
	Volts	200/230	200/230	460	460	575	575
	Phase	3	3	3	3	3	3
	RPM	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	7	7	7	7	7	7
	Amps (RLA), Comp. 1	25/25	25/25	12.2	12.2	9	9
	Amps (LRA), Comp. 1	164/164	164/164	100	100	78	78
	HP, Compressor 2	6	6	6	6	6	6
	Amps (RLA), Comp. 2	25/25	25/25	12.8	12.8	9.6	9.6
Amps (LRA), Comp. 2	164/164	164/164	100	100	78	78	
Compressor Motor	No.	3	3	3	3	3	3
	Volts	208/230	208/230	460	460	575	575
	Phase	1	1	1	1	1	1
	HP	1/2	1/2	1/2	1/2	1/2	1/2
	Amps (FLA, each)	2.3/2.3	2.3/2.3	1.5	1.5	1	1
	Amps (LRA, each)	5.6/5.6	5.6/5.6	3.1	3.1	2.2	2.2
Evaporator Fan	No.	1	1	1	1	1	1
	Volts	208/230	208/230	460	460	575	575
	Phase	3	3	3	3	3	3
	HP	3	5	3	5	3	5
	Amps (FLA, each)	11.5/11.5	14.9/14.9	4.6	6.6	3.5	5.3
	Amps (LRA, each)	74.5/74.5	82.6/82.6	38.1	46.3	20	39.4



ELECTRICAL DATA – RKKL- SERIES										
		B240CL	B240CM	B240CN	B240DL	B240DM	B240DN	B240YL	B240YM	B240YN
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	518-632	518-632	518-632
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Minimum Circuit Ampacity	94/94	102/102	102/102	51	54	54	37	39	39
	Minimum Overcurrent Protection Device Size	110/110	110/110	110/110	60	60	60	40	45	45
	Maximum Overcurrent Protection Device Size	125/125	125/125	125/125	60	70	70	45	50	50
Compressor Motor	No.	2	2	2	2	2	2	2	2	2
	Volts	200/230	200/230	200/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	10	10	10	10	10	10	10	10	10
	Amps (RLA), Comp. 1	33.6/33.6	33.6/33.6	33.6/33.6	17.9	17.9	17.9	12.8	12.8	12.8
	Amps (LRA), Comp. 1	239/239	239/239	239/239	125	125	125	80	80	80
	HP, Compressor 2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2
	Amps (RLA), Comp. 2	30.1/30.1	30.1/30.1	30.1/30.1	16.7	16.7	16.7	12.2	12.2	12.2
Amps (LRA), Comp. 2	225/225	225/225	225/225	114	114	114	80	80	80	
Compressor Motor	No.	3	3	3	3	3	3	3	3	3
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	1	1	1	1	1	1	1	1	1
	HP	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
	Amps (FLA, each)	2.3/2.3	2.3/2.3	2.3/2.3	1.5	1.5	1.5	1	1	1
	Amps (LRA, each)	5.6/5.6	5.6/5.6	5.6/5.6	3.1	3.1	3.1	2.2	2.2	2.2
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	575	575	575
	Phase	3	3	3	3	3	3	3	3	3
	HP	5	7 1/2	7 1/2	5	7 1/2	7 1/2	5	7 1/2	7 1/2
	Amps (FLA, each)	14.7/14.7	23.1/23.1	23.1/23.1	6.6	9.6	9.6	5.3	7.8	7.8
	Amps (LRA, each)	82.6/82.6	136/136	136/136	46.3	67	67	39.4	53.8	53.8



GAS HEAT / ELECTRIC COOLING PACKAGE

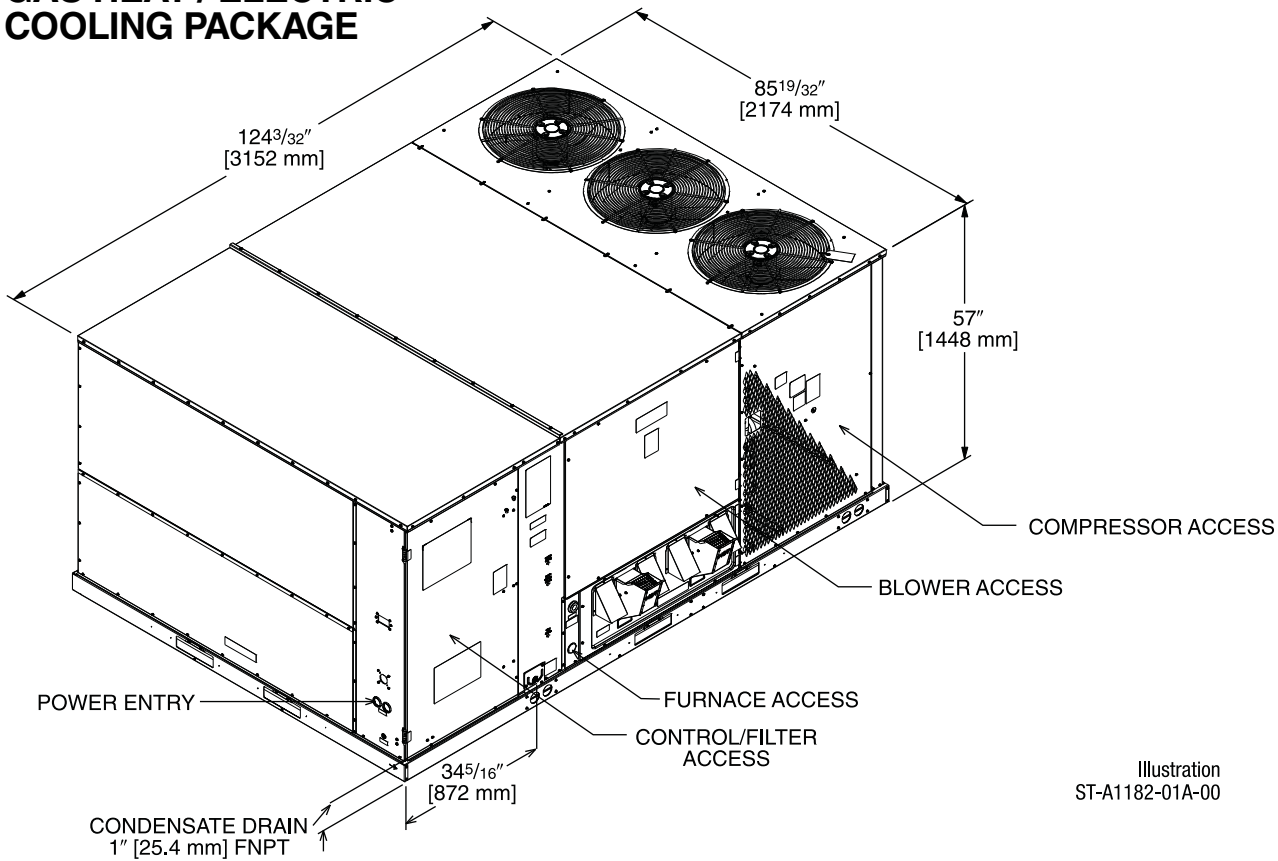
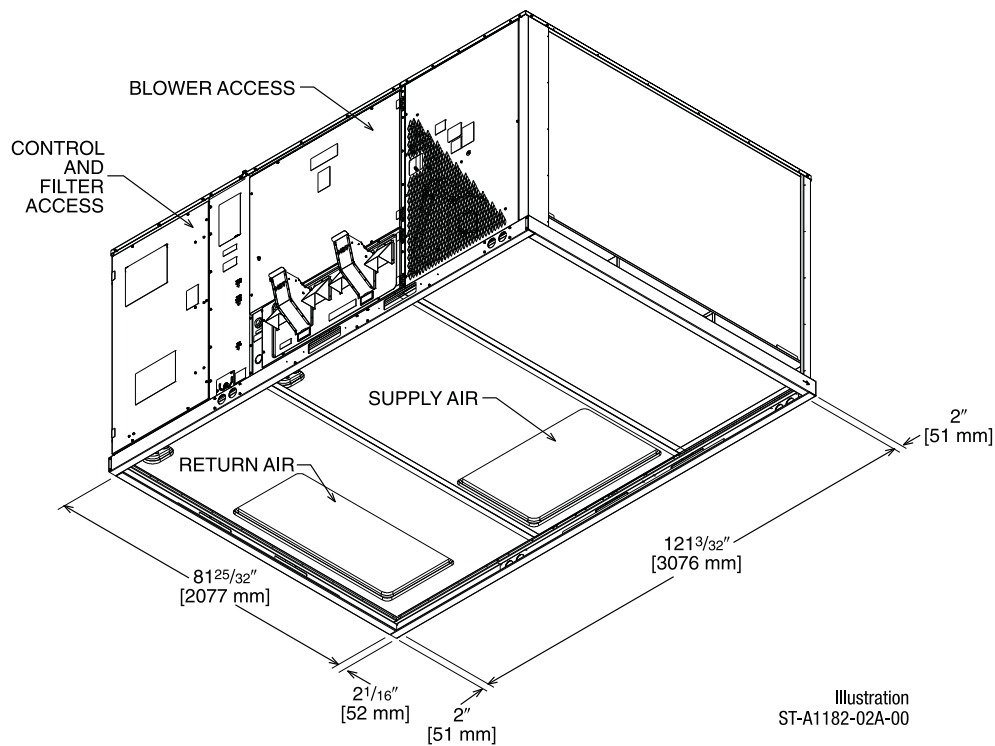


Illustration
ST-A1182-01A-00



BOTTOM VIEW

Illustration
ST-A1182-02A-00

[] Designates Metric Conversions



GAS HEAT / ELECTRIC COOLING PACKAGE

SUPPLY AND RETURN DIMENSIONS FOR HORIZONTAL APPLICATIONS

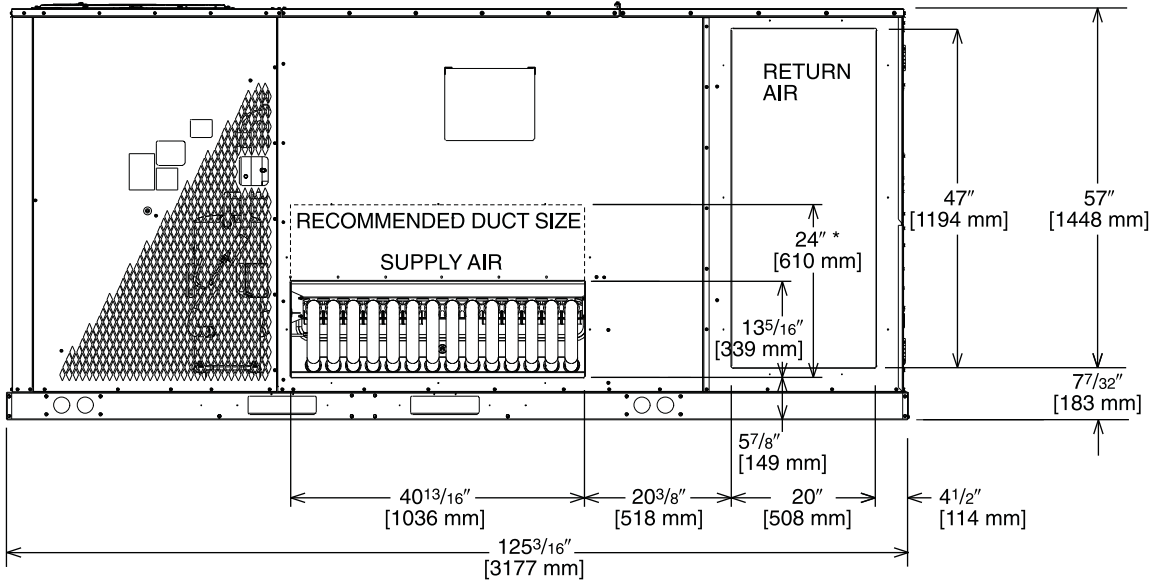


Illustration
ST-A1182-08A-00

* RECOMMENDED DUCT CONNECTION SIZE

DUCT SIDE VIEW (REAR)

SUPPLY AND RETURN DIMENSIONS FOR DOWNFLOW APPLICATIONS

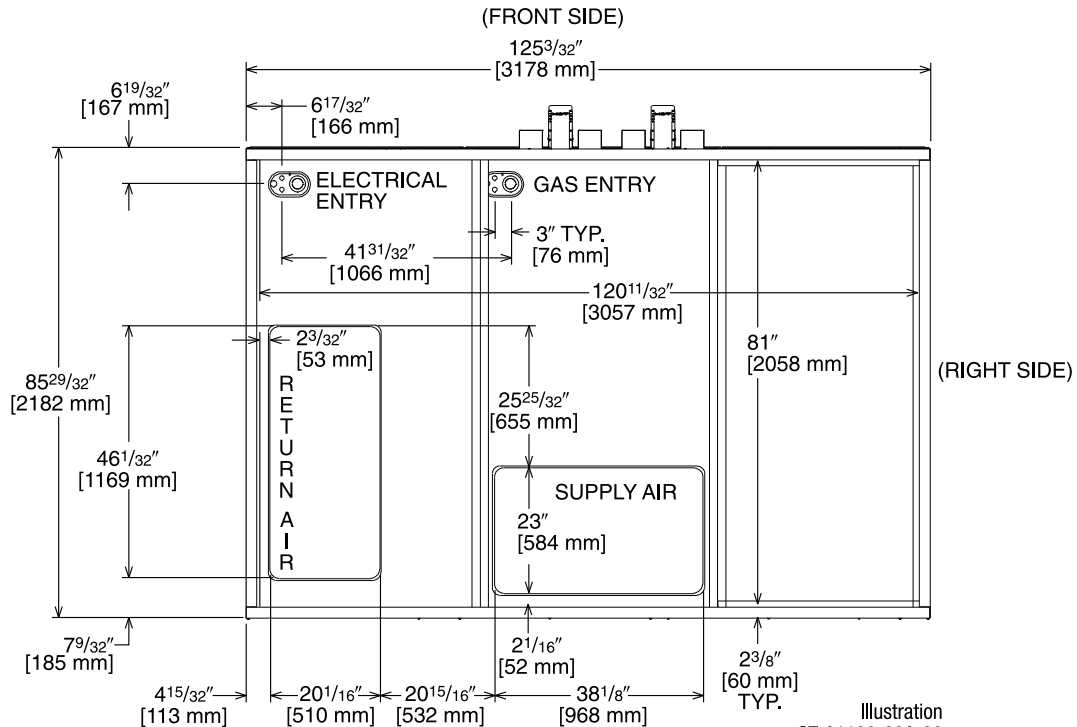


Illustration
ST-A1182-09A-00

BOTTOM VIEW

[] Designates Metric Conversions

UNIT DIMENSIONS GAS HEAT / ELECTRIC COOLING PACKAGE

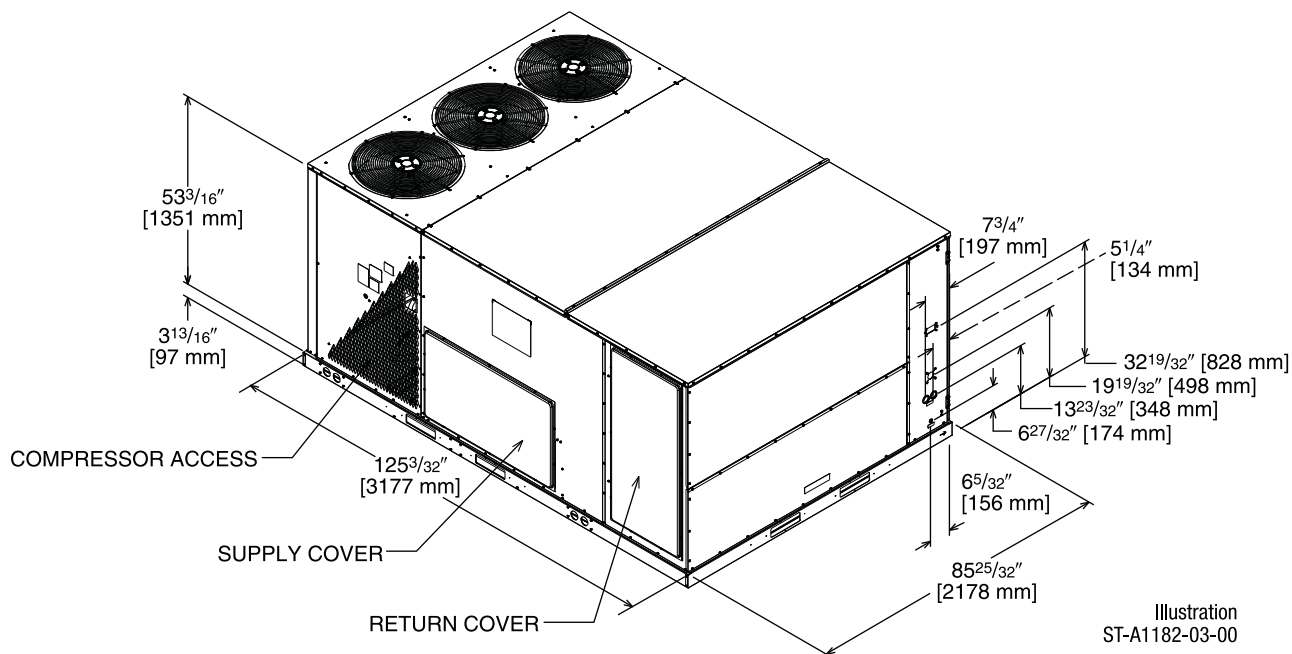


Illustration
ST-A1182-03-00

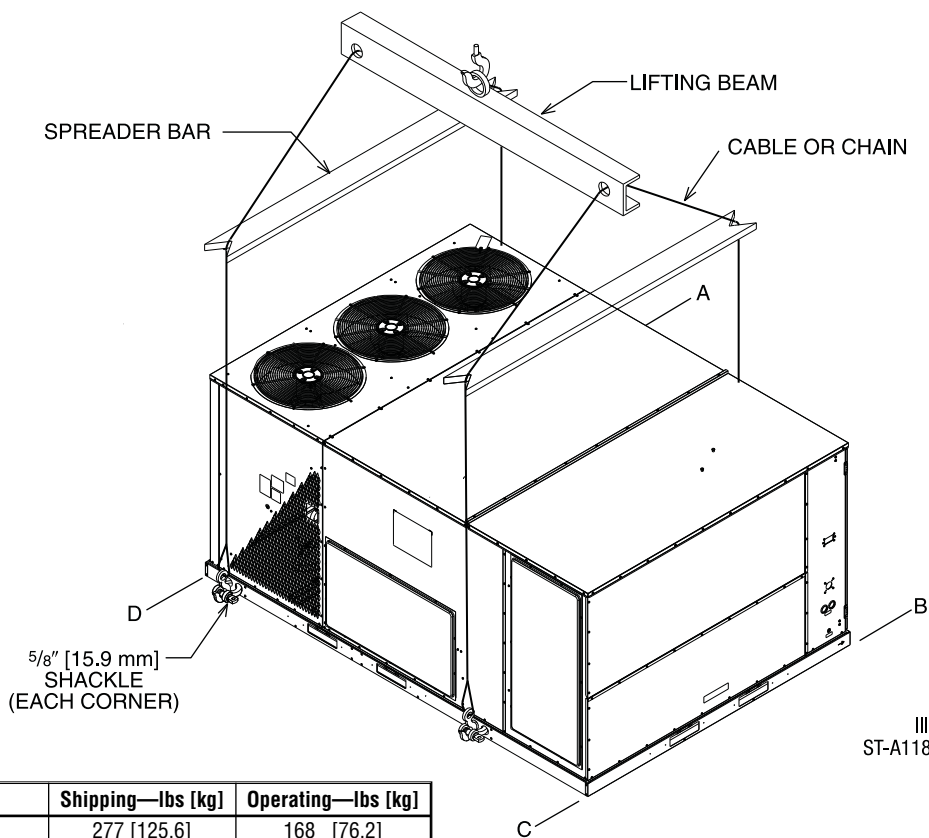


Illustration
ST-A1182-25-00

WEIGHTS

Accessory	Shipping—lbs [kg]	Operating—lbs [kg]
Downflow Economizer	277 [125.6]	168 [76.2]
Horizontal Economizer	333 [151.0]	301 [136.5]
Power Exhaust	119 [54.0]	59 [26.8]
Manual Fresh Air Damper*	61 [27.7]	52 [23.6]
Motor Kit for Fresh Air Damper*	42 [19.1]	35 [15.9]
Roofcurb, 14"	184 [83.5]	176 [79.8]
Hail Guard	50 [22.7]	45 [20.4]

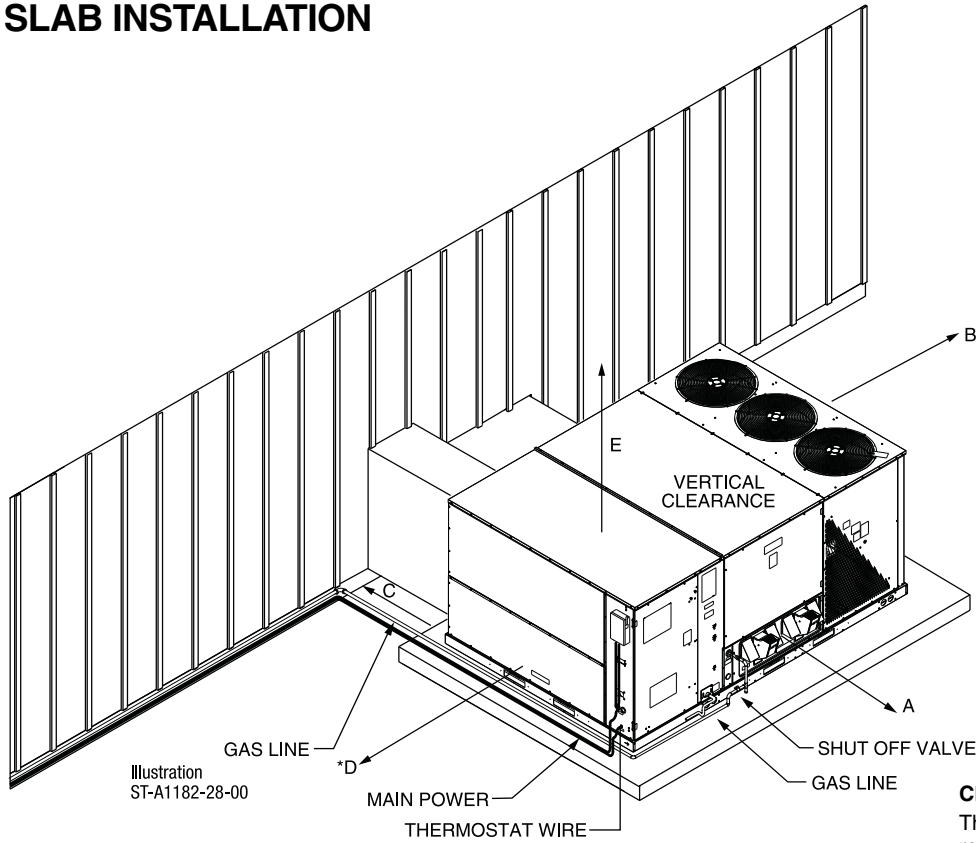
Capacity Tons [kW]	Corner Weights by Percentage			
	A	B	C	D
15-25 [52.8-87.9]	32%	27%	16%	24%

Corner weights measured at base of unit.

[] Designates Metric Conversions

NOTES: *Motorized Kit and Manual Fresh Air Damper must be combined for a complete Motorized Outside Air Damper Selection.

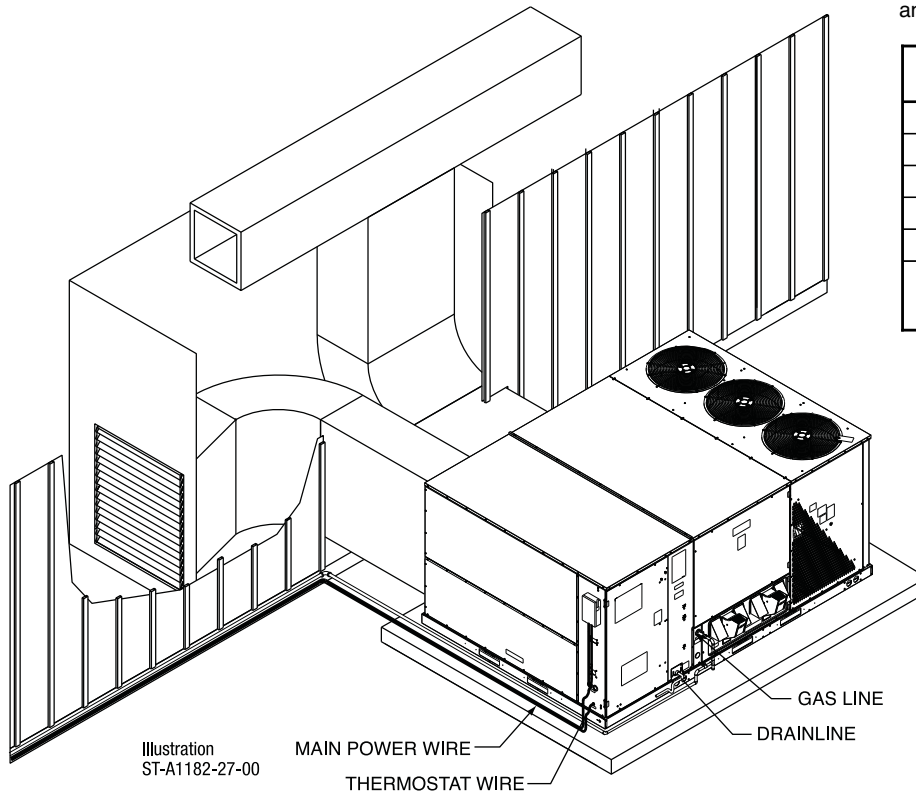
SLAB INSTALLATION



CLEARANCES

The following minimum clearances are recommended for proper unit performance and serviceability.

Recommended Clearance In. [mm]	Location
80 [2032]	A - Front
18 [457]	B - Condenser Coil
+18 [457]	+C - Duct Side
*18 [457]	*D - Evaporator End
60 [1524]	E - Above
*Without Economizer, 48" [1219 mm] With Economizer +Without Horizontal Economizer, 42" [1067 mm] with Horizontal Economizer	



FIELD INSTALLED ACCESSORY EQUIPMENT

Accessory Description	Model Number	Shipping Weight Lbs. [kg]	Installed Weight Lbs. [kg]	Factory Installation Available?
Thermostat or Room Sensor	See Thermostat Specification Sheet (T11-001)			No
Downflow Economizer w/ Single Enthalpy	RXRD-PGCM3	277 [125.6]	168 [76.2]	Yes
Downflow Economizer w/ Smoke Detector	RXRD-SGCM3	280 [127.0]	171 [77.6]	Yes
Dual Enthalpy Kit	RXRX-AV02	1 [0.5]	0.5 [0.2]	No
Horizontal Economizer w/ Single Enthalpy	RXRD-RGCM3	333 [151.0]	301 [136.5]	No
Carbon Dioxide Sensor (Wall Mount)	RXRX-AR02	3 [1.4]	2 [0.9]	No
Power Exhaust (208/230V)	RXRX-BGF05C	119 [54.0]	59 [26.8]	No
Power Exhaust (460V)	RXRX-BGF05D	119 [54.0]	59 [26.8]	No
Power Exhaust (575V)	RXRX-BGF05Y	119 [54.0]	59 [26.8]	No
Manual Fresh Air Damper*	RXRF-KFA1	61 [27.7]	52 [23.6]	No
Motorized Kit for Manual Fresh Air Damper*	RXRX-AW03	42 [19.1]	35 [15.9]	No
Roofcurb, 14"	RXKG-CBH14	184 [83.5]	176 [79.8]	No
Roofcurb Adapter to RXRK-E56	RXRX-CJCE56	465 [210.9]	415 [188.2]	No
Roofcurb Adapter to RXKG-CAF14	RXRX-CJCF14	555 [251.7]	505 [229.1]	No
Concentric Diffuser (Step-Down 18" x 36")	RXRN-AD81	310 [140.6]	157 [71.2]	No
Concentric Diffuser (Step-Down 24" x 48")	RXRN-AD86	367 [166.5]	212 [96.2]	No
Concentric Diffuser (Flush, 18" x 36")	RXRN-AD80	213 [96.6]	115 [52.2]	No
Downflow Transition (Rect. To Rect. 18" x 36")	RXMC-CJ07 ¹	81 [36.7]	74 [33.6]	No
Downflow Transition (Rect. To Rect. 24" x 48")	RXMC-CK08 ²	81 [36.7]	74 [33.6]	No
Compressor Time-Delay Relay Kit	RXMD-A04	2 [0.9]	1 [0.5]	No
Low-Ambient Control Kit (1 Per Compressor)	RXRZ-C02	3 [1.4]	2 [0.9]	Yes
Freeze Stat	RXRX-AM03	1 [0.5]	0.5 [0.2]	Yes
Non-Powered Convenience Outlet	RXRX-AN01	2 [0.9]	1.5 [0.7]	Yes
Unfused Service Disconnect	RXRX-AP01	10 [4.5]	9 [4.1]	Yes
Hail Guard	RXRX-AAD01K	50 [22.7]	45 [20.4]	Yes

NOTES: * Motorized Kit and Manual Fresh Air Damper must be combined for a complete Motorized Outside Air Damper Selection

1. Used with RXRN-AD81 and RXRN-AD80 concentric diffusers

2. Used with RXRN-AD86 concentric diffusers

NOTICE: Please refer to conversion kit index provided with the unit for selecting the LP conversion kit model number.

[] Designates Metric Conversions

THERMOSTATS



100-Series *
Non-Programmable



200-Series *
Programmable



300-Series *
Deluxe Programmable



400-Series *
Special Applications/ Programmable

500-Series *
Communicating/ Programmable

Brand	Unique Model Number Prefix	Descriptor (3 Characters)	Series (3 Characters)	System (2 Characters)	Type (2 Characters)
RHC	-	TST	101	GE	MS
RHC=Rheem		TST=Thermostat	100=Non-Programmable 200=Programmable 300=Deluxe Programmable 400=Special Applications/ Programmable 500=Communicating/ Programmable	GE=Gas/Oil/Electric HP=Heat Pump MD=Modulating Furnace DF=Dual Fuel UN=Universal AC/HP/GE CM=Communicating	SS=Single-Stage MS=Multi-Stage

* Photos are representative. Actual models may vary.

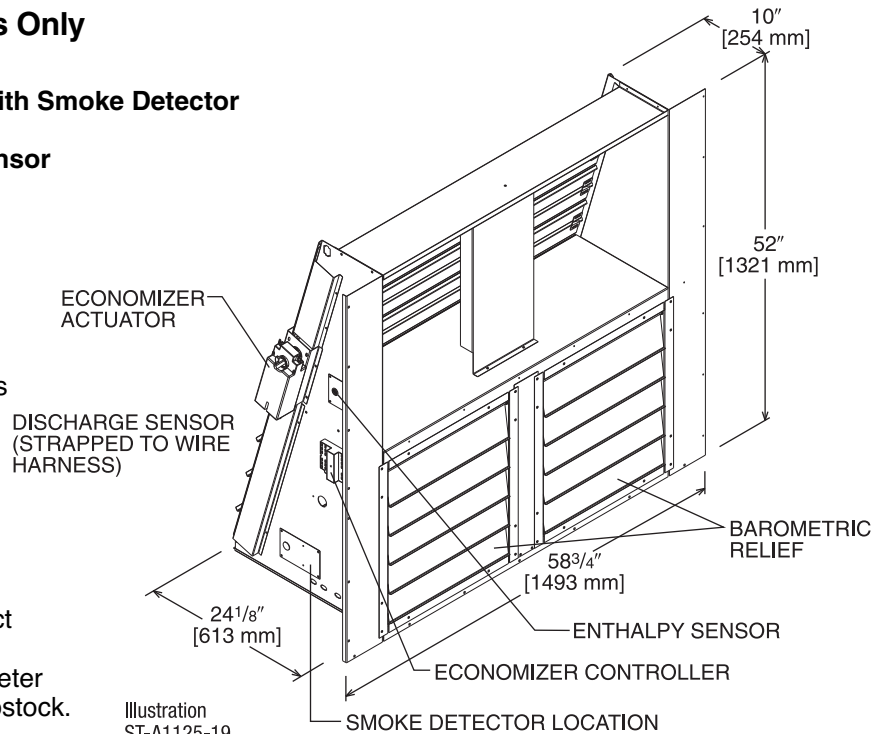
For detailed thermostat match-up information, see specification sheet form number T11-001.

ECONOMIZERS

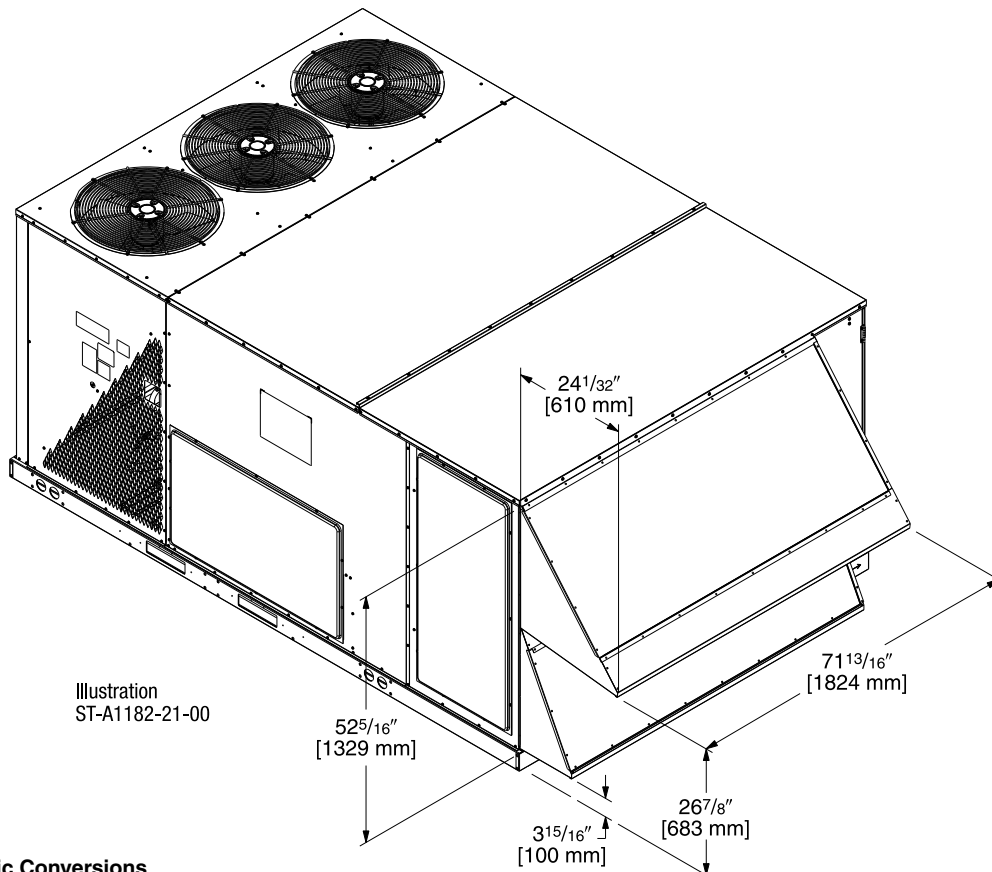
Use to Select Factory Installed Options Only

- RXRD-PGCM3—Single Enthalpy (Outdoor)**
- RXRD-SGCM3—Single Enthalpy (Outdoor) with Smoke Detector**
- RXXR-AV02—Dual Enthalpy Upgrade Kit**
- RXXR-AR02—Optional Wall-Mounted CO₂ Sensor**

- Features **Honeywell** Controls
- Available Factory Installed or Field Accessory
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO₂ Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Downflow Duct Application.
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock.
- Field Installed Power Exhaust Available



TOLERANCE ±.125



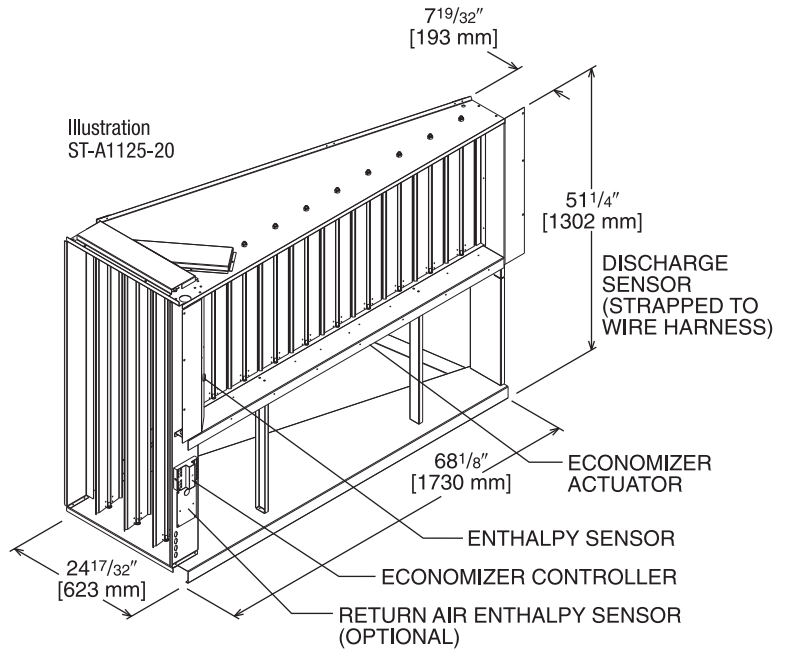
[] Designates Metric Conversions

ECONOMIZER FOR HORIZONTAL DUCT INSTALLATION

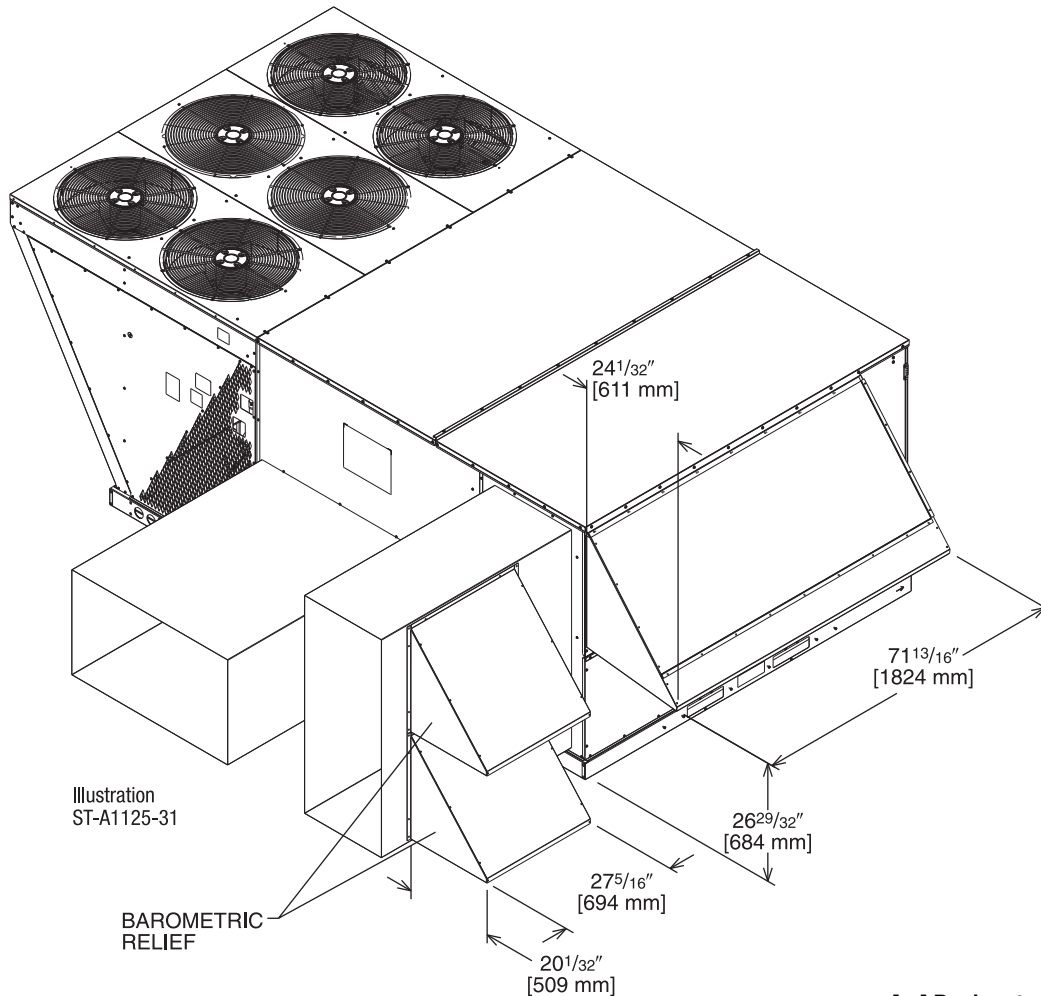
Field Installed Only

- RXRD-RGCM3—Single Enthalpy (Outdoor)
- RRRX-AV02—Dual Enthalpy Upgrade Kit
- RRRX-AR02—Wall-mounted CO₂ Sensor

- Features **Honeywell** Controls
- Available as a Field Installed Accessory Only
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Standard Barometric Relief Damper
- Single Enthalpy with Dual Enthalpy Upgrade Kit Available
- CO₂ Input Sensor Available
- Field Assembled Hood Ships with Economizer
- Economizer Ships Complete for Horizontal Duct Application
- Optional Remote Minimum Position Potentiometer (Honeywell #S963B1128) is Available from Prostock
- Field Installed Power Exhaust Available



TOLERANCE ± .125



[] Designates Metric Conversions

POWER EXHAUST KIT FOR RXRD-PGCM3 & SGCM3 ECONOMIZERS

RXRX-BGF05 (C, D, or Y*)

*Voltage Code

VERTICAL AIRFLOW

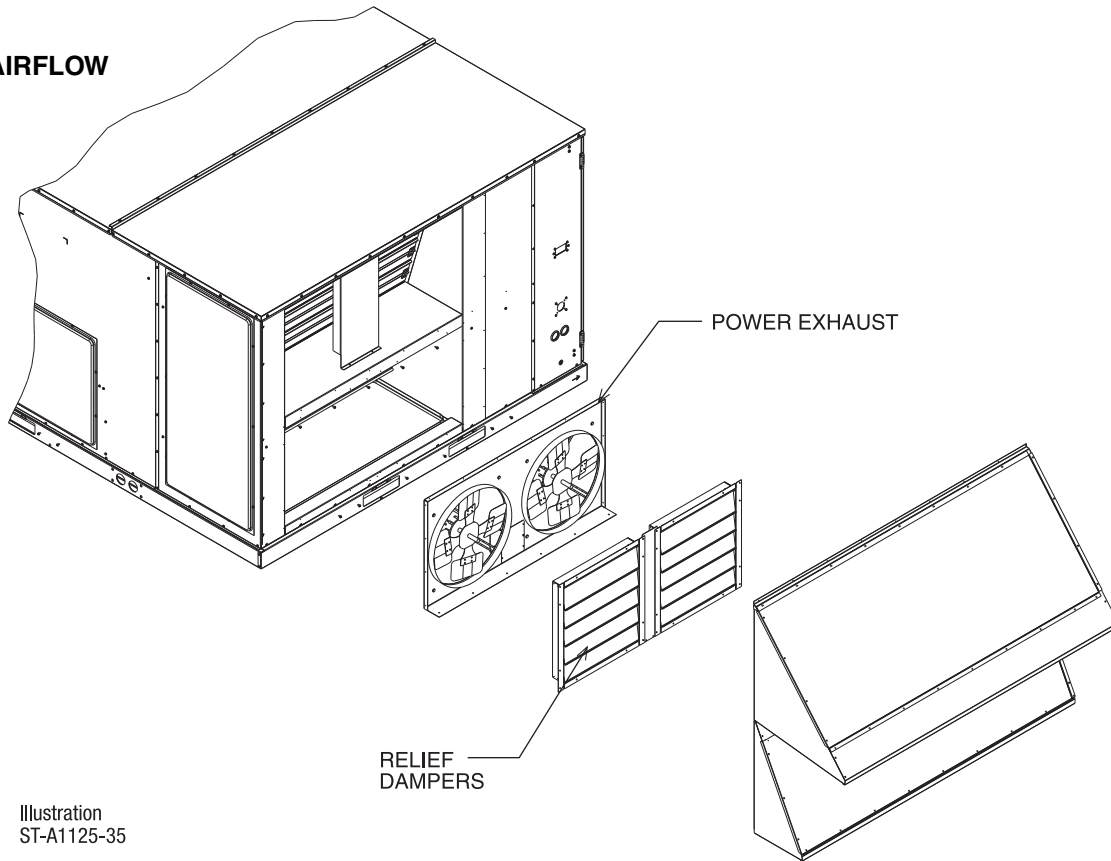


Illustration
ST-A1125-35

Model No.	No. of Fans	Volts	Phase	HP (ea.)	Low Speed		High Speed ①		FLA (ea.)	LRA (ea.)
					CFM [L/s] ②	RPM	CFM [L/s] ②	RPM		
RXRX-BGF05C	2	208-230	1	0.75	4100 [1935]	850	5200 [2454]	1050	5	4.97
RXRX-BGF05D	2	460	1	0.75	4100 [1935]	850	5200 [2454]	1050	2.2	3.4
RXRX-BGF05Y	2	575	1	0.75	4100 [1935]	850	5200 [2454]	1050	1.5	2.84

NOTES: ① Power exhaust is factory set on high speed motor tap.

② CFM is per fan at 0" w.c. external static pressure.

[] Designates Metric Conversions

FRESH AIR DAMPER

MOTORIZED DAMPER KIT
RXXR-AWO3
 (Motor Kit for RXRF-KFA1)

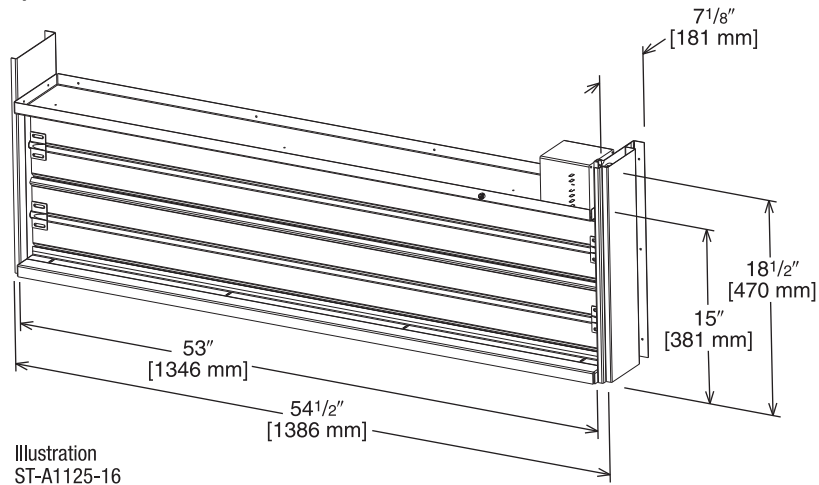


Illustration
ST-A1125-16

RXRF-KFA1 (Manual)
RXXR-AWO3 (Motorized damper kit for manual fresh air damper)

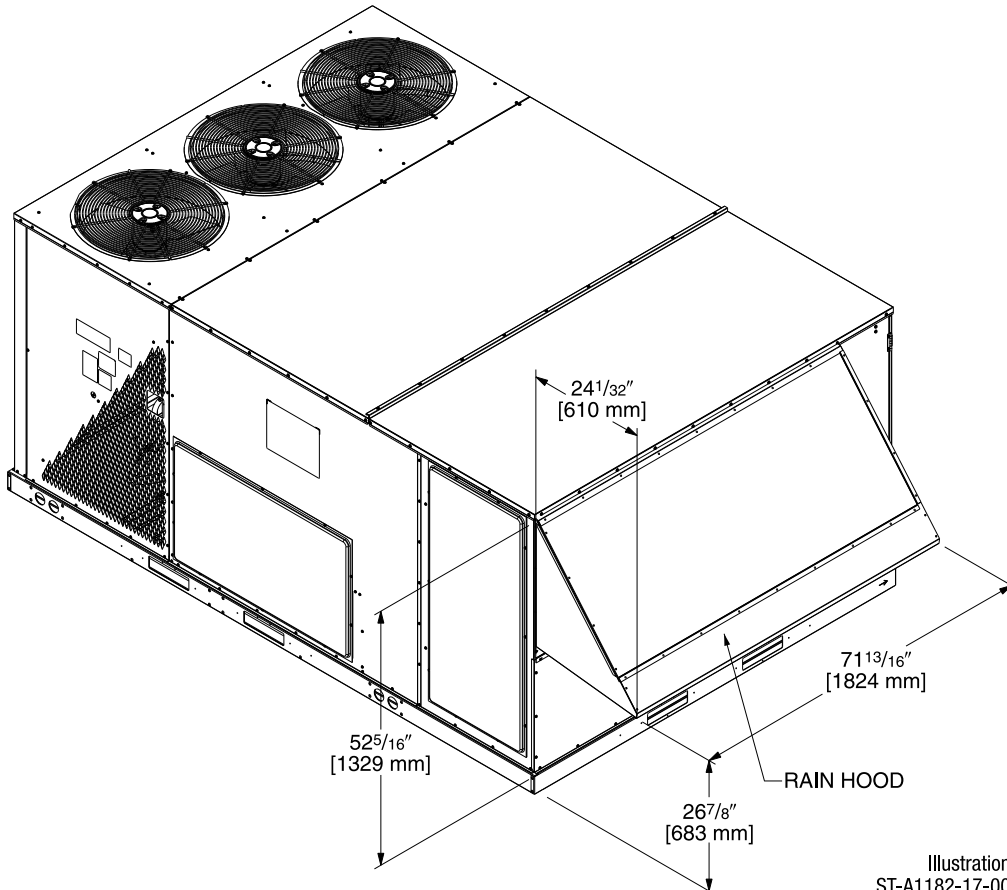


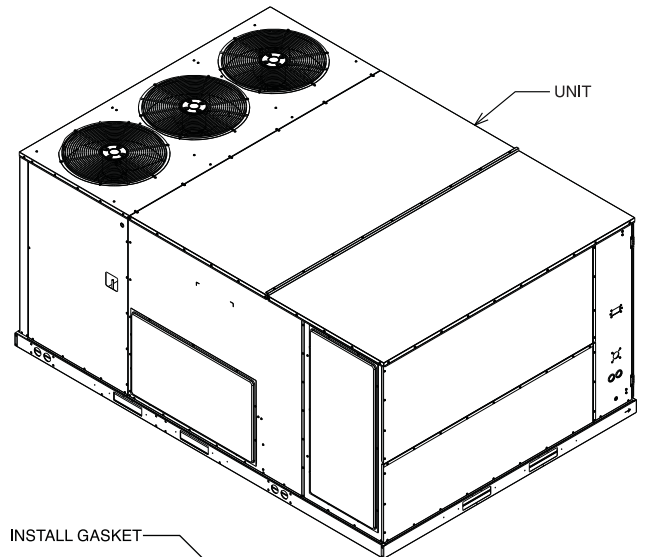
Illustration
ST-A1182-17-00

[] Designates Metric Conversions

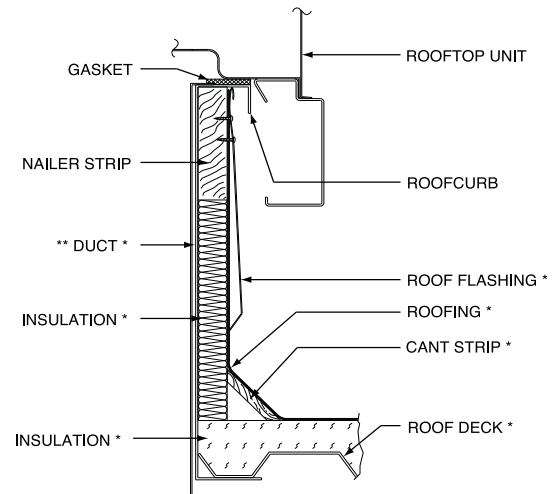
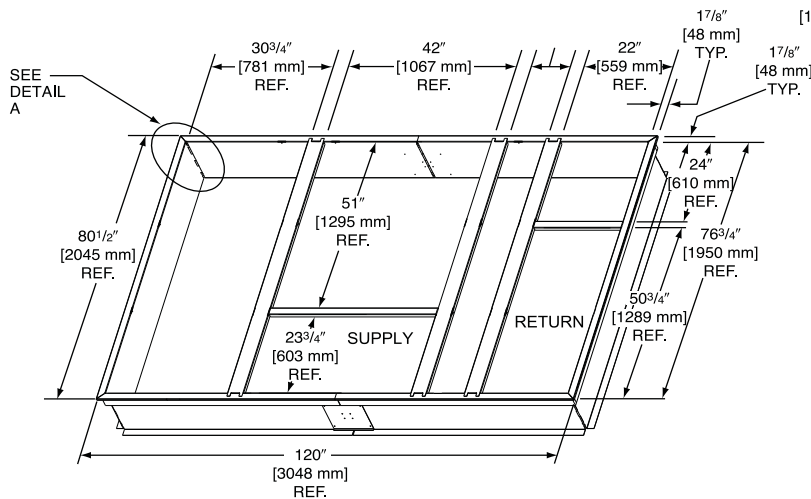
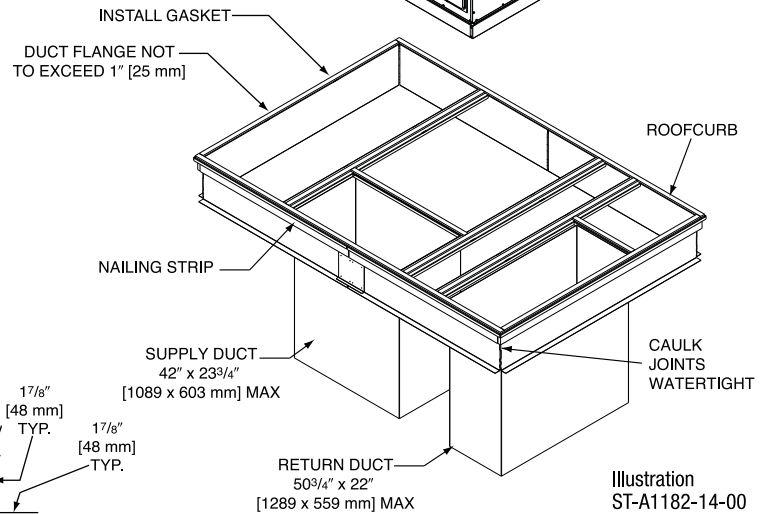
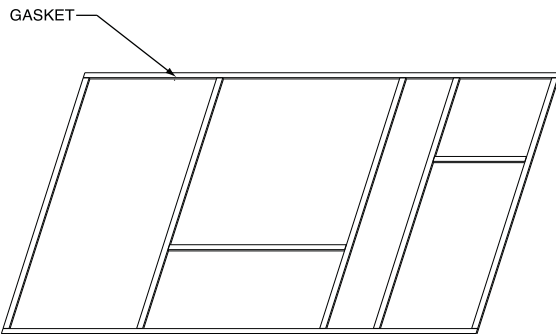
ROOFCURBS (Full Perimeter)

- Rheem's new roofcurb designs can be utilized on 15 & 20 ton [52.8 & 70.3 kW] models.
- One available height (14" [356 mm]).
- Quick assembly corners for simple and fast assembly.
- 1" [25.4 mm] x 4" [102 mm] Nailers provided.
- Insulating panels not required because of insulated outdoor base pan.
- Sealing gasket (28" [711 mm]) provided with Roofcurb.
- Packaged for easy field assembly.

TYPICAL INSTALLATION



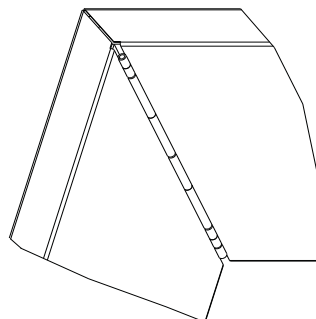
ROOFCURB ASSEMBLY



* BY CONTRACTOR

** FOR INSTALLATION OF DUCT AS SHOWN, USE RECOMMENDED DUCT SIZES FROM ROOFCURB INSTALLATION INSTRUCTIONS. FOR DUCT FLANGE ATTACHMENT TO UNIT, SEE INSTALLATION INSTRUCTIONS FOR RECOMMENDED DUCT SIZES.

Illustration
ST-A1125-14



DETAIL A

ROOFCURB ADAPTER

OLD MODELS

COMMERCIAL CABINET
(12.5, 15 & 20 TON)
([44, 52.8 & 70.3 kW])
(-)RCF, (-)RGF, (-)REF

OLD CURB MODEL

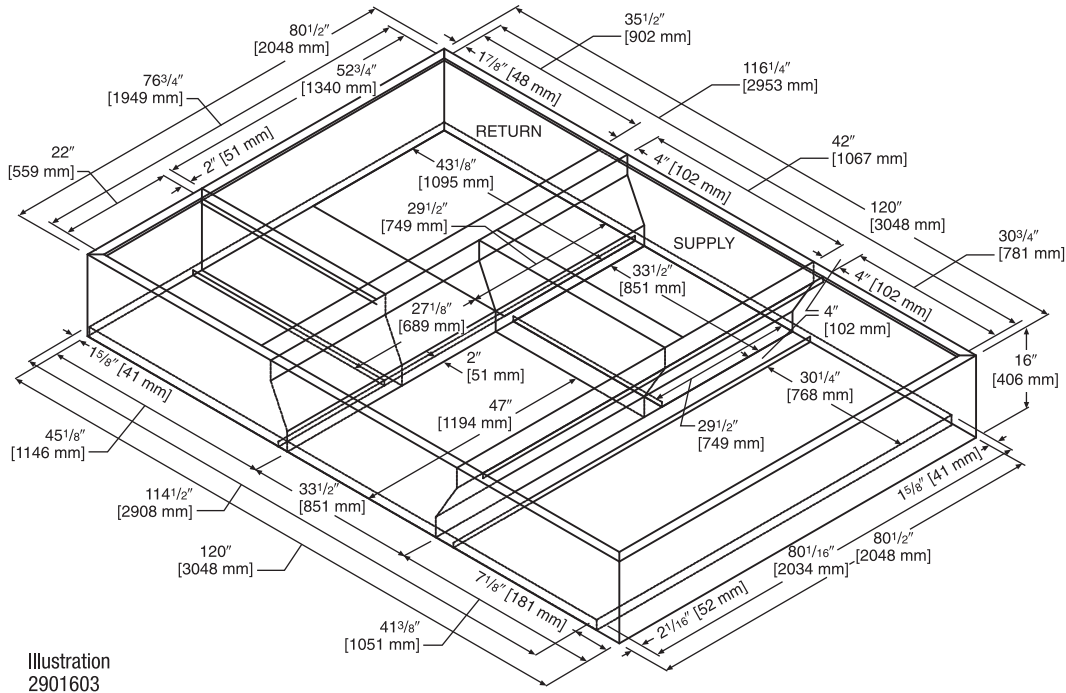
RXRK-E56

ROOFCURB ADAPTER

RXRX-CJCE56

NEW MODEL

(-)KKL
(15 & 20 TON)
([52.8 & 70.3 kW])

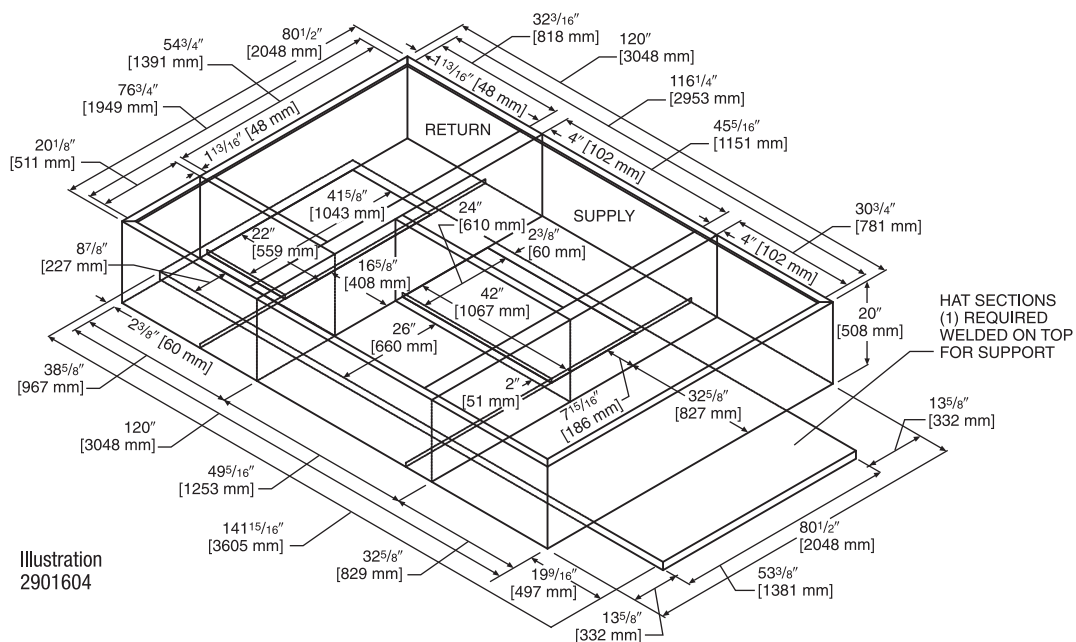


COMMERCIAL CABINET
(15, 20 & 25 TON)
([52.8, 70.3, 87.9 kW])
(-)KKB, (-)KMB, (-)KNB

RXKG-CAF14

RXRX-CJCF14

(-)KKL
(15 & 20 TON)
([52.8 & 70.3 kW])



CONCENTRIC DIFFUSER APPLICATION

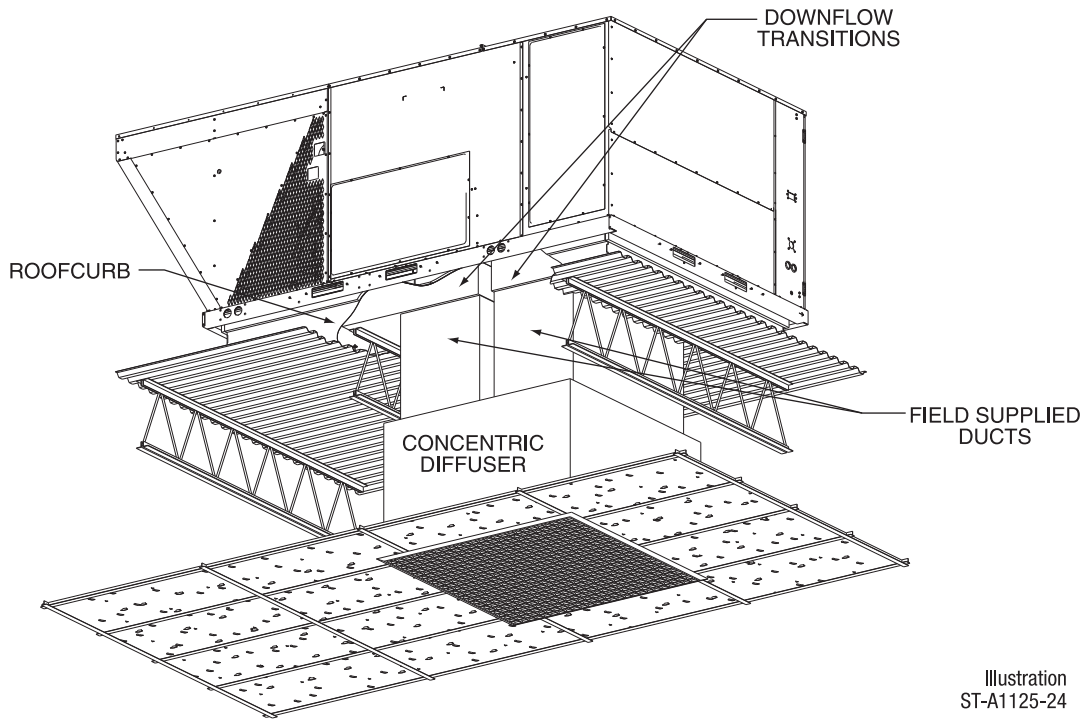


Illustration
ST-A1125-24

DOWNFLOW TRANSITION DRAWINGS

RXMC-CJ07 (15 Ton) [52.8 kW]

- Used with RXRN-AD80 and RXRN-AD81 Concentric Diffusers.

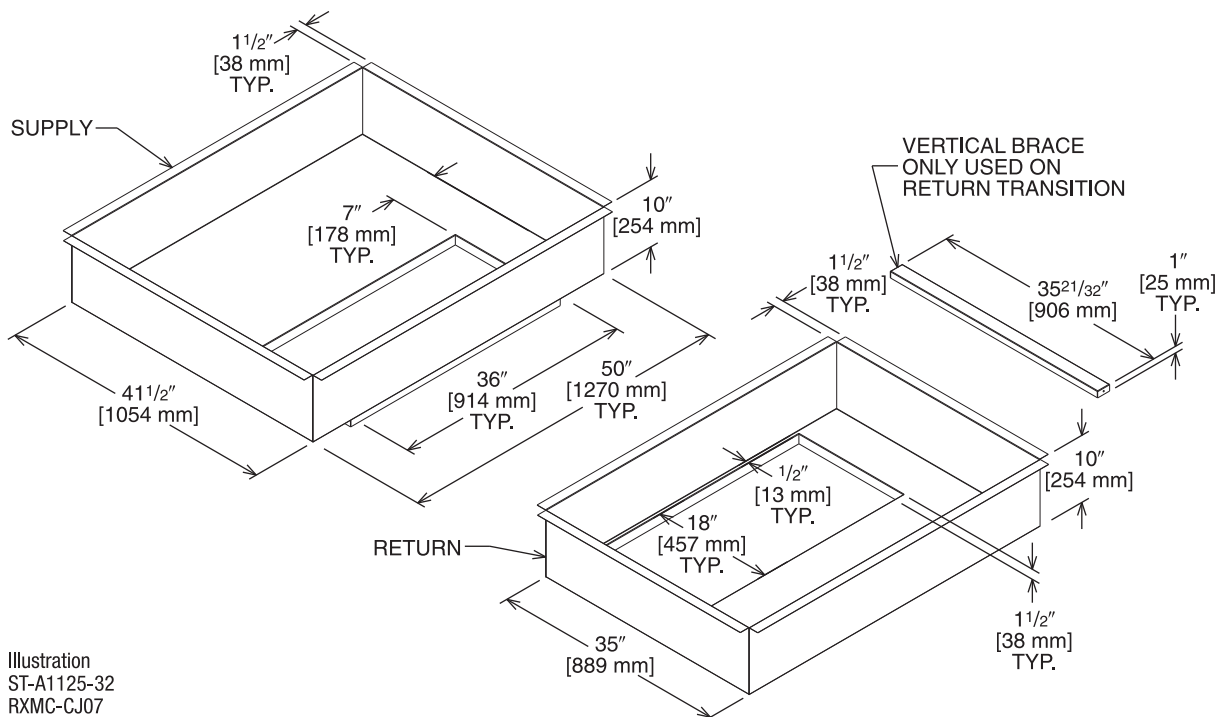


Illustration
ST-A1125-32
RXMC-CJ07

[] Designates Metric Conversions

DOWNFLOW TRANSITION DRAWINGS (Cont.)

RXMC-CK08 (20 Ton) [70.3 kW]

- Used with RXRN-AD86 Concentric Diffusers.

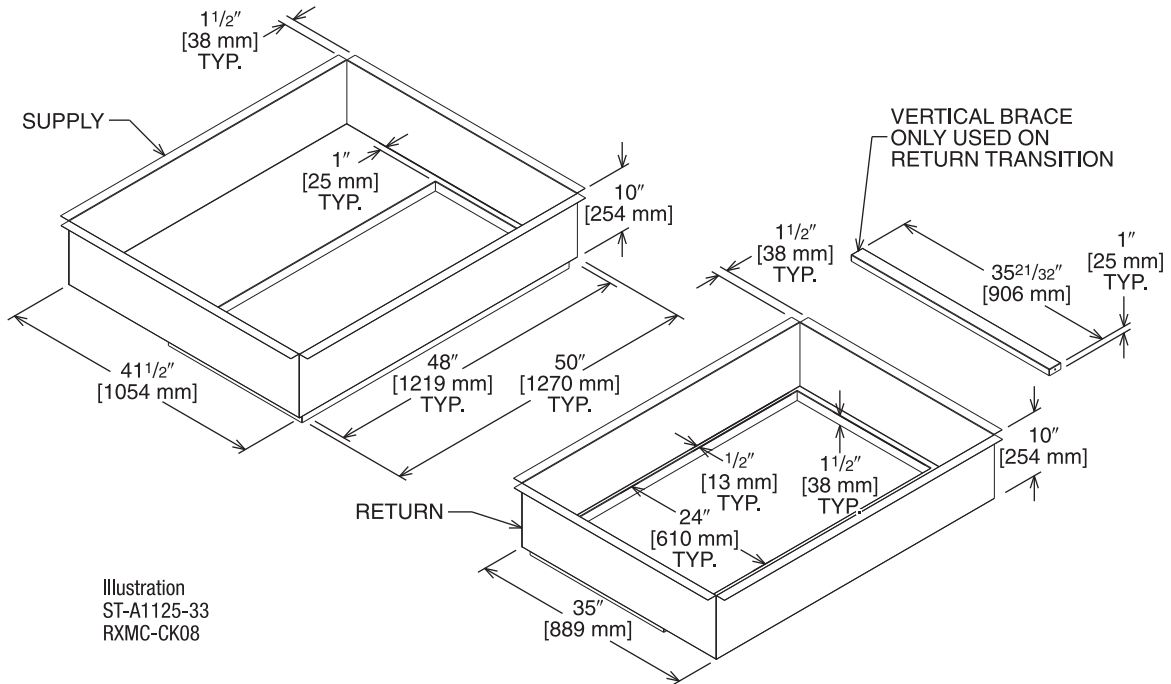
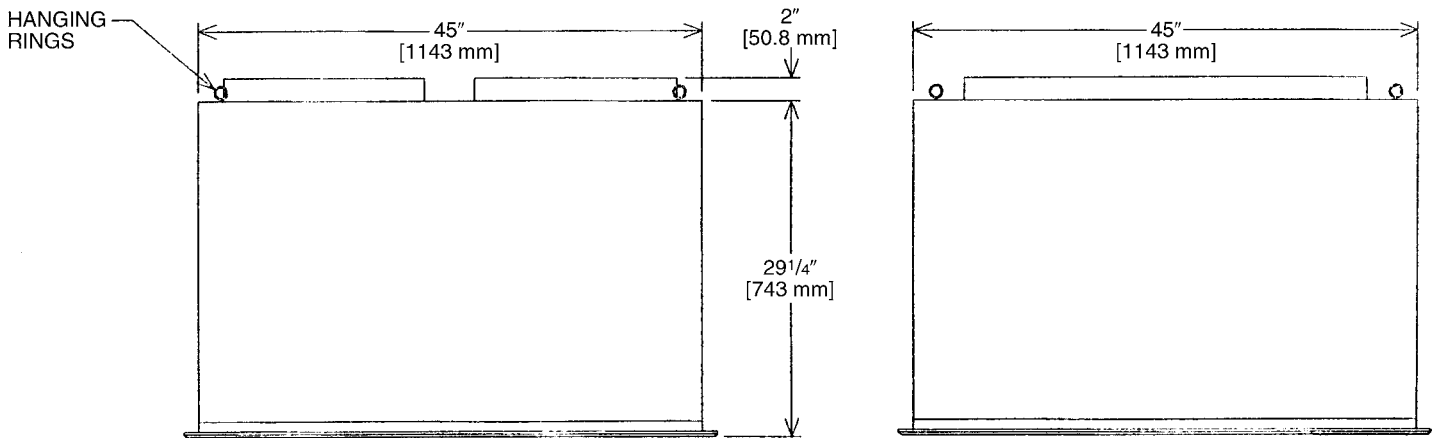
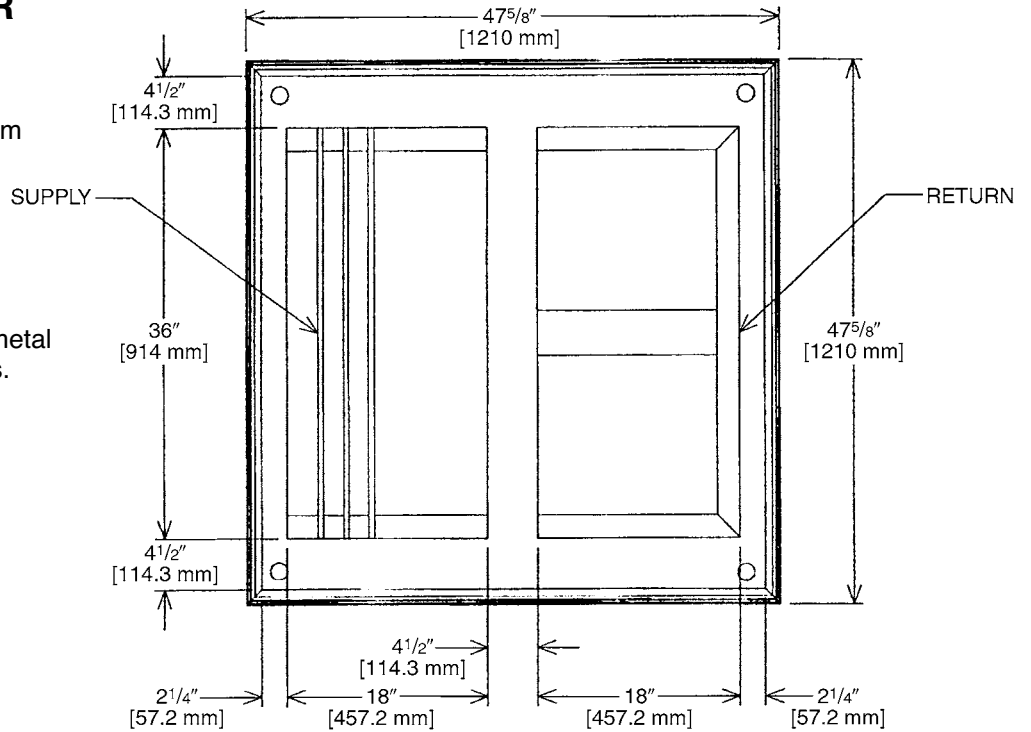


Illustration
ST-A1125-33
RXMC-CK08

[] Designates Metric Conversions

CONCENTRIC DIFFUSER RXRN-AD80 SERIES 15 TON [52.8 kW] FLUSH

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.



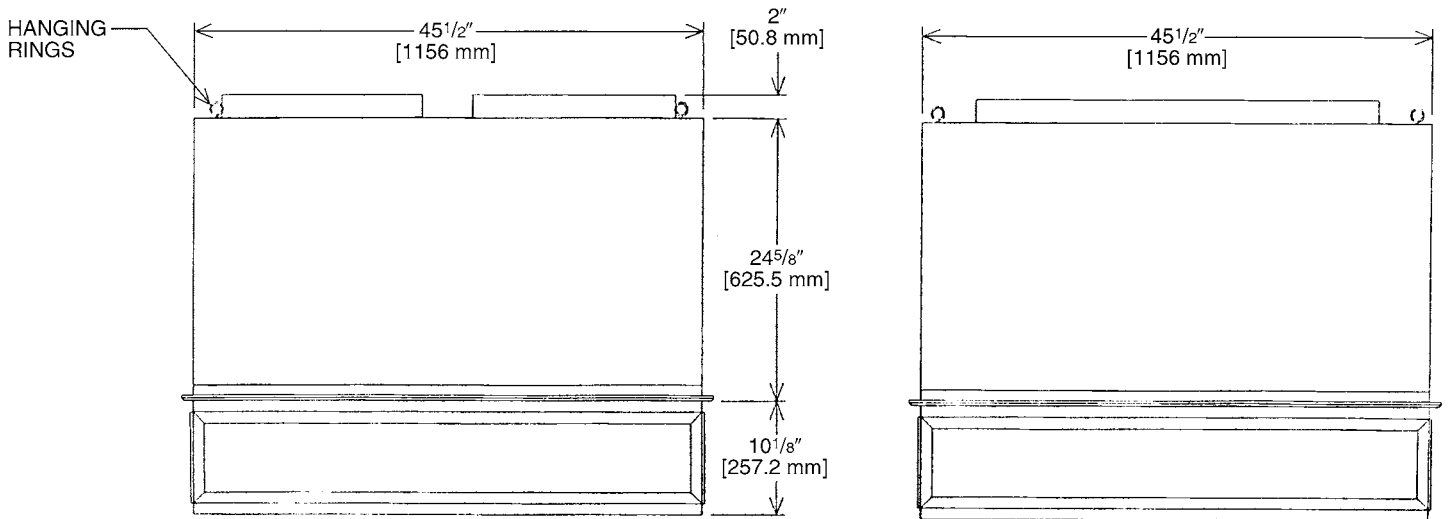
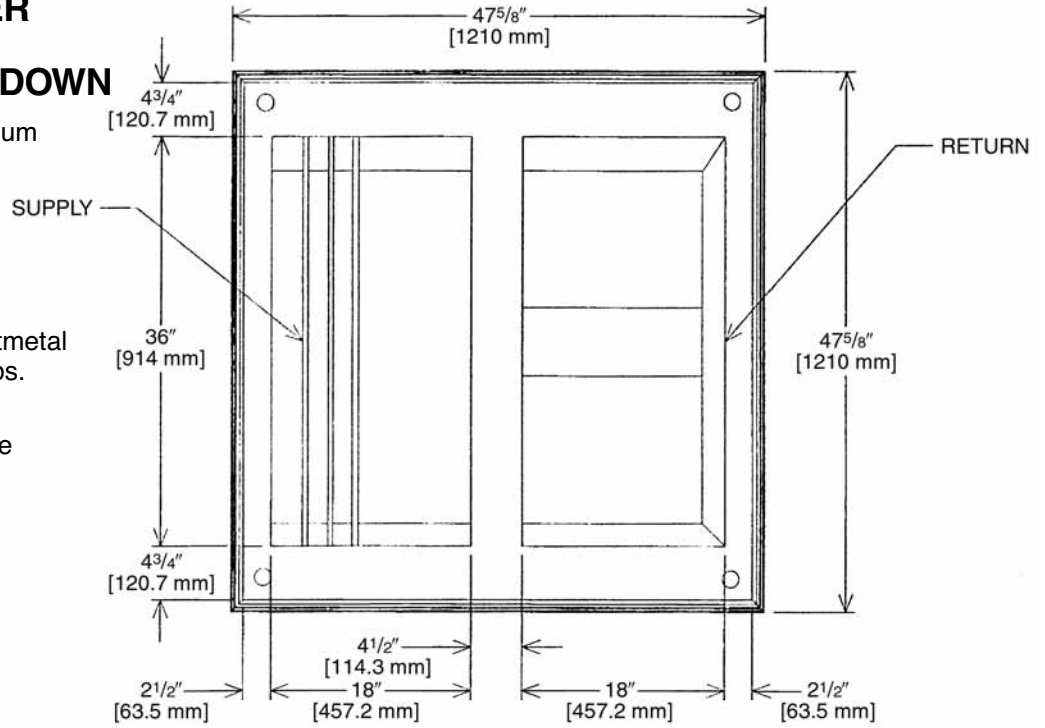
CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD80	5600 [2643]	0.36	28-37	1000	2082
	5800 [2737]	0.39	29-38	1036	2156
	6000 [2832]	0.42	40-50	1071	2230
	6200 [2926]	0.46	42-51	1107	2308
	6400 [3020]	0.50	43-52	1143	2379
	6600 [3115]	0.54	45-56	1179	2454

[] Designates Metric Conversions

CONCENTRIC DIFFUSER RXRN-AD81 SERIES 15 TON [52.8 kW] STEP DOWN

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.
- Double deflection diffuser with the blades secured by spring steel.



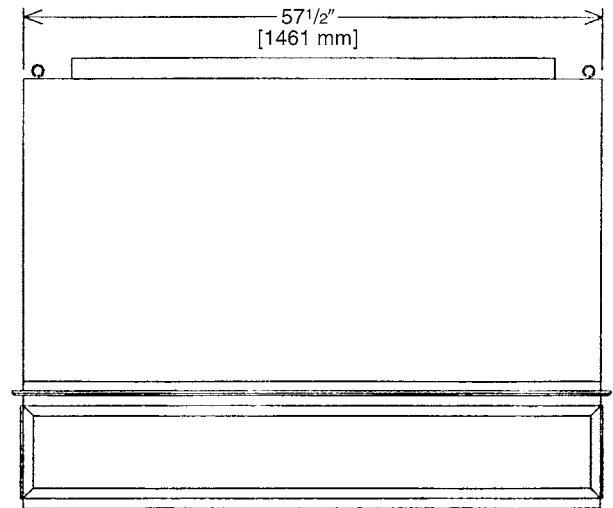
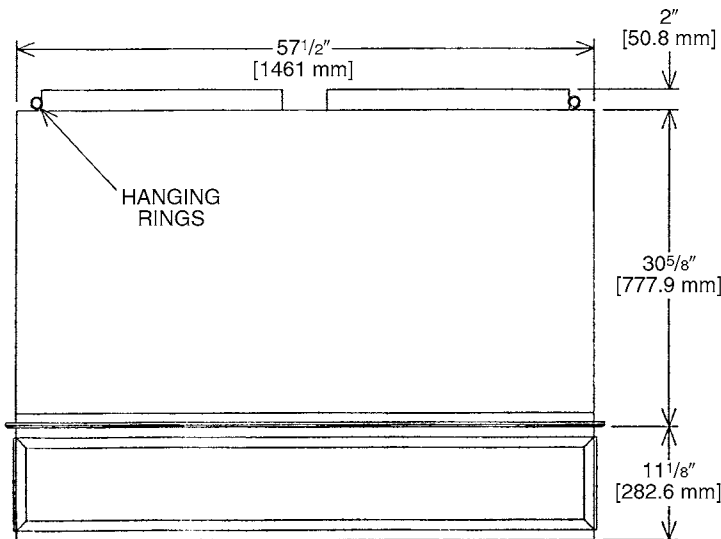
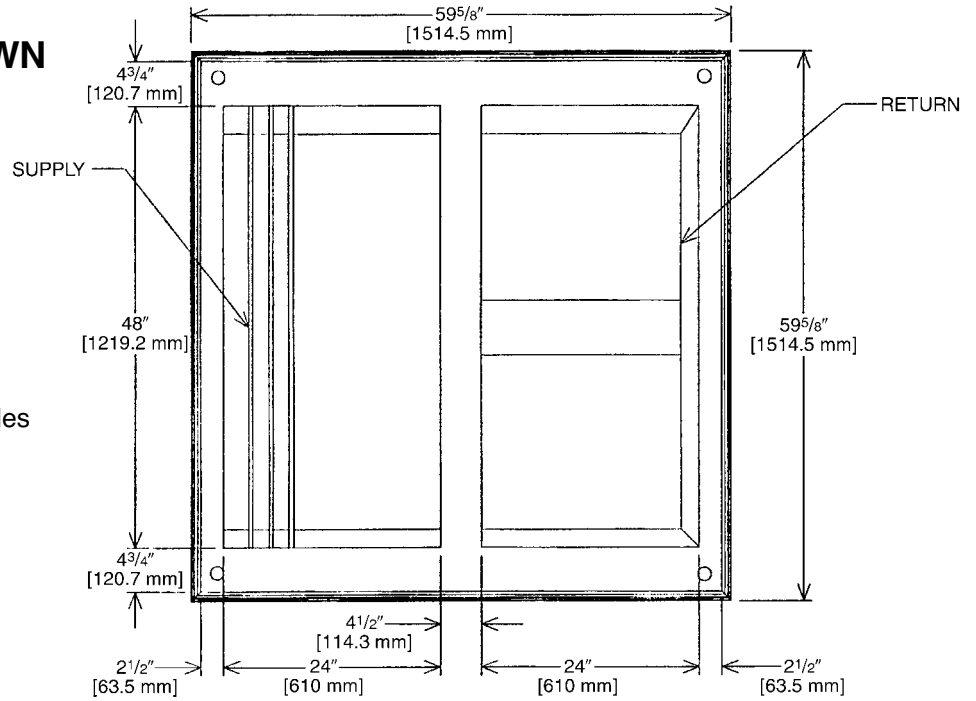
CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD81	5600 [2643]	0.36	39-49	920	920
	5800 [2737]	0.39	42-51	954	954
	6000 [2832]	0.42	44-54	1022	1022
	6200 [2926]	0.46	45-55	1056	1056
	6400 [3020]	0.50	46-55	1090	1090
	6600 [3115]	0.54	47-56	1124	1124

[] Designates Metric Conversions

CONCENTRIC DIFFUSER RXRN-AD86 SERIES 20 TON [70.3 kW] STEP DOWN

- All aluminum diffuser with aluminum return air eggcrate.
- Built-in anti-sweat gasket.
- Molded fiberglass supports.
- Built-in hanging supports.
- Diffuser box constructed of sheetmetal insulated with 1" [25.4 mm] 1.5 lbs. [.7 kg] duct liner.
- Double deflection diffuser with the blades secured by spring steel.



CONCENTRIC DIFFUSER SPECIFICATIONS

PART NUMBER	CFM [L/s]	STATIC PRESSURE	THROW FEET	NECK VELOCITY	JET VELOCITY
RXRN-AD86	7200 [3398]	0.39	33-38	827	827
	7400 [3492]	0.41	35-40	850	850
	7600 [3587]	0.43	36-41	873	873
	7800 [3681]	0.47	38-43	896	896
	8000 [3776]	0.50	39-44	918	918
	8200 [3870]	0.53	41-46	941	941
	8400 [3964]	0.56	43-49	964	964
	8600 [4059]	0.59	44-50	987	987
	8800 [4153]	0.63	47-55	1010	1010

[] Designates Metric Conversions

Guide Specifications RKKL-B180 thru B240

Note about this specification: Please feel free to copy this specification directly into your building spec. This specification is written to comply with the 2004 version of the “mask-format” as published by the Construction Specification Institute. www.csinet.org.

GAS HEAT PACKAGED ROOFTOP

HVAC Guide Specifications

Size Range: 15 to 20 Nominal Tons

Section	Description
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23 06 80	Schedules for Decentralized HVAC Equipment
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23 06 80.13	Decentralized Unitary HVAC Equipment Schedule
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23 06 80.13.A.	Rooftop unit schedule
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1. Schedule is per the project specification requirements.

23 07 16	HVAC Equipment Insulation
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23 07 16.13	Decentralized, Rooftop Units:
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1. Interior cabinet surfaces shall be insulated with a minimum 3/4-in. thick, minimum 1-1/2 lb density, flexible fiberglass insulation bonded with a phenolic binder, with aluminum foil facing on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

23 09 13	Instrumentation and Control Devices for HVAC
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23 09 13.23	Sensors and Transmitters:
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23 09 13.23.A.	Thermostats
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1. Thermostat must
 - a. energize “G” when calling for heat.
 - b. have capability to energize 2 different stages of cooling, and 2 different stages of heating.
 - c. must include capability for occupancy scheduling.

23 09 33	Electric and Electronic Control System for HVAC
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23 09 33.13	Decentralized, Rooftop Units:
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23 09 33.13.A.	General:
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1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side.
2. Shall utilize color-coded wiring.
3. The heat exchanger shall be controlled by an integrated furnace controller (IFC) microprocessor. See heat exchanger section of this specification.
4. Unit shall include a minimum of one 9-pin screw terminal connection board for connection of control wiring.

23 09 33.23.B.	Safeties:
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1. Compressor over-temperature, over current.
2. Low-pressure switch.
3. High-pressure switch.
4. Automatic reset, motor thermal overload protector.
5. Heating section shall be provided with the following minimum protections.
 - a. High-temperature limit switches.
 - b. Induced draft motor pressure switch.
 - c. Flame rollout switch.
 - d. Flame proving controls.

23 09 93	Sequence of Operations for HVAC Controls
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23 09 93.13	Decentralized, Rooftop Units:
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23 09 93.13	INSERT SEQUENCE OF OPERATION
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23 40 13	Panel Air Filters
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23 40 13.13	Decentralized, Rooftop Units:
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23 40 13.13.A.	Standard filter section shall
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1. Shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
2. Unit shall use only one filter size. Multiple sizes are not acceptable.
3. Filter face velocity shall not exceed 365 fpm at nominal airflows.
4. Filters shall be accessible through an access panel as described in the unit cabinet section of the specification (23 81 19.13.H).



23 81 19 Self-Contained Air Conditioners

23 81 19.13 Small-Capacity Self-Contained Air Conditioners

23 81 19.13.A. General

1. Outdoor, rooftop mounted, electrically controlled, heating and cooling unit utilizing a(n) hermetic scroll compressor(s) for cooling duty and gas combustion for heating duty.
2. Factory assembled, single-piece heating and cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
3. Unit shall use environmentally safe, R-410A refrigerant.
4. Unit shall be installed in accordance with the manufacturer's instructions.
5. Unit must be selected and installed in compliance with local, state, and federal codes.

23 81 19.13.B. Quality Assurance

1. Unit meets ASHRAE 90.1-2004 minimum efficiency requirements.
2. 3 phase units are Energy Star qualified.
3. Unit shall be rated in accordance with AHRI Standards 210 and 360.
4. Unit shall be designed to conform to ASHRAE 15, 2001.
5. Unit shall be UL-tested and certified in accordance with ANSI Z21.47 Standards and UL-listed and certified under Canadian standards as a total package for safety requirements.
6. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
7. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
8. Unit casing shall be capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 5000-hour salt spray.
9. Unit shall be designed in accordance with ISO 9001:2000, and shall be manufactured in a facility registered by ISO 9001:2000.
10. Roof curb shall be designed to conform to NRCA Standards.
11. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.
12. Unit shall be designed in accordance with UL Standard 1995, including tested to withstand rain.
13. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.

23 81 19.13.C. Delivery, Storage, and Handling

1. Unit shall be stored and handled per manufacturer's recommendations.
2. Lifted by crane requires either shipping top panel or spreader bars.
3. Unit shall only be stored or positioned in the upright position.

23 81 19.13.E. Project Conditions

1. As specified in the contract.

23 81 19.13.F. Operating Characteristics

1. Unit shall be capable of starting and running at 115°F (46°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 210/240 or 360 at $\pm 10\%$ voltage.
2. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. Accessory low ambient kit is necessary if mechanically cooling at ambient temperatures below 40°F (4°C).
3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
4. Unit shall be factory configured for vertical supply & return configurations.
5. Unit shall be field convertible from vertical to horizontal configuration.

23 81 19.13.G. Electrical Requirements

1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.

23 81 19.13.H. Unit Cabinet

1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a baked enamel finish on all externally exposed surfaces.
2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 inches minimum, gloss (per ASTM D523, 60°F / 16°C): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210 or 360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 3/4-in. thick, 1 lb. density, flexible fiberglass insulation, aluminum foil-face coated on the air side.
4. Base of unit shall have locations for thru-the-base gas and electrical connections (factory installed or field installed), standard.

5. Base Rail
 - a. Unit shall have base rails on all sides.
 - b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
 - c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
 - d. Base rail shall be a minimum of 14 gauge thickness.
6. Condensate pan and connections:
 - a. Shall be a sloped condensate drain pan made of a non-corrosive material.
 - b. Shall comply with ASHRAE Standard 62.
 - c. Shall use a 1" x 11-1/2 NPT drain connection through the side of the drain pan. Connection shall be made per manufacturer's recommendations.
7. Gas Connections:
 - a. All gas piping connecting to unit gas valve shall enter the unit cabinet at a single location on side of unit (horizontal plane).
 - b. Thru-the-base capability
 - i. Standard unit shall have a thru-the-base gas-line location using a raised, embossed portion of the unit basepan.
 - ii. No basepan penetration, other than those authorized by the manufacturer, is permitted.
8. Electrical Connections
 - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.
 - b. Thru-the-base capability
 - i. Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
 - ii. No basepan penetration, other than those authorized by the manufacturer, is permitted.
9. Component access panels (standard)
 - a. Cabinet panels shall be easily removable for servicing.
 - b. Stainless steel metal hinges are standard on all doors.

23 81 19.13.I. Gas Heat

1. General
 - a. Heat exchanger shall be an induced draft design. Positive pressure heat exchanger designs shall not be allowed.
 - b. Shall incorporate a direct-spark ignition system and redundant main gas valve.
 - c. Heat exchanger design shall allow combustion process condensate to gravity drain; maintenance to drain the gas heat exchanger shall not be required.
 - d. Gas supply pressure at the inlet to the rooftop unit gas valve must match that required by the manufacturer.
2. The heat exchanger shall be controlled by an integrated furnace controller (IFC) microprocessor.
 - a. IFC board shall notify users of fault using an LED (light-emitting diode).
3. Standard Heat Exchanger construction
 - a. Heat exchanger shall be of the tubular-section type constructed of a minimum of 20-gauge aluminum coated steel for corrosion resistance.
 - b. Burners shall be of the in-shot type constructed of aluminum-coated steel.
 - c. Burners shall incorporate orifices for rated heat output up to 2000 ft (610m) elevation. Additional accessory kits may be required for applications above 2000 ft (610m) elevation, depending on local gas supply conditions.
4. Optional Stainless Steel Heat Exchanger construction
 - a. Use energy saving, direct-spark ignition system.
 - b. Use a redundant main gas valve.
 - c. Burners shall be of the in-shot type constructed of aluminum-coated steel.
 - d. All gas piping shall enter the unit cabinet at a single location on side of unit (horizontal plane).
 - e. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20-gauge type 409 stainless steel.
 - f. Type 409 stainless steel shall be used in heat exchanger tubes and vestibule plate.
 - g. Complete stainless steel heat exchanger allows for greater application flexibility.
5. Induced draft combustion motors and blowers
 - a. Shall be a direct-drive, single inlet, forward-curved centrifugal type.
 - b. Shall be made from steel with a corrosion-resistant finish.
 - c. Shall have permanently lubricated sealed bearings.
 - d. Shall have inherent thermal overload protection.
 - e. Shall have an automatic reset feature.



23 81 19.13.J. Coils

1. Standard Aluminum/Copper Coils:

- a. Standard evaporator shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved copper tubes with all joints brazed.
- b. Evaporator and condenser coils shall be leak tested to 150 psig, pressure tested to 550 psig, and qualified to UL 1995 burst test at 2,200 psi.
- c. Condenser coils shall be aluminum MicroChannel coils

23 81 19.13.K. Refrigerant Components

1. Refrigerant circuit shall include the following control, safety, and maintenance features:

- a. Capillary tubes.
- b. Refrigerant filter drier.
- c. Service gauge connections on suction and discharge lines.
- d. Pressure gauge access through an access port in the front and rear panel of the unit.

2. Compressors

- a. Unit shall use one fully hermetic, scroll compressor for each independent refrigeration circuit.
- b. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
- c. Compressors shall be internally protected from high discharge temperature conditions. Advanced Scroll Temperature Protection on 240 size.
- d. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
- e. Compressor shall be factory mounted on rubber grommets.
- f. Compressor motors shall have internal line break thermal and current overload protection.
- g. Crankcase heaters shall not be required for normal operating range.

23 81 19.13.L. Filter Section

1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by filter tray, facilitating easy removal and installation.
3. Shall consist of factory-installed, low velocity, throw-away 2-in. thick fiberglass filters.
4. Filter face velocity shall not exceed 365 fpm at nominal airflows.
5. Filters shall be standard, commercially available sizes.
6. Only one size filter per unit is allowed.

23 81 19.13.M. Evaporator Fan and Motor

1. Evaporator fan motor:

- a. Shall have permanently lubricated bearings.
- b. Shall have inherent automatic-reset thermal overload protection.
- c. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.

2. Belt-driven Evaporator Fan:

- a. Belt drive shall include an adjustable-pitch motor pulley.
- b. Shall use sealed, permanently lubricated ball-bearing type.
- c. Blower fan shall be double-inlet type with forward-curved blades.
- d. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.

23 81 19.13.N. Condenser Fans and Motors

1. Condenser fan motors:

- a. Shall be a totally enclosed motor.
- b. Shall use permanently lubricated bearings.
- c. Shall have inherent thermal overload protection with an automatic reset feature.
- d. Shall use a shaft-down design. Shaft-up designs including those with “rain-slinger devices” shall not be allowed.

2. Condenser Fans shall:

- a. Shall be a direct-driven propeller type fan
- b. Shall have aluminum blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.



23 81 19.13.O. Special Features

1. Integrated Economizers:

- a. Integrated, gear-driven parallel modulating blade design type capable of simultaneous economizer and compressor operation.
- b. Independent modules for vertical or horizontal return configurations shall be available. Vertical return modules shall be available as a factory installed option.
- c. Damper blades shall be galvanized steel with metal gears. Plastic or composite blades on intake or return shall not be acceptable.
- d. Shall include all hardware and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
- e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
- f. Shall be capable of introducing up to 100% outdoor air.
- g. Shall be equipped with a barometric relief damper capable of relieving up to 100% return air. The barometric relief damper shall include seals, hardware and hoods to relieve building pressure. Damper shall gravity close upon unit shut down.
- h. Shall be designed to close damper(s) during loss-of-power situations with spring return built into motor.
- i. An outdoor single-enthalpy sensor shall be provided as standard. Outdoor air enthalpy set point shall be adjustable and shall range from the enthalpy equivalent of 63°F @ 50% rh to 73°F @ 50% rh. Additional sensor options shall be available as accessories.
- j. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 70%, with a range of 0% to 100%.
- k. The economizer shall maintain minimum airflow into the building during occupied period and provide design ventilation rate for full occupancy. A remote potentiometer may be used to override the damper set point.
- l. Economizer controller shall accept a 2-10Vdc CO2 sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor-air damper to provide ventilation based on the sensor input.
- m. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
- n. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.

2. Two-Position Damper

- a. Damper shall be a Two-Position Damper. Damper travel shall be from the full closed position to the field adjustable %-open setpoint.
- b. Damper shall include adjustable damper travel from 25% to 100% (full open).
- c. Damper shall include single or dual blade, gear driven damper and actuator motor.
- d. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
- e. Damper will admit up to 100% outdoor air for applicable rooftop units.
- f. Damper shall close upon indoor (evaporator) fan shutoff and/or loss of power.
- g. The damper actuator shall plug into the rooftop unit's wiring harness plug. No hard wiring shall be required.
- h. Outside air hood shall include aluminum water entrainment filter.

3. Manual damper

- a. Manual damper package shall consist of damper, air inlet screen, and rain hood which can be preset to admit up to 50% outdoor air for year round ventilation.

4. Head Pressure Control Package

- a. Controller shall control coil head pressure by condenser-fan cycling.

5. Liquid Propane (LP) Conversion Kit

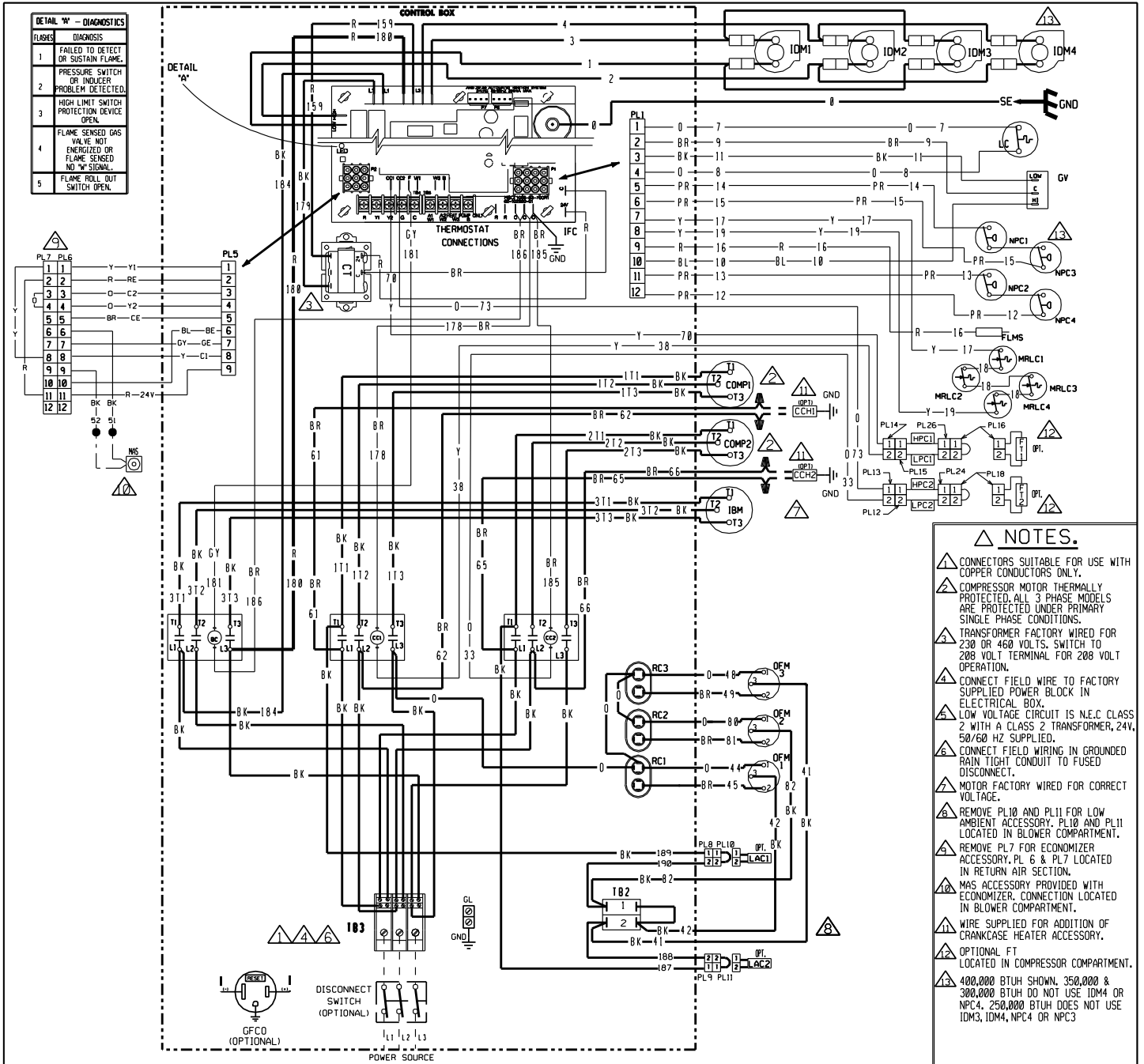
- a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit for use with liquefied propane, up to 2000 ft (610m) elevation.

6. Unit-Mounted, Non-Fused Disconnect Switch:

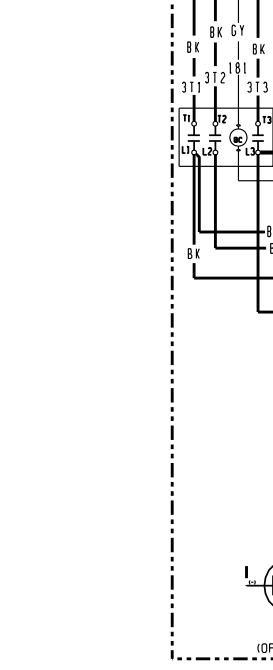
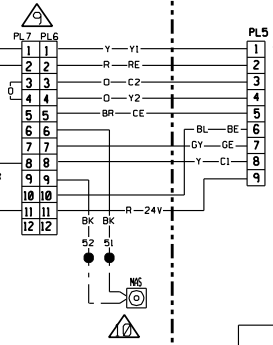
- a. Switch shall be factory-installed, internally mounted.
- b. National Electric Code (NEC) and UL approved non-fused switch shall provide unit power shutoff.
- c. Shall be accessible from outside the unit.
- d. Shall provide local shutdown and lockout capability.



- e. Non-Powered convenience outlet.
 - f. Outlet shall be powered from a separate 115-120v power source.
 - g. A transformer shall not be included.
 - h. Outlet shall be field-installed and internally mounted with easily accessible 115-v female receptacle.
 - i. Outlet shall include 15 amp GFI receptacle.
 - j. Outlet shall be accessible from outside the unit.
7. Flue Discharge Deflector:
- a. Flue discharge deflector shall direct unit exhaust vertically instead of horizontally.
 - b. Deflector shall be defined as a “natural draft” device by the National Fuel and Gas (NFG) code.
8. Thru-the-Base Connectors:
- a. Kits shall provide connectors to permit gas and electrical connections to be brought to the unit through the unit basepan.
9. Propeller Power Exhaust:
- a. Power exhaust shall be used in conjunction with an integrated economizer.
 - b. Independent modules for vertical or horizontal return configurations shall be available.
 - c. Horizontal power exhaust is shall be mounted in return ductwork.
 - d. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0-100% adjustable setpoint on the economizer control.
10. Roof Curbs (Vertical):
- a. Full perimeter roof curb with exhaust capability providing separate airstreams for energy recovery from the exhaust air without supply air contamination.
 - b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
 - c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
11. Universal Gas Conversion Kit:
- a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit to operate from 2000-7000 ft (610 to 2134m) elevation with natural gas or from 0-7000 ft (90-2134m) elevation with liquefied propane.
12. Outdoor Air Enthalpy Sensor:
- a. The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
13. Return Air Enthalpy Sensor:
- a. The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
14. Indoor Air Quality (CO₂) Sensor:
- a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
 - b. The IAQ sensor shall be available in wall mount with LED display. The set point shall have adjustment capability.
15. Smoke detectors:
- a. Shall be a Four-Wire Controller and Detector.
 - b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
 - c. Shall use magnet-activated test/reset sensor switches.
 - d. Shall have tool-less connection terminal access.
 - e. Shall have a recessed momentary switch for testing and resetting the detector.
 - f. Controller shall include:
 - i. One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel
 - ii. Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
 - iii. One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
 - iv. Capable of direct connection to two individual detector modules.
 - v. Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.



DETAIL 'W' - DIAGNOSTICS	
FLAG	DIAGNOSIS
1	FAILED TO DETECT OR SUSTAIN FLAME.
2	PRESSURE SWITCH OR INDUCER PROBLEM DETECTED.
3	HIGH LIMIT SWITCH PROTECTION DEVICE OPEN.
4	FLAME SENSED GAS VALVE NOT ENERGIZED OR FLAME SENSED NO "W" SIGNAL.
5	FLAME ROLL OUT SWITCH OPEN.



COMPONENT CODE	
BC	BLOWER CONTACTOR
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
DISC	DISCONNECT SWITCH
FLMS	FLAME SENSOR
FT	FREEZE STAT
GFCO	GROUND FAULT CONVENIENCE OUTLET
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR BELT DRIVE
IDM	INDUCED DRAFT MOTOR
IFC	INTEGRATED FURNACE CONTROL
LAC	LOW AMBIENT COOLING CONTROL
LC	LIMIT CONTROL
LPC	LOW PRESSURE CONTROL
MAS	MIX AIR SENSOR
MRLC	MANUAL RESET LIMIT CONTROL
NPC	NEGATIVE PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
RC	RUN CAPACITOR
SE	SPARK ELECTRODE
TB	TERMINAL BLOCK
PL	PLUG
PT	POWER TRANSFORMER
WIRE NUT	WIRE NUT

WIRING INFORMATION	
LINE VOLTAGE	—
-FACTORY STANDARD	—
-FACTORY OPTION	---
-FIELD INSTALLED	----
LOW VOLTAGE	—
-FACTORY STANDARD	—
-FACTORY OPTION	---
-FIELD INSTALLED	----
REPLACEMENT WIRE	—
-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)	
WARNING	
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.	

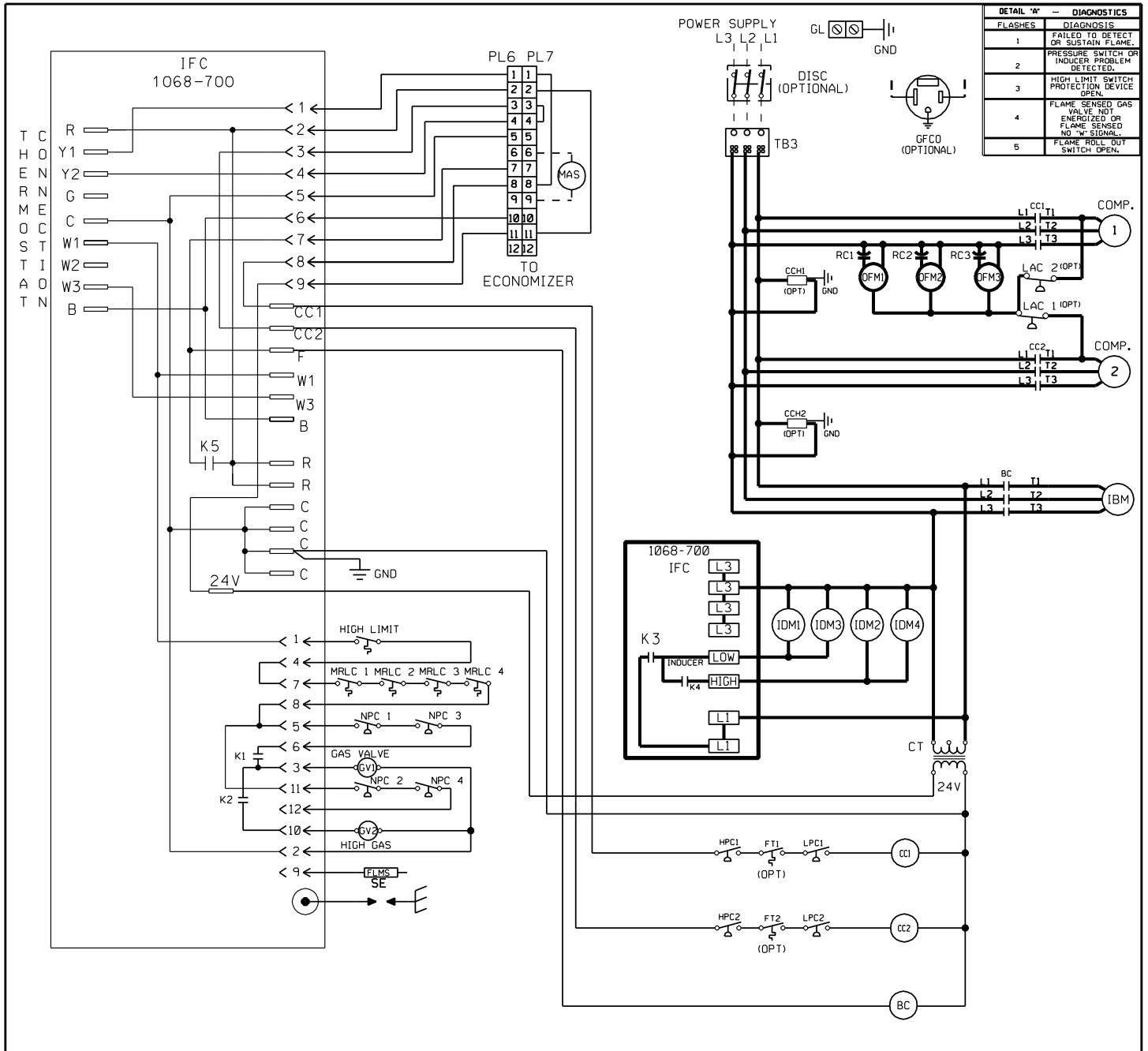
WIRE COLOR CODE			
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

NOTES.

- 1. CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
- 2. COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
- 3. TRANSFORMER FACTORY WIRED FOR 230 OR 460 VOLTS. SWITCH TO 208 VOLT TERMINAL FOR 208 VOLT OPERATION.
- 4. CONNECT FIELD WIRE TO FACTORY SUPPLIED POWER BLOCK IN ELECTRICAL BOX.
- 5. LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER, 24V, 50/60 HZ SUPPLIED.
- 6. CONNECT FIELD WIRING IN GROUNDED RAIN TIGHT CONDUIT TO FUSED DISCONNECT.
- 7. MOTOR FACTORY WIRED FOR CORRECT VOLTAGE.
- 8. REMOVE PL10 AND PL11 FOR LOW AMBIENT ACCESSORY. PL10 AND PL11 LOCATED IN BLOWER COMPARTMENT.
- 9. REMOVE PL7 FOR ECONOMIZER ACCESSORY. PL 6 & PL7 LOCATED IN RETURN AIR SECTION.
- 10. MAS ACCESSORY PROVIDED WITH ECONOMIZER. CONNECTION LOCATED IN BLOWER COMPARTMENT.
- 11. WIRE SUPPLIED FOR ADDITION OF CRANKCASE HEATER ACCESSORY.
- 12. OPTIONAL FT LOCATED IN COMPRESSOR COMPARTMENT.
- 13. 400,000 BTUH SHOWN. 350,000 & 300,000 BTUH DO NOT USE IDM4 OR NPC4. 250,000 BTUH DOES NOT USE IDM3, IDM4, NPC4 OR NPC3

WIRING DIAGRAM
RKKL-B180/240
208-230/460V 3 PH, 60 HZ.
200-220/380-415V 3PH, 50 HZ.
ROOFTOP

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		7-21-10	90-42517-36	01



DETAIL 'A' - DIAGNOSTICS	
FLASHES	DIAGNOSIS
1	FAILED TO DETECT OR SUSTAIN FLAME.
2	PRESSURE SWITCH OR INDUCER PROBLEM DETECTED.
3	HIGH LIMIT SWITCH PROTECTION DEVICE OPEN.
4	FLAME SENSED GAS VALVE NOT ENERGIZED OR FLAME SENSED NO 'M' SIGNAL.
5	FLAME ROLL OUT SWITCH OPEN.

COMPONENT CODE

BC	BLOWER CONTACTOR	LPC	LOW PRESSURE CONTROL
CC	COMPRESSOR CONTACTOR	MAS	MIX AIR SENSOR
CCH	CRANKCASE HEATER	MRLC	MANUAL RESET LIMIT CONTROL
COMP	COMPRESSOR	NPC	NEGATIVE PRESSURE CONTROL
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
DISC	DISCONNECT SWITCH	PL	PLUG
FLMS	FLAME SENSOR	RC	RUN CAPACITOR
FT	FREEZE STAT	SE	SPARK ELECTRODE
GFCO	GROUND FAULT CONVENIENCE OUTLET	TB	TERMINAL BLOCK
GL	GROUND LUG		
GND	GROUND		
GV	GAS VALVE		
HPC	HIGH PRESSURE CONTROL		
IBM	INDOOR BLOWER MOTOR BELT DRIVE		
IDM	INDUCED DRAFT MOTOR		
IFC	INTEGRATED FURNACE CONTROL		
LC	LIMIT CONTROL		

WIRING INFORMATION

LINE VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED

LOW VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED

REPLACEMENT WIRE
 -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)

WARNING
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

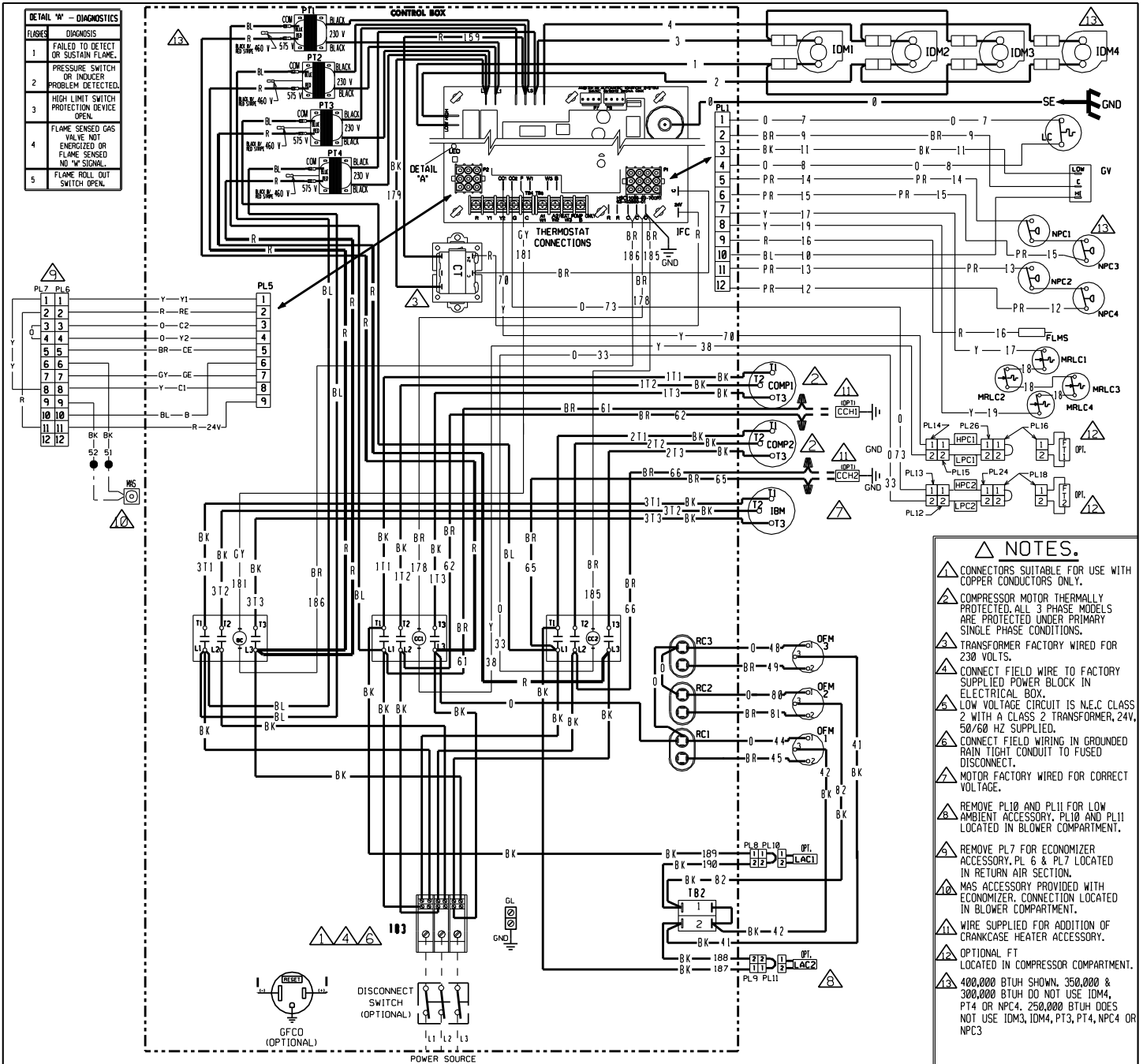
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING SCHEMATIC

RKKL-B180/240
 208-230/460V, 3 PH, 60 HZ.
 200-220/380-415V 3 PH, 50 HZ.
 ROOFTOP

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		7-21-10	90-42517-37	01

WIRING SCHEMATICS—RKKL-B SERIES



DETAIL #1 - DIAGNOSTICS	
FLASKS	DIAGNOSIS
1	FAILED TO DETECT OR SUSTAIN FLAME.
2	PRESSURE SWITCH OR INDOOR PROBLEM DETECTED.
3	HIGH LIMIT SWITCH PROTECTION DEVICE OPEN.
4	FLAME SENSED GAS VALVE NOT ENERGIZED OR FLAME SENSED NO "W" SIGNAL.
5	FLAME ROLL OUT SWITCH OPEN.

- NOTES.**
- ⚠ CONNECTORS SUITABLE FOR USE WITH COPPER CONDUCTORS ONLY.
 - ⚠ COMPRESSOR MOTOR THERMALLY PROTECTED. ALL 3 PHASE MODELS ARE PROTECTED UNDER PRIMARY SINGLE PHASE CONDITIONS.
 - ⚠ TRANSFORMER FACTORY WIRED FOR 230 VOLTS.
 - ⚠ CONNECT FIELD WIRE TO FACTORY SUPPLIED POWER BLOCK IN ELECTRICAL BOX.
 - ⚠ LOW VOLTAGE CIRCUIT IS N.E.C. CLASS 2 WITH A CLASS 2 TRANSFORMER, 24V, 50/60 HZ SUPPLIED.
 - ⚠ CONNECT FIELD WIRING IN GROUNDED RAIN TIGHT CONDUIT TO FUSED DISCONNECT.
 - ⚠ MOTOR FACTORY WIRED FOR CORRECT VOLTAGE.
 - ⚠ REMOVE PL10 AND PL11 FOR LOW AMBIENT ACCESSORY. PL10 AND PL11 LOCATED IN BLOWER COMPARTMENT.
 - ⚠ REMOVE PL7 FOR ECONOMIZER ACCESSORY. PL6 & PL7 LOCATED IN RETURN AIR SECTION.
 - ⚠ MAS ACCESSORY PROVIDED WITH ECONOMIZER. CONNECTION LOCATED IN BLOWER COMPARTMENT.
 - ⚠ WIRE SUPPLIED FOR ADDITION OF CRANKCASE HEATER ACCESSORY.
 - ⚠ OPTIONAL FT LOCATED IN COMPRESSOR COMPARTMENT.
 - ⚠ 400,000 BTUH SHOWN. 350,000 & 300,000 BTUH DO NOT USE IDM4, PT4 OR NPC4. 250,000 BTUH DOES NOT USE IDM3, IDM4, PT3, PT4, NPC4 OR NPC3

COMPONENT CODE

BC	BLOWER CONTACTOR	MAS	MIX AIR SENSOR
CC	COMPRESSOR CONTACTOR	MRLC	MANUAL RESET LIMIT CONTROL
CCH	CRANKCASE HEATER	NPC	NEGATIVE PRESSURE CONTROL
COMP	COMPRESSOR	OFM	OUTDOOR FAN MOTOR
CT	CONTROL TRANSFORMER	RC	RUN CAPACITOR
DISC	DISCONNECT SWITCH	SE	SPARK ELECTRODE
FLMS	FLAME SENSOR	TB	TERMINAL BLOCK
FT	FREEZE STAT	PL	PLUG
GFCD	GROUND FAULT CONVENIENCE OUTLET	PT	POWER TRANSFORMER
GL	GROUND LUG	▲	WIRE NUT
GND	GROUND		
GV	GAS VALVE		
HPC	HIGH PRESSURE CONTROL		
IBM	INDOOR BLOWER MOTOR BELT DRIVE		
IDM	INDUCED DRAFT MOTOR		
IFC	INTEGRATED FURNACE CONTROL		
LAC	LOW AMBIENT COOLING CONTROL		
LC	LIMIT CONTROL		
LPC	LOW PRESSURE CONTROL		

WIRING INFORMATION

LINE VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED

LOW VOLTAGE
 -FACTORY STANDARD
 -FACTORY OPTION
 -FIELD INSTALLED

REPLACEMENT WIRE
 -MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)

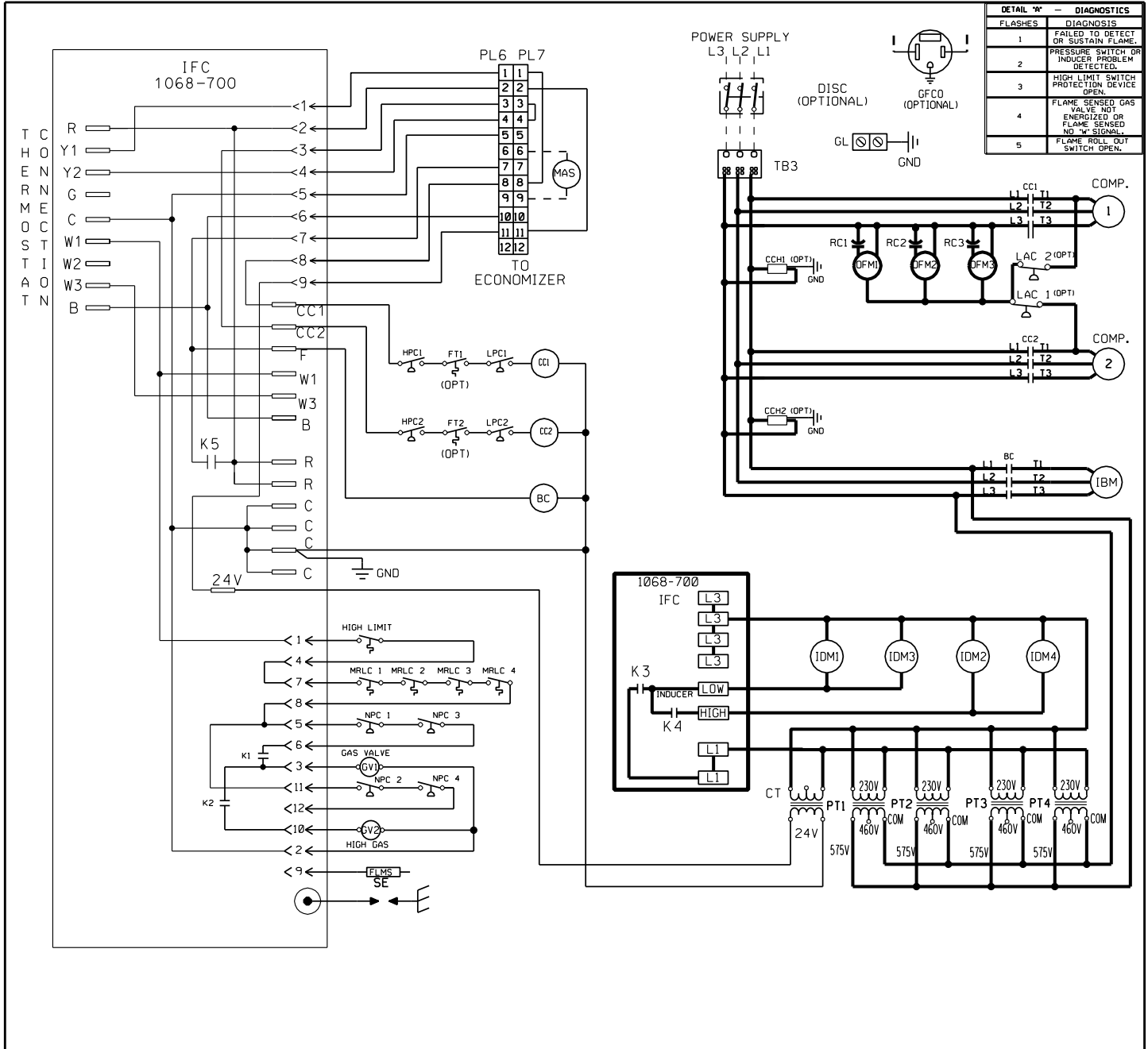
WARNING
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING DIAGRAM
RKKL-B180/240
 575V 3 PH, 60 HZ.
 ROOFTOP

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		7-21-10	90-42517-38	01



FLASHES	DIAGNOSIS
1	FAILED TO DETECT OR SUSTAIN FLAME.
2	PRESSURE SWITCH OR INDUCER PROBLEM DETECTED.
3	HIGH LIMIT SWITCH PROTECTION DEVICE OPEN.
4	FLAME SENSED GAS VALVE NOT ENERGIZED OR FLAME SENSED NO "W" SIGNAL.
5	FLAME ROLL OUT SWITCH OPEN.

COMPONENT CODE	
BC	BLOWER CONTACTOR
CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
CT	CONTROL TRANSFORMER
DISC	DISCONNECT SWITCH
FLMS	FLAME SENSOR
FT	FREEZE STAT
GFCO	GROUND FAULT CONVENIENCE OUTLET
GL	GROUND LUG
GND	GROUND
GV	GAS VALVE
HPC	HIGH PRESSURE CONTROL
IBM	INDOOR BLOWER MOTOR BELT DRIVE
IDM	INDUCED DRAFT MOTOR
IFC	INTEGRATED FURNACE CONTROL
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MAS	MIX AIR SENSOR
MRLC	MANUAL RESET LIMIT CONTROL
NPC	NEGATIVE PRESSURE CONTROL
OFM	OUTDOOR FAN MOTOR
PL	PLUG
PT	POWER TRANSFORMER
RC	RUN CAPACITOR
SE	SPARK ELECTRODE
TB	TERMINAL BLOCK

WIRING INFORMATION	
LINE VOLTAGE	
-FACTORY STANDARD	—————
-FACTORY OPTION	—————
-FIELD INSTALLED	—————
LOW VOLTAGE	
-FACTORY STANDARD	—————
-FACTORY OPTION	—————
-FIELD INSTALLED	—————
REPLACEMENT WIRE	
-MUST BE THE SAME SIZE AND TYPE OF INSULATION AS ORIGINAL (105° C MIN.)	
WARNING	
-CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.	

WIRE COLOR CODE			
BK	BLACK	O	ORANGE
BR	BROWN	PR	PURPLE
BL	BLUE	R	RED
G	GREEN	W	WHITE
GY	GRAY	Y	YELLOW

WIRING SCHEMATIC
RKKL-B180/240
575V, 3 PH, 60 HZ.
ROOF TOP

DR. BY	APP. BY	DATE	DWG. NO.	REV
MGR		7-21-10	90-42517-39	01

BEFORE PURCHASING THIS APPLIANCE, READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR RETAILER.

GENERAL TERMS OF LIMITED WARRANTY

Rheem will furnish a replacement for any part of this product which fails in normal use and service within the applicable periods stated, in accordance with the terms of the limited warranty.

Factory Standard Heat ExchangerTen (10) Years
Factory Option Stainless Steel Heat Exchanger
 Three Phase models installed in a
 commercial application.....Twenty (20) Years
 Single Phase models installed in a
 residential application.....Limited Lifetime

Condenser Coil and Evaporator Coil leaks
 caused by factory defects.....Five (5) Years
Compressor (1 Phase, 12-SEER models)Ten (10) Years
Compressor (3 Phase models).....Five (5) Years
*Any Other Part.....One (1) Year

For Complete Details of the Limited Warranty, Including Applicable Terms and Conditions, See Your Local Installer or Contact the Manufacturer for a Copy.

***All other parts and components carry a limited warranty of five years, provided they are single-phase products installed in a residential application.**

Before proceeding with installation, refer to installation instructions packaged with each model, as well as complying with all Federal, State, Provincial, and Local codes, regulations, and practices.

**Rheem Heating,
Cooling and
Water Heating**

P.O. Box 17010, Fort Smith, AR 72917



"In keeping with its policy of continuous progress and product improvement, Rheem reserves the right to make changes without notice."