

PACKAGE AIR CONDITIONER
RLNL-G SERIES

**Ruud Commercial Achiever® Series
Package Air Conditioner featuring
HumidiDry™ Technology**



RLNL-G Series

With ClearControl™
and VFD Technology

Nominal Sizes 7.5, 10 & 12.5 Tons [26.4, 35.2 & 44 kW]

ASHRAE 90.1-2010 Compliant



RELY ON RUUD.™

FORM NO. S22-963 REV. 1

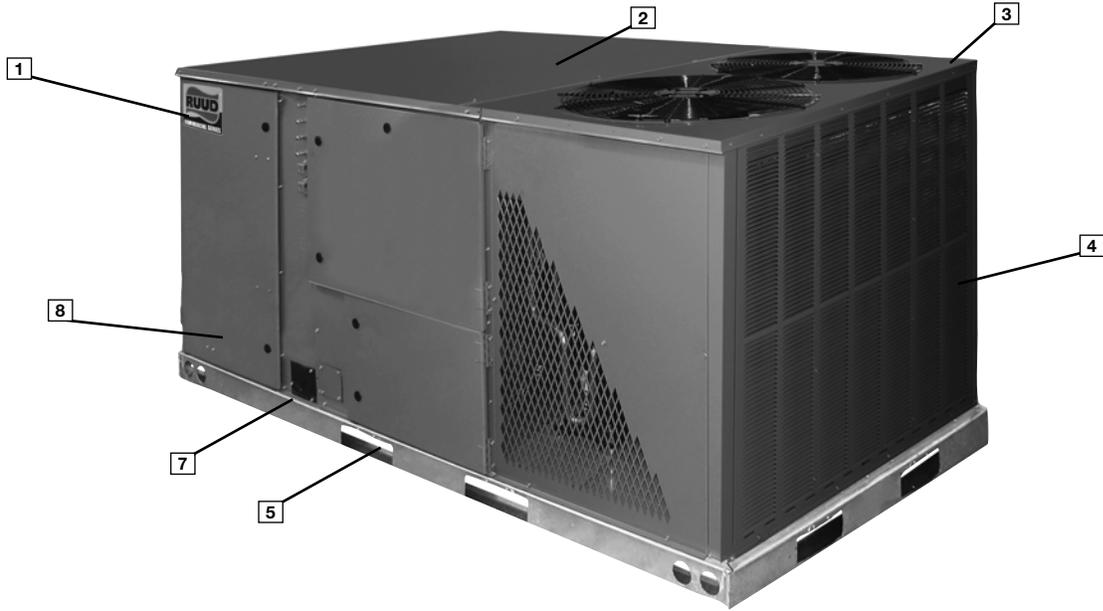
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RLNL-G STANDARD FEATURES INCLUDE:

- R-410A HFC refrigerant.
- Complete factory charged, wired and run tested.
- Scroll compressors with internal line break overload and high-pressure protection.
- Two independent scroll compressors provide two stage operation.
- Convertible airflow.
- TXV 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 maintained 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, 1/4 turn latches and door retainers.
- 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.
- One piece top cover and one piece 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.
- 24 volt control system with resettable circuit breakers.
- Colored and labeled wiring.
- Copper tube/Aluminum Fin coils (12¹/₂ ton uses MicroChannel condenser).
- Molded compressor plug.
- Supplemental electric heat provides 100% efficient heating.
- Factory Installed ClearControl™ (DDC) and sensors which can connect to LonWorks™ or BACnet® BAS systems for remote monitoring and control.
- Variable Frequency Drive (VFD).
- HumidiDry™ Dehumidification System.



Ruud 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 Ruud Commercial Series™ label (1) identifies the brand to the customer. The sheet-metal cabinet (2) uses nothing less than 18-gauge material for structural components with an underlying coat of G90. To ensure the leak-proof integrity of these units, the design utilizes a one-piece top with a 1/8" drip lip (3), gasket-protected panels and screws. The Ruud hail guard (optional) (4) is its trademark, and sets the standard for coil protection in the industry. Every Ruud 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 cover and has eliminated the worry of water entering the conditioned space (6). 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. The drainpan (7) is made of material that resists the growth of harmful bacteria and is sloped for the latest IAQ benefits. Furthermore, the drain pan slides out for easy cleaning.

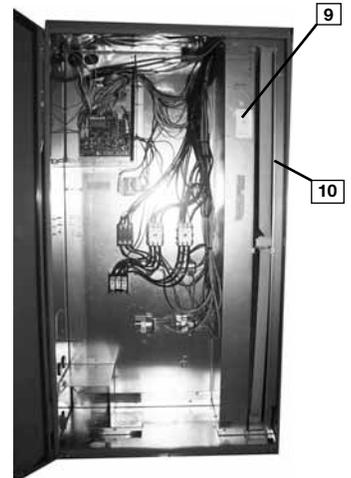


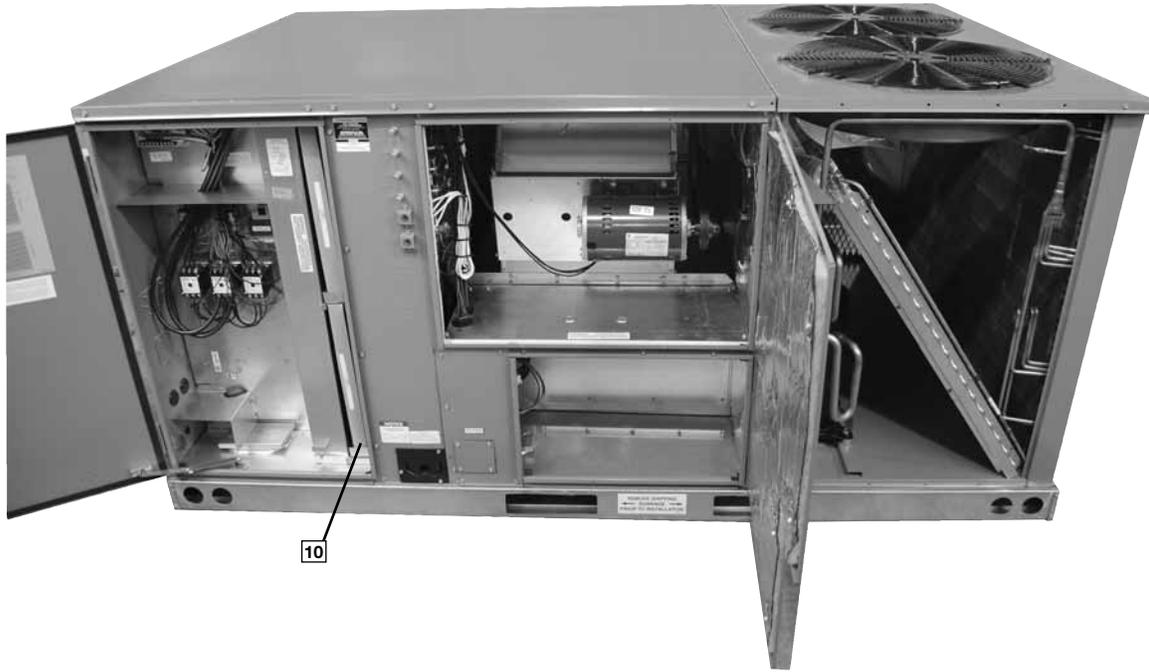
During development, each unit was tested to U.L. 1995, AHRI 340-370 and other Ruud-required reliability tests. Ruud adheres to stringent ISO 9002 quality procedures, and each unit bears the U.L. and AHRI certification labels located on the unit nameplate (8). Contractors can rest assured that when a Ruud 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, heating section, and outdoor section. Each compartment has 1/4 turn fasteners and hinged access. Each panel is permanently embossed with the compartment name (control/filter access, blower access and electric heat access).

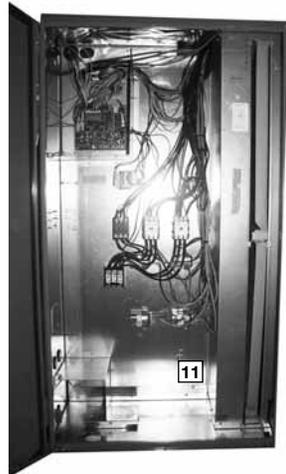
Electrical and filter compartment access is through a large, hinged-access panel. On the outside of the panel is the unit nameplate, which contains the model and serial number, electrical data and other important unit information.

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.

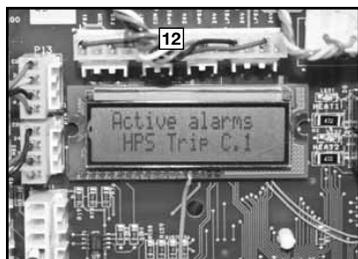




Inside the control box (11), each electrical component is clearly identified with a label that matches the component to the wire diagram for ease of trouble shooting. All wiring is numbered on each end of the termination and color-coded to match the wiring diagram. The control transformer has a low voltage circuit breaker that trips if a low voltage electrical short occurs. There is a blower contactor and compressor for each compressor.



As part of the ClearControl™ system which allows real time monitoring and communication between rooftop units, the RLNL-G Package Air Conditioner has a Rooftop Unit Controller (RTU-C) factory mounted and wired in the control panel. The RTU-C is a solid-state microprocessor-based control board that provides flexible control and extensive diagnostics for all unit functions. The RTU-C through proportional/integral control algorithms perform specific unit functions that govern unit operation in response to: zone conditions, system temperatures, system pressures, ambient conditions and electrical inputs. The RTU-C features a 16 x 2 character LCD display and a five-button keypad for local configuration and direct diagnosis of the system. (12) New features include a clogged filter switch (CFS), fan proving switch (FPS), return air temperature sensor (RAT), discharge air temperature sensor (DAT) and outdoor air temperature sensor (OAT). Freeze sensors (FS) are used in place of freezestats to allow measurement of refrigerant suction line temperatures. The RLNL-G Package Air Conditioner with ClearControl™ is specifically designed to be applied in four distinct applications:



The RLNL-G is compatible with a third party building management system that supports the BACnet Application Specific Controller device profile, with the use of a field installed BACnet Communication Module. The BACnet Communication Module plugs onto the unit RTU-C controller and allows communication between ClearControl™ and the BACnet MSTP network. A zone sensor, a BACnet network zone sensor, a BACnet thermostat or DDC controller may be used to send the zone temperature or thermostat demands to the RTU-C. The BACnet Communication Module is compatible with MSTP EIA-485 daisy chain networks communicating at 38.4 bps. It is compatible with twisted pair, shielded cables.

The RLNL-G is compatible with a third party building management system that supports the LonMark Space Comfort Controller (SCC) functional profile or LonMark Discharge Air Controller (DAC) functional profile. This is accomplished with a field installed LonMark communication module. The LonMark Communication Module plugs onto the RTU-C controller and allows communication between ClearControl™ and a LonWorks Network. A zone sensor, a LonTalk network zone sensor, or a LonTalk thermostat or DDC controller may be used to send the zone temperature or thermostat demands to the RTU-C. The LonMark Communication Module utilizes an FTT-10A free topology transceiver communicating at 78.8 kbps. It is compatible with Echelon qualified twisted pair cable, Belden 8471 or NEMA Level 4 cables. The Module can communicate up to 1640 ft. with no repeater. The LonWorks limit of 64 nodes per segment applies to this device.

The RLNL-G is compatible with a programmable 24 volt thermostat. Connections are made via conventional thermostat screw terminals. Extensive unit status and diagnostics are displayed on the LCD screen of the RTU-C.

The RLNL-G is compatible with a zone sensor and mechanical or solid state time clock connected to the RTU-C. Extensive unit status and diagnostics are displayed on the LCD screen of the RTU-C.

A factory or field installed Comfort Alert® module is available for power phase-monitoring protection and additional compressor diagnostics. The alarms can be displayed on the RTU-C display, through the (BAS) network, or connected to the "L-Terminal" of a thermostat for notification.

Factory installed VFD (variable frequency drive) supply fan optimizes energy usage year round by providing a lower speed for first stage cooling operation improving IEER's by up to 33% over the conventional constant fan system. Furthermore, operating in the constant fan mode at the reduced speed can use as little as 1/5th of the energy of a conventional constant fan system. Also, by operating at a lower speed on first stage cooling up to 51% more moisture is removed improving comfort during low load operation. The VFD supply fan factory option meet's California Title 24 and ASHRAE 90.1-2010 requirements for multi blower speed control. VFD also ramps up to the desired speed reducing stress on the supply fan components and reducing the noise from sudden inrush of air. Because the airflow is cut in half during first stage cooling and constant fan operation, noise is much less during these modes of operation.



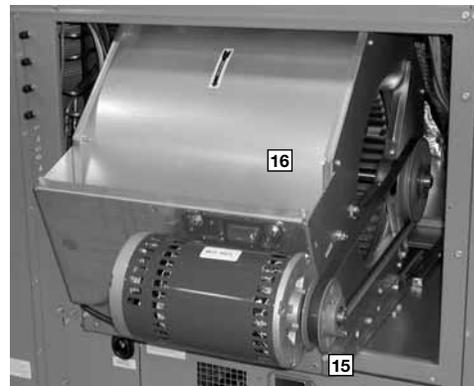
For added convenience in the field, a factory-installed convenience outlet (13) is available. Low and High voltage can enter either from the side or through the base. Low-voltage connections are made integrated cooling control. The high-voltage connection is terminated at the number 1 compressor contactor. The suggested mounting for the field-installed disconnect is on the exterior side of the electrical control box.



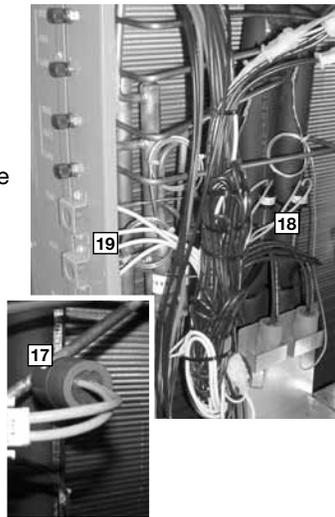
To the right of the electrical and filter compartment are the externally mounted gauge ports, which are permanently identified by embossed wording that clearly identifies the compressor circuit, high pressure connection and low pressure connection (14). With the gauge ports mounted externally, an accurate diagnostic of system operation can be performed quickly and easily. The blower compartment is to the right of the gauge ports and can be



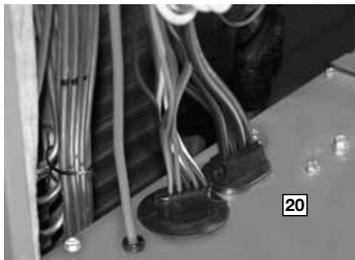
accessed by 1/4 turn fasteners. To allow easy maintenance of the blower assembly, the entire assembly easily slides out by removing the 3/8" screws from the blower retention bracket. The adjustable motor pulley (15) can easily be adjusted by loosening the bolts on either side of the motor mount. Removing the bolts allows for easy removal of the blower pulley by pushing the blower assembly up to loosen the belt. Once the pulley 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, Ruud 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 (16) 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.



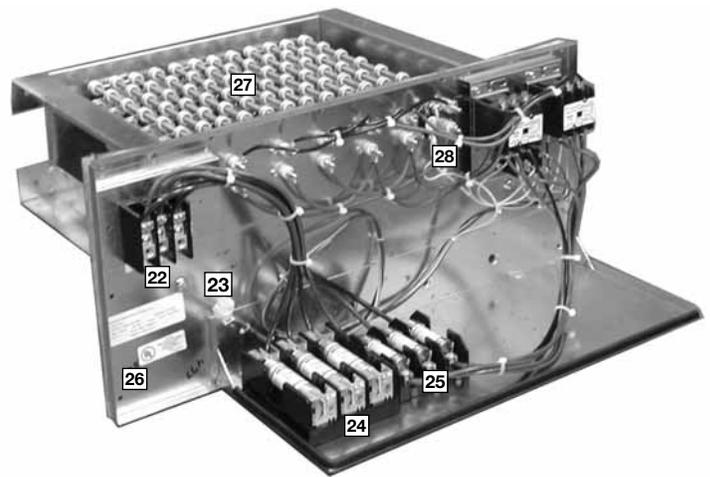
Also inside the blower compartment is the low-ambient control (17), low-pressure switch (18), high-pressure switch (19) and freeze sensor refrigerant safety device (20). The low-ambient control allows for operation of the compressor down to 0 degrees ambient temperature by cycling the outdoor fans on high pressure. The high-pressure switch will shut off the compressors if pressures in excess of 610 PSIG are detected, this may occur if the outdoor fan motor fails. The low-pressure switch shuts off the compressors if low pressure is detected due to loss of charge. The freeze sensor protects the compressor if the evaporator coil gets too cold (below freezing) due to low airflow, and allows monitoring of the suction line temperature on the controller display. 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.



Inside the blower compartment the interlaced evaporator can also be viewed. The evaporator uses enhanced fin technology for maximum heat transfer. The TXV metering device assures even distribution of refrigerant throughout the evaporator. (Note: 6 ton single stage has an orifice refrigerant control.)



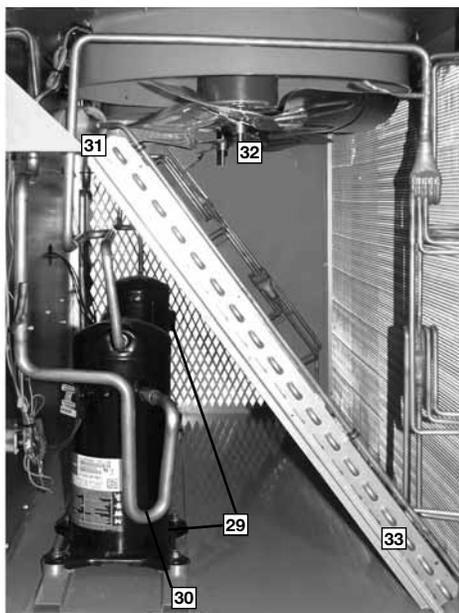
Wiring throughout the unit is neatly bundled and routed. Where wire harnesses go through the condenser bulkhead or blower deck, a molded wire harness assembly (20) provides an air-tight and water-tight seal, and provides strain relief. Care is also taken to tuck raw edges of insulation behind sheet metal to improve indoor air quality.



The heating compartment contains the latest electric furnace technology on the market. The 100% efficient electric furnace can be factory-installed or easily field-installed. Built with ease-of-installation in mind, the electric furnace is completely wired for slide-in, plug-and-play installation in the field. With choices of up to six kilowatt offerings, the contractor is assured to get the correct amount of heating output to meet the designed heating load.

Power hook-up in the field is easy with single-point wiring to a terminal block (22) and a polarized plug for the low-voltage connection (23). The electric furnace comes with fuses for the unit (24) and for the electric furnace (25), and is UL certified (26). The electric heating elements are of a wound-wire construction (27) and isolated with ceramic bushings. The limit switch (28) protects the design from over-temperature conditions. Each electric furnace has the capability to be converted from single-stage operation to two-stage operation by removing a jumper on the low-voltage terminal strip.

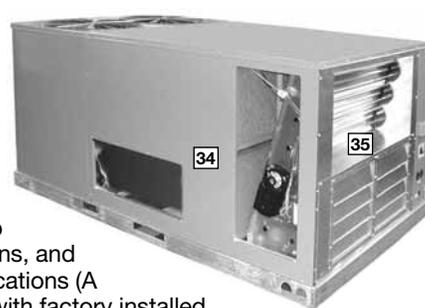
The compressor compartment houses the heart-beat of the unit. The scroll compressor (29) is known for its long life, and for reliable, quiet, and efficient operation. Each compressor has molded compressor plug eliminating potential for mis wiring. The suction and discharge lines are designed with shock loops (30) 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 (single stage).



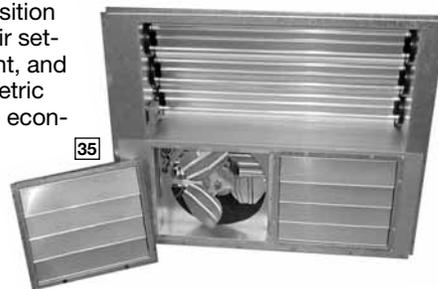
Each unit comes standard with filter dryer (31). The condenser fan motor (32) can easily be accessed and maintained through the compressor compartment. The polarized plug connection allows the motor to be changed quickly and eliminates the need to snake wires through the unit.

The outdoor coil uses the latest enhanced fin design (33) for the most effective method of heat transfer. 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 (34) for job configuration flexibility. The return air compartment can also contain an economizer (35).



Three models exist, two for downflow applications, and one for horizontal applications (A downflow economizer with factory installed smoke detector in the return section is available). Each unit is pre-wired for the economizer to allow quick plug-in installation. The economizer is also available as a factory-installed option. 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. Power Exhaust is easily field-installed. The power exhaust is housed in the barometric relief opening and is easily slipped in with a plug-in assembly. The wire harness to the economizer also has accommodations for a smoke detector.



The damper minimum position, actual damper position, power exhaust on/off setpoint, mixed air temperature limit setpoint and Demand Controlled Ventilation (DCV) setpoint can be read and adjusted at the unit controller display or remotely through a network connection.

The Space CO₂ level, mixed air temperature, and Economizer Status (Free Cooling Available, Single or Dual Enthalpy) can be read at the unit controller display or remotely through a network connection. Economizer Faults will trigger a network Alarm and can be read at the unit controller display or remotely through a network connection.

The Ruud roofcurb (36) is made for toolless assembly at the jobsite by engaging a pin into the hinged corners of adjacent curb sides, which makes the assembly process quick and easy.



HUMIDIDRY™ SYSTEM FEATURES

HumidiDry™ is Ruud's exclusive dehumidification package unit solution. It delivers maximum humidity control without compromising desired temperature set point for a high degree of comfort. HumidiDry maintains humidity levels at a desired set point when there's little or no demand for air conditioning. The HumidiDry rooftop unit is controlled by a thermostat and humidistat. The thermostat takes priority on single-stage system. When the thermostat is activated by temperatures that exceed its set point, HumidiDry operates like a standard rooftop unit. It can operate on first stage cooling when demand is low or at full capacity when air conditioning load is high. Unlike other rooftop or reheat units, HumidiDry is uniquely designed so the VFD (37) will operate at a low speed, increasing moisture removal during first-stage cooling operation. This provides initial defense for controlling humidity. When temperature is desirable but humidity exceeds the humidistat set point, the HumidiDry rooftop unit initiates a dehumidification cycle using a combination of hot gas and sub-cooled liquid reheat and the VFD operates at low speed. During this cycle, the HumidiDry rooftop unit delivers dry, neutral air. On a two-stage system, it is possible for both a thermostat and humidistat to register readings above set point. Under this condition, the first-stage system runs in the dehumidification cycle, the second-stage system runs in a cooling cycle and the VFD operates on high speed. This provides dry conditioned air.

Figure 1 shows the refrigerant path during the normal cooling mode. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature. The superheated refrigerant vapor next carries the heat to the outside coil where the heat is then rejected and the refrigerant condenses into a subcooled liquid where the process repeats itself.

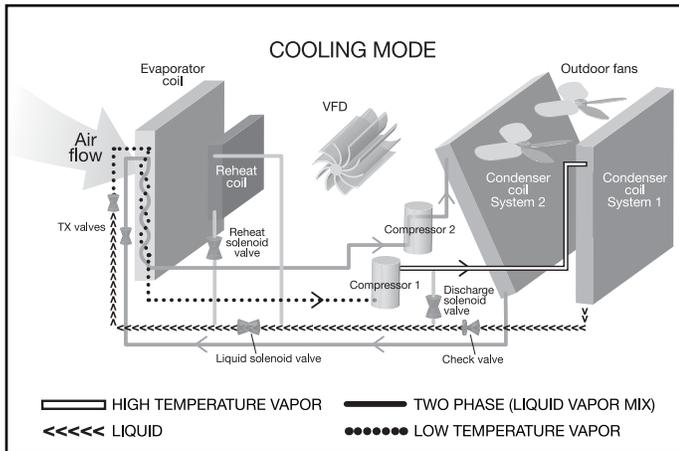


Figure 1

Figure 2 shows the refrigerant path during the reheat mode. When the reheat cycle is energized by the RTU-C, the reheat solenoid valve (38), downstream of the reheat coil (39), opens. The liquid solenoid valve (40), ahead of the TXV, closes. The discharge solenoid valve (41), in the compressor discharge line, opens. The liquid refrigerant leaves the TXV with the sudden pressure drop causing the liquid to expand to a vapor and absorbing the heat from the supply air going through the evaporator coil. The refrigerant vapor then travels to the compressor where it is elevated to a higher pressure and temperature. The refrigerant next carries the heat to a parallel path between the outside condenser coil and a bypass circuit. Some of the heat is rejected outdoors. The ratio of heat rejected outdoors versus indoors is controlled by an outdoor fan motor controller (OFMC) (42) that monitors the two phase temperature (43) and varies the fan speed. This 2-phase refrigerant vapor is then sent to the reheat coil. As the refrigerant travels through the reheat coil it condenses into a subcooled liquid where the process repeats itself.

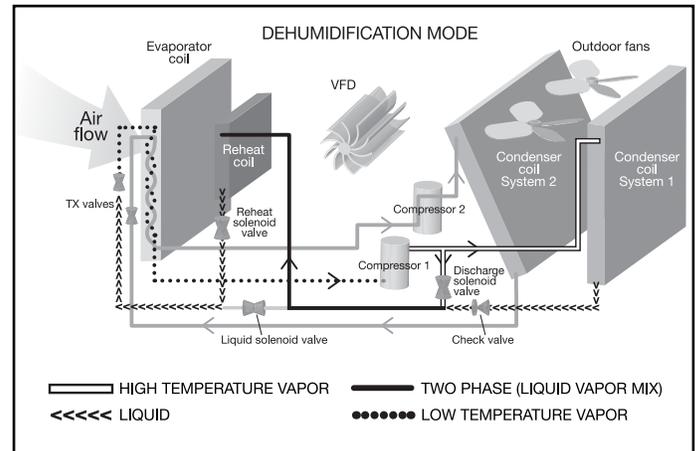
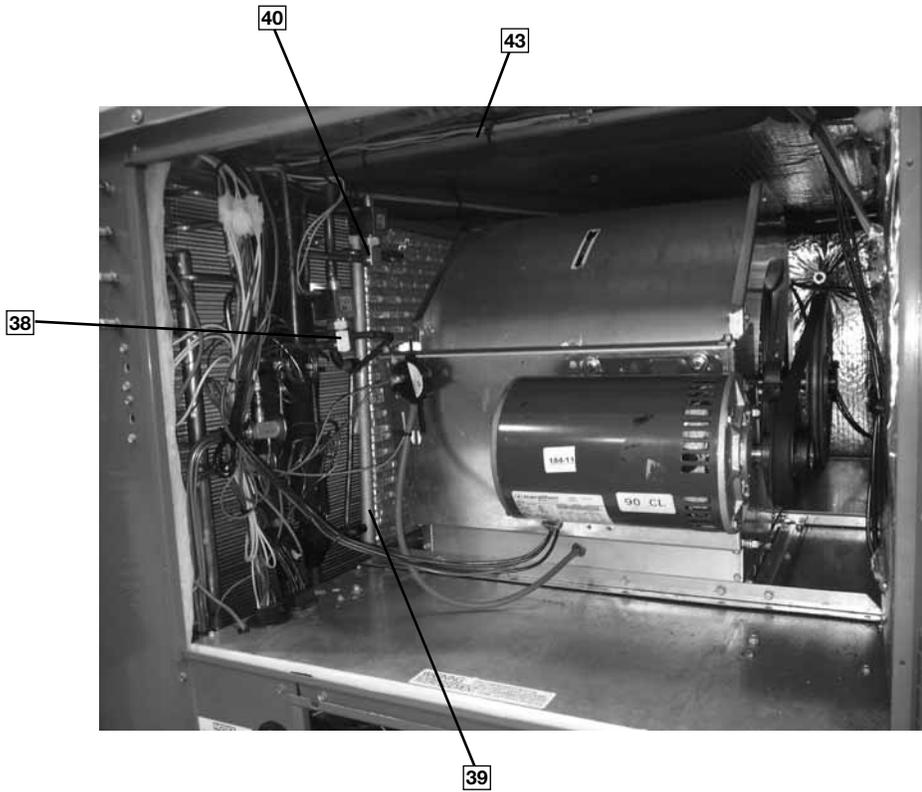
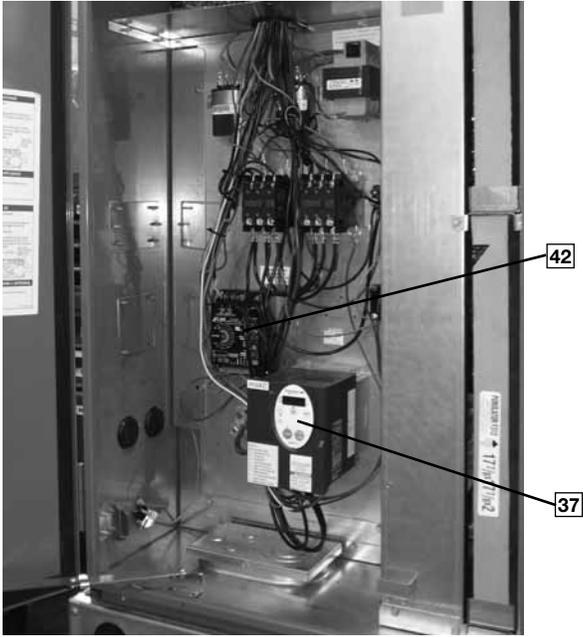
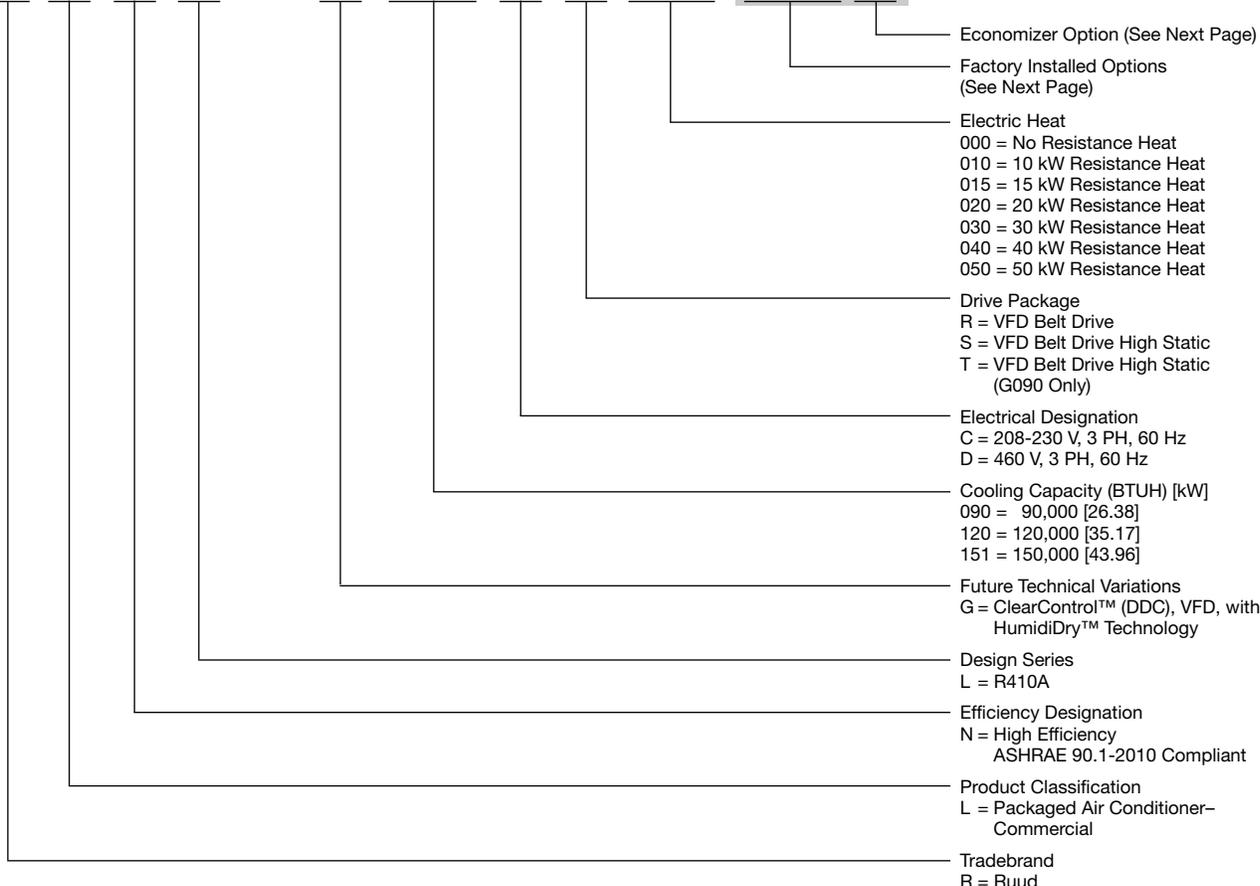


Figure 2



R L N L - G 090 C R 000 X X X



[] Designates Metric Conversions

7.5, 10 & 12.5 TON [26.4, 35.2 & 44 kW]

Option Code	Hail Guard	Non-Powered Convenience Outlet	Low Ambient/ Comfort Alert
AD	X		
AG		X	
AR			X
JD	X		X
BJ	X	X	
CZ	X	X	X
JE		X	X

"x" indicates factory installed option.

ECONOMIZER SELECTION FOR LNL 7.5, 10 & 12.5 TON [26.4, 35.2 & 44 kW]

Option Code	No Economizer	DDC Single Enthalpy Economizer with Barometric Relief	DDC Single Enthalpy Economizer with Barometric Relief and Smoke Detector
A	X		
H		X	
J			X

"x" indicates factory installed option.

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.

Examples:

RLNL-G120CR000this unit has no factory installed options.

RLNL-G120CR000**ADA**.....this unit is equipped with *hail guards*.

RLNL-G120CR000**JDA**this unit is equipped with *hail guards, low ambient and comfort alert*.

RLNL-G120CR000**JDH**.....this unit is equipped as above *and* includes an *Economizer with single enthalpy sensor and with barometric relief*.

RLNL-G120CR000**AAE**.....this unit is equipped with an *Economizer with single enthalpy sensor and barometric relief with smoke detector*.

[] Designates Metric Conversions

To select an RLNL- 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
Total cooling capacity—	106,000 BTUH [31.26 kW]
Sensible cooling capacity—	82,000 BTUH [24.03 kW]
Heating capacity—	150,000 BTUH [43.96 kW]
*Condenser Entering Air—	95°F [35°C] DB
*Evaporator Mixed Air Entering—	65°F [18°C] WB; 78°F [26°C] DB
*Indoor Air Flow (vertical)—	3600 CFM [1699 L/s]
*External Static Pressure—	.40 in. WG

2. SELECT UNIT TO MEET COOLING REQUIREMENTS.

Since total cooling is within the range of a nominal 10 ton [35.2 kW] unit, enter cooling performance table at 95°F [35°C] DB condenser inlet air. Interpolate between 63°F [2°C] and 67°F [19°C] to determine total and sensible capacity and power input for 65°F [18°C] WB evap inlet air at 4000 CFM [1888 L/s] indoor air flow (table basis):

Total Capacity = 118,900 BTUH [34.80 kW]
Sensible Capacity = 99,950 BTUH [29.29 kW]
Power Input (Compressor and Cond. Fans) = 8,950 watts

Use formula [1.10 x CFM x (1 – DR) x (dbE – 80)] in note ① to determine sensible capacity at 80°F [26.7°C] DB evaporator entering air:

Sensible Capacity = 92,268 BTUH [27.24 kW]

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

Select factors from airflow correction table at 3600 CFM [1699 L/s] and apply to data obtained in step 2 to obtain gross capacity:

Total Capacity, 118,900 x .98 = 116,522 BTUH [34.15 kW]
Sensible Capacity, 92,268 x .95 = 87,655 BTUH [25.67 kW]
Power Input 11,650 x .99 = 8,861 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 3600 CFM [1699 L/s]. Total ESP (external static pressure) per the spec of .40 in. includes the system duct and grilles. Add from the table “Component Air Resistance,” .076 for wet coil, .13 for vertical air flow, for a total selection static pressure of .606 (.6) inches of water, and determine:

RPM = 796
WATTS = 1,650
DRIVE = L (standard 2 H.P. motor)

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

$$\text{BTUH} = 1,650 \times 3.412 = 5,630$$

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

$$\text{Net Total Capacity} = 116,522 - 5,630 = 110,892 \text{ BTUH [32.5 kW]}$$

$$\text{Net Sensible Capacity} = 87,655 - 5,630 = 82,025 \text{ BTUH [24.04 kW]}$$

7. CALCULATE UNIT INPUT AND JOB EER.

$$\text{Total Power Input} = 88,610 \text{ (step 3)} + 1,650 \text{ (step 4)} = 10,511 \text{ Watts}$$

$$\text{EER} = \frac{\text{Net Total BTUH [kW] (step 6)}}{\text{Power Input, Watts (above)}} = \frac{110,892}{10,511} = 10.55$$

8. SELECT UNIT HEATING CAPACITY.

Units with heater kits section find unit heater kw and convert watts to BTU: add blower BTUH heat effect (step 5).

<u>CC50C</u>	<u>Heater Kit</u>
kW x 3412	= 163,776 BTUH [48.00 kW]
	+ 5,630 BTUH [1.65 kW]
Heating Capacity=	169,406 BTUH [49.65 kW]

CHOOSE MODEL RLNL-G120CR050

*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

NOM. SIZES 7.5-12.5 TONS [26.4-44.0 kW] ASHRAE 90.1-2010 COMPLIANT MODELS

Model RLNL- Series	G090CR	G090CS	G090CT	G090DR
Cooling Performance¹				CONTINUED →
Gross Cooling Capacity Btu [kW]	93,000 [27.25]	93,000 [27.25]	93,000 [27.25]	93,000 [27.25]
EER/SEER ²	11.2/NA	11.2/NA	11.2/NA	11.2/NA
Nominal CFM/AHRI Rated CFM [L/s]	3000/2775 [1416/1310]	3000/2775 [1416/1310]	3000/2775 [1416/1310]	3000/2775 [1416/1310]
AHRI Net Cooling Capacity Btu [kW]	90,000 [26.37]	90,000 [26.37]	90,000 [26.37]	90,000 [26.37]
Net Sensible Capacity Btu [kW]	63,100 [18.49]	63,100 [18.49]	63,100 [18.49]	63,100 [18.49]
Net Latent Capacity Btu [kW]	26,900 [7.88]	26,900 [7.88]	26,900 [7.88]	26,900 [7.88]
IEER ³	14.5	14.5	14.5	14.5
Net System Power [kW]	7.99	7.99	7.99	7.99
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁴				
	88	88	88	88
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm] OD	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]	27 [2.51]	27 [2.51]	27 [2.51]	27 [2.51]
	1 / 22 [9]	1 / 22 [9]	1 / 22 [9]	1 / 22 [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]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]	2 / 18 [7]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Re-Heat Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
MicroChannel Depth in. [mm]	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Face Area sq. ft. [sq. m]	0.709 [18]	0.709 [18]	0.709 [18]	0.709 [18]
	5.9 [0.55]	5.9 [0.55]	5.9 [0.55]	5.9 [0.55]
	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Outdoor Fan—Type				
No. Used/Diameter in. [mm]	Propeller	Propeller	Propeller	Propeller
Drive Type/No. Speeds	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
CFM [L/s]	Direct/1	Direct/1	Direct/1	Direct/1
No. Motors/HP	8000 [3775]	8000 [3775]	8000 [3775]	8000 [3775]
Motor RPM	2 at 1/3 HP			
	1075	1075	1075	1075
Indoor Fan—Type				
No. Used/Diameter in. [mm]	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
Drive Type	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
No. Speeds	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Motors	Multiple	Multiple	Multiple	Multiple
Motor HP	1	1	1	1
Motor RPM	2	2	3	2
Motor Frame Size	1725	1725	1725	1725
	56	56	56	56
Filter—Type				
Furnished	Disposable	Disposable	Disposable	Disposable
(NO.) Size Recommended in. [mm x mm x mm]	Yes	Yes	Yes	Yes
	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
Refrigerant Charge Oz. (Sys. 1/Sys. 2) [g]				
	146/112 [4139/3175]	146/112 [4139/3175]	146/112 [4139/3175]	146/112 [4139/3175]
Weights				
Net Weight lbs. [kg]	1049 [476]	1049 [476]	1057 [479]	1049 [476]
Ship Weight lbs. [kg]	1086 [493]	1086 [493]	1094 [496]	1086 [493]

See Page 18 for Notes.

[] Designates Metric Conversions

NOM. SIZES 7.5-12.5 TONS [26.4-44.0 kW] ASHRAE 90.1-2010 COMPLIANT MODELS

Model RLNL- Series	G090DS	G090DT	G120CR	G120CS
Cooling Performance¹				CONTINUED →
Gross Cooling Capacity Btu [kW]	93,000 [27.25]	93,000 [27.25]	123,000 [36.04]	123,000 [36.04]
EER/SEER ²	11.2/NA	11.2/NA	11.2/NA	11.2/NA
Nominal CFM/AHRI Rated CFM [L/s]	3000/2775 [1416/1310]	3000/2775 [1416/1310]	4000/3750 [1888/1770]	4000/3750 [1888/1770]
AHRI Net Cooling Capacity Btu [kW]	90,000 [26.37]	90,000 [26.37]	118,000 [34.57]	118,000 [34.57]
Net Sensible Capacity Btu [kW]	63,100 [18.49]	63,100 [18.49]	88,800 [26.02]	88,800 [26.02]
Net Latent Capacity Btu [kW]	26,900 [7.88]	26,900 [7.88]	29,200 [8.56]	29,200 [8.56]
IEER ³	14.5	14.5	14.4	14.4
Net System Power [kW]	7.99	7.99	10.49	10.49
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁴	88	88	88	88
Outdoor Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	Rifled	Rifled	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	27 [2.51]	27 [2.51]	27 [2.51]	27 [2.51]
Rows / FPI [FPcm]	1 / 22 [9]	1 / 22 [9]	2 / 22 [9]	2 / 22 [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]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	2 / 18 [7]	2 / 18 [7]	3 / 18 [7]	3 / 18 [7]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]	1/1 [25.4]
Re-Heat Coil—Fin Type	Louvered	Louvered	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	0.709 [18]	0.709 [18]	0.709 [18]	0.709 [18]
Face Area sq. ft. [sq. m]	5.9 [0.55]	5.9 [0.55]	5.9 [0.55]	5.9 [0.55]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]	1 / 23 [9]
Outdoor Fan—Type	Propeller	Propeller	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]	8000 [3775]	8000 [3775]
No. Motors/HP	2 at 1/3 HP			
Motor RPM	1075	1075	1075	1075
Indoor Fan—Type	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	Multiple	Multiple	Multiple	Multiple
No. Motors	1	1	1	1
Motor HP	2	3	2	3
Motor RPM	1725	1725	1725	1725
Motor Frame Size	56	56	56	56
Filter—Type	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
Refrigerant Charge Oz. (Sys. 1/Sys. 2) [g]	146/112 [4139/3175]	146/112 [4139/3175]	221/176 [6265/4990]	221/176 [6265/4990]
Weights				
Net Weight lbs. [kg]	1049 [476]	1057 [479]	1144 [519]	1152 [523]
Ship Weight lbs. [kg]	1086 [493]	1094 [496]	1181 [536]	1189 [539]

See Page 18 for Notes.

[] Designates Metric Conversions

NOM. SIZES 7.5-12.5 TONS [26.4-44.0 kW] ASHRAE 90.1-2010 COMPLIANT MODELS

Model RLNL- Series	G120DR	G120DS
Cooling Performance¹		
Gross Cooling Capacity Btu [kW]	123,000 [36.04]	123,000 [36.04]
EER/SEER ²	11.2/NA	11.2/NA
Nominal CFM/AHRI Rated CFM [L/s]	4000/3750 [1888/1770]	4000/3750 [1888/1770]
AHRI Net Cooling Capacity Btu [kW]	118,000 [34.57]	118,000 [34.57]
Net Sensible Capacity Btu [kW]	88,800 [26.02]	88,800 [26.02]
Net Latent Capacity Btu [kW]	29,200 [8.56]	29,200 [8.56]
IEER ³	14.7	14.7
Net System Power [kW]	10.49	10.49
Compressor		
No./Type	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁴		
	88	88
Outdoor Coil—Fin Type		
Tube Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm] OD	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	27 [2.51]	27 [2.51]
Rows / FPI [FPcm]	2 / 22 [9]	2 / 22 [9]
Indoor Coil—Fin Type		
Tube Type	Louvered	Louvered
Tube Type	Rifled	Rifled
Tube Size in. [mm]	0.375 [9.5]	0.375 [9.5]
Face Area sq. ft. [sq. m]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	3 / 18 [7]	3 / 18 [7]
Refrigerant Control	TX Valves	TX Valves
Drain Connection No./Size in. [mm]	1/1 [25.4]	1/1 [25.4]
Re-Heat Coil—Fin Type		
Tube Type	Louvered	Louvered
Tube Type	MicroChannel	MicroChannel
MicroChannel Depth in. [mm]	0.709 [18]	0.709 [18]
Face Area sq. ft. [sq. m]	5.9 [0.55]	5.9 [0.55]
Rows / FPI [FPcm]	1 / 23 [9]	1 / 23 [9]
Outdoor Fan—Type		
	Propeller	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]
No. Motors/HP	2 at 1/3 HP	2 at 1/3 HP
Motor RPM	1075	1075
Indoor Fan—Type		
	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	Multiple	Multiple
No. Motors	1	1
Motor HP	2	3
Motor RPM	1725	1725
Motor Frame Size	56	56
Filter—Type		
	Disposable	Disposable
Furnished	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
Refrigerant Charge Oz. (Sys. 1/Sys. 2) [g]		
	221/176 [6265/4990]	221/176 [6265/4990]
Weights		
Net Weight lbs. [kg]	1144 [519]	1152 [523]
Ship Weight lbs. [kg]	1181 [536]	1189 [539]

See Page 18 for Notes.

[] Designates Metric Conversions

NOM. SIZES 7.5-12.5 TONS [26.4-44.0 kW] ASHRAE 90.1-2010 COMPLIANT MODELS

Model RLNL- Series	G151CR	G151CS	G151DR	G151DS
Cooling Performance¹				
Gross Cooling Capacity Btu [kW]	148,000 [43.36]	148,000 [43.36]	148,000 [43.36]	148,000 [43.36]
EER/SEER ²	11/NA	11/NA	11/NA	11/NA
Nominal CFM/AHRI Rated CFM [L/s]	5000/4250 [2360/2006]	5000/4250 [2360/2006]	5000/4250 [2360/2006]	5000/4250 [2360/2006]
AHRI Net Cooling Capacity Btu [kW]	140,000 [41.02]	140,000 [41.02]	140,000 [41.02]	140,000 [41.02]
Net Sensible Capacity Btu [kW]	99,500 [29.15]	99,500 [29.15]	99,500 [29.15]	99,500 [29.15]
Net Latent Capacity Btu [kW]	40,500 [11.87]	40,500 [11.87]	40,500 [11.87]	40,500 [11.87]
IEER ³	14	14	14	14
Net System Power [kW]	13.29	13.29	13.29	13.29
Compressor				
No./Type	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Outdoor Sound Rating (dB)⁴				
	88	88	88	88
Outdoor Coil—Fin Type				
Tube Type	Louvered	Louvered	Louvered	Louvered
Tube Size in. [mm] OD	MicroChannel	MicroChannel	MicroChannel	MicroChannel
Tube Size in. [mm] OD	1 [25.4]	1 [25.4]	1 [25.4]	1 [25.4]
Face Area sq. ft. [sq. m]	27 [2.51]	27 [2.51]	27 [2.51]	27 [2.51]
Rows / FPI [FPcm]	2 / 23 [9]	2 / 23 [9]	2 / 23 [9]	2 / 23 [9]
Indoor Coil—Fin Type				
Tube 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]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]	13.5 [1.25]
Rows / FPI [FPcm]	4 / 15 [6]	4 / 15 [6]	4 / 15 [6]	4 / 15 [6]
Refrigerant Control	TX Valves	TX Valves	TX Valves	TX Valves
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	Propeller
No. Used/Diameter in. [mm]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]	2/24 [609.6]
Drive Type/No. Speeds	Direct/1	Direct/1	Direct/1	Direct/1
CFM [L/s]	8000 [3775]	8000 [3775]	8000 [3775]	8000 [3775]
No. Motors/HP	2 at 1/2 HP			
Motor RPM	1075	1075	1075	1075
Indoor Fan—Type				
FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal	FC Centrifugal
No. Used/Diameter in. [mm]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]	1/15x15 [381x381]
Drive Type	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)	Belt (Adjustable)
No. Speeds	Single	Single	Single	Single
No. Motors	1	1	1	1
Motor HP	5	5	5	5
Motor RPM	1725	1725	1725	1725
Motor Frame Size	56	184	56	184
Filter—Type				
Disposable	Disposable	Disposable	Disposable	Disposable
Furnished	Yes	Yes	Yes	Yes
(NO.) Size Recommended in. [mm x mm x mm]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]	(6)2x18x18 [51x457x457]
Refrigerant Charge Oz. (Sys. 1/Sys. 2) [g]				
	203/155 [5755/4394]	203/155 [5755/4394]	203/155 [5755/4394]	203/155 [5755/4394]
Weights				
Net Weight lbs. [kg]	1266 [574]	1238 [562]	1230 [558]	1238 [562]
Ship Weight lbs. [kg]	1303 [591]	1267 [575]	1267 [575]	1267 [575]

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 340/360.
2. EER and/or SEER are rated at AHRI conditions and in accordance with DOE test procedures.
3. Integrated Energy Efficiency Ratio (IEER) is rated in accordance with AHRI Standard 340/360.
4. Outdoor Sound Rating shown is tested in accordance with AHRI Standard 270.

[] Designates Metric Conversions

GROSS SYSTEMS PERFORMANCE DATA—G090

		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]	3600 [1699]	2775 [1310]	2400 [1133]	3600 [1699]	2775 [1310]	2400 [1133]	3600 [1699]	2775 [1310]
DR ①		.17			.13			.11			
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW]	119.6 [35]	119.6 [35]	110.7 [32.4]	112.7 [33]	107 [31.3]	104.3 [30.6]	107.8 [31.6]	102.3 [30]	99.8 [29.2]
		Sens BTUH [kW]	70.3 [20.6]	70.3 [20.6]	57.9 [17]	83.3 [24.4]	73.2 [21.4]	68.5 [20.1]	96 [28.1]	84.3 [24.7]	79 [23.2]
		Power	5.2	5.2	5.0	5.1	5.0	4.9	5.1	4.9	4.9
	80 [26.7]	Total BTUH [kW]	116.1 [34]	116.1 [34]	107.4 [31.5]	109.2 [32]	103.6 [30.4]	101.1 [29.6]	104.3 [30.6]	99 [29]	96.5 [28.3]
		Sens BTUH [kW]	68.4 [20.1]	68.4 [20.1]	56.3 [16.5]	81.4 [23.9]	71.5 [20.9]	67 [19.6]	94.1 [27.6]	82.7 [24.2]	77.4 [22.7]
		Power	5.6	5.6	5.4	5.5	5.4	5.3	5.5	5.3	5.3
	85 [29.4]	Total BTUH [kW]	112.6 [33]	112.6 [33]	104.2 [30.5]	105.7 [31]	100.3 [29.4]	97.8 [28.7]	100.8 [29.5]	95.6 [28]	93.3 [27.3]
		Sens BTUH [kW]	66.6 [19.5]	66.6 [19.5]	54.8 [16]	79.5 [23.3]	69.8 [20.5]	65.4 [19.2]	92.3 [27]	81 [23.7]	75.9 [22.2]
		Power	6.0	6.0	5.8	6.0	5.8	5.8	5.9	5.8	5.7
	90 [32.2]	Total BTUH [kW]	109 [31.9]	109 [31.9]	100.9 [29.6]	102.1 [29.9]	96.9 [28.4]	94.5 [27.7]	97.2 [28.5]	92.2 [27]	90 [26.4]
	Sens BTUH [kW]	64.7 [19]	64.7 [19]	53.2 [15.6]	77.7 [22.8]	68.2 [20]	63.9 [18.7]	90.4 [26.5]	79.4 [23.3]	74.4 [21.8]	
	Power	6.6	6.6	6.3	6.5	6.4	6.3	6.5	6.3	6.2	
95 [35]	Total BTUH [kW]	105.4 [30.9]	105.4 [30.9]	97.5 [28.6]	98.5 [28.9]	93.5 [27.4]	91.2 [26.7]	93.6 [27.4]	88.8 [26]	86.6 [25.4]	
	Sens BTUH [kW]	62.9 [18.4]	62.9 [18.4]	51.7 [15.2]	75.8 [22.2]	66.6 [19.5]	62.4 [18.3]	88.6 [26]	77.8 [22.8]	72.9 [21.4]	
	Power	7.2	7.2	6.9	7.2	7.0	6.9	7.1	6.9	6.8	
100 [37.8]	Total BTUH [kW]	101.7 [29.8]	101.7 [29.8]	94.2 [27.6]	94.9 [27.8]	90 [26.4]	87.8 [25.7]	90 [26.4]	85.4 [25]	83.3 [24.4]	
	Sens BTUH [kW]	61 [17.9]	61 [17.9]	50.2 [14.7]	74 [21.7]	65 [19]	60.9 [17.8]	86.7 [25.4]	76.2 [22.3]	71.4 [20.9]	
	Power	7.9	7.9	7.6	7.9	7.7	7.6	7.8	7.6	7.5	
105 [40.6]	Total BTUH [kW]	98.1 [28.7]	98.1 [28.7]	90.7 [26.6]	91.2 [26.7]	86.5 [25.4]	84.4 [24.7]	86.3 [25.3]	81.9 [24]	79.8 [23.4]	
	Sens BTUH [kW]	59.3 [17.4]	59.3 [17.4]	48.8 [14.3]	72.2 [21.2]	63.4 [18.6]	59.4 [17.4]	84.9 [24.9]	74.6 [21.9]	69.9 [20.5]	
	Power	8.7	8.7	8.4	8.6	8.4	8.3	8.6	8.4	8.3	
110 [43.3]	Total BTUH [kW]	94.3 [27.6]	94.3 [27.6]	87.3 [25.6]	87.5 [25.6]	83 [24.3]	81 [23.7]	82.6 [24.2]	78.3 [23]	76.4 [22.4]	
	Sens BTUH [kW]	57.5 [16.8]	57.5 [16.8]	47.3 [13.9]	70.4 [20.6]	61.9 [18.1]	57.9 [17]	82.6 [24.2]	73 [21.4]	68.4 [20.1]	
	Power	9.5	9.5	9.2	9.5	9.2	9.1	9.4	9.2	9.1	
115 [46.1]	Total BTUH [kW]	90.6 [26.5]	90.6 [26.5]	83.8 [24.6]	83.7 [24.5]	79.4 [23.3]	77.5 [22.7]	78.8 [23.1]	74.8 [21.9]	72.9 [21.4]	
	Sens BTUH [kW]	55.7 [16.3]	55.7 [16.3]	45.8 [13.4]	68.7 [20.1]	60.3 [17.7]	56.5 [16.6]	78.8 [23.1]	71.5 [20.9]	67 [19.6]	
	Power	10.5	10.5	10.1	10.4	10.2	10.0	10.4	10.1	10.0	
120 [48.9]	Total BTUH [kW]	86.8 [25.4]	86.8 [25.4]	80.3 [23.5]	79.9 [23.4]	75.8 [22.2]	74 [21.7]	75 [22]	71.1 [20.8]	69.4 [20.3]	
	Sens BTUH [kW]	54 [15.8]	54 [15.8]	44.4 [13]	66.9 [19.6]	58.8 [17.2]	55.1 [16.1]	75 [22]	70 [20.5]	65.5 [19.2]	
	Power	11.5	11.5	11.1	11.4	11.1	11	11.4	11.1	11	
125 [51.7]	Total BTUH [kW]	82.9 [24.3]	82.9 [24.3]	76.8 [22.5]	76.1 [22.3]	72.2 [21.2]	70.4 [20.6]	71.2 [20.9]	67.5 [19.8]	65.8 [19.3]	
	Sens BTUH [kW]	52.3 [15.3]	52.3 [15.3]	43 [12.6]	65.2 [19.1]	57.3 [16.8]	53.7 [15.7]	71.2 [20.9]	67.5 [19.8]	64.1 [18.8]	
	Power	12.6	12.6	12.1	12.5	12.2	12.1	12.5	12.1	12	

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

GROSS SYSTEMS PERFORMANCE DATA—G120

		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]		4800 [2265]	3750 [1770]	3200 [1510]	4800 [2265]	3750 [1770]	3200 [1510]	4800 [2265]	3750 [1770]	3200 [1510]	
DR ①		.09	.03	0	.09	.03	0	.09	.03	0	
OUTDOOR DRY BULB TEMPERATURE °F [°C]	75 [23.9]	Total BTUH [kW] Sens BTUH [kW] Power	155.3 [45.5] 97.3 [28.5] 7.5	147.8 [43.3] 86.1 [25.2] 7.3	143.8 [42.2] 80.2 [23.5] 7.2	147.8 [43.3] 115.8 [33.9] 7.4	140.7 [41.2] 102.4 [30] 7.2	136.9 [40.1] 95.4 [28] 7.1	142.8 [41.8] 132.9 [38.9] 7.3	135.8 [39.8] 117.5 [34.4] 7.1	132.2 [38.7] 109.5 [32.1] 7.0
	80 [26.7]	Total BTUH [kW] Sens BTUH [kW] Power	150.6 [44.1] 94.9 [27.8] 7.9	143.4 [42] 84 [24.6] 7.7	139.5 [40.9] 78.2 [22.9] 7.6	143.2 [42] 113.5 [33.2] 7.8	136.2 [39.9] 100.3 [29.4] 7.6	132.6 [38.9] 93.5 [27.4] 7.5	138.1 [40.5] 130.5 [38.2] 7.7	131.4 [38.5] 115.4 [33.8] 7.5	127.9 [37.5] 107.5 [31.5] 7.4
	85 [29.4]	Total BTUH [kW] Sens BTUH [kW] Power	146 [42.8] 92.5 [27.1] 8.3	138.9 [40.7] 81.8 [24] 8.1	135.2 [39.6] 76.2 [22.3] 8.0	138.5 [40.6] 111 [32.5] 8.2	131.8 [38.6] 98.2 [28.8] 8.0	128.3 [37.6] 91.5 [26.8] 7.9	133.5 [39.1] 128.1 [37.5] 8.2	127 [37.2] 113.3 [33.2] 8.0	123.6 [36.2] 105.5 [30.9] 7.9
	90 [32.2]	Total BTUH [kW] Sens BTUH [kW] Power	141.4 [41.4] 90.1 [26.4] 8.8	134.5 [39.4] 79.7 [23.3] 8.6	131 [38.4] 74.2 [21.7] 8.5	133.9 [39.2] 108.6 [31.8] 8.7	127.4 [37.3] 96 [28.1] 8.5	124 [36.3] 89.5 [26.2] 8.4	128.8 [37.8] 125.6 [36.8] 8.6	122.6 [35.9] 111.1 [32.6] 8.4	119.3 [35] 103.5 [30.3] 8.3
	95 [35]	Total BTUH [kW] Sens BTUH [kW] Power	136.8 [40.1] 87.6 [25.7] 9.3	130.2 [38.1] 77.5 [22.7] 9.1	126.7 [37.1] 72.2 [21.1] 9.0	129.3 [37.9] 106.1 [31.1] 9.2	123 [36.1] 93.8 [27.5] 9.0	119.7 [35.1] 87.4 [25.6] 8.9	124.2 [36.4] 123.1 [36.1] 9.1	118.2 [34.6] 108.9 [31.9] 8.9	115.1 [33.7] 101.5 [29.7] 8.8
	100 [37.8]	Total BTUH [kW] Sens BTUH [kW] Power	132.2 [38.7] 85.1 [24.9] 9.9	125.8 [36.9] 75.2 [22] 9.6	122.4 [35.9] 70.1 [20.5] 9.5	124.7 [36.5] 103.6 [30.3] 9.8	118.7 [34.8] 91.6 [26.8] 9.5	115.5 [33.8] 85.3 [25] 9.4	119.6 [35.1] 119.6 [35.1] 9.7	113.8 [33.4] 106.7 [31.3] 9.5	110.8 [32.5] 99.4 [29.1] 9.3
	105 [40.6]	Total BTUH [kW] Sens BTUH [kW] Power	127.6 [37.4] 82.5 [24.2] 10.5	121.4 [35.6] 73 [21.4] 10.2	118.2 [34.6] 68 [19.9] 10.1	120.1 [35.2] 101 [29.6] 10.4	114.3 [33.5] 89.3 [26.2] 10.1	111.2 [32.6] 83.2 [24.4] 10.0	115.1 [33.7] 115.1 [33.7] 10.3	109.5 [32.1] 104.4 [30.6] 10.0	106.6 [31.2] 97.3 [28.5] 9.9
	110 [43.3]	Total BTUH [kW] Sens BTUH [kW] Power	123 [36.1] 79.9 [23.4] 11.1	117.1 [34.3] 70.6 [20.7] 10.8	114 [33.4] 65.8 [19.3] 10.7	115.5 [33.9] 98.4 [28.8] 11.0	109.9 [32.2] 87 [25.5] 10.7	107 [31.4] 81.1 [23.8] 10.6	110.5 [32.4] 110.5 [32.4] 10.9	105.1 [30.8] 102.1 [29.9] 10.6	102.3 [30] 95.1 [27.9] 10.5
	115 [46.1]	Total BTUH [kW] Sens BTUH [kW] Power	118.5 [34.7] 77.2 [22.6] 11.7	112.7 [33] 68.3 [20] 11.4	109.7 [32.2] 63.6 [18.6] 11.3	111 [32.5] 95.7 [28.1] 11.6	105.6 [31] 84.7 [24.8] 11.3	102.8 [30.1] 78.9 [23.1] 11.2	105.9 [31] 105.9 [31] 11.5	100.8 [29.5] 99.8 [29.2] 11.2	98.1 [28.8] 92.9 [27.2] 11.1
	120 [48.9]	Total BTUH [kW] Sens BTUH [kW] Power	113.9 [33.4] 74.5 [21.8] 12.4	108.4 [31.8] 65.9 [19.3] 12.1	105.5 [30.9] 61.4 [18] 11.9	106.5 [31.2] 93 [27.3] 12.3	101.3 [29.7] 82.3 [24.1] 12	98.6 [28.9] 76.7 [22.5] 11.8	101.4 [29.7] 101.4 [29.7] 12.2	96.5 [28.3] 96.5 [28.3] 11.9	93.9 [27.5] 90.7 [26.6] 11.7
125 [51.7]	Total BTUH [kW] Sens BTUH [kW] Power	109.4 [32.1] 71.8 [21] 13.1	104.1 [30.5] 63.5 [18.6] 12.8	101.3 [29.7] 59.2 [17.3] 12.6	101.9 [29.9] 90.3 [26.5] 13.0	97 [28.4] 79.9 [23.4] 12.7	94.4 [27.7] 74.4 [21.8] 12.5	96.9 [28.4] 96.9 [28.4] 12.9	92.2 [27] 92.2 [27] 12.6	89.7 [26.3] 88.5 [25.9] 12.4	

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 x CFM x (1 – DR) x (dbE – 80)].

[] Designates Metric Conversions

GROSS SYSTEMS PERFORMANCE DATA—G151

OUTDOOR DRY BULB TEMPERATURE °F [°C]		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]	6000 [2832]	4250 [2006]	4000 [1888]	6000 [2832]	4250 [2006]	4000 [1888]	6000 [2832]	4250 [2006]	4000 [1888]
DR ①		0.14	0.08	0.07	0.14	0.08	0.07	0.14	0.08	0.07	
75 [23.9]	Total BTUH [kW]	190.2 [55.7]	177 [51.9]	175.1 [51.3]	179.1 [52.5]	166.6 [48.8]	164.8 [48.3]	170.2 [49.9]	158.3 [46.4]	156.6 [45.9]	
	Sens BTUH [kW]	115 [33.7]	96.5 [28.3]	93.8 [27.5]	136.8 [40.1]	114.7 [33.6]	111.6 [32.7]	157.1 [46]	131.8 [38.6]	128.1 [37.6]	
	Power	9.5	9.1	9.1	9.3	9	9	9.2	8.9	8.8	
	80 [26.7]	Total BTUH [kW]	184.9 [54.2]	172 [50.4]	170.2 [49.9]	173.7 [50.9]	161.6 [47.4]	159.9 [46.9]	164.8 [48.3]	153.3 [44.9]	151.7 [44.5]
		Sens BTUH [kW]	112.8 [33.1]	94.7 [27.7]	92.1 [27]	134.6 [39.4]	112.9 [33.1]	109.8 [32.2]	154.9 [45.4]	129.9 [38.1]	126.4 [37]
		Power	10	9.6	9.6	9.8	9.5	9.4	9.7	9.4	9.3
	85 [29.4]	Total BTUH [kW]	179.6 [52.6]	167.1 [49]	165.3 [48.4]	168.5 [49.4]	156.8 [45.9]	155.1 [45.4]	159.6 [46.8]	148.5 [43.5]	146.9 [43]
		Sens BTUH [kW]	110.5 [32.4]	92.7 [27.2]	90.2 [26.4]	132.3 [38.8]	111 [32.5]	107.9 [31.6]	152.6 [44.7]	128 [37.5]	124.5 [36.5]
		Power	10.5	10.1	10.1	10.4	10	10	10.2	9.9	9.8
	90 [32.2]	Total BTUH [kW]	174.5 [51.1]	162.3 [47.6]	160.6 [47.1]	163.4 [47.9]	152 [44.5]	150.4 [44.1]	154.4 [45.3]	143.7 [42.1]	142.2 [41.7]
Sens BTUH [kW]		108.1 [31.7]	90.7 [26.6]	88.2 [25.8]	129.9 [38.1]	108.9 [31.9]	106 [31.1]	150.2 [44]	126 [36.9]	122.5 [35.9]	
Power		11.1	10.7	10.6	10.9	10.6	10.5	10.8	10.4	10.4	
95 [35]	Total BTUH [kW]	169.5 [49.7]	157.7 [46.2]	156 [45.7]	158.3 [46.4]	147.3 [43.2]	145.7 [42.7]	149.4 [43.8]	139 [40.7]	137.5 [40.3]	
	Sens BTUH [kW]	105.6 [30.9]	88.5 [25.9]	86.1 [25.2]	127.3 [37.3]	106.8 [31.3]	103.9 [30.4]	147.6 [43.3]	123.8 [36.3]	120.4 [35.3]	
	Power	11.7	11.3	11.2	11.6	11.2	11.1	11.4	11	11	
100 [37.8]	Total BTUH [kW]	164.5 [48.2]	153.1 [44.9]	151.4 [44.4]	153.4 [45]	142.7 [41.8]	141.2 [41.4]	144.5 [42.3]	134.4 [39.4]	133 [39]	
	Sens BTUH [kW]	102.9 [30.1]	86.3 [25.3]	83.9 [24.6]	124.6 [36.5]	104.5 [30.6]	101.7 [29.8]	144.5 [42.3]	121.6 [35.6]	118.2 [34.6]	
	Power	12.3	11.9	11.8	12.2	11.8	11.7	12.1	11.6	11.6	
105 [40.6]	Total BTUH [kW]	159.7 [46.8]	148.6 [43.5]	147 [43.1]	148.6 [43.5]	138.2 [40.5]	136.8 [40.1]	139.7 [40.9]	130 [38.1]	128.6 [37.7]	
	Sens BTUH [kW]	100.1 [29.3]	83.9 [24.6]	81.6 [23.9]	121.8 [35.7]	102.2 [29.9]	99.4 [29.1]	139.7 [40.9]	119.2 [34.9]	115.9 [34]	
	Power	13	12.6	12.5	12.9	12.4	12.4	12.7	12.3	12.2	
110 [43.3]	Total BTUH [kW]	155 [45.4]	144.2 [42.3]	142.7 [41.8]	143.9 [42.2]	133.9 [39.2]	132.4 [38.8]	135 [39.6]	125.6 [36.8]	124.2 [36.4]	
	Sens BTUH [kW]	97.1 [28.5]	81.5 [23.9]	79.2 [23.2]	118.9 [34.8]	99.7 [29.2]	97 [28.4]	135 [39.6]	116.7 [34.2]	113.5 [33.3]	
	Power	13.7	13.2	13.2	13.6	13.1	13	13.5	13	12.9	
115 [46.1]	Total BTUH [kW]	150.4 [44.1]	139.9 [41]	138.4 [40.6]	139.3 [40.8]	129.6 [38]	128.2 [37.6]	130.4 [38.2]	121.3 [35.5]	120 [35.2]	
	Sens BTUH [kW]	94 [27.6]	78.9 [23.1]	76.7 [22.5]	115.8 [33.9]	97.2 [28.5]	94.5 [27.7]	130.4 [38.2]	114.2 [33.5]	111 [32.5]	
	Power	14.5	14	13.9	14.3	13.8	13.8	14.2	13.7	13.6	
120 [48.9]	Total BTUH [kW]	145.9 [42.8]	135.8 [39.8]	134.3 [39.4]	134.8 [39.5]	125.4 [36.8]	124.1 [36.4]	125.9 [36.9]	117.1 [34.3]	115.9 [34]	
	Sens BTUH [kW]	90.8 [26.6]	76.2 [22.3]	74.1 [21.7]	112.6 [33]	94.5 [27.7]	91.9 [26.9]	125.9 [36.9]	111.5 [32.7]	108.4 [31.8]	
	Power	15.2	14.7	14.6	15.1	14.6	14.5	15	14.5	14.4	
125 [51.7]	Total BTUH [kW]	141.5 [41.5]	131.7 [38.6]	130.3 [38.2]	130.4 [38.2]	121.3 [35.6]	120 [35.2]	121.5 [35.6]	113 [33.1]	111.8 [32.8]	
	Sens BTUH [kW]	87.5 [25.6]	73.4 [21.5]	71.4 [20.9]	109.3 [32]	91.7 [26.9]	89.2 [26.1]	121.5 [35.6]	108.7 [31.9]	105.7 [31]	
	Power	16.1	15.5	15.4	15.9	15.4	15.3	15.8	15.2	15.2	

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

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE) – G090

ENTERING INDOOR AIR @ 75°F [23.9°C] dbE ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			1800 [850]	1388 [655]	1200 [566]	1800 [850]	1388 [655]	1200 [566]	1800 [850]	1388 [655]	1200 [566]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	28.0 [8.2]	26.5 [7.8]	25.9 [7.6]	26.6 [7.8]	25.3 [7.4]	24.6 [7.2]	26.0 [7.6]	24.6 [7.2]	24.0 [7.0]
		Sens BTUH [kW]	6.3 [1.8]	5.5 [1.6]	5.2 [1.5]	8.6 [2.5]	7.5 [2.2]	7.0 [2.1]	11.6 [3.4]	10.2 [3.0]	9.6 [2.8]
		Power	2.8	2.7	2.7	2.8	2.7	2.7	2.8	2.7	2.7
	65 [18.3]	Total BTUH [kW]	26.7 [7.8]	25.3 [7.4]	24.7 [7.2]	25.3 [7.4]	24.0 [7.0]	23.4 [6.9]	24.7 [7.2]	23.4 [6.9]	22.8 [6.7]
		Sens BTUH [kW]	5.0 [1.5]	4.4 [1.3]	4.1 [1.2]	7.3 [2.1]	6.4 [1.9]	6.0 [1.8]	10.4 [3.0]	9.1 [2.7]	8.5 [2.5]
		Power	2.8	2.8	2.7	2.9	2.8	2.7	2.8	2.8	2.7
	70 [21.1]	Total BTUH [kW]	25.3 [7.4]	24.0 [7.0]	23.4 [6.9]	24.0 [7.0]	22.7 [6.7]	22.2 [6.5]	23.3 [6.8]	22.1 [6.5]	21.6 [6.3]
Sens BTUH [kW]		3.7 [1.1]	3.3 [1.0]	3.1 [0.9]	6.0 [1.8]	5.3 [1.5]	5.0 [1.5]	9.1 [2.7]	8.0 [2.3]	7.5 [2.2]	
Power		2.9	2.8	2.8	2.9	2.9	2.8	2.9	2.8	2.8	
75 [23.9]	Total BTUH [kW]	23.9 [7.0]	22.7 [6.6]	22.1 [6.5]	22.5 [6.6]	21.4 [6.3]	20.9 [6.1]	21.9 [6.4]	20.8 [6.1]	20.3 [5.9]	
	Sens BTUH [kW]	2.4 [0.7]	2.1 [0.6]	2.0 [0.6]	4.7 [1.4]	4.1 [1.2]	3.8 [1.1]	7.7 [2.3]	6.8 [2.0]	6.4 [1.9]	
	Power	3.0	2.9	2.9	3.0	2.9	2.9	3.0	2.9	2.9	
80 [26.7]	Total BTUH [kW]	22.4 [6.6]	21.3 [6.2]	20.7 [6.1]	21.1 [6.2]	20.0 [5.9]	19.5 [5.7]	20.4 [6.0]	19.4 [5.7]	18.9 [5.5]	
	Sens BTUH [kW]	1.0 [0.3]	0.9 [0.3]	0.8 [0.2]	3.2 [1.0]	2.9 [0.8]	2.7 [0.8]	6.3 [1.8]	5.5 [1.6]	5.2 [1.5]	
	Power	3.1	3.0	3.0	3.1	3.0	3.0	3.1	3.0	3.0	
85 [29.4]	Total BTUH [kW]	20.9 [6.1]	19.8 [5.8]	19.3 [5.7]	19.5 [5.7]	18.5 [5.4]	18.1 [5.3]	18.9 [5.5]	17.9 [5.3]	17.5 [5.1]	
	Sens BTUH [kW]	-0.5 [-0.1]	-0.4 [-0.1]	-0.4 [-0.1]	1.8 [0.5]	1.6 [0.5]	1.5 [0.4]	4.8 [1.4]	4.2 [1.2]	4.0 [1.2]	
	Power	3.2	3.2	3.1	3.2	3.2	3.1	3.2	3.1	3.1	
90 [32.2]	Total BTUH [kW]	19.3 [5.7]	18.3 [5.4]	17.9 [5.2]	18.0 [5.3]	17.0 [5.0]	16.6 [4.9]	17.3 [5.1]	16.4 [4.8]	16.0 [4.7]	
	Sens BTUH [kW]	-2.0 [-0.6]	-1.8 [-0.5]	-1.7 [-0.5]	0.2 [0.1]	0.2 [0.1]	0.2 [0.1]	3.3 [1.0]	2.9 [0.9]	2.7 [0.8]	
	Power	3.4	3.3	3.2	3.4	3.3	3.2	3.4	3.3	3.2	

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE) – G090

ENTERING INDOOR AIR @ 75°F [23.9°C] dbE ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			3600 [1699]	2775 [1310]	2400 [1133]	3600 [1699]	2775 [1310]	2400 [1133]	3600 [1699]	2775 [1310]	2400 [1133]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	91.0 [26.7]	86.3 [25.3]	84.2 [24.7]	89.8 [26.3]	85.2 [25.0]	83.1 [24.4]	88.0 [25.8]	83.5 [24.5]	81.4 [23.9]
		Sens BTUH [kW]	49.7 [14.6]	43.7 [12.8]	40.9 [12.0]	55.7 [16.3]	49.0 [14.3]	45.9 [13.4]	61.5 [18.0]	54.0 [15.8]	50.6 [14.8]
		Power	4.8	4.7	4.6	4.8	4.7	4.6	4.8	4.6	4.6
	70 [21.1]	Total BTUH [kW]	84.2 [24.7]	79.9 [23.4]	77.9 [22.8]	83.0 [24.3]	78.8 [23.1]	76.8 [22.5]	81.2 [23.8]	77.0 [22.6]	75.1 [22.0]
		Sens BTUH [kW]	43.4 [12.7]	38.1 [11.2]	35.7 [10.5]	49.5 [14.5]	43.4 [12.7]	40.7 [11.9]	55.2 [16.2]	48.5 [14.2]	45.4 [13.3]
		Power	5.3	5.2	5.1	5.3	5.2	5.1	5.3	5.2	5.1
	80 [26.7]	Total BTUH [kW]	76.6 [22.5]	72.7 [21.3]	70.9 [20.8]	75.5 [22.1]	71.6 [21.0]	69.8 [20.5]	73.6 [21.6]	69.9 [20.5]	68.1 [20.0]
Sens BTUH [kW]		37.2 [10.9]	32.7 [9.6]	30.6 [9.0]	43.3 [12.7]	38.0 [11.1]	35.6 [10.4]	49.0 [14.4]	43.0 [12.6]	40.3 [11.8]	
Power		5.9	5.8	5.7	5.9	5.8	5.7	5.9	5.8	5.7	
90 [32.2]	Total BTUH [kW]	68.3 [20.0]	64.8 [19.0]	63.2 [18.5]	67.1 [19.7]	63.7 [18.7]	62.1 [18.2]	65.3 [19.1]	61.9 [18.1]	60.4 [17.7]	
	Sens BTUH [kW]	31.1 [9.1]	27.3 [8.0]	25.6 [7.5]	37.1 [10.9]	32.6 [9.6]	30.5 [9.0]	42.9 [12.6]	37.6 [11.0]	35.3 [10.3]	
	Power	6.6	6.5	6.4	6.6	6.5	6.4	6.6	6.4	6.4	
100 [37.8]	Total BTUH [kW]	59.1 [17.3]	56.1 [16.4]	54.7 [16.0]	58.0 [17.0]	55.0 [16.1]	53.6 [15.7]	56.1 [16.4]	53.3 [15.6]	51.9 [15.2]	
	Sens BTUH [kW]	25.0 [7.3]	22.0 [6.4]	20.6 [6.0]	31.1 [9.1]	27.3 [8.0]	25.6 [7.5]	36.8 [10.8]	32.3 [9.5]	30.3 [8.9]	
	Power	7.4	7.2	7.1	7.4	7.2	7.1	7.4	7.2	7.1	
110 [43.3]	Total BTUH [kW]	49.2 [14.4]	46.7 [13.7]	45.5 [13.3]	48.0 [14.1]	45.6 [13.4]	44.5 [13.0]	46.2 [13.5]	43.8 [12.8]	42.8 [12.5]	
	Sens BTUH [kW]	19.1 [5.6]	16.7 [4.9]	15.7 [4.6]	25.1 [7.4]	22.0 [6.5]	20.7 [6.1]	30.8 [9.0]	27.1 [7.9]	25.4 [7.4]	
	Power	8.3	8.1	8.0	8.3	8.1	8.0	8.3	8.0	8.0	
120 [48.9]	Total BTUH [kW]	38.5 [11.3]	36.5 [10.7]	35.6 [10.4]	37.3 [10.9]	35.4 [10.4]	34.5 [10.1]	35.5 [10.4]	33.7 [9.9]	32.8 [9.6]	
	Sens BTUH [kW]	13.2 [3.9]	11.6 [3.4]	10.8 [3.2]	19.2 [5.6]	16.9 [4.9]	15.8 [4.6]	24.9 [7.3]	21.9 [6.4]	20.5 [6.0]	
	Power	9.2	9.0	8.9	9.2	9.0	8.9	9.2	9.0	8.9	

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE)—G120

ENTERING INDOOR AIR @ 75°F [23.9°C] dbE ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			2400 [1133]	1875 [885]	1600 [755]	2400 [1133]	1875 [885]	1600 [755]	2400 [1133]	1875 [885]	1600 [755]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	30.2 [8.9]	28.7 [8.4]	28.0 [8.2]	27.6 [8.1]	26.3 [7.7]	25.6 [7.5]	24.8 [7.3]	23.6 [6.9]	23.0 [6.7]
		Sens BTUH [kW]	3.8 [1.1]	3.4 [1.0]	3.2 [0.9]	6.2 [1.8]	5.5 [1.6]	5.1 [1.5]	9.1 [2.7]	8.0 [2.3]	7.5 [2.2]
		Power	3.8	3.7	3.6	3.7	3.7	3.6	3.8	3.7	3.6
	65 [18.3]	Total BTUH [kW]	28.7 [8.4]	27.3 [8.0]	26.6 [7.8]	26.1 [7.7]	24.9 [7.3]	24.2 [7.1]	23.3 [6.8]	22.2 [6.5]	21.6 [6.3]
		Sens BTUH [kW]	2.6 [0.8]	2.3 [0.7]	2.1 [0.6]	5.0 [1.5]	4.4 [1.3]	4.1 [1.2]	7.8 [2.3]	6.9 [2.0]	6.4 [1.9]
		Power	3.8	3.7	3.7	3.8	3.7	3.7	3.8	3.7	3.7
	70 [21.1]	Total BTUH [kW]	27.2 [8.0]	25.9 [7.6]	25.2 [7.4]	24.6 [7.2]	23.4 [6.9]	22.8 [6.7]	21.8 [6.4]	20.8 [6.1]	20.2 [5.9]
Sens BTUH [kW]		1.4 [0.4]	1.2 [0.4]	1.1 [0.3]	3.7 [1.1]	3.3 [1.0]	3.1 [0.9]	6.6 [1.9]	5.8 [1.7]	5.4 [1.6]	
Power		3.9	3.8	3.8	3.9	3.8	3.7	3.9	3.8	3.8	
75 [23.9]	Total BTUH [kW]	25.7 [7.5]	24.5 [7.2]	23.8 [7.0]	23.2 [6.8]	22.0 [6.5]	21.5 [6.3]	20.4 [6.0]	19.4 [5.7]	18.9 [5.5]	
	Sens BTUH [kW]	0.1 [0.0]	0.1 [0.0]	0.1 [0.0]	2.5 [0.7]	2.2 [0.7]	2.1 [0.6]	5.4 [1.6]	4.7 [1.4]	4.4 [1.3]	
	Power	4.0	3.9	3.8	4.0	3.9	3.8	4.0	3.9	3.8	
80 [26.7]	Total BTUH [kW]	24.3 [7.1]	23.1 [6.8]	22.5 [6.6]	21.7 [6.4]	20.7 [6.1]	20.1 [5.9]	18.9 [5.6]	18.0 [5.3]	17.5 [5.1]	
	Sens BTUH [kW]	-1.1 [-0.3]	-0.9 [-0.3]	-0.9 [-0.3]	1.3 [0.4]	1.2 [0.3]	1.1 [0.3]	4.2 [1.2]	3.7 [1.1]	3.4 [1.0]	
	Power	4.1	4.0	3.9	4.0	3.9	3.9	4.1	4.0	3.9	
85 [29.4]	Total BTUH [kW]	22.9 [6.7]	21.8 [6.4]	21.2 [6.2]	20.4 [6.0]	19.4 [5.7]	18.9 [5.5]	17.6 [5.1]	16.7 [4.9]	16.3 [4.8]	
	Sens BTUH [kW]	-2.2 [-0.7]	-2.0 [-0.6]	-1.8 [-0.5]	0.2 [0.0]	0.1 [0.0]	0.1 [0.0]	3.0 [0.9]	2.7 [0.8]	2.5 [0.7]	
	Power	4.2	4.1	4.0	4.1	4.0	4.0	4.1	4.0	4.0	
90 [32.2]	Total BTUH [kW]	21.6 [6.3]	20.5 [6.0]	20.0 [5.9]	19.0 [5.6]	18.1 [5.3]	17.6 [5.2]	16.2 [4.7]	15.4 [4.5]	15.0 [4.4]	
	Sens BTUH [kW]	-3.4 [-1.0]	-3.0 [-0.9]	-2.8 [-0.8]	-1.0 [-0.3]	-0.9 [-0.3]	-0.8 [-0.2]	1.8 [0.5]	1.6 [0.5]	1.5 [0.4]	
	Power	4.3	4.2	4.1	4.2	4.1	4.1	4.2	4.1	4.1	

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE)—G120

ENTERING INDOOR AIR @ 75°F [23.9°C] dbE ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			4800 [2265]	3750 [1770]	3200 [1510]	4800 [2265]	3750 [1770]	3200 [1510]	4800 [2265]	3750 [1770]	3200 [1510]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	114.4 [33.5]	108.8 [31.9]	105.9 [31.0]	111.5 [32.7]	106.1 [31.1]	103.3 [30.3]	108.5 [31.8]	103.2 [30.3]	100.5 [29.4]
		Sens BTUH [kW]	56.8 [16.7]	50.3 [14.7]	46.8 [13.7]	62.8 [18.4]	55.5 [16.3]	51.7 [15.2]	70.8 [20.8]	62.7 [18.4]	58.4 [17.1]
		Power	6.0	5.9	5.8	6.0	5.9	5.8	5.9	5.8	5.7
	70 [21.1]	Total BTUH [kW]	106.3 [31.2]	101.2 [29.6]	98.5 [28.9]	103.5 [30.3]	98.5 [28.9]	95.8 [28.1]	100.4 [29.4]	95.6 [28.0]	93.0 [27.3]
		Sens BTUH [kW]	49.4 [14.5]	43.7 [12.8]	40.7 [11.9]	55.3 [16.2]	48.9 [14.3]	45.6 [13.4]	63.4 [18.6]	56.1 [16.4]	52.2 [15.3]
		Power	6.7	6.5	6.4	6.6	6.5	6.4	6.6	6.4	6.3
	80 [26.7]	Total BTUH [kW]	97.5 [28.6]	92.8 [27.2]	90.3 [26.5]	94.7 [27.7]	90.1 [26.4]	87.7 [25.7]	91.6 [26.9]	87.2 [25.6]	84.9 [24.9]
Sens BTUH [kW]		42.2 [12.4]	37.3 [10.9]	34.7 [10.2]	48.1 [14.1]	42.5 [12.5]	39.6 [11.6]	56.2 [16.5]	49.7 [14.6]	46.3 [13.6]	
Power		7.4	7.2	7.1	7.4	7.2	7.1	7.3	7.2	7.1	
90 [32.2]	Total BTUH [kW]	87.9 [25.8]	83.7 [24.5]	81.4 [23.9]	85.1 [24.9]	81.0 [23.7]	78.8 [23.1]	82.0 [24.0]	78.1 [22.9]	76.0 [22.3]	
	Sens BTUH [kW]	35.2 [10.3]	31.1 [9.1]	29.0 [8.5]	41.1 [12.0]	36.4 [10.7]	33.9 [9.9]	49.2 [14.4]	43.5 [12.7]	40.5 [11.9]	
	Power	8.3	8.1	8.0	8.3	8.1	8.0	8.2	8.0	7.9	
100 [37.8]	Total BTUH [kW]	77.6 [22.7]	73.8 [21.6]	71.8 [21.1]	74.7 [21.9]	71.1 [20.8]	69.2 [20.3]	71.7 [21.0]	68.2 [20.0]	66.4 [19.5]	
	Sens BTUH [kW]	28.4 [8.3]	25.1 [7.4]	23.4 [6.9]	34.4 [10.1]	30.4 [8.9]	28.3 [8.3]	42.4 [12.4]	37.5 [11.0]	35.0 [10.2]	
	Power	9.3	9.1	8.9	9.2	9.0	8.9	9.2	9.0	8.9	
110 [43.3]	Total BTUH [kW]	66.4 [19.5]	63.2 [18.5]	61.5 [18.0]	63.6 [18.6]	60.5 [17.7]	58.9 [17.3]	60.6 [17.8]	57.6 [16.9]	56.1 [16.4]	
	Sens BTUH [kW]	21.9 [6.4]	19.4 [5.7]	18.0 [5.3]	27.8 [8.2]	24.6 [7.2]	22.9 [6.7]	35.9 [10.5]	31.8 [9.3]	29.6 [8.7]	
	Power	10.4	10.1	10.0	10.4	10.1	10.0	10.3	10.1	9.9	
120 [48.9]	Total BTUH [kW]	54.6 [16.0]	51.9 [15.2]	50.5 [14.8]	51.7 [15.2]	49.2 [14.4]	47.9 [14.0]	48.7 [14.3]	46.3 [13.6]	45.1 [13.2]	
	Sens BTUH [kW]	15.6 [4.6]	13.8 [4.0]	12.9 [3.8]	21.6 [6.3]	19.1 [5.6]	17.8 [5.2]	29.6 [8.7]	26.2 [7.7]	24.4 [7.2]	
	Power	11.6	11.3	11.2	11.6	11.3	11.2	11.5	11.3	11.1	

GROSS SYSTEMS PERFORMANCE DATA (LOW REHEAT MODE)—G151

ENTERING INDOOR AIR @ 75°F [23.9°C] dB _E ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			3000 [1416]	2125 [1003]	2000 [944]	3000 [1416]	2125 [1003]	2000 [944]	3000 [1416]	2125 [1003]	1600 [755]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	40.1 [11.7]	37.3 [10.9]	36.9 [10.8]	38.5 [11.3]	35.8 [10.5]	35.4 [10.4]	36.9 [10.8]	34.3 [10.0]	33.9 [9.9]
		Sens BTUH [kW]	9.4 [2.8]	7.9 [2.3]	7.7 [2.2]	12.5 [3.7]	10.5 [3.1]	10.2 [3.0]	16.6 [4.9]	13.9 [4.1]	13.6 [4.0]
		Power	4.5	4.3	4.3	4.5	4.4	4.3	4.5	4.3	4.3
	65 [18.3]	Total BTUH [kW]	38.3 [11.2]	35.6 [10.4]	35.2 [10.3]	36.7 [10.7]	34.1 [10.0]	33.7 [9.9]	35 [10.3]	32.6 [9.6]	32.3 [9.5]
		Sens BTUH [kW]	7.5 [2.2]	6.3 [1.8]	6.1 [1.8]	10.6 [3.1]	8.9 [2.6]	8.7 [2.5]	14.7 [4.3]	12.3 [3.6]	12.0 [3.5]
		Power	4.6	4.4	4.4	4.6	4.4	4.4	4.6	4.4	4.4
	70 [21.1]	Total BTUH [kW]	36.5 [10.7]	33.9 [9.9]	33.6 [9.8]	34.9 [10.2]	32.5 [9.5]	32.1 [9.4]	33.3 [9.7]	30.9 [9.1]	30.6 [9.0]
Sens BTUH [kW]		5.7 [1.7]	4.8 [1.4]	4.7 [1.4]	8.8 [2.6]	7.4 [2.2]	7.2 [2.1]	12.9 [3.8]	10.8 [3.2]	10.5 [3.1]	
Power		4.6	4.5	4.5	4.6	4.5	4.5	4.6	4.5	4.5	
75 [23.9]	Total BTUH [kW]	34.7 [10.2]	32.3 [9.5]	32.0 [9.4]	33.1 [9.7]	30.8 [9.0]	30.5 [8.9]	31.5 [9.2]	29.3 [8.6]	29.0 [8.5]	
	Sens BTUH [kW]	4.0 [1.2]	3.4 [1.0]	3.3 [1.0]	7.2 [2.1]	6.0 [1.8]	5.8 [1.7]	11.3 [3.3]	9.5 [2.8]	9.2 [2.7]	
	Power	4.7	4.6	4.5	4.7	4.6	4.5	4.7	4.6	4.5	
80 [26.7]	Total BTUH [kW]	33.0 [9.7]	30.7 [9.0]	30.4 [8.9]	31.4 [9.2]	29.2 [8.6]	28.9 [8.5]	29.8 [8.7]	27.7 [8.1]	27.4 [8.0]	
	Sens BTUH [kW]	2.5 [0.7]	2.1 [0.6]	2.0 [0.6]	5.6 [1.6]	4.7 [1.4]	4.6 [1.3]	9.7 [2.8]	8.2 [2.4]	7.9 [2.3]	
	Power	4.8	4.7	4.7	4.8	4.7	4.7	4.8	4.7	4.7	
85 [29.4]	Total BTUH [kW]	31.4 [9.2]	29.2 [8.6]	28.9 [8.5]	29.8 [8.7]	27.7 [8.1]	27.4 [8.0]	28.2 [8.3]	26.2 [7.7]	25.9 [7.6]	
	Sens BTUH [kW]	1.1 [0.3]	0.9 [0.3]	0.9 [0.3]	4.2 [1.2]	3.5 [1.0]	3.4 [1.0]	8.3 [2.4]	7.0 [2.0]	6.8 [2.0]	
	Power	5	4.8	4.8	5	4.8	4.8	5	4.8	4.8	
90 [32.2]	Total BTUH [kW]	29.7 [8.7]	27.7 [8.1]	27.4 [8.0]	28.2 [8.2]	26.2 [7.7]	25.9 [7.6]	26.5 [7.8]	24.7 [7.2]	24.4 [7.2]	
	Sens BTUH [kW]	-0.2 [-0.1]	-0.2 [-0.1]	-0.2 [-0.1]	2.9 [0.9]	2.4 [0.7]	2.4 [0.7]	7.0 [2.1]	5.9 [1.7]	5.7 [1.7]	
	Power	5.1	4.9	4.9	5.1	5	4.9	5.1	4.9	4.9	

GROSS SYSTEMS PERFORMANCE DATA (HIGH REHEAT MODE)—G151

ENTERING INDOOR AIR @ 75°F [23.9°C] dB _E ①											
wbE			65.3°F [18.5°C]			64°F [17.8°C]			62.5°F [16.9°C]		
CFM [L/s]			6000 [2832]	4250 [2006]	4000 [1888]	6000 [2832]	4250 [2006]	4000 [1888]	6000 [2832]	4250 [2006]	4000 [1888]
OUTDOOR DRY BULB TEMPERATURE °F [°C]	60 [15.6]	Total BTUH [kW]	136.4 [40.0]	126.9 [37.2]	125.6 [36.8]	133.7 [39.2]	124.4 [36.5]	124.4 [36.5]	130.6 [38.3]	121.5 [35.6]	120.2 [35.2]
		Sens BTUH [kW]	71.7 [21.0]	60.2 [17.6]	58.5 [17.1]	79.7 [23.3]	66.8 [19.6]	66.8 [19.6]	89.5 [26.2]	75.0 [22.0]	73.0 [21.4]
		Power	7.2	7.0	7.0	7.2	6.9	6.9	7.1	6.9	6.9
	70 [21.1]	Total BTUH [kW]	126.3 [37.0]	117.5 [34.4]	116.2 [34.1]	123.6 [36.2]	115.0 [33.7]	113.7 [33.3]	120.4 [35.3]	112.0 [32.8]	110.8 [32.5]
		Sens BTUH [kW]	62.1 [18.2]	52.1 [15.3]	50.7 [14.9]	70.1 [20.5]	58.8 [17.2]	57.2 [16.8]	79.9 [23.4]	67.0 [19.6]	65.2 [19.1]
		Power	8.0	7.7	7.7	7.9	7.7	7.6	7.9	7.6	7.6
	80 [26.7]	Total BTUH [kW]	115.9 [34.0]	107.8 [31.6]	106.6 [31.3]	113.2 [33.2]	105.3 [30.9]	104.2 [30.5]	110.0 [32.2]	102.3 [30.0]	101.2 [29.7]
Sens BTUH [kW]		53.0 [15.5]	44.5 [13.0]	43.3 [12.7]	61.0 [17.9]	51.1 [15.0]	49.7 [14.6]	70.8 [20.7]	59.4 [17.4]	57.7 [16.9]	
Power		8.9	8.6	8.5	8.8	8.5	8.5	8.8	8.5	8.4	
90 [32.2]	Total BTUH [kW]	105.3 [30.8]	97.9 [28.7]	96.9 [28.4]	102.6 [30.1]	95.4 [28.0]	94.4 [27.7]	99.4 [29.1]	92.4 [27.1]	91.5 [26.8]	
	Sens BTUH [kW]	44.4 [13.0]	37.2 [10.9]	36.2 [10.6]	52.3 [15.3]	43.9 [12.9]	42.7 [12.5]	62.1 [18.2]	52.1 [15.3]	50.7 [14.8]	
	Power	9.9	9.6	9.5	9.8	9.5	9.5	9.8	9.5	9.4	
100 [37.8]	Total BTUH [kW]	94.4 [27.7]	87.9 [25.7]	86.9 [25.5]	91.7 [26.9]	85.3 [25.0]	84.4 [24.7]	88.5 [25.9]	82.4 [24.1]	81.5 [23.9]	
	Sens BTUH [kW]	36.1 [10.6]	30.3 [8.9]	29.5 [8.6]	44.1 [12.9]	37.0 [10.8]	36.0 [10.5]	53.9 [15.8]	45.2 [13.2]	44.0 [12.9]	
	Power	11.1	10.7	10.6	11.0	10.6	10.6	11.0	10.6	10.5	
110 [43.3]	Total BTUH [kW]	83.4 [24.4]	77.6 [22.7]	76.8 [22.5]	80.7 [23.6]	75.1 [22.0]	74.3 [21.8]	77.5 [22.7]	72.1 [21.1]	71.3 [20.9]	
	Sens BTUH [kW]	28.4 [8.3]	23.8 [7.0]	23.2 [6.8]	36.3 [10.6]	30.5 [8.9]	29.6 [8.7]	46.1 [13.5]	38.7 [11.3]	37.6 [11.0]	
	Power	12.4	11.9	11.9	12.3	11.9	11.8	12.3	11.8	11.8	
120 [48.9]	Total BTUH [kW]	72.1 [21.1]	67.1 [19.7]	66.4 [19.5]	69.4 [20.3]	64.6 [18.9]	63.9 [18.7]	66.3 [19.4]	61.6 [18.1]	61.0 [17.9]	
	Sens BTUH [kW]	21.1 [6.2]	17.7 [5.2]	17.2 [5.0]	29.0 [8.5]	24.4 [7.1]	23.7 [6.9]	38.8 [11.4]	32.6 [9.5]	31.7 [9.3]	
	Power	13.8	13.3	13.2	13.7	13.3	13.2	13.7	13.2	13.2	

AIRFLOW PERFORMANCE— 7.5 TON [26.4 kW] — 60 Hz — SIDEFLOW

Air Flow CFM [L/s]	Capacity 7.5 Tons [26.4 kW]																																							
	External Static Pressure—Inches of Water [kPa]																																							
	0.1 [1.02]	0.2 [1.05]	0.3 [1.07]	0.4 [1.10]	0.5 [1.12]	0.6 [1.15]	0.7 [1.17]	0.8 [1.20]	0.9 [1.22]	1.0 [1.25]	1.1 [1.27]	1.2 [1.30]	1.3 [1.32]	1.4 [1.35]	1.5 [1.37]	1.6 [1.40]	1.7 [1.42]	1.8 [1.45]	1.9 [1.47]	2.0 [1.50]																				
2400 [1133]	—	—	—	574	520	612	592	650	665	687	739	723	815	757	893	791	971	824	1051	857	1133	888	1216	918	1300	948	1386	976	1473	1004	1561	1031	1651	1057	1742	1082	1834	1106	1928	
2500 [1180]	—	545	490	584	560	622	632	659	705	695	780	730	856	785	933	798	1012	831	1092	863	1174	894	1257	924	1341	953	1427	981	1514	1008	1603	1035	1693	1060	1784	1085	1877	1108	1971	
2600 [1227]	—	555	537	594	608	632	680	668	753	704	828	739	904	773	982	806	1061	838	1141	870	1223	900	1306	930	1390	958	1476	986	1563	1013	1652	1039	1742	1064	1833	1088	1926	1111	2020	
2700 [1274]	—	567	593	605	663	642	735	678	809	714	884	748	960	782	1038	814	1117	846	1197	877	1279	907	1362	936	1447	968	1533	992	1620	1018	1709	1043	1799	1068	1891	1092	1983	1115	2078	
2800 [1321]	—	578	655	616	726	653	799	689	872	724	947	758	1024	791	1101	823	1181	854	1261	885	1343	914	1426	943	1511	971	1597	998	1685	1024	1773	1049	1864	1073	1955	1096	2048	1119	2143	
2900 [1368]	552	656	591	726	628	797	664	869	700	943	734	1018	768	1095	800	1173	832	1252	863	1332	893	1415	922	1498	951	1563	978	1669	1004	1757	1030	1846	1055	1936	1078	2028	1101	2121	1123	2215
3000 [1416]	566	734	603	804	640	875	676	947	711	1021	745	1097	778	1173	811	1251	842	1331	872	1411	902	1494	931	1577	959	1662	985	1748	1012	1836	1037	1925	1061	2016	1084	2108	1107	2201	1128	2295
3100 [1463]	579	820	617	890	653	961	688	1033	723	1107	757	1183	789	1259	821	1338	852	1417	882	1498	912	1580	940	1664	967	1749	994	1835	1019	1923	1044	2012	1068	2103	1091	2195	1113	2288	1134	2383
3200 [1510]	594	913	631	983	666	1054	701	1127	736	1201	769	1276	801	1353	833	1432	863	1511	893	1592	921	1675	949	1758	976	1844	1002	1930	1027	2018	1052	2107	1075	2198	1098	2290	1119	2384	1140	2478
3300 [1557]	608	1014	645	1084	680	1155	715	1228	749	1302	781	1378	813	1455	844	1533	874	1613	904	1694	932	1776	959	1860	986	1946	1012	2032	1036	2120	1060	2210	1083	2301	1105	2393	1126	2486	1146	2581
3400 [1604]	624	1122	660	1192	695	1264	729	1337	762	1411	795	1487	826	1564	857	1642	886	1722	915	1803	943	1886	970	1970	996	2055	1021	2142	1046	2230	1069	2320	1091	2411	1113	2503	1134	2597	1154	2692
3500 [1652]	640	1238	675	1308	710	1380	744	1453	776	1527	808	1603	839	1680	870	1759	899	1839	927	1920	955	2003	981	2087	1007	2173	1032	2259	1055	2348	1078	2437	1100	2528	1122	2621	1142	2715	1161	2810
3600 [1699]	656	1361	691	1432	725	1503	759	1577	791	1651	823	1727	853	1804	883	1883	912	1963	940	2045	967	2128	993	2212	1018	2297	1042	2384	1066	2473	1088	2563	1110	2654	1131	2746	1151	2840	1169	2936

NOTE: R-Drive left of 1st bold line, S-Drive between bold lines, T-Drive right of 2nd bold line.

Drive Package	R										S										T																					
Motor H.P. [W]	2.0 [1491.4]										2.0 [1491.4]										3.0 [2237.14]																					
Blower Sheave	BK110										BK90										BK65																					
Motor Sheave	1VP-44										1VP-44										1VP-44																					
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	1	2	3	4	5	6	1	2	3	4	5	6						
RPM	705	674	640	608	576	544	865	830	789	750	711	673	1179	1143	1092	1040	987	933	880	830	789	750	711	673	1179	1143	1092	1040	987	933	880	830	789	750	711	673	1179	1143	1092	1040	987	933

- NOTES: 1. Factory sheave settings are shown in bold print.
 2. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum E.S.P.
 3. Do not operate above blower RPM shown as motor overloading will occur.
 4. Do not set motor sheave below one turn open.

AIRFLOW CORRECTION FACTORS 7.5 TON [26.4 kW] (C090)

ACTUAL—CFM [L/s]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1605]	3600 [1699]	3800 [1793]
TOTAL MBH	0.97	0.98	0.99	1.00	1.01	1.02	1.03
SENSIBLE MBH	0.91	0.94	0.97	1.00	1.02	1.05	1.08
POWER kW	0.99	0.99	0.99	1.00	1.00	1.01	1.02

- NOTES: 1. Multiply correction factor times gross performance data.
 2. Resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

COMPONENT AIR RESISTANCE, IWC 7.5 TON [26.4 kW] (C090)

Component	Standard Indoor Airflow—CFM [L/s]										Resistance—Inches Water [kPa]									
	2400 [1133]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1604]	3600 [1699]	2400 [1133]	2600 [1227]	2800 [1321]	3000 [1416]	3200 [1510]	3400 [1604]	3600 [1699]						
Wet Coil	0.047 [0.012]	0.051 [0.013]	0.055 [0.014]	0.060 [0.015]	0.065 [0.016]	0.071 [0.018]	0.076 [0.019]	0.047 [0.012]	0.051 [0.013]	0.055 [0.014]	0.060 [0.015]	0.065 [0.016]	0.071 [0.018]	0.076 [0.019]						
Concentric Diffuser RXRN-FA65 or FA75 & Transition RXMC-CD04	DNA	.017 [0.042]	.020 [0.050]	.025 [0.062]	.031 [0.077]	.037 [0.092]	DNA	.017 [0.042]	.020 [0.050]	.025 [0.062]	.031 [0.077]	.037 [0.092]	DNA							
Concentric Diffuser RXRN-AA61 or AA71 & Transition RXMC-CE05	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA	DNA							
Economizer	0.05 [0.012]	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.022]	0.10 [0.025]	0.05 [0.012]	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.022]	0.10 [0.025]	0.11 [0.027]							
100% R.A. Damper Open	0.03 [0.007]	0.04 [0.009]	0.04 [0.010]	0.05 [0.011]	0.05 [0.012]	0.06 [0.015]	0.03 [0.007]	0.04 [0.009]	0.04 [0.010]	0.05 [0.011]	0.05 [0.012]	0.06 [0.015]	0.06 [0.015]							
Horizontal Economizer	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]							
100% O.A. Damper Open	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.08 [0.020]	0.08 [0.020]	0.08 [0.020]	0.10 [0.024]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]							

NOTE: Add component resistance to duct resistance to determine total external static pressure.
 DNA = Data not Available.

AIRFLOW PERFORMANCE — 10 TON [35.2 kW] — 60 Hz — SIDEFLOW

Air Flow CFM [L/s]	Capacity 10 Tons [35.1 kW]																	
	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]	1.3 [0.30]	1.4 [0.32]	1.5 [0.35]	1.6 [0.40]	1.7 [0.42]	1.8 [0.45]	1.9 [0.47]
3200 [1510]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3300 [1557]	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400 [1604]	670	1137	1204	1274	1347	1423	1503	1585	1668	1752	1837	1922	2007	2092	2177	2262	2347	2432
3500 [1652]	683	1198	1268	1342	1419	1498	1578	1658	1738	1818	1898	1978	2058	2138	2218	2298	2378	2458
3600 [1699]	697	1265	1339	1416	1496	1576	1656	1736	1816	1896	1976	2056	2136	2216	2296	2376	2456	2536
3700 [1746]	711	1337	1415	1495	1580	1667	1754	1841	1928	2015	2102	2189	2276	2363	2450	2537	2624	2711
3800 [1793]	725	1415	1496	1580	1668	1759	1853	1947	2041	2135	2229	2323	2417	2511	2605	2699	2793	2887
3900 [1840]	740	1498	1583	1671	1762	1857	1954	2051	2148	2245	2342	2439	2536	2633	2730	2827	2924	3021
4000 [1888]	754	1586	1674	1767	1862	1960	2061	2161	2261	2361	2461	2561	2661	2761	2861	2961	3061	3161
4100 [1935]	768	1680	1772	1868	1966	2068	2173	2278	2383	2488	2593	2698	2803	2908	3013	3118	3223	3328
4200 [1982]	783	1780	1875	1975	2077	2182	2291	2399	2508	2617	2726	2835	2944	3053	3162	3271	3380	3489
4300 [2029]	798	1884	1984	2087	2193	2302	2414	2527	2640	2753	2866	2979	3092	3205	3318	3431	3544	3657
4400 [2076]	813	1995	2098	2204	2314	2427	2542	2659	2776	2893	3010	3127	3244	3361	3478	3595	3712	3829
4500 [2123]	828	2111	2217	2327	2441	2557	2676	2796	2916	3036	3156	3276	3396	3516	3636	3756	3876	3996
4600 [2171]	844	2232	2342	2456	2573	2693	2816	2942	3072	3204	3336	3468	3600	3732	3864	3996	4128	4260
4700 [2218]	859	2359	2473	2590	2710	2834	2961	3091	3224	3356	3488	3620	3752	3884	4016	4148	4280	4412
4800 [2265]	875	2491	2609	2729	2853	2981	3111	3245	3382	3516	3650	3784	3918	4052	4186	4320	4454	4588

NOTE: R-Drive left of bold line, S-Drive right of bold line.

Drive Package	R	S					
Motor H.P. [W]	2.0 [1491.4]	3.0 [2237.14]					
Blower Sheave	BK90	BK65					
Motor Sheave	1VP-44	1VP-44					
Turns Open	1	2	3	4	5	6	
RPM	860	825	785	747	709	670	
			1063	1015	956	909	

- NOTES: 1. Factory sheave settings are shown in bold print.
 2. Re-adjustment of sheave required to achieve rated airflow at AHRI minimum E.S.P.
 3. Do not operate above blower RPM shown as motor overloading will occur.
 4. Do not set motor sheave below one turn open.

AIRFLOW CORRECTION FACTORS 10 TON [35.2 kW]

ACTUAL—CFM [L/s]	3200 [1510]	3400 [1605]	3600 [1699]	3800 [1793]	4000 [1888]	4200 [1982]	4400 [2077]	4600 [2171]	4800 [2265]
TOTAL MBH	0.96	0.97	0.98	0.99	1.00	1.01	1.02	1.03	1.04
SENSIBLE MBH	0.91	0.93	0.95	0.97	1.00	1.02	1.05	1.07	1.09
POWER kW	0.98	0.98	0.99	0.99	1.00	1.00	1.01	1.01	1.01

- NOTES: 1. Multiply correction factor times gross performance data.
 2. Resulting sensible capacity cannot exceed total capacity.

[] Designates Metric Conversions

COMPONENT AIR RESISTANCE, IWC 10 TON [35.2 kW]

Component	Standard Indoor Airflow—CFM [L/s]									
	3200 [1510]	3400 [1604]	3600 [1699]	3800 [1793]	4000 [1888]	4200 [1982]	4400 [2076]	4600 [2171]	4800 [2265]	
Wet Coil	0.065 [0.016]	0.071 [0.018]	0.076 [0.019]	0.082 [0.020]	0.087 [0.022]	0.093 [0.023]	0.099 [0.025]	0.105 [0.026]	0.110 [0.027]	
Concentric Diffuser RXRN-FA65 or FA75 & Transition RXMC-CD04	0.31 [0.077]	0.37 [0.092]	DNA							
Concentric Diffuser RXRN-AA61 or AA71 & Transition RXMC-GE05	DNA	DNA	0.17 [0.042]	0.18 [0.045]	0.21 [0.052]	0.24 [0.060]	0.27 [0.067]	DNA	DNA	
Concentric Diffuser RXRN-AA66 or AA76 & Transition RXMC-CF06	DNA	DNA	DNA	DNA	DNA	DNA	0.31 [0.077]	0.32 [0.080]	DNA	
Economizer 100% R.A. Damper Open	0.09 [0.022]	0.10 [0.025]	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]	0.14 [0.035]	0.15 [0.037]	0.16 [0.040]	0.17 [0.042]	
Horizontal Economizer 100% R.A. Damper Open	0.05 [0.012]	0.06 [0.014]	0.06 [0.015]	0.07 [0.017]	0.08 [0.020]	0.09 [0.021]	0.09 [0.022]	0.10 [0.025]	0.10 [0.025]	
Horizontal Economizer 100% O.A. Damper Open	0.11 [0.027]	0.12 [0.030]	0.13 [0.032]	0.15 [0.036]	0.16 [0.040]	0.18 [0.044]	0.19 [0.047]	0.21 [0.052]	DNA	

NOTE: Add component resistance to duct resistance to determine total external static pressure.
 DNA = Data not Available.

AIRFLOW PERFORMANCE— 12.5 TON [44.0 kW]

Air Flow CFM [L/s]	Capacity 12.5 Tons [43.9 kW] – Voltage 208/230, 460 – 3 Phase 60 Hz																			
	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]
3800 [1793]	—	—	—	860 [1675]	886 [1752]	912 [1832]	937 [1914]	962 [1998]	987 [2084]	1011 [2172]	1035 [2262]	1059 [2354]	1082 [2448]	1105 [2544]	1127 [2643]	1150 [2743]	1172 [2846]	1193 [2950]	1214 [3057]	1235 [3166]
4000 [1868]	—	—	863 [1768]	889 [1850]	914 [1934]	939 [2020]	964 [2108]	988 [2199]	1012 [2291]	1036 [2385]	1059 [2482]	1082 [2580]	1105 [2681]	1127 [2784]	1149 [2889]	1170 [2995]	1191 [3104]	1212 [3215]	1233 [3328]	1253 [3444]
4200 [1982]	—	868 [1878]	893 [1965]	918 [2053]	943 [2144]	967 [2236]	991 [2331]	1015 [2428]	1038 [2526]	1061 [2627]	1083 [2730]	1106 [2835]	1127 [2942]	1149 [3051]	1170 [3162]	1191 [3276]	1212 [3391]	1232 [3508]	1252 [3628]	1271 [3749]
4400 [2076]	874 [2006]	899 [2097]	923 [2190]	948 [2284]	972 [2381]	995 [2480]	1019 [2581]	1041 [2685]	1064 [2790]	1086 [2897]	1108 [3006]	1130 [3118]	1151 [3231]	1172 [3347]	1192 [3464]	1212 [3584]	1232 [3706]	1252 [3830]	1271 [3955]	1290 [4083]
4600 [2171]	906 [2246]	930 [2343]	954 [2443]	978 [2544]	1001 [2647]	1024 [2753]	1047 [2860]	1069 [2970]	1091 [3081]	1112 [3195]	1134 [3311]	1154 [3428]	1175 [3548]	1195 [3670]	1215 [3794]	1234 [3920]	1254 [4048]	1272 [4179]	1291 [4311]	—
4800 [2265]	939 [2514]	962 [2618]	986 [2724]	1009 [2831]	1031 [2941]	1053 [3053]	1075 [3167]	1097 [3283]	1118 [3401]	1139 [3521]	1160 [3643]	1180 [3767]	1200 [3893]	1219 [4022]	1238 [4152]	1257 [4285]	1275 [4419]	1293 [4556]	—	—
5000 [2359]	972 [2811]	995 [2921]	1018 [3033]	1040 [3147]	1062 [3263]	1083 [3381]	1105 [3501]	1125 [3624]	1146 [3748]	1166 [3875]	1186 [4003]	1205 [4134]	1225 [4267]	1243 [4401]	1262 [4538]	1280 [4677]	1298 [4818]	—	—	—
5200 [2454]	1006 [3135]	1028 [3251]	1050 [3370]	1072 [3490]	1093 [3613]	1114 [3737]	1134 [3864]	1155 [3993]	1174 [4124]	1194 [4257]	1213 [4392]	1232 [4529]	1250 [4668]	1268 [4809]	1286 [4952]	—	—	—	—	—
5400 [2548]	1040 [3487]	1062 [3610]	1083 [3735]	1104 [3862]	1125 [3991]	1145 [4122]	1165 [4255]	1184 [4390]	1203 [4527]	1222 [4667]	1240 [4808]	1259 [4952]	1276 [5097]	1294 [5245]	—	—	—	—	—	—
5600 [2643]	1075 [3868]	1096 [3997]	1117 [4128]	1137 [4261]	1157 [4397]	1176 [4534]	1195 [4674]	1214 [4815]	1233 [4959]	1251 [5105]	1268 [5253]	1286 [5403]	1303 [5555]	—	—	—	—	—	—	—
5800 [2737]	1111 [4276]	1131 [4412]	1151 [4549]	1170 [4689]	1189 [4831]	1208 [4975]	1227 [5121]	1245 [5269]	1263 [5419]	1280 [5571]	1297 [5725]	—	—	—	—	—	—	—	—	—

NOTE: R-Drive left of bold line, S-Drive right of bold line.

Drive Package	R						S					
Motor H.P. [W]	5.0 [3728.5]						5.0 [3728.5]					
Blower Sheave	BK72H						BK85H					
Motor Sheave	1VP-44						1VP-65					
Turns Open	1	2	3	4	5	6	1	2	3	4	5	6
RPM	1075	1032	995	947	899	849	1292	1253	1216	1178	1136	1095

- NOTES: 1. Factory sheave settings are shown in bold print.
 2. Do not set motor sheave below minimum or maximum 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.

AIRFLOW CORRECTION FACTORS 12.5 TON [44.0 kW]

ACTUAL—CFM [L/s]	3800 [1793]	4000 [1868]	4200 [1982]	4400 [2077]	4600 [2171]	4800 [2265]	5000 [2360]	5200 [2454]	5400 [2549]	5600 [2643]	5800 [2737]
TOTAL MBH	0.98	0.99	1.00	1.01	1.02	1.02	1.03	1.04	1.05	1.06	1.07
SENSIBLE MBH	0.93	0.96	1.00	1.04	1.07	1.11	1.14	1.18	1.21	1.25	1.28
POWER kW	0.99	1.00	1.00	1.00	1.01	1.01	1.02	1.02	1.03	1.03	1.03

- NOTES: 1. Multiply correction factor times gross performance data.
 2. Resulting sensible capacity cannot exceed total capacity.

I J Designates Metric Conversions

COMPONENT AIR RESISTANCE, IWC 12.5 TON [44.0 kW]

Component	Standard Indoor Airflow—CFM [L/s]												Resistance—Inches Water [kPa]											
	3800 [1793]	4000 [1868]	4200 [1982]	4400 [2076]	4600 [2171]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]	3800 [1793]	4000 [1868]	4200 [1982]	4400 [2076]	4600 [2171]	4800 [2265]	5000 [2359]	5200 [2454]	5400 [2548]	5600 [2643]	5800 [2737]		
	Wet Coil	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.12	0.13	0.14	0.14
Downflow Economizer RA Damper Open	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.22	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	
Horizontal Economizer RA Damper Open	0.07	0.07	0.07	0.08	0.08	0.09	0.10	0.10	0.10	0.11	0.11	0.07	0.07	0.08	0.08	0.09	0.10	0.10	0.11	0.11	0.12	0.13	0.13	
Concentric Grill RXRN-AA61 or RXRN-AA71 & Transition RXMC-CE05	0.19	0.21	0.21	0.24	0.27	0.30	0.33	0.36	0.40	0.44	0.52	0.19	0.21	0.21	0.24	0.27	0.30	0.33	0.36	0.40	0.48	0.52	0.52	
Concentric Grill RXRN-AA66 or RXRN-AA76 & Transition RXMC-CF06	0.23	0.25	0.25	0.27	0.29	0.30	0.32	0.34	0.36	0.38	0.40	0.23	0.25	0.25	0.27	0.29	0.30	0.32	0.34	0.36	0.40	0.43	0.43	
	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.6	0.6	0.6	0.7	0.7	0.7	0.8	0.8	0.8	0.9	1.0	1.1	

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

ELECTRICAL DATA – RLNL- SERIES

		G090CR	G090CS	G090CT	G090DR	G090DS	G090DT	G120CR	G120CS	G120DR	G120DS
Unit Information	Unit Operating Voltage Range	187-253	187-253	187-253	414-506	414-506	414-506	187-253	187-253	414-506	414-506
	Volts	208/230	208/230	208/230	460	460	460	208/230	208/230	460	460
	Minimum Circuit Ampacity	43/43	43/43	48/48	21	21	24	49/49	54/54	25	28
	Minimum Overcurrent Protection Device Size	45/45	45/45	50/50	25	25	25	50/50	55/55	25	30
	Maximum Overcurrent Protection Device Size	50/50	50/50	60/60	25	25	30	60/60	60/60	30	35
Compressor Motor	No.	2	2	2	2	2	2	2	2	2	2
	Volts	200/240	200/240	200/240	480	480	480	200/240	200/240	480	480
	Phase	3	3	3	3	3	3	3	3	3	3
	RPM	3450	3450	3450	3450	3450	3450	3450	3450	3450	3450
	HP, Compressor 1	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	4 1/4	4 1/4	4 1/4	4 1/4
	Amps (RLA), Comp. 1	13.1/13.1	13.1/13.1	13.1/13.1	6.1	6.1	6.1	16/16	16/16	7.8	7.8
	Amps (LRA), Comp. 1	83.1/83.1	83.1/83.1	83.1/83.1	41	41	41	110/110	110/110	52	52
	HP, Compressor 2	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	4 1/4	4 1/4	4 1/4	4 1/4
	Amps (RLA), Comp. 2	13.1/13.1	13.1/13.1	13.1/13.1	6.1	6.1	6.1	16/16	16/16	7.8	7.8
Amps (LRA), Comp. 2	83.1/83.1	83.1/83.1	83.1/83.1	41	41	41	110/110	110/110	52	52	
Condenser Motor	No.	2	2	2	2	2	2	2	2	2	2
	Volts	208/230	208/230	208/230	460	460	460	208/230	208/230	460	460
	Phase	1	1	1	1	1	1	1	1	1	1
	HP	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
	Amps (FLA, each)	2.4/2.4	2.4/2.4	2.4/2.4	1.4	1.4	1.4	2.4/2.4	2.4/2.4	1.4	1.4
	Amps (LRA, each)	4.7/4.7	4.7/4.7	4.7/4.7	2.4	2.4	2.4	4.7/4.7	4.7/4.7	2.4	2.4
Evaporator Fan	No.	1	1	1	1	1	1	1	1	1	1
	Volts	208/230	208/230	208/230	460	460	460	208/230	208/230	460	460
	Phase	3	3	3	3	3	3	3	3	3	3
	HP	2	2	3	2	2	3	2	3	2	3
	Amps (FLA, each)	8/8	8/8	13/13	4	4	7	8/8	13/13	4	7
	Amps (LRA, each)	56/56	56/56	74.5/74.5	28	28	38.1	56/56	74.5/74.5	28	38.1

ELECTRICAL DATA – RLNL- SERIES					
		G151CR	G151CS	G151DR	G151DS
Unit Information	Unit Operating Voltage Range	187-253	187-253	414-506	414-506
	Volts	208/230	208/230	460	460
	Minimum Circuit Ampacity	68/68	68/68	32	32
	Minimum Overcurrent Protection Device Size	80/80	80/80	35	35
	Maximum Overcurrent Protection Device Size	80/80	80/80	40	40
Compressor Motor	No.	2	2	2	2
	Volts	208/230	208/230	460	460
	Phase	3	3	3	3
	RPM	3450	3450	3450	3450
	HP, Compressor 1	5 3/4	5	5	5
	Amps (RLA), Comp. 1	19.6/19.6	19.6/19.6	8.2	8.2
	Amps (LRA), Comp. 1	136/136	136/136	66.1	66.1
	HP, Compressor 2	5	5	5	5
	Amps (RLA), Comp. 2	19.6/19.6	19.6/19.6	8.2	8.2
Amps (LRA), Comp. 2	136/136	136/136	66.1	66.1	
Condenser Motor	No.	2	2	2	2
	Volts	208/230	208/230	460	460
	Phase	1	1	1	1
	HP	1/2	1/2	1/2	1/2
	Amps (FLA, each)	2.3/2.3	2.3/2.3	1.5	1.5
	Amps (LRA, each)	5.6/5.6	5.6/5.6	3.1	3.1
Evaporator Fan	No.	1	1	1	1
	Volts	208/230	208/230	460	460
	Phase	3	3	3	3
	HP	5	5	5	5
	Amps (FLA, each)	18.8/18.8	18.8/18.8	10	10
	Amps (LRA, each)	82.6/82.6	82.6/82.6	41.3	41.3

208/240 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Both Unit and Heater Kit

Unit Model No. RLNL-	Heater Kit				Air Conditioner				Heater Kit				Air Conditioner			
	RXJJ-Heater Kit Nominal kW	No. of Sequence Steps	Rated Heater kW @ 208/240 V	Heater KBTU/Hr @ 208/240 V	Heater Amp. @ 208/240 V	Unit Min. Ckt. Ampacity @ 208/240 V	Over Current Protective Device Size Min./Max. @ 208 V	Min. Ckt. Ampacity @ 208/240 V	Max. Fuse Size @ 208/240 V	Min. Ckt. Ampacity @ 208/240 V	Over Current Protective Device Size Min./Max. @ 208 V	Min. Ckt. Ampacity @ 208/240 V	Max. Fuse Size @ 208/240 V	Min. Ckt. Ampacity @ 208/240 V	Over Current Protective Device Size Min./Max. @ 208 V	
G090CR	No Heat	—	—	—	—	43/43	45/50	—	—	43/43	45/50	—	—	43/43	45/50	
	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	43/43	50/50	25/29	25/30	43/43	45/50	25/30	25/30	43/43	45/50	
	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	48/54	50/50	38/44	40/45	43/43	45/50	40/45	40/45	43/43	45/50	
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	60/68	60/60	50/58	50/60	43/43	45/50	50/60	50/60	43/43	45/50	
	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	85/97	90/90	100/100	75/87	80/90	43/43	45/50	80/90	43/43	45/50	
G120CR	No Heat	—	—	—	—	111/126	125/125	—	—	43/43	45/50	110/125	110/125	43/43	45/50	
	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	49/49	50/60	25/29	25/30	49/49	50/60	25/30	25/30	49/49	50/60	
	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	49/54	60/60	38/44	40/45	49/49	50/60	40/45	40/45	49/49	50/60	
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	60/68	60/60	50/58	50/60	49/49	50/60	50/60	50/60	49/49	50/60	
	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	85/97	90/90	100/100	75/87	80/90	49/49	50/60	80/90	49/49	50/60	
G151CR	No Heat	—	—	—	—	136/155	150/150	—	—	68/68	80/80	150/150	150/150	68/68	80/80	
	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	68/68	80/80	25/29	25/30	68/68	80/80	25/30	25/30	68/68	80/80	
	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	68/68	80/80	38/44	40/45	68/68	80/80	40/45	40/45	68/68	80/80	
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	74/82	80/80	50/58	50/60	68/68	80/80	50/60	50/60	68/68	80/80	
	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	99/111	100/100	125/125	75/87	80/90	68/68	80/90	80/90	68/68	80/80	
CC40C	1	28.8/38.4	98.25/131	80.1/92.4	124/140	125/125	150/150	101/116	110/125	68/68	80/80	110/125	110/125	68/68	80/80	
	1	36.1/48	123.16/163.75	100.1/115.5	149/168	150/150	175/175	126/145	150/150	68/68	80/80	150/150	150/150	68/68	80/80	

*= For Canadian use only. Uses "P" fuses for inductive circuit.
+ = Field installed only.

208/240 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply For Both Unit and Heater Kit										Separate Power Supply For Both Unit and Heater Kit									
Unit Model No. RLNL-	RXJJ-Heater Kit Nominal kW	No. of Sequence Steps	Rated Heater kW @ 208/240 V	Heater KBTU/Hr @ 208/240 V	Heater Amp. @ 208/240 V	Unit Min. Ckt. Ampacity @ 208/240 V	Air Conditioner		Heater Kit		Air Conditioner		Min. Circuit Ampacity 208/240 V	Over Current Protective Device Size Min./Max. @ 208 V	Over Current Protective Device Size Min./Max. @ 240 V				
							Min./Max. @ 208 V	Min./Max. @ 240 V	Min. Ckt. Ampacity 208/240 V	Max. Fuse Size 208/240 V	Min./Max. @ 208 V	Min./Max. @ 240 V							
G090CS	No Heat	—	—	—	—	43/43	45/50	—	—	—	43/43	45/50	43/43	45/50	45/50				
	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	43/43	50/50	20/23.1	25/29	25/30	43/43	45/50	43/43	45/50	45/50				
	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	48/54	60/60	30/34.6	38/44	40/45	43/43	45/50	43/43	45/50	45/50				
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	60/68	70/70	40/46.2	50/58	50/60	50/60	45/50	45/50	45/50	45/50				
G120CS	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	85/97	90/90	60/69.3	75/87	80/90	43/43	45/50	43/43	45/50	45/50				
	CC40C	1	28.8/38.4	98.25/131	80.1/92.4	111/126	125/125	80.1/92.4	101/116	110/125	43/43	45/50	43/43	45/50	45/50				
	CC50C	1	36.1/48	123.16/163.75	100.1/115.5	142/161	150/150	100.1/115.5	126/145	150/150	54/54	55/60	54/54	55/60	55/60				
	No Heat	—	—	—	—	68/68	80/80	—	—	—	68/68	80/80	68/68	80/80	80/80				
G151CS	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	68/68	80/80	20/23.1	25/29	25/30	68/68	80/80	68/68	80/80	80/80				
	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	68/68	80/80	30/34.6	38/44	40/45	68/68	80/80	68/68	80/80	80/80				
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	74/82	80/80	40/46.2	50/58	50/60	68/68	80/80	68/68	80/80	80/80				
	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	99/111	100/100	60/69.3	75/87	80/90	68/68	80/80	68/68	80/80	80/80				
G090CT	CC40C	1	28.8/38.4	98.25/131	80.1/92.4	124/140	125/125	80.1/92.4	101/116	110/125	68/68	80/80	68/68	80/80	80/80				
	CC50C	1	36.1/48	123.16/163.75	100.1/115.5	149/168	150/150	100.1/115.5	126/145	150/150	68/68	80/80	68/68	80/80	80/80				
	No Heat	—	—	—	—	48/48	50/60	—	—	—	48/48	50/60	48/48	50/60	50/60				
	CC10C	1	7.2/9.6	24.56/32.75	20/23.1	48/48	60/60	20/23.1	25/29	25/30	48/48	50/60	48/48	50/60	50/60				
G090CT	CC15C	1	10.8/14.4	36.84/49.13	30/34.6	54/60	60/60	30/34.6	38/44	40/45	48/48	50/60	48/48	50/60	50/60				
	CC20C	1	14.4/19.2	49.13/65.5	40/46.2	67/75	70/70	40/46.2	50/58	50/60	48/48	50/60	48/48	50/60	50/60				
	CC30C	1	21.6/28.8	73.69/98.25	60/69.3	92/103	100/100	60/69.3	75/87	80/90	48/48	50/60	48/48	50/60	50/60				
	CC40C	1	28.8/38.4	98.25/131	80.1/92.4	117/132	125/125	80.1/92.4	101/116	110/125	48/48	50/60	48/48	50/60	50/60				

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+ = Field installed only.

480 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply for Both Unit and Heater Kit										Separate Power Supply for Both Unit and Heater Kit										
Unit Model No. RLNL-	Heater Kit					Air Conditioner					Heater Kit					Air Conditioner				
	RXJJ-Heater Kit Nominal kW	No. of Sequence Steps	Rated Heater kW @ 480 V	Heater KBTU/Hr @ 480 V	Heater Amp. @ 480 V	Unit Min. Ckt. Ampacity @ 480 V	Over Current Protective Device Size Min./Max. @ 480 V	Min. Ckt. Ampacity 480 V	Max. Fuse Size 480 V	Min. Circuit Ampacity 480 V	Over Current Protective Device Size Min./Max. @ 480 V	Min. Ckt. Ampacity 480 V	Max. Fuse Size 480 V	Min. Circuit Ampacity 480 V	Over Current Protective Device Size Min./Max. @ 480 V	Min. Ckt. Ampacity 480 V	Max. Fuse Size 480 V	Min. Circuit Ampacity 480 V	Over Current Protective Device Size Min./Max. @ 480 V	
G090DR	No Heat	—	—	—	—	21	25/25	—	—	21	25/25	—	—	21	25/25	—	—	21	25/25	
	CC10D	1	9.6	32.75	11.5	21	25/25	—	15	21/0	25/25	—	15	21/0	25/25	—	15	21/0	25/25	
	CC15D	1	14.4	49.13	17.3	27	30/30	—	22	21/0	30/30	—	22	21/0	25/25	—	22	21/0	25/25	
	CC20D	1	19.2	65.5	23.1	34	35/35	—	29	21/0	35/35	—	29	21/0	25/25	—	29	21/0	25/25	
	CC30D	1	28.8	98.25	34.6	49	50/50	—	44	21/0	50/50	—	44	21/0	25/25	—	44	21/0	25/25	
CC40D	1	38.4	131	46.2	63	70/70	—	58	21/0	70/70	—	58	21/0	25/25	—	58	21/0	25/25		
G120DR	No Heat	—	—	—	—	25	25/30	—	—	25	25/30	—	—	25	25/30	—	—	25	25/30	
	CC10D	1	9.6	32.75	11.5	25	30/30	—	15	25/0	30/30	—	15	25/0	25/30	—	15	25/0	25/30	
	CC15D	1	14.4	49.13	17.3	27	30/30	—	22	25/0	30/30	—	22	25/0	25/30	—	22	25/0	25/30	
	CC20D	1	19.2	65.5	23.1	34	35/35	—	29	25/0	35/35	—	29	25/0	25/30	—	29	25/0	25/30	
	CC30D	1	28.8	98.25	34.6	49	50/50	—	44	25/0	50/50	—	44	25/0	25/30	—	44	25/0	25/30	
CC40D	1	38.4	131	46.2	63	70/70	—	58	25/0	70/70	—	58	25/0	25/30	—	58	25/0	25/30		
CC50D	1	48	163.75	57.7	78	80/80	—	73	25/0	80/80	—	73	25/0	25/30	—	73	25/0	25/30		
G151DR	No Heat	—	—	—	—	32	35/40	—	—	32	35/40	—	—	32	35/40	—	—	32	35/40	
	CC10D	1	9.6	32.75	11.5	32	35/40	—	15	32/0	35/40	—	15	32/0	35/40	—	15	32/0	35/40	
	CC15D	1	14.4	49.13	17.3	35	35/40	—	22	32/0	35/40	—	22	32/0	35/40	—	22	32/0	35/40	
	CC20D	1	19.2	65.5	23.1	42	45/45	—	29	32/0	45/45	—	29	32/0	35/40	—	29	32/0	35/40	
	CC30D	1	28.8	98.25	34.6	56	60/60	—	44	32/0	60/60	—	44	32/0	35/40	—	44	32/0	35/40	
CC40D	1	38.4	131	46.2	71	80/80	—	58	32/0	80/80	—	58	32/0	35/40	—	58	32/0	35/40		
CC50D	1	48	163.75	57.7	85	90/90	—	73	32/0	90/90	—	73	32/0	35/40	—	73	32/0	35/40		

*= For Canadian use only. Uses "P" fuses for inductive circuit.
+ = Field installed only.

480 VOLT, THREE PHASE, 60 HZ, AUXILIARY ELECTRIC HEATER KITS CHARACTERISTICS AND APPLICATION

Single Power Supply for Both Unit and Heater Kit										Separate Power Supply for Both Unit and Heater Kit				
Unit Model No. RLNL-	RXJJ- Heater Kit Nominal kW	No. of Sequence Steps	Rated Heater kW @ 480 V	Heater KBTU/Hr @ 480 V	Heater Amp. @ 480 V	Unit Min. Ckt. Ampacity @ 480 V	Air Conditioner		Heater Kit			Air Conditioner		
							Over Current Protective Device Size Min./Max. @ 480 V	Min. Ckt. Ampacity @ 480 V	Max. Fuse Size @ 480 V	Min. Circuit Ampacity @ 480 V	Over Current Protective Device Size Min./Max. @ 480 V			
G090DS	No Heat	—	—	—	—	21	25/25	—	—	—	21	25/25	—	
	CC10D	1	9.6	32.75	11.5	21	25/25	15	15	21/0	21/0	25/25	0/0	
	CC15D	1	14.4	49.13	17.3	27	30/30	22	25	21/0	21/0	25/25	0/0	
	CC20D	1	19.2	65.5	23.1	34	35/35	29	30	21/0	21/0	25/25	0/0	
G120DS	CC30D	1	28.8	98.25	34.6	49	50/50	44	45	21/0	21/0	25/25	0/0	
	CC40D	1	38.4	131	46.2	63	70/70	58	60	21/0	21/0	25/25	0/0	
	No Heat	—	—	—	—	28	30/35	—	—	28	30/35	—	—	
	CC10D	1	9.6	32.75	11.5	28	30/35	15	15	28/0	28/0	30/35	0/0	
G151DS	CC15D	1	14.4	49.13	17.3	31	35/35	22	25	28/0	28/0	30/35	0/0	
	CC20D	1	19.2	65.5	23.1	38	40/40	29	30	28/0	28/0	30/35	0/0	
	CC30D	1	28.8	98.25	34.6	52	60/60	44	45	28/0	28/0	30/35	0/0	
	CC40D	1	38.4	131	46.2	67	70/70	58	60	28/0	28/0	30/35	0/0	
G090DT	CC50D	1	48	163.75	57.7	81	90/90	73	80	28/0	28/0	30/35	0/0	
	No Heat	—	—	—	—	32	35/40	—	—	32	35/40	—	—	
	CC10D	1	9.6	32.75	11.5	32	35/40	15	15	32/0	32/0	35/40	0/0	
	CC15D	1	14.4	49.13	17.3	35	35/40	22	25	32/0	32/0	35/40	0/0	
G090DT	CC20D	1	19.2	65.5	23.1	42	45/45	29	30	32/0	32/0	35/40	0/0	
	CC30D	1	28.8	98.25	34.6	56	60/60	44	45	32/0	32/0	35/40	0/0	
	CC40D	1	38.4	131	46.2	71	80/80	58	60	32/0	32/0	35/40	0/0	
	CC50D	1	48	163.75	57.7	85	90/90	73	80	32/0	32/0	35/40	0/0	

*= For Canadian use only. Uses "P" fuses for inductive circuit.
+ = Field installed only.

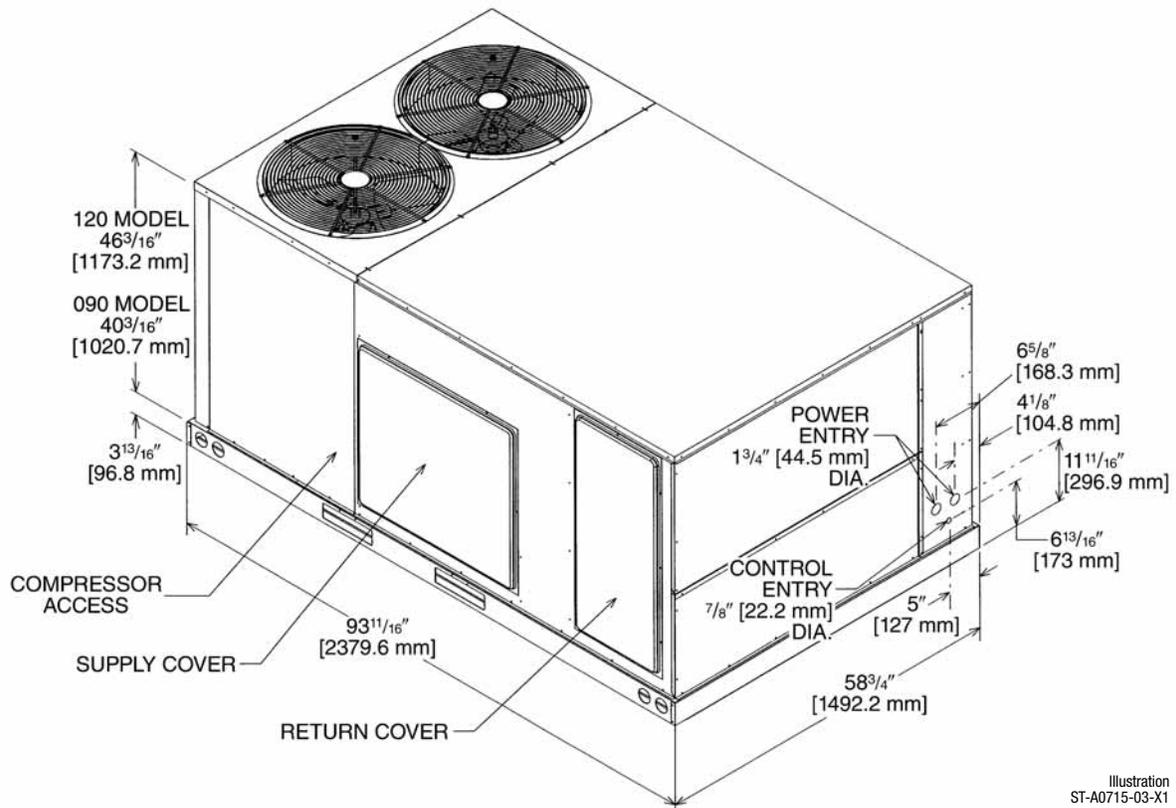
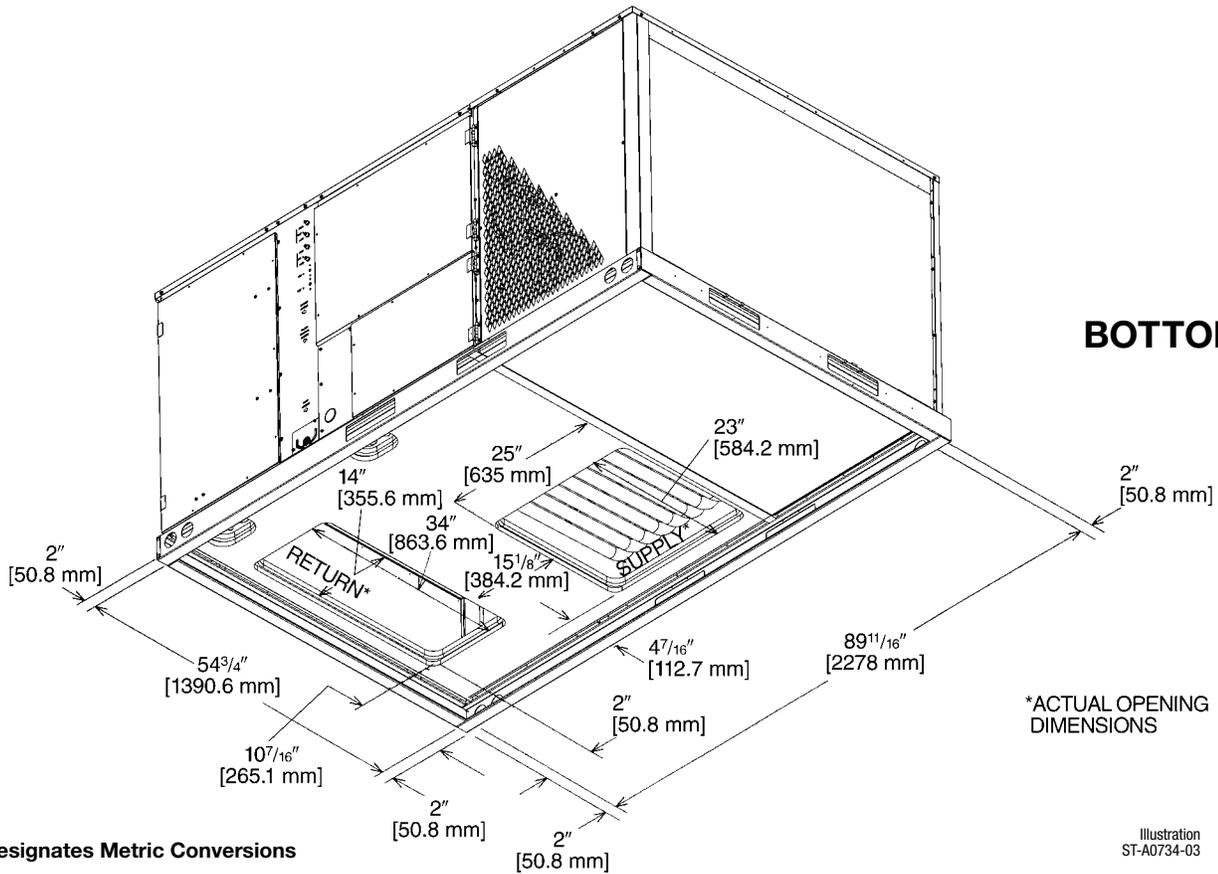


Illustration
ST-A0715-03-X1



[] Designates Metric Conversions

Illustration
ST-A0734-03

SUPPLY AND RETURN DIMENSIONS FOR HORIZONTAL APPLICATIONS

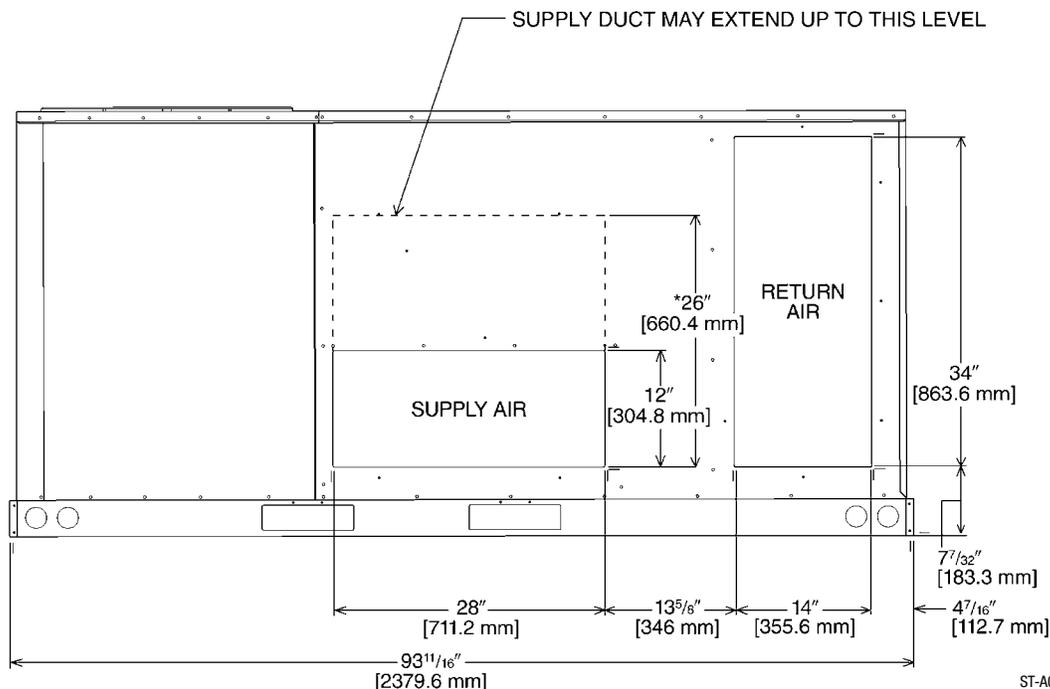


Illustration
ST-A0736-02-X1

*RECOMMENDED DUCT DIMENSIONS ARE 26"

SUPPLY AND RETURN DIMENSIONS FOR DOWNFLOW APPLICATIONS

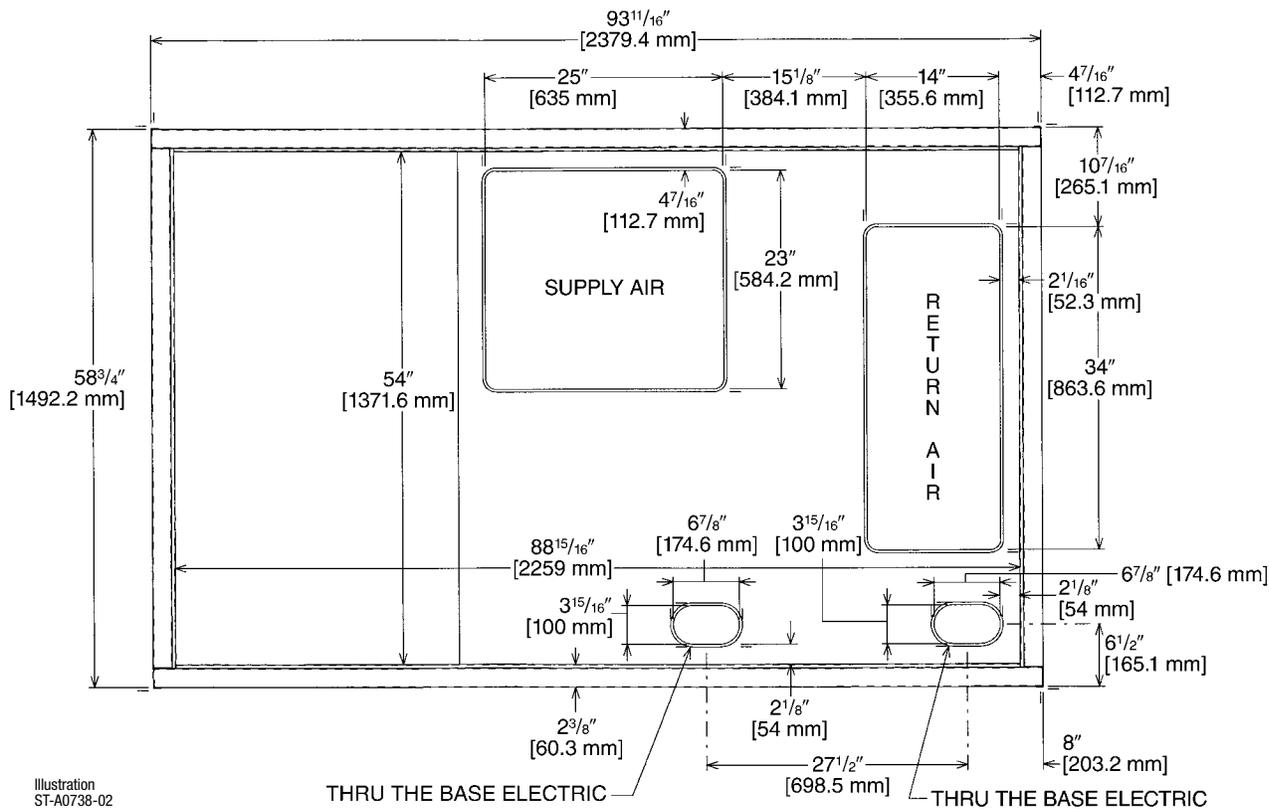
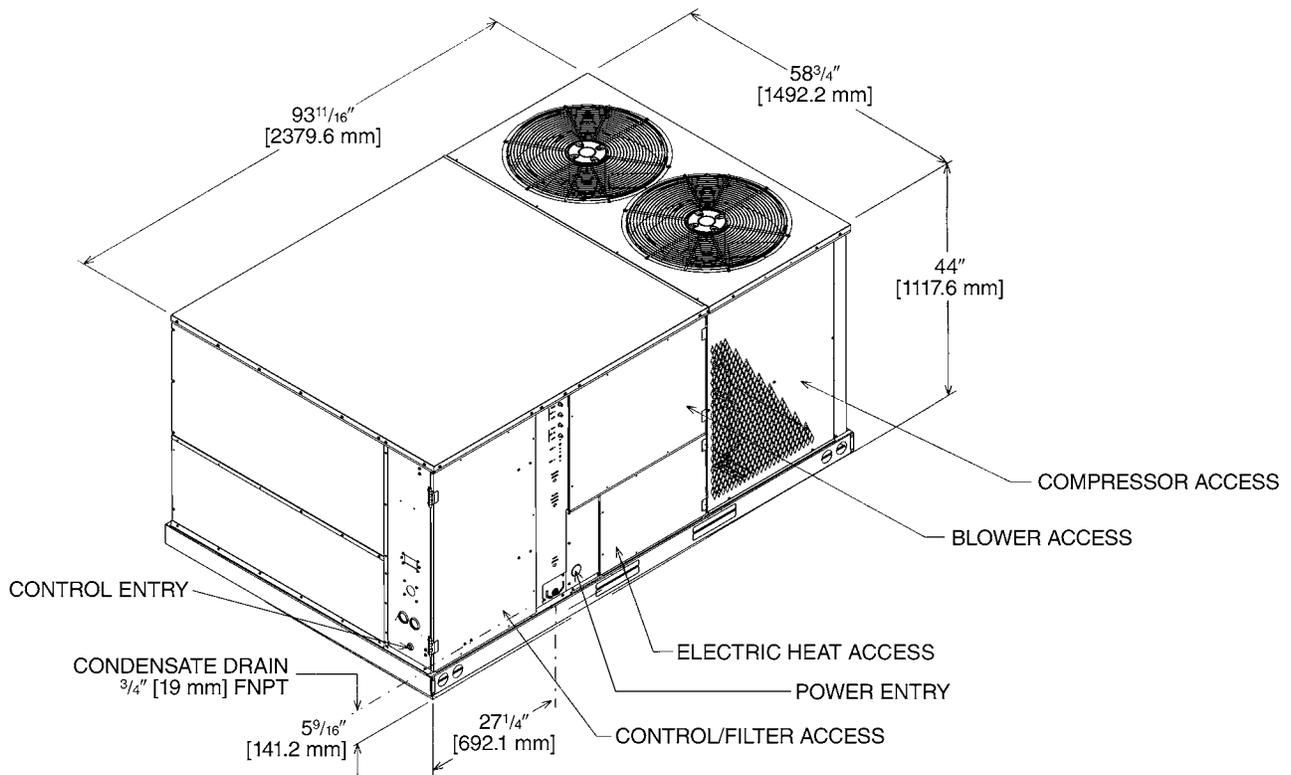


Illustration
ST-A0738-02

THRU THE BASE ELECTRIC

[] Designates Metric Conversions



[] Designates Metric Conversions

WEIGHTS

Accessory	Shipping—lbs [kg]	Operating—lbs [kg]
Economizer	90 [40.82]	81 [36.70]
Power Exhaust	44 [19.96]	42 [19.05]
Fresh Air Damper (Manual)	26 [11.79]	21 [9.53]
Fresh Air Damper (Motorized)	43 [19.50]	38 [17.24]
Roof Curb 14"	90 [40.82]	85 [38.60]
Roof Curb 24"	140 [63.50]	135 [61.23]

Capacity Tons [kW]	Corner Weights by Percentage			
	A	B	C	D
6-12.5 [21.1-44.0]	33%	27%	17%	23%

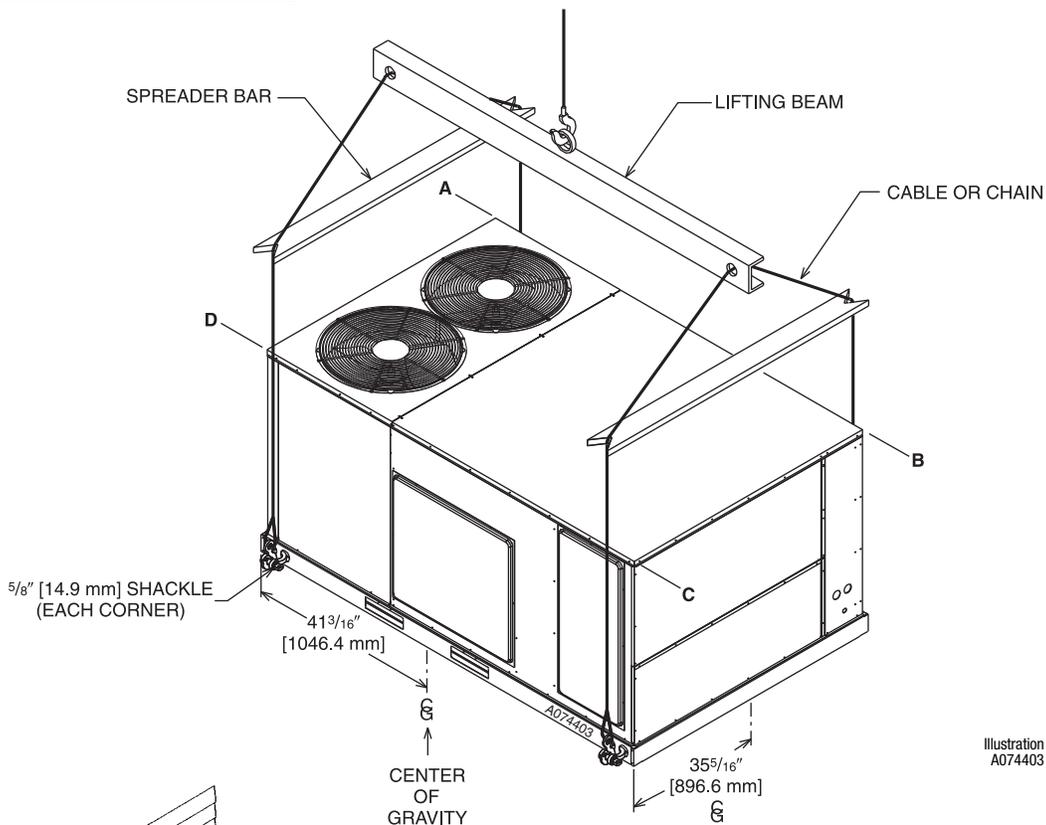


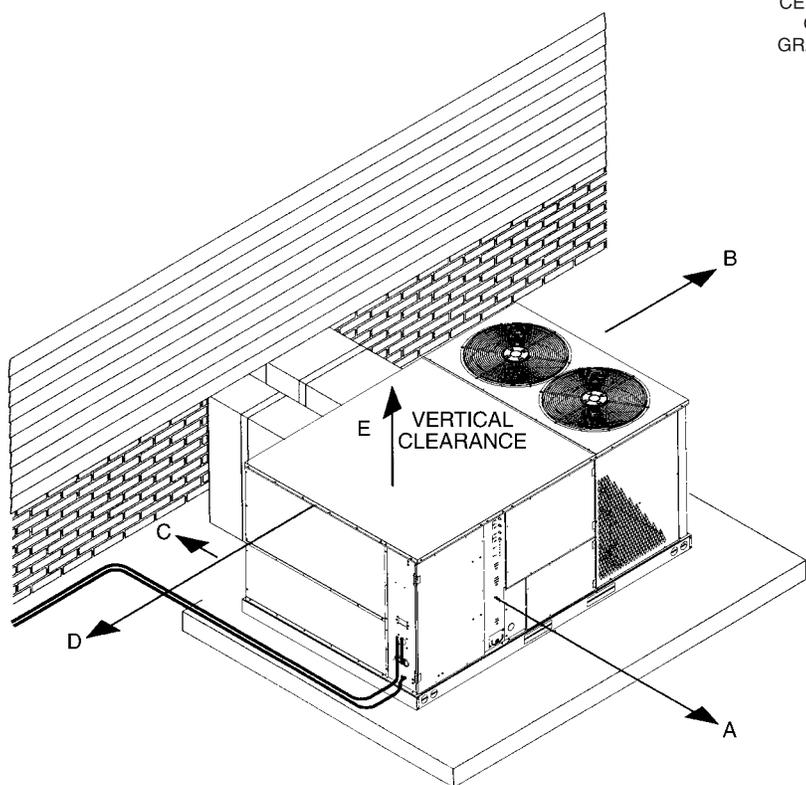
Illustration
A074403

CLEARANCES

The following minimum clearances must be observed for proper unit performance and serviceability.

Recommended Clearance In. [mm]	Location
48 [1219]	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



[] Designates Metric Conversions

FIELD INSTALLED ACCESSORY EQUIPMENT

Accessory	Model Number	Shipping Weight Lbs. [kg]	Installed Weight Lbs. [kg]	Factory Installation Available?
Thermostats	See Thermostat Specification Sheet for Details (T22-001)			No
Electric Heaters	RXJJ-CC10 (C,D,Y)	46 [20.9]	36 [16.3]	Yes
	RXJJ-CC15 (C,D,Y)	46 [20.9]	36 [16.3]	Yes
	RXJJ-CC20 (C,D,Y)	46 [20.9]	36 [16.3]	Yes
	RXJJ-CC30 (C,D,Y)	47 [21.3]	37 [16.8]	Yes
	RXJJ-CC40 (C,D,Y)	49 [22.2]	39 [17.7]	Yes
	RXJJ-CC50 (C,D,Y)	51 [23.1]	41 [18.6]	Yes
Economizer w/Single Enthalpy	AXRD-PJCM3	90 [40.8]	81 [36.7]	Yes
Economizer w/Single Enthalpy and Smoke Dectector	AXRD-SJCM3	91 [41.3]	82 [37.2]	Yes
Dual Enthalpy Kit	RXRJ-AV03	1 [0.5]	1 [0.5]	No
Horizontal Economizer w/Single Enthalpy	AXRD-RJCM3	94 [42.6]	89 [40.4]	No
Carbon Dioxide Sensor	RXRJ-AR02	3 [1.4]	2 [1.0]	No
Power Exhaust	RXRJ-BFF02 (C,D,Y)	43 [19.5]	38 [17.2]	No
Manual Fresh Air (Left Panel Mounted)	AXRF-KDA1	38 [17.2]	31 [14.0]	No
Manual Fresh Air (Return Panel)	AXRF-JDA1	26 [11.8]	21 [9.5]	No
Motorized Fresh Air (Return Panel)	AXRF-JDB1	43 [19.5]	21 [9.5]	No
Motor Kit for RXRF-KDA1 (Left Panel Mounted)	RXRJ-AW02	35 [15.19]	27 [17.7]	No
Modulating Motor Kit w/position feedback for RXRF-KDA1	RXRJ-AW04	38 [17.2]	30 [13.6]	No
Roofcurb, 14"	RXKG-CAE14	90 [40.8]	85 [38.5]	No
Roofcurb, 24"	RXKG-CAE24	140 [63.5]	135 [61.2]	No
Roofcurb Adapters	RXRJ-CDCE50	300 [136.1]	290 [131.5]	No
	RXRJ-CFCE54	325 [147.4]	315 [142.9]	No
	RXRJ-CFCE56	350 [158.8]	340 [154.2]	No
	RXRJ-CGCC12	450 [204.1]	410 [186.0]	No
Concentric Diffuser (Step-Down, 18 x 28)	RXRN-AA61	200 [90.7]	185 [83.9]	No
Concentric Diffuser (Step-Down, 18 x 32)	RXRN-AA66	247 [112.0]	227 [103.0]	No
Concentric Diffuser (Flush, 18 x 28)	RXRN-AA71	170 [77.1]	155 [70.3]	No
Concentric Diffuser (Flush, 18 x 32)	RXRN-AA76	176 [79.8]	161 [73.0]	No
Downflow Adapters (Rect. to Round)	RXMC-CD04	15 [6.8]	13 [5.9]	No
Downflow Adapters (Rect. to Rect., 18 x 28)	RXMC-CE05 ①	18 [8.2]	16 [7.3]	No
Downflow Adapters (Rect. to Rect., 18 x 32)	RXMC-CF06 ②	20 [9.1]	18 [8.2]	No
Low-Ambient Control Kit (1 Per Compressor)	RXRZ-C02	3 [1.4]	2 [1.0]	Yes
Outdoor Coil Louver Kit	AXRX-AAD01C ④	29 [11.3]	26 [11.8]	Yes
Outdoor Louver Kit	AXRX-AAD02A ⑤	29 [11.3]	26 [11.8]	Yes
Unwired Convenience Outlet	RXRJ-AN01	2 [1.0]	1.5 [0.7]	Yes
Comfort Alert (1 per compressor)	RXRJ-AZ01	3 [1.4]	2 [0.9]	Yes
BACnet Communication Card	RXRJ-AY01	1 [0.5]	1 [0.5]	No
LonWorks Communication Card	RXRJ-AY02	1 [0.5]	1 [0.5]	No
Room Humidity Sensor	RHC-ZNS4	1 [0.5]	1 [0.5]	No
Room Temperature & Relative Humidity Sensor	RHC-ZNS5	1 [0.5]	1 [0.5]	No

NOTES: ① Used with RXRN-AA61 and RXRN-AA71 concentric diffusers.

② Used with RXRN-AA66 and RXRN-AA76 concentric diffusers.

④ 6-10 Ton Models

⑤ 12.5 Ton Model

[] Designates Metric Conversions

THERMOSTAT



200-Series *
Programmable



300-Series *
Deluxe
Programmable

400-Series *
Special Applications/
Programmable



500-Series *
Communicating/
Programmable

Brand	Descriptor (3 Characters)	Series (3 Characters)	System (2 Characters)	Type (2 Characters)
UHC	-	213	UN	MS
UHC=Ruud	TST=Thermostat	200=Programmable 300=Deluxe Programmable 400=Special Applications/ Programmable 500=Communicating/ Programmable	GE=Gas/Electric UN=Universal (AC/HP/GE) MD=Modulating Furnace DF=Dual Fuel 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 T22-001.

FLUSH MOUNT ROOM TEMPERATURE SENSORS FOR NETWORKED DDC APPLICATIONS



ROOM TEMPERATURE SENSOR ZNS-101
with TIMED OVERRIDE BUTTON

10k Ω room temperature sensor transmits room temperature to DDC system. Timed override button allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time.



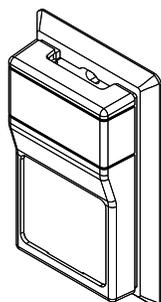
ROOM TEMPERATURE SENSOR ZNS-102
with TIMED OVERRIDE BUTTON and STATUS INDICATOR

10k Ω room temperature sensor transmits room temperature to DDC system. Timed override button allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time. Status Indicator Light transmits ALARM flash code to occupied space.



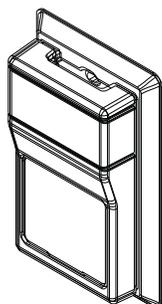
ROOM TEMPERATURE SENSOR ZNS-103
with SETPOINT ADJUSTMENT and TIMED OVERRIDE BUTTON

10k Ω room temperature sensor with setpoint adjustment transmits room temperature to DDC system along with desired occupied room temperature setpoint. Timed override button allows tenant to change from unoccupied temperature setpoint to occupied temperature setpoint for a preset time.



ROOM HUMIDITY SENSOR RHC-ZNS4

Transmits room relative humidity to DDC System.



ROOM TEMPERATURE AND RELATIVE HUMIDITY SENSOR RHC-ZNS5

Transmits room temperature and relative humidity to DDC System.

COMMUNICATION CARDS

Field Installed



BACnet® COMMUNICATION CARD RXRX-AY01

The field installed BACnet® Communication Card allows the RTU-C unit controller to communicate with a third party building management system that supports the BACnet Application Specific Controller device profile. The BACnet® Communication Module plugs onto the unit RTU-C controller and allows communication between the RTU-C and the BACnet MSTP network.



LonWorks® COMMUNICATION CARD RXRX-AY02

The field installed LonWorks® Communication Card allows the RTU-C unit controller to communicate with a third party building management system that supports the LonMark Space Comfort Controller (SCC) functional profile or LonMark Discharge Air Controller (DAC) functional profile. The LonMark Communication Module plugs onto the RTU-C controller and allows communication between the RTU-C and a LonWorks Network.

ECONOMIZER FOR DOWNFLOW DUCT INSTALLATION

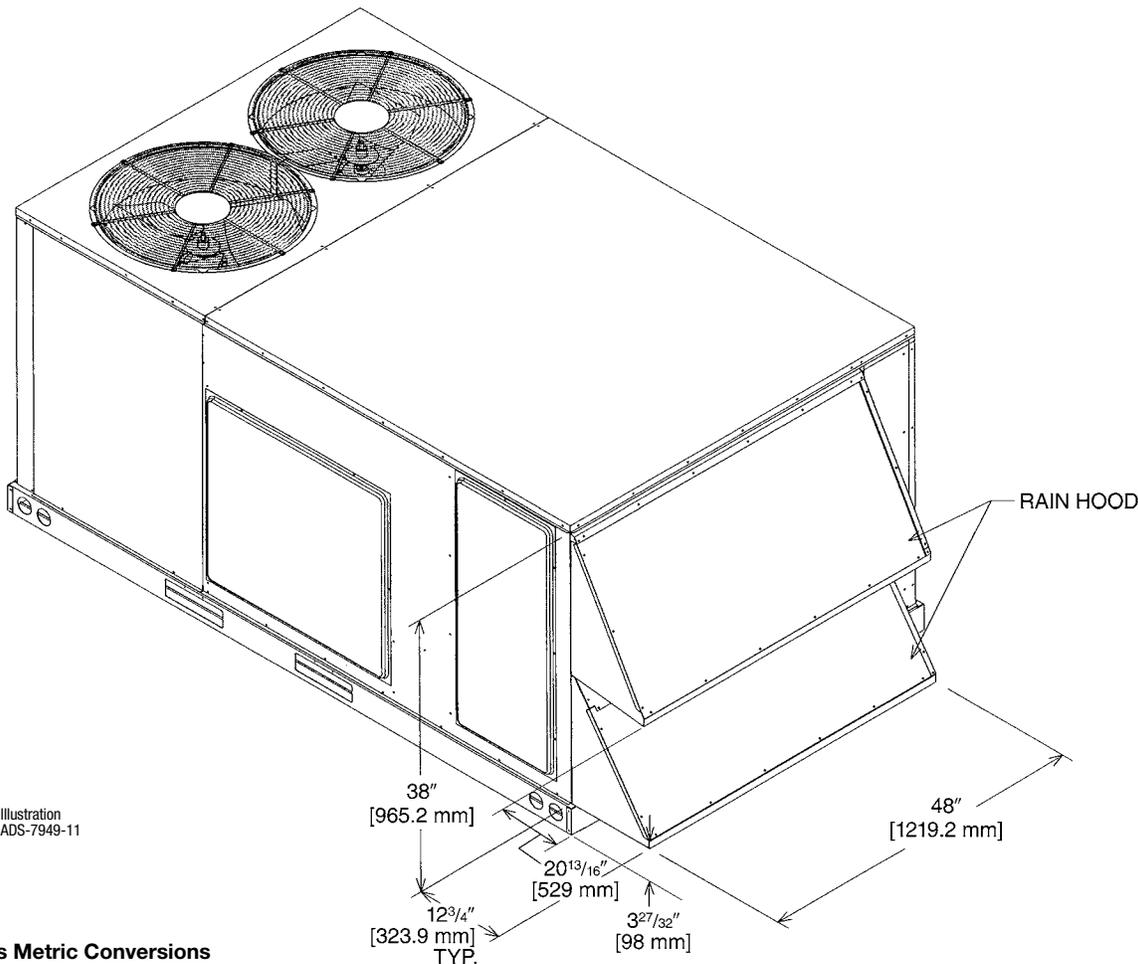
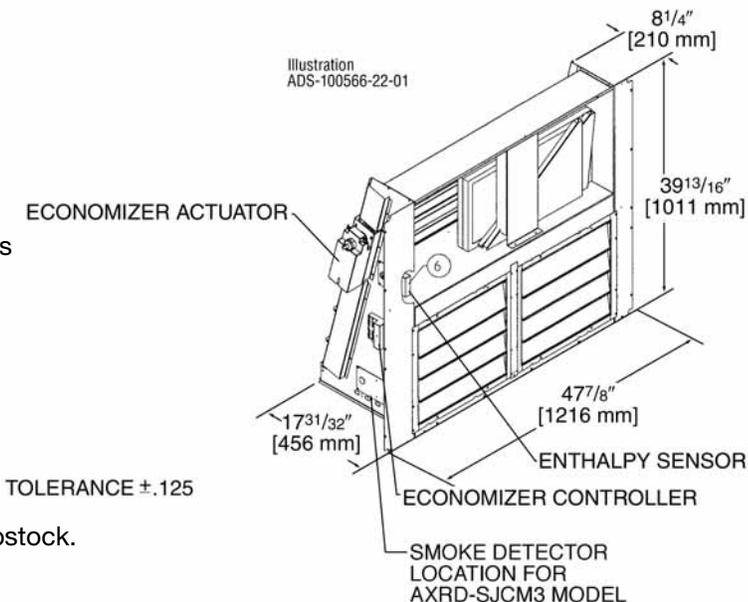
Use to Select Factory Installed Options Only

AXRD-PJCM3—Single Enthalpy (Outdoor) and AXRD-SJCM3 Single Enthalpy with Smoke Detector

RXXR-AV03—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 and 4-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 (270 ohm) (Honeywell #S963B1136) is Available from Prostock.
- Field Installed Power Exhaust Available
- Prewired for Smoke Detector
- If connected to a Building Automation System (BAS), all economizer functions can be viewed on the (BAS) or 16 x 2 LCD screen
- If connected to thermostat, all economizer functions can be viewed on 16 x 2 LCD screen



[] Designates Metric Conversions

ECONOMIZER FOR HORIZONTAL DUCT INSTALLATION

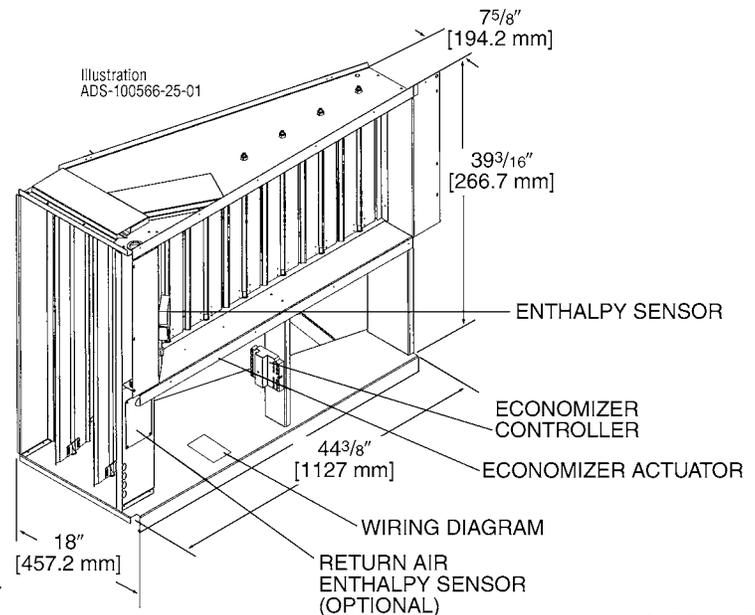
Field Installed Only

AXRD-RJCM3—Single Enthalpy (Outdoor)

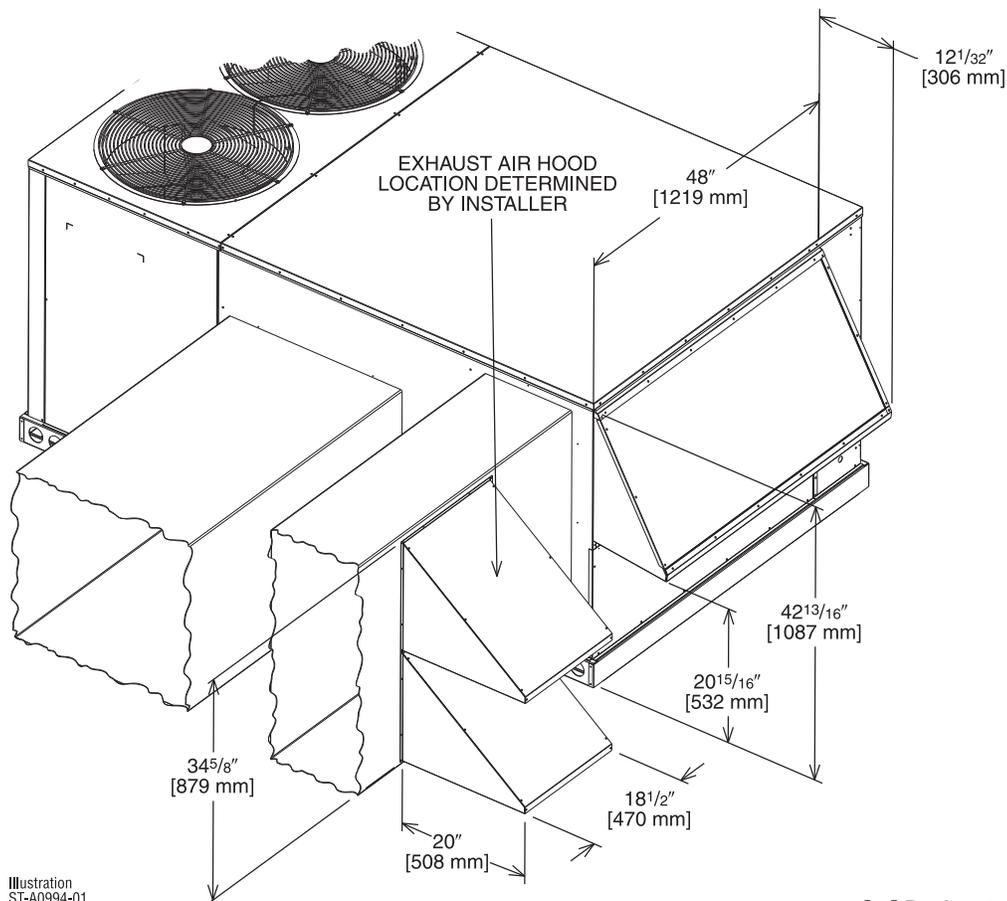
RXXR-AV03—Dual Enthalpy Upgrade Kit

RXXR-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 and 4-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 (270 ohm) (Honeywell #S963B1136) is Available from Prostock
- Field Installed Power Exhaust Available
- If connected to a Building Automation System (BAS), all economizer functions can be viewed on the (BAS) or 16 x 2 LCD screen
- If connected to thermostat, all economizer functions can be viewed on 16 x 2 LCD screen



TOLERANCE ± .125



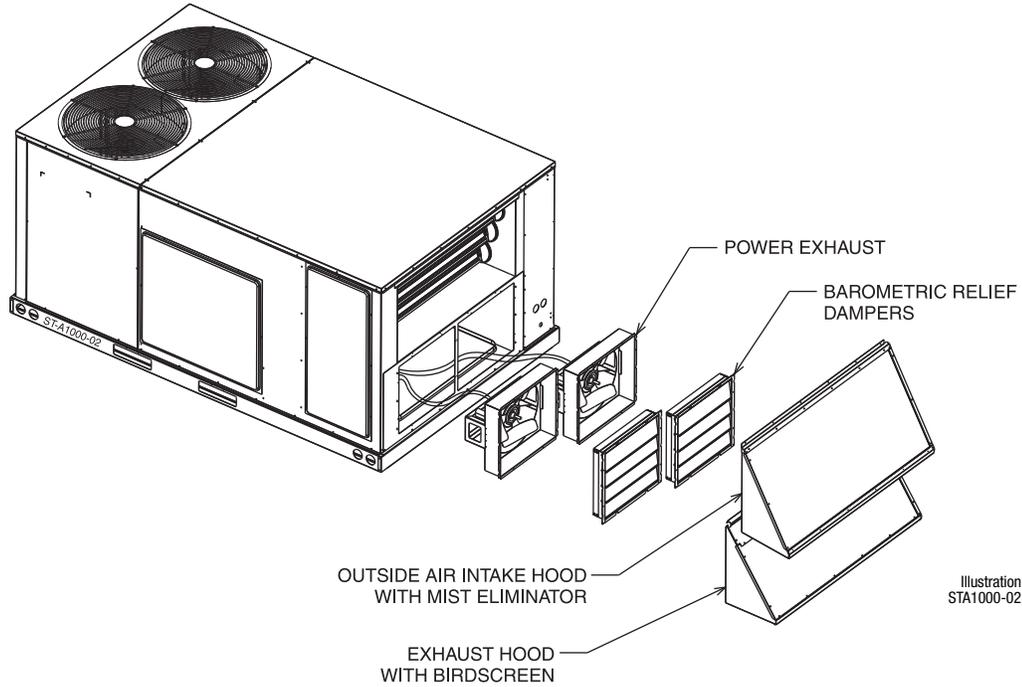
[] Designates Metric Conversions

POWER EXHAUST KIT FOR AXRD-PJCM3(-), AXRD-RJCM3(-), AXRD-SJCM3 ECONOMIZERS

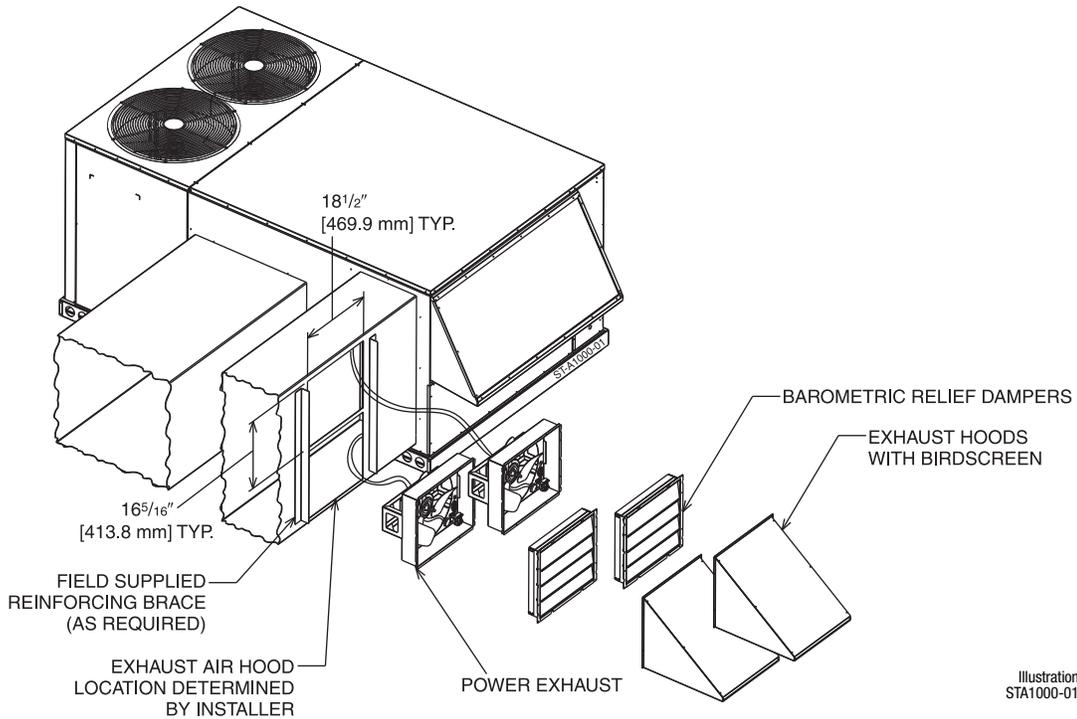
RXRX-BFF02 (C, D)

*Voltage Code

VERTICAL AIRFLOW



HORIZONTAL AIRFLOW



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-BFF02C	2	208-230	1	0.33	2200 [1038]	1518	2500 [1179]	1670	1.48	3.6
RXRX-BFF02D	2	460	1	0.33	2200 [1038]	1518	2500 [1179]	1670	0.75	1.8

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
RXRX-AW02
(Motor Kit for AXRF-KDA1)**

**RXRX-AW04
(Modulating Motor Kit with position feedback for AXRF-KDA1)**

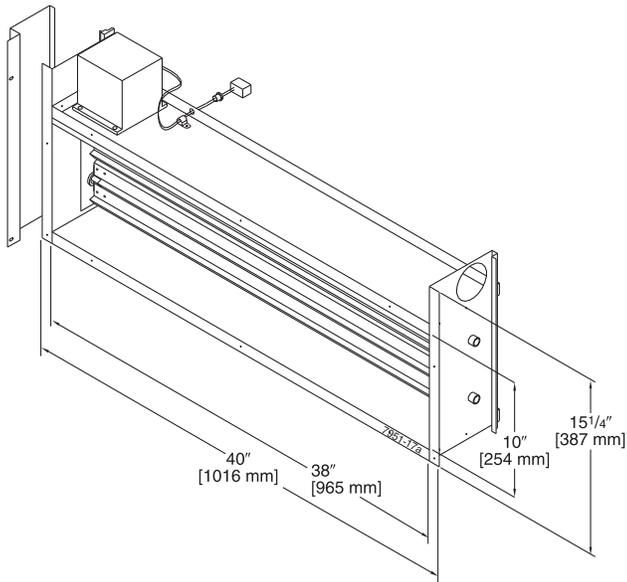


Illustration
ST-7951-17

**AXRF-KDA1 (Manual)
DOWNFLOW OR
HORIZONTAL APPLICATION**

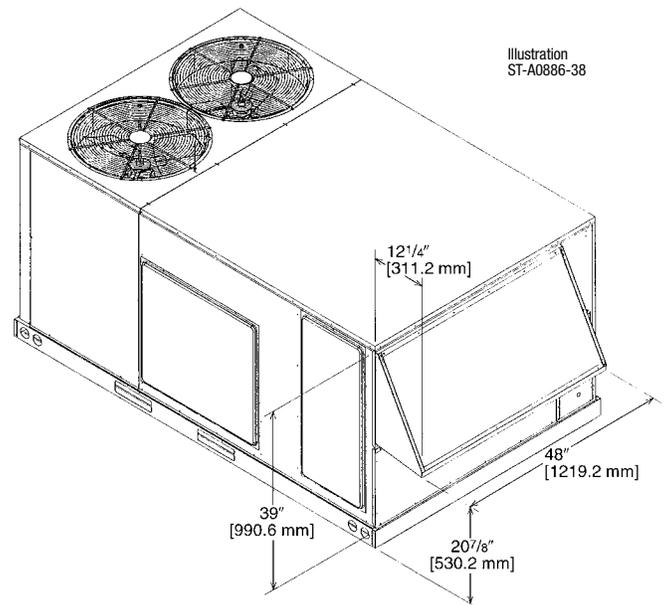


Illustration
ST-A0886-38

**MOTORIZED DAMPER KIT
RXRX-AW02
(Motor Kit for AXRF-KDA1)**

**RXRX-AW04
(Modulating Motor Kit w/position feedback for AXRF-KDA1)**

- Features **Honeywell** Controls
- Gear Driven Direct Drive Actuator
- Fully Modulating (0-100%)
- Low Leakage Dampers
- Slip-In Design for Easy Installation
- Plug-In Polarized 12-pin and 4-pin Electrical Connections
- Pre-Configured—No Field Adjustments Necessary
- Addition of Dual Enthalpy Upgrade Kit allows limited economizer function
- CO₂ Sensor Input Available for Demand Control Ventilation (DCV)
- Optional Remote Minimum Position Potentiometer (270 ohm) (Honeywell #S963B1136) is available from Prostock
- All fresh air damper functions can be viewed at the RTU-C unit controller display
- If connected to a Building Automation System (BAS), all fresh air damper functions can be viewed on the (BAS)

[] Designates Metric Conversions

FRESH AIR DAMPER (Cont.)

AXRF-JDA1 (Manual)
AXRF-JDB1 (Motorized)

DOWNFLOW APPLICATION

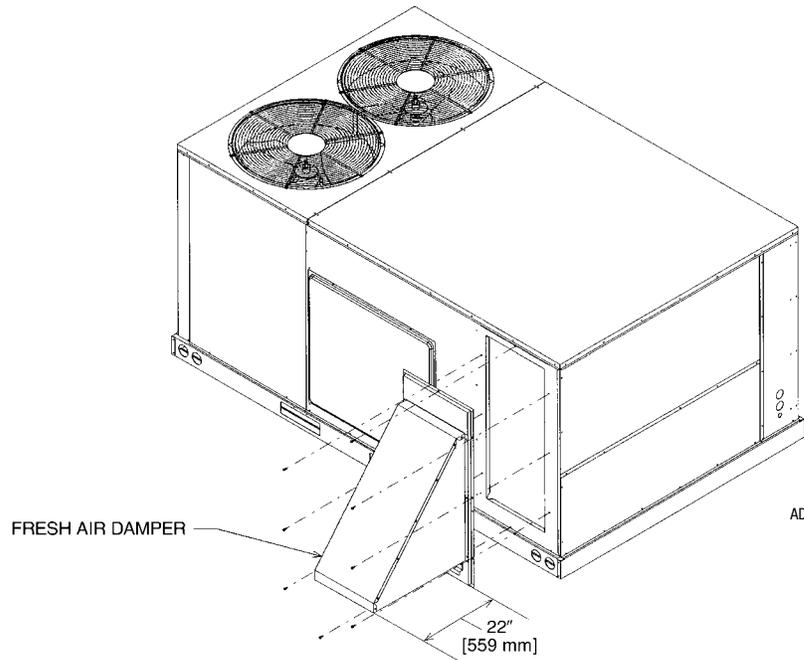
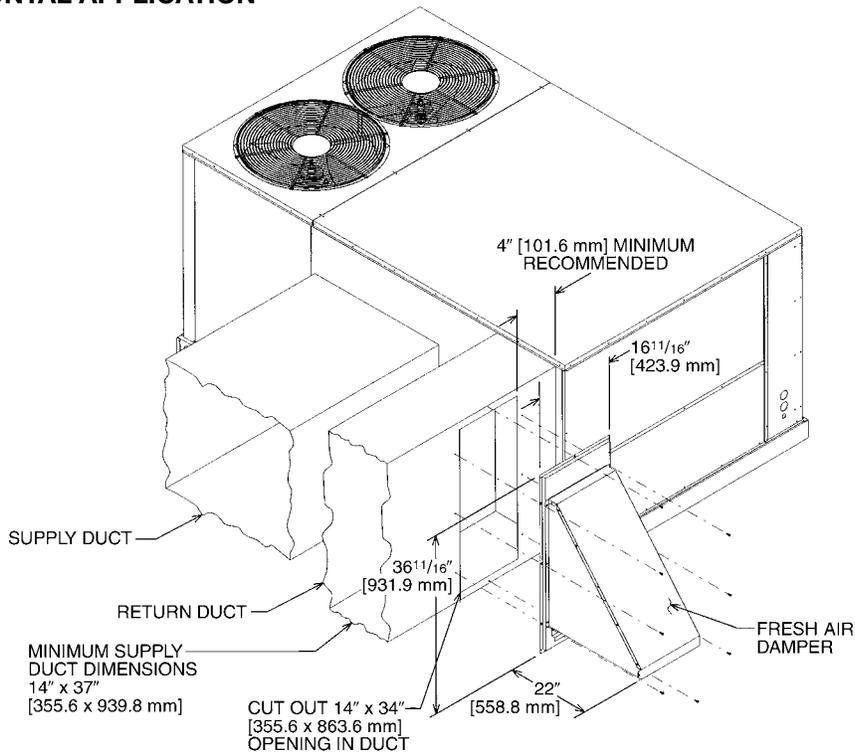


Illustration
ADS-7937-58

HORIZONTAL APPLICATION

Illustration
ST-A0901-01



[] Designates Metric Conversions

ROOFCURBS (Full Perimeter)

- Ruud's roofcurb design can be utilized on all 6-12.5 ton [21.1-44.0 kW] RLNL-G models.
- Two available heights (14" [356 mm] and 24" [610 mm]) for ALL models.
- Quick assembly corners for simple and fast assembly.
- Opening provided in bottom pan to match the "Thru the Curb" electrical connection opening provided on the unit base pan.
- 1" [25 mm] x 4" [102 mm] Nailer provided.
- Insulating panels not required because of insulated outdoor base pan.
- Sealing gasket (40' [12.2 m]) provided with Roofcurb.
- Packaged for easy field assembly.

Roofcurb Model	Height of Curb
RXKG-CAE14	14" [356 mm]
RXKG-CAE24	24" [610 mm]

ROOFCURB INSTALLATION

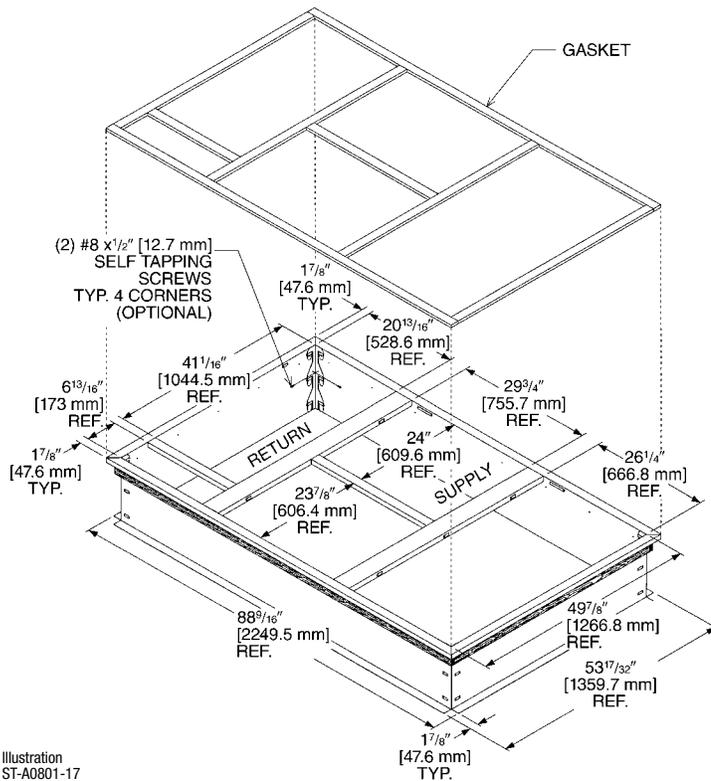
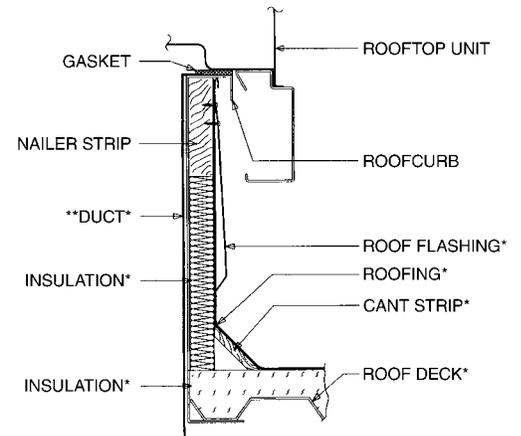
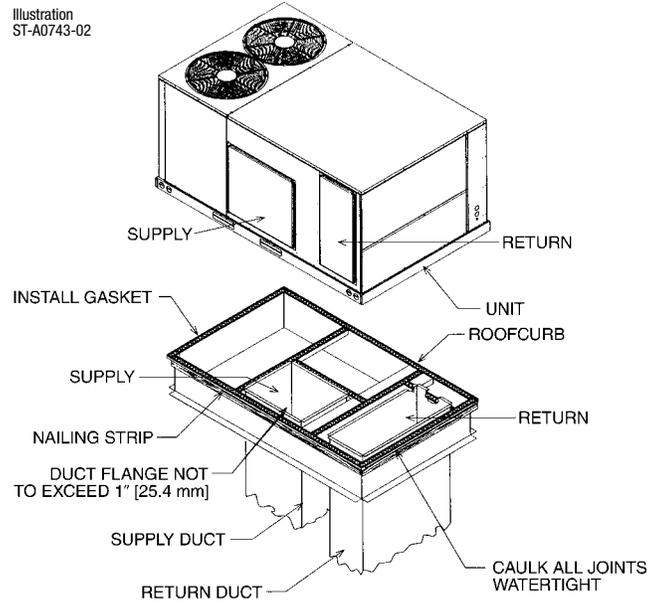


Illustration
ST-A0801-17

[] Designates Metric Conversions

TYPICAL INSTALLATION

Illustration
ST-A0743-02



*BY CONTRACTOR

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

Illustration
ST-A0743-02

ROOFCURB ADAPTERS

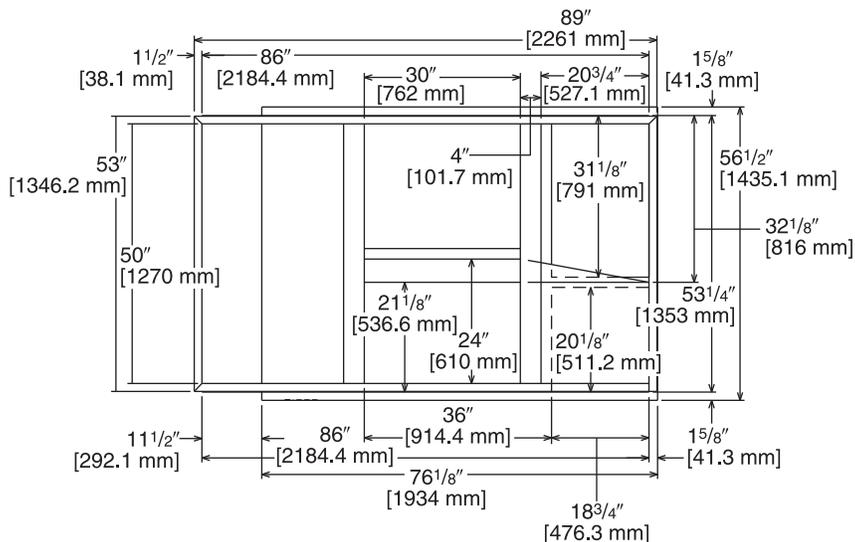
OLD MODELS	OLD ROOFCURB	ROOFCURB ADAPTER	NEW MODELS (All Share Common Cabinet)
(-)RCF, (-)REF-075/076 (-)RGF-150075, (-)RGF-131076 (-)RGF-201076	RXRK-E50	RXRK-CDCE50	RLNL-G090 RLNL-G120 RLNL-G151
(-)RGF-200075 (-)RGG, (-)REG, (-)RCG-075 (-)RGF, (-)REF, (-)RCF-085 (-)RGF, (-)REF, (-)RCF-100 (-)RGG, (-)REG, (-)RCG-100	RXRK-E54	RXRK-CFCE54	
(-)RGF, (-)REF, (-)RCF-125	RXRK-E56	RXRK-CFCE56	
(-)PDC-075 (-)PDC-100/101	RXPK-C12	RXRK-CGCC12	

NOTE: Ductwork modifications may be necessary if the capacity and/or indoor airflow rate of replacement unit is not equivalent to that of the unit being replaced.
 RLNL-G090 & 120 fit on same roofcurb as the RLKB-A090, A120, RLMB- A090, A120, RLNB- A090, A120

ROOFCURB ADAPTERS (Cont.)

RXRX-CDCE50

Illustration
ADS-7952-02
Sheet 2



TOP VIEW

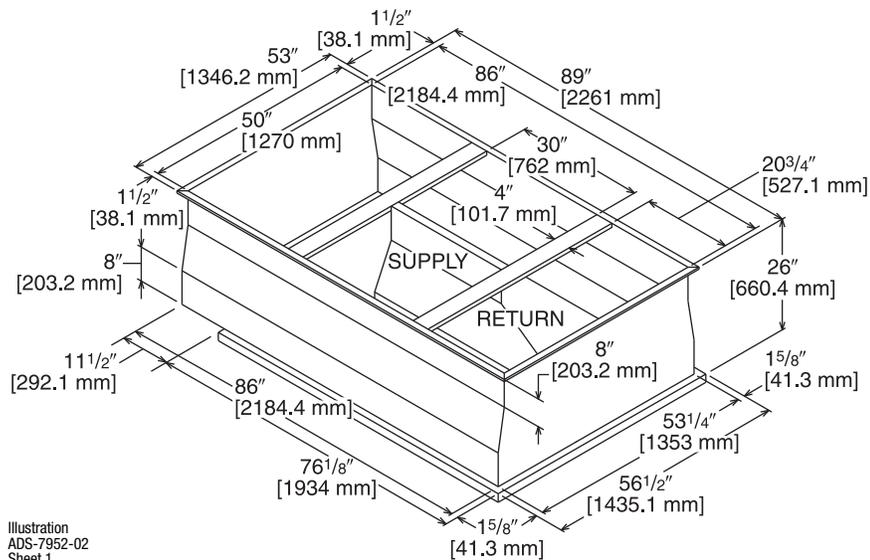


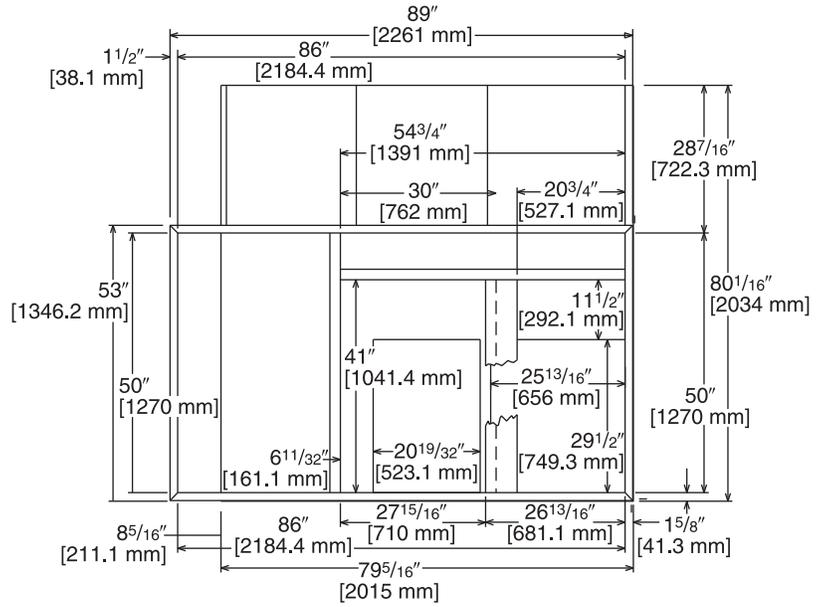
Illustration
ADS-7952-02
Sheet 1

[] Designates Metric Conversions

ROOFCURB ADAPTERS (Cont.)

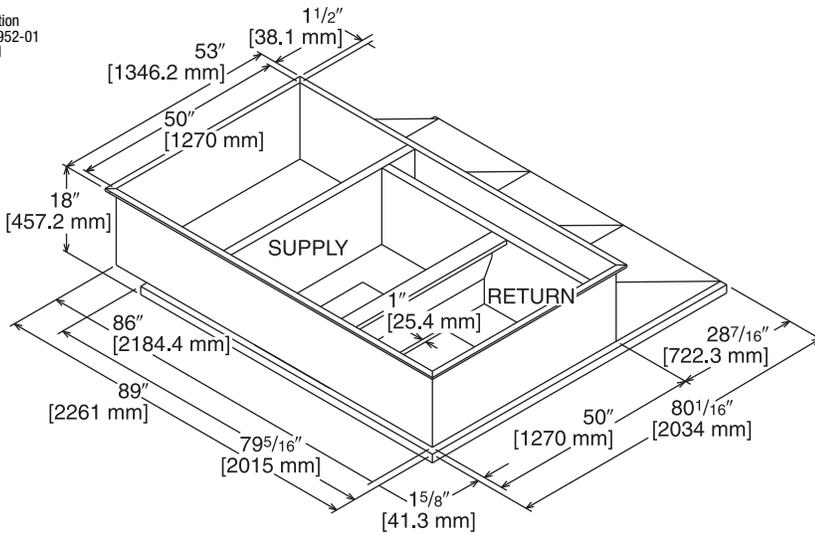
RXRX-CFCE54

Illustration
ADS-7952-01
Sheet 2



TOP VIEW

Illustration
ADS-7952-01
Sheet 1

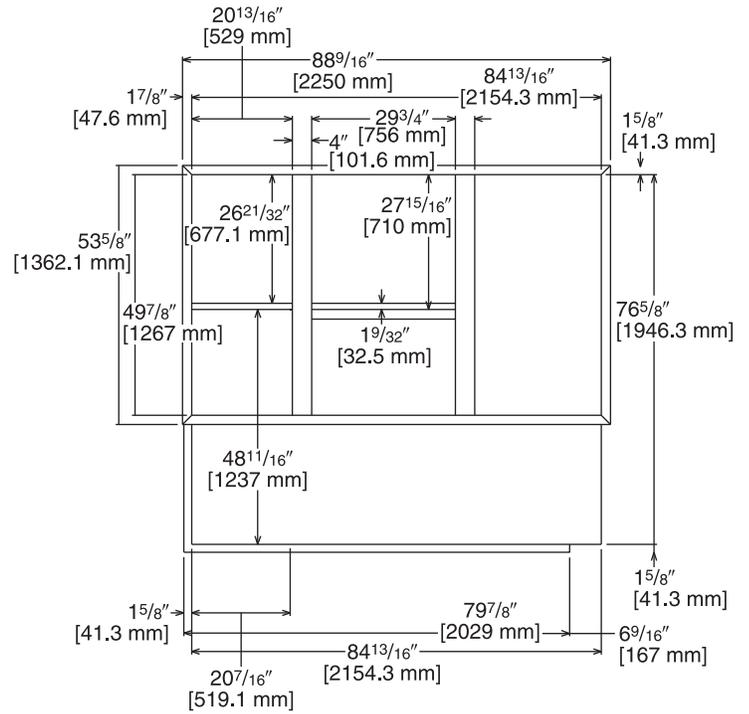


[] Designates Metric Conversions

ROOFCURB ADAPTERS (Cont.)

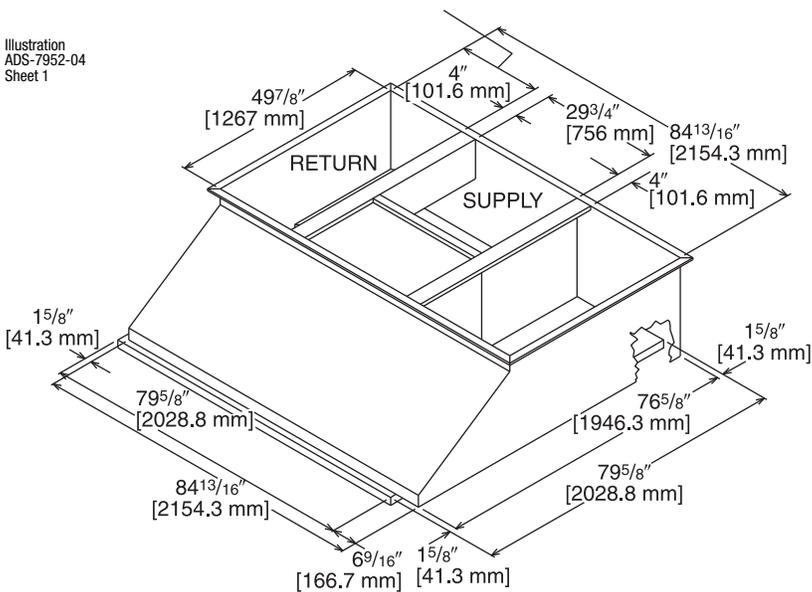
RXRX-CGCC12

Illustration
ADS-7952-04
Sheet 2



TOP VIEW

Illustration
ADS-7952-04
Sheet 1



[] Designates Metric Conversions

CONCENTRIC DIFFUSER APPLICATION

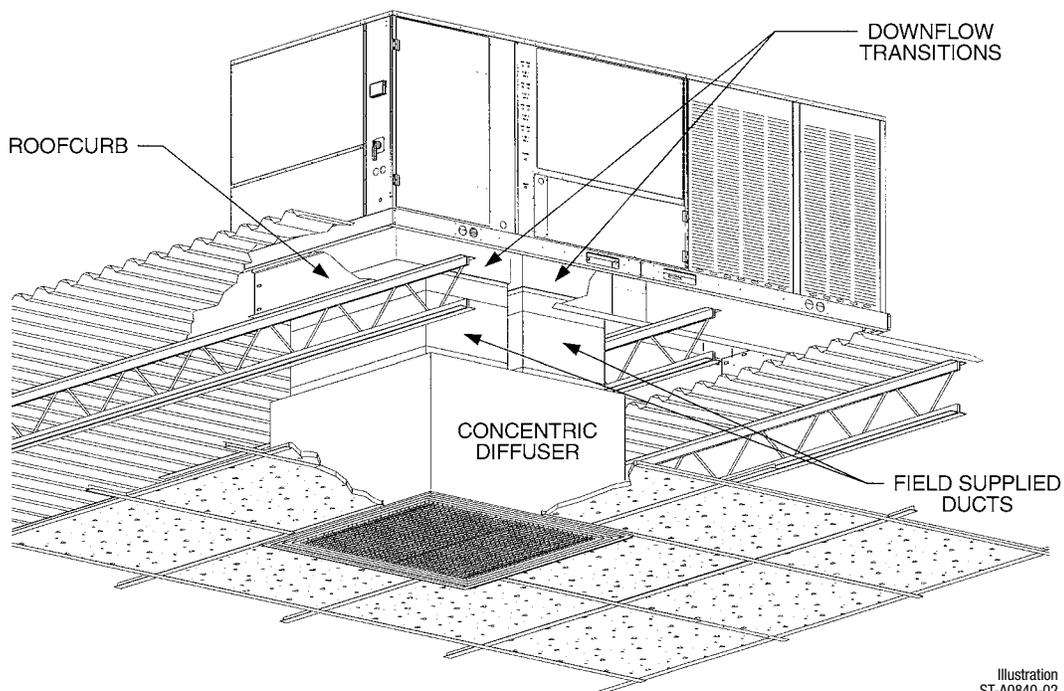


Illustration
ST-A0840-02

DOWNFLOW TRANSITION DRAWINGS

RXMC-CE05

- Used with RXRN-AA61 or RXRN-AA71 Concentric Diffusers.

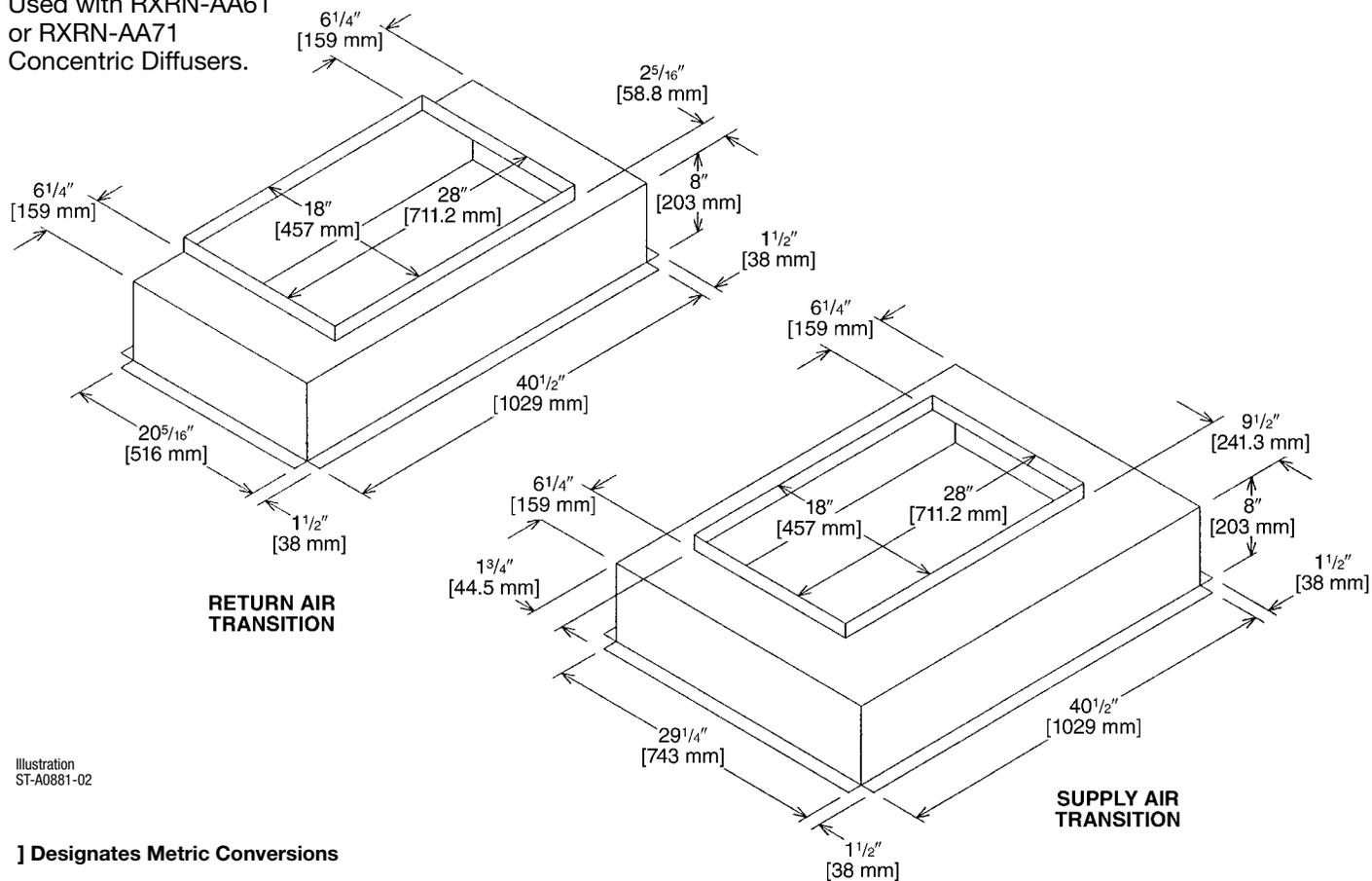


Illustration
ST-A0881-02

[] Designates Metric Conversions

DOWNFLOW TRANSITION DRAWINGS (Cont.)

RXMC-CF06

- Used with RXRN-AA66
or RXRN-AA76
Concentric Diffusers.

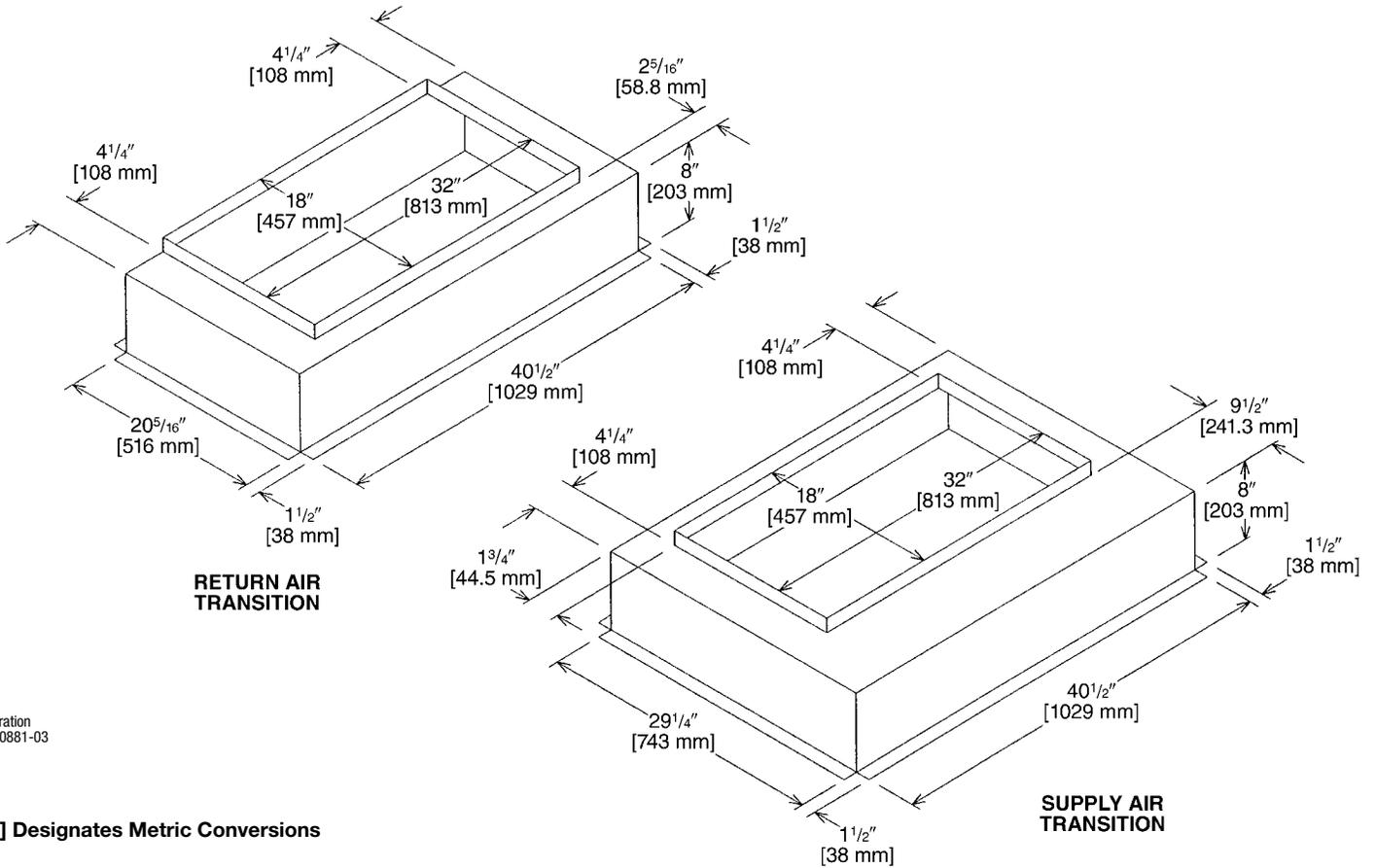


Illustration
ST-A0881-03

[] Designates Metric Conversions

DOWNFLOW TRANSITION DRAWINGS (Cont.)

RXMC-CD04

- Used with RXRN-FA65
or RXRN-FA75
Concentric Diffusers.

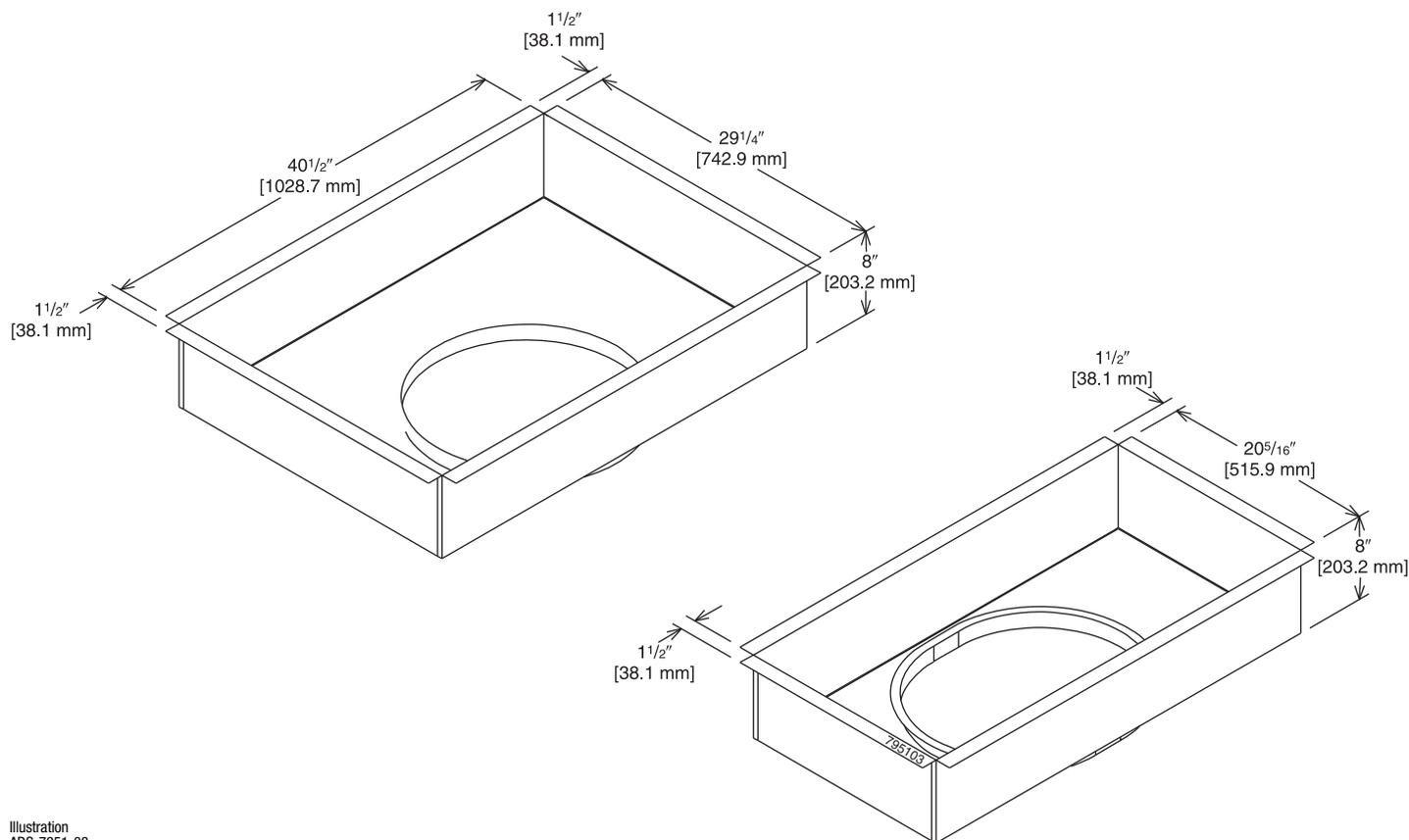


Illustration
ADS-7951-03

[] Designates Metric Conversions

CONCENTRIC DIFFUSER—STEP DOWN

RXRN-FA65 (7.5 & 8.5 Ton [26.4 & 29.9 kW] Models)

For Use With Downflow Transition (RXMC-CD04)
and 20" [508 mm] Round Supply and Return Ducts

- 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.

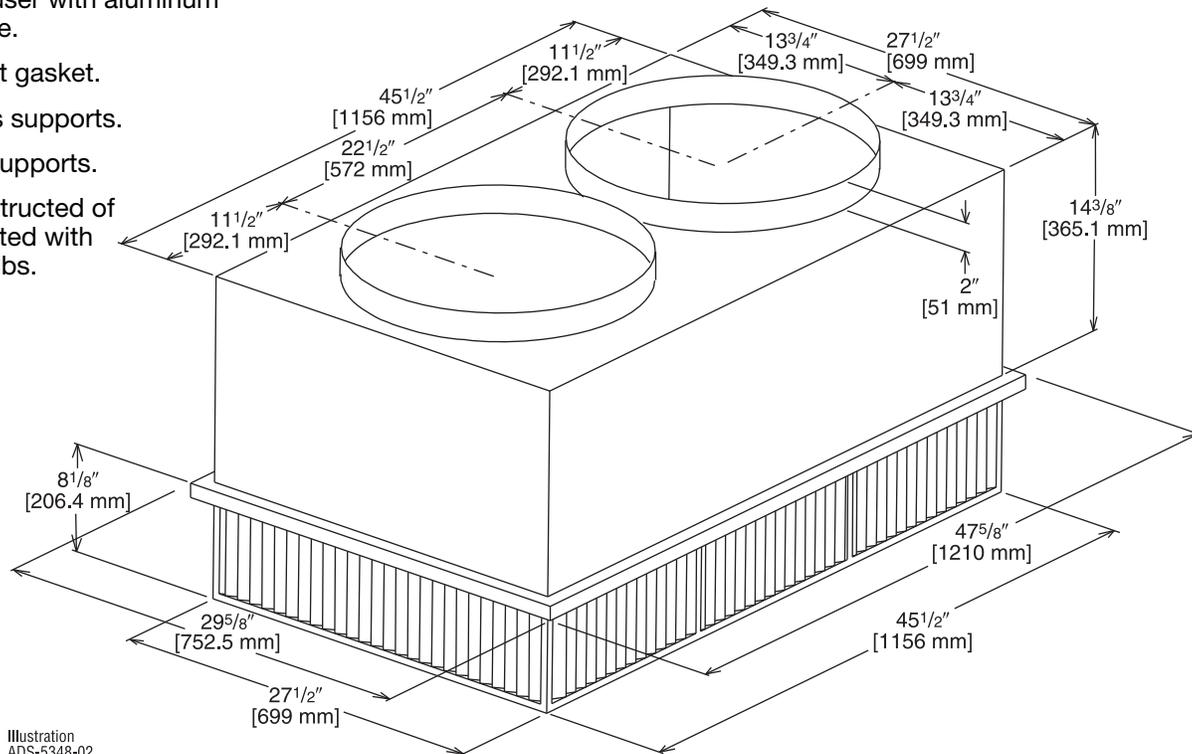


Illustration
ADS-5348-02

ENGINEERING DATA^①

Model No.	Flow Rate CFM [L/s]	Static Pressure in. w.c. [kPa]	Throw ^② ^③ Feet [m]	Neck Velocity fpm [m/s]	Noise Level ^④ (dbA)
RXRN-FA65	2600 [1227]	0.17 [0.042]	24-29 [7.3-8.8]	669 [3.4]	20
	2800 [1321]	0.20 [0.050]	25-30 [7.6-9.1]	720 [3.7]	25
	3000 [1416]	0.25 [0.062]	27-33 [8.2-10.1]	772 [3.9]	25
	3200 [1510]	0.31 [0.077]	28-35 [8.5-10.7]	823 [4.2]	25
	3400 [1604]	0.37 [0.092]	30-37 [9.1-11.3]	874 [4.4]	30

NOTES: ^① All data is based on the air diffusion council guidelines.

^② Throw data is based on 75 FPM Terminal Velocities using isothermal air.

^③ Throw is based on diffuser blades being directed in a straight pattern.

^④ Actual noise levels may vary due to duct design and do not include transmitted unit noise.

Adequate duct attenuation must be provided to reduce sound output from the unit.

[] Designates Metric Conversions

CONCENTRIC DIFFUSER – STEP DOWN 18" x 28" [457.2 x 711.2 mm]

RXRN-AA61 (8.5 & 10 Ton [29.9 kW & 35.2] Models)

For Use With Downflow Transition (RXMC-CE05)
and 18" x 28" [457.2 x 711.2 mm]
Supply and Return Ducts

- 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.

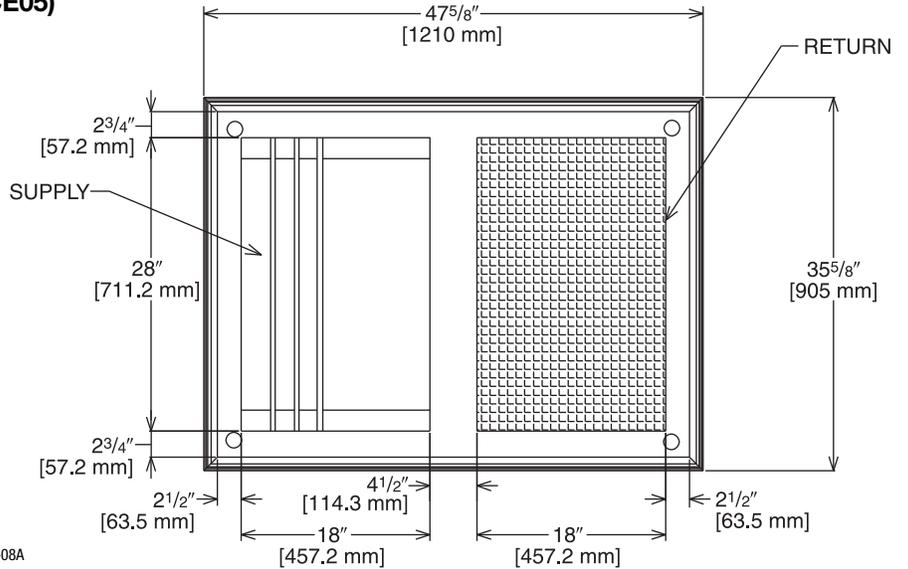


Illustration
ADS-7951-08A

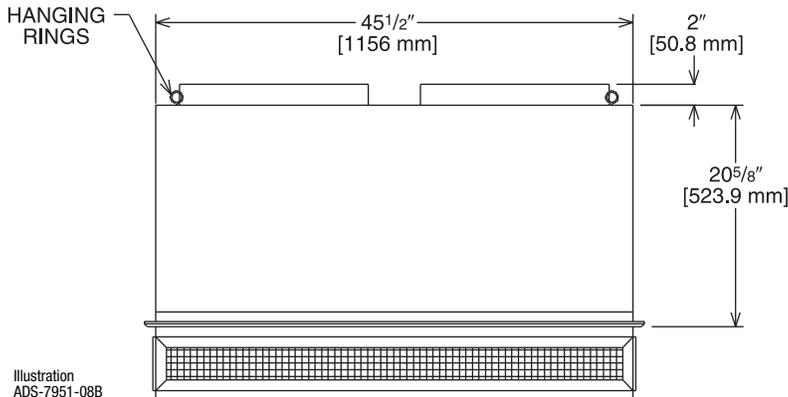


Illustration
ADS-7951-08B

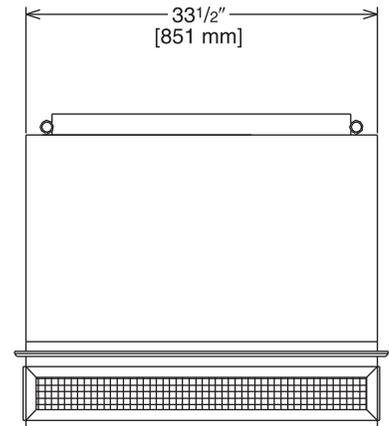


Illustration
ADS-7951-08C

ENGINEERING DATA^①

Model No.	Flow Rate CFM [L/s]	Static Pressure in w.c. [kPa]	Throw ^{②③} Feet [m]	Neck Velocity fpm [m/s]	Noise Level ^④ (dba)
RXRN-AA61	3600 [1699]	0.17 [0.042]	25-33 [7.6-10.1]	851 [4.3]	30
	3800 [1793]	0.18 [0.045]	27-35 [8.2-10.7]	898 [4.6]	30
	4000 [1888]	0.21 [0.052]	29-37 [8.8-11.3]	946 [4.8]	30
	4200 [1982]	0.24 [0.060]	32-40 [9.8-12.2]	993 [5.0]	30
	4400 [2076]	0.27 [0.067]	34-42 [10.4-12.8]	1040 [5.3]	30

NOTES: ① All data is based on the air diffusion council guidelines.

② Throw data is based on 75 FPM Terminal Velocities using isothermal air.

③ Throw is based on diffuser blades being directed in a straight pattern.

④ Actual noise levels may vary due to duct design and do not include transmitted unit noise.
Adequate duct attenuation must be provided to reduce sound output from the unit.

[] Designates Metric Conversions

CONCENTRIC DIFFUSER—STEP DOWN 18" x 32" [457.2 x 813 mm]

RXRN-AA66 (12.5 Ton [44.0 kW] Models)

For Use With Downflow Transition (RXMC-CF06)
and 18" x 32" [457.2 x 813 mm]
Supply and Return Ducts

- 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.

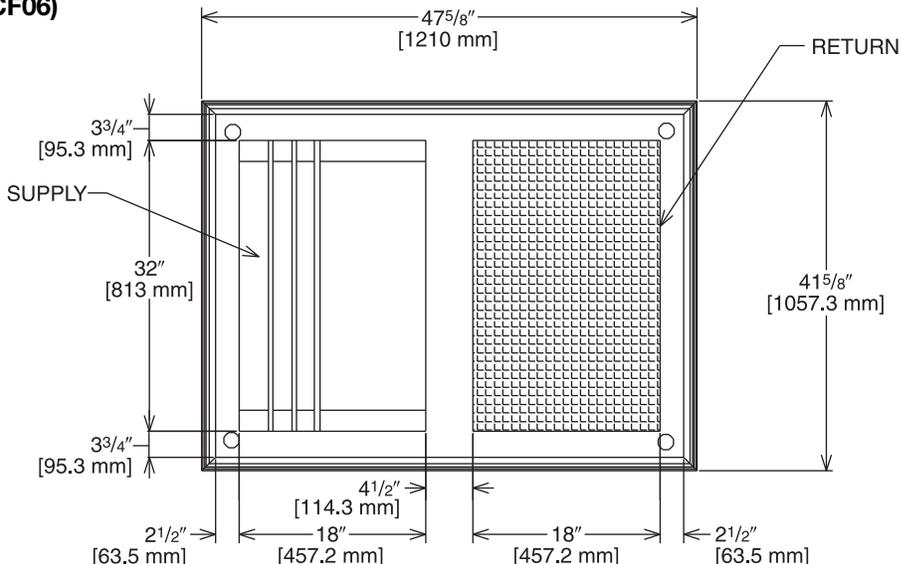


Illustration
ADS-7951-09A

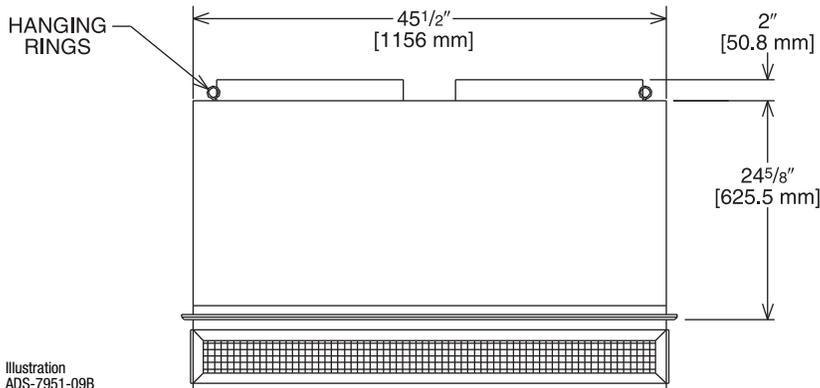


Illustration
ADS-7951-09B

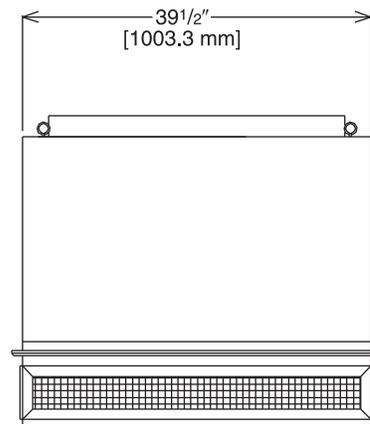


Illustration
ADS-7951-09C

ENGINEERING DATA^①

Model No.	Flow Rate CFM [L/s]	Static Pressure in w.c. [kPa]	Throw ^{② ③} Feet [m]	Neck Velocity fpm [m/s]	Noise Level ^④ (dba)
RXRN-AA66	4600 [2171]	0.31 [0.077]	26-31 [7.9-9.4]	841 [4.3]	30
	4800 [2265]	0.32 [0.080]	27-32 [8.2-9.8]	878 [4.5]	30
	5000 [2359]	0.34 [0.085]	28-33 [8.5-10.1]	915 [4.6]	30
	5200 [2454]	0.36 [0.090]	28-34 [8.5-10.4]	951 [4.8]	30
	5400 [2548]	0.39 [0.097]	29-35 [8.8-10.7]	988 [6.0]	30

NOTES: ① All data is based on the air diffusion council guidelines.

② Throw data is based on 75 FPM Terminal Velocities using isothermal air.

③ Throw is based on diffuser blades being directed in a straight pattern.

④ Actual noise levels may vary due to duct design and do not include transmitted unit noise. Adequate duct attenuation must be provided to reduce sound output from the unit.

[] Designates Metric Conversions

FLUSH MOUNT CONCENTRIC DIFFUSER—FLUSH

RXRN-FA75 (7.5 & 8.5 Ton [26.4 & 29.9 kW] Models)

For Use With Downflow Transition (RXMC-CD04)
and 20" [508 mm] Round Supply and Return Ducts

- 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.

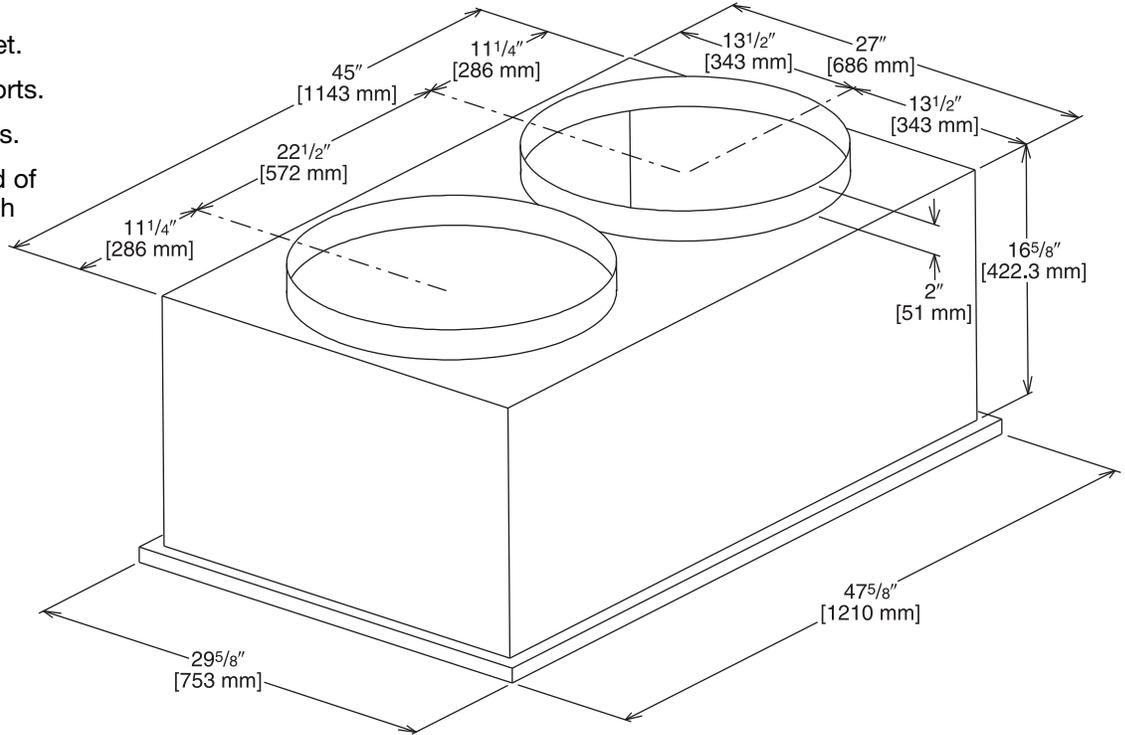


Illustration
ADS-5348-04

ENGINEERING DATA^①

Model No.	Flow Rate CFM [L/s]	Static Pressure in. w.c. [kPa]	Throw ^{②③} Feet [m]	Neck Velocity fpm [m/s]	Noise Level ^④ (dbA)
RXRN-FA75	2600 [1227]	.17 [0.042]	19-24 [5.8-7.3]	663 [3.4]	30
	2800 [1321]	.20 [0.050]	20-28 [6.1-8.5]	714 [3.6]	35
	3000 [1416]	.25 [0.062]	21-29 [6.4-8.8]	765 [3.9]	35
	3200 [1510]	.31 [0.077]	22-29 [6.7-8.8]	816 [4.1]	40
	3400 [1604]	.37 [0.092]	22-30 [6.7-9.1]	867 [4.4]	40

- NOTES: ① All data is based on the air diffusion council guidelines.
 ② Throw data is based on 75 FPM Terminal Velocities using isothermal air.
 ③ Throw is based on diffuser blades being directed in a straight pattern.
 ④ Actual noise levels may vary due to duct design and do not include transmitted unit noise.
 Adequate duct attenuation must be provided to reduce sound output from the unit.

[] Designates Metric Conversions

CONCENTRIC DIFFUSER – FLUSH 18" x 32" [457.2 x 813 mm]

RXRN-AA76 (12.5 Ton [44.0 kW] Models)

For Use With Downflow Transition (RXMC-CF06)
and 18" x 32" [457.2 x 813 mm]
Supply and Return Ducts

- 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.

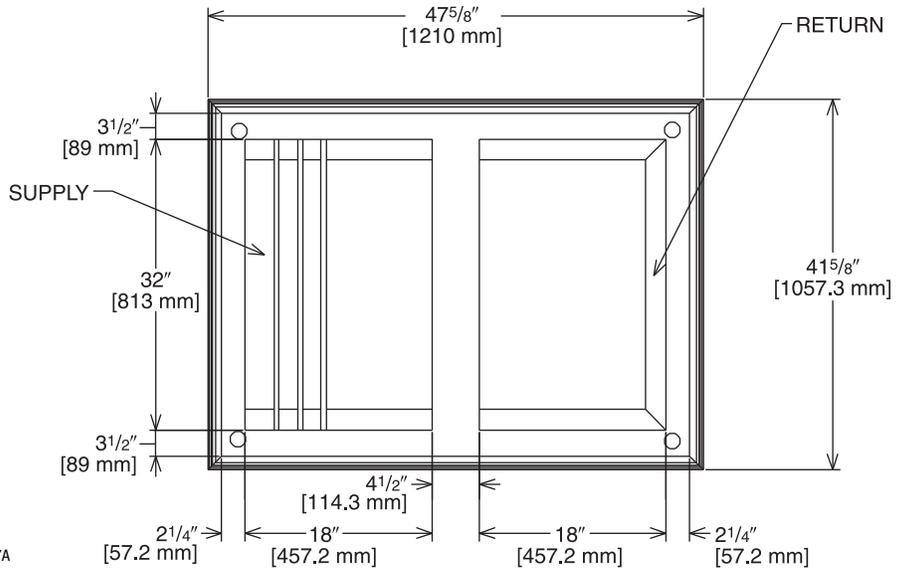


Illustration
ADS-7951-07A

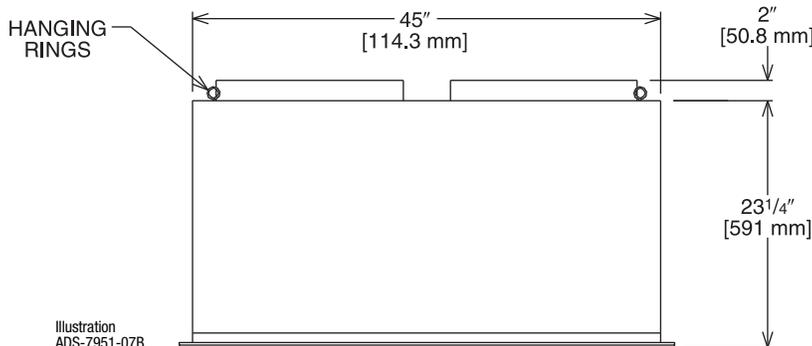


Illustration
ADS-7951-07B

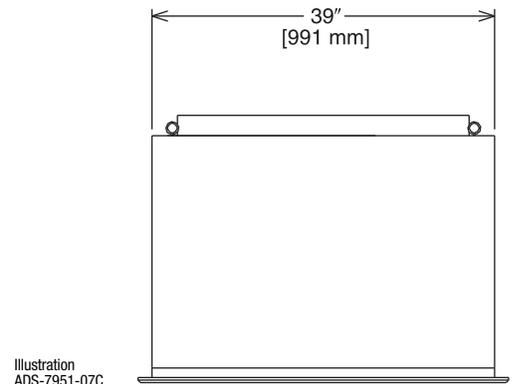


Illustration
ADS-7951-07C

ENGINEERING DATA^①

Model No.	Flow Rate CFM [L/s]	Static Pressure in w.c. [kPa]	Throw ^{② ③} Feet [m]	Neck Velocity fpm [m/s]	Noise Level ^④ (dbA)
RXRN-AA76	4600 [2171]	0.31 [0.077]	25-34 [7.6-10.4]	922 [4.7]	40
	4800 [2265]	0.32 [0.080]	26-35 [7.9-10.7]	962 [4.9]	40
	5000 [2359]	0.34 [0.085]	27-36 [8.2-11.0]	1002 [5.1]	40
	5200 [2454]	0.36 [0.090]	30-39 [9.1-11.9]	1043 [5.3]	45
	5400 [2548]	0.39 [0.097]	32-41 [9.8-12.5]	1083 [5.5]	45

NOTES: ① All data is based on the air diffusion council guidelines.

② Throw data is based on 75 FPM Terminal Velocities using isothermal air.

③ Throw is based on diffuser blades being directed in a straight pattern.

④ Actual noise levels may vary due to duct design and do not include transmitted unit noise.

Adequate duct attenuation must be provided to reduce sound output from the unit.

[] Designates Metric Conversions

GUIDE SPECIFICATIONS – RLNL-G090, G120 & G151

You may copy this document directly into your building specification. This specification is written to comply with the 2004 version of the “master format” as published by the Construction Specification Institute. www.csinet.org.

ELECTRIC HEAT PACKAGED ROOFTOP

HVAC Guide Specifications

Size Range: 6 to 12.5 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. have capability to energize 2 different stages of cooling, and 2 different stages of heating.
 - b. must include capability for occupancy scheduling.

23 09 23	Direct-digital Control system for HVAC
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23 09 23.13	Decentralized, Rooftop Units:
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23 09 23.13.A.	RTU-C controller
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1. Shall be ASHRAE 62-2001 compliant.
2. Shall accept 18-32VAC input power.
3. Shall have an operating temperature range from -40°F (-40°C) to 158°F (70°C), 10% - 95% RH (non-condensing).
4. Controller shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air enthalpy, fire shutdown, return air enthalpy, fan status, remote time clock/door switch.
5. Shall accept a CO₂ sensor in the conditioned space, and be Demand Control Ventilation (DCV) ready.
6. Shall provide the following outputs: Economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, exhaust, occupied.
7. Unit shall provide surge protection for the controller through a circuit breaker.
8. Shall have a field installed communication card allowing the unit to be Internet capable, and communicate at a Baud rate of 19.2K or faster
9. Shall have an LED display independently showing the status of activity on the communication bus, and processor operation.
10. Shall have either a field installed BACnet® plug-in communication card which includes an EIA-485 protocol communication port, or a field installed LonWorks™ plug-in communications card.
11. Software upgrades will be accomplished by local download. Software upgrades through chip replacements are not allowed.
12. Shall be shock resistant in all planes to 5G peak, 11ms during operation, and 100G peak, 11ms during storage.
13. Shall be vibration resistant in all planes to 1.5G @ 20-300 Hz.
14. Shall support a bus length of 4000 ft max, 60 devices per 1000 ft section, and 1 RS-485 repeater per 1000 ft sections.

23 09 23.13.B.	Open protocol, direct digital controller:
-----------------------	--

1. Shall be ASHRAE 62-2001 compliant.
2. Shall accept 18-30VAC, 50-60Hz, and consumer 15VA or less power.
3. Shall have an operating temperature range from -40°F (-40°C) to 130°F (54°C), 10% - 90% RH (non-condensing).
4. Shall have either a field installed BACnet® plug-in communication card which includes an EIA-485 protocol communication port, or a field installed LonWorks™ plug-in communications card.
5. The BACnet® plug in communication card shall include built-in protocol for BACNET (MS/TP and PTP modes)
6. The LonWorks™ plug in communication card shall include the Echelon processor required for all Lon applications.
7. Shall allow access of up to 62 network variables (SNVT). Shall be compatible with all open controllers
8. Baud rate Controller shall be selectable through the EIA-485 protocol communication port.
9. Shall have an LED display independently showing the status of serial communication, running, errors, power, all digital outputs, and all analog inputs.
10. Shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air enthalpy, compressor lock-out, fire shutdown, enthalpy switch, and fan status/filter status/ humidity/ remote occupancy.
11. Shall provide the following outputs: economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, exhaust.
12. Software upgrades will be accomplished by either local or remote download. No software upgrades through chip replacements are allowed.

23 09 33 Electric and Electronic Control System for HVAC

23 09 33.13 Decentralized, Rooftop Units:

23 09 33.13.A. General:

1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side. Transformer shall have 100VA capabilities.
2. Shall utilize color-coded wiring.
3. Shall include a central control terminal board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, DDC control options, loss of charge, freeze sensor, high pressure switches.
4. Unit shall include a minimum of one 10-pin screw terminal connection board for connection of control wiring.

23 09 33.23.B. Safeties:

1. Compressor over-temperature, over current.
2. Loss of charge switch.
 - a. Units with 2 compressors shall have different colored wires for the circuit 1 and circuit 2 low and high pressure switches.
 - b. Loss of charge switch shall use different color wire than the high pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
 - c. Loss of charge switch shall have a different sized connector than the high pressure switch. They shall physically prevent the cross-wiring of the safety switches between the high and low pressure side of the system.
3. High-pressure switch.
 - a. Units with 2 compressors shall have different colored wires for the circuit 1 and circuit 2 low and high pressure switches.
 - b. High pressure switch shall use different color wire than the low pressure switch. The purpose is to assist the installer and service person to correctly wire and or troubleshoot the rooftop unit.
 - c. High pressure switch shall have a different sized connector than the loss of charge switch. They shall physically prevent the cross-wiring of the safety switches between the high and low pressure side of the system.
4. Freeze protection sensor, evaporator coil.
5. Automatic reset, motor thermal overload protector.

23 09 93 Sequence of Operations for HVAC Controls

23 09 93.13 Decentralized, Rooftop Units:

23 09 93.13 INSERT SEQUENCE OF OPERATION

23 40 13 Panel Air Filters

23 40 13.13 Decentralized, Rooftop Units:

23 40 13.13.A. Standard filter section shall

1. Shall consist of factory-installed, low velocity, throwaway 2-in. thick fiberglass filters of commercially available sizes.
2. Filters shall be accessible through an access panel as described in the unit cabinet section of this 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 heat pump 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 sound 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 210/240 and 340/360.
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 340/360 at ± 10% voltage.
2. Compressor with standard controls shall be capable of operation from 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): 60, Hardness: H-2H Pencil hardness.
3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standards 210/240 or 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 3/4-in. thick, 1 lb density, flexible fiberglass insulation, aluminum foil-faced on the air side.
4. Base of unit shall have locations for thru-the-base 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" -11 1/2 NPT drain connection, through the side of the drain pan. Connection shall be made per manufacturer's recommendations.
7. Top panel:
 - a. Indoor section shall be a single piece top panel.
8. Electrical Connections
 - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.
 - b. Thru-the-base capability
 - (1.) Standard unit shall have a thru-the-base electrical location(s) using a raised, embossed portion of the unit basepan.
 - (2.) 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.
 - c. Panels covering control box, indoor fan, indoor fan motor, and electric or gas heater components (where applicable), shall have 1/4 turn latches.

23 81 19.13.J. Coils

1. Standard Aluminum/Copper Coils: on all models.
 - a. Standard evaporator and condenser coils 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 psig.

23 81 19.13.K. Refrigerant Components

1. Refrigerant circuit shall include the following control, safety, and maintenance features:
 - a. Thermal Expansion Valve (TXV) with venturi type distributor .
 - b. Refrigerant filter drier.
 - c. External service gauge connections to unit suction and discharge lines.
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.
- d. Compressors shall be internally protected from high discharge temperature conditions.
- e. Compressors shall be protected from an over-temperature and over-amperage conditions by an internal, motor overload device.
- f. Compressor shall be factory mounted on rubber grommets.
- g. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
- h. 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 a sliding filter tray, facilitating easy removal and installation.
- 3. Shall consist of factory-installed, low velocity, throw-away 2-in. thick fiberglass filters.
- 4. Filters shall be standard, commercially available sizes.
- 5. Filter face velocity shall not exceed 365 fpm at nominal airflows.

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 or circuit breaker.
 - 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:
 - 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, Options and Accessories

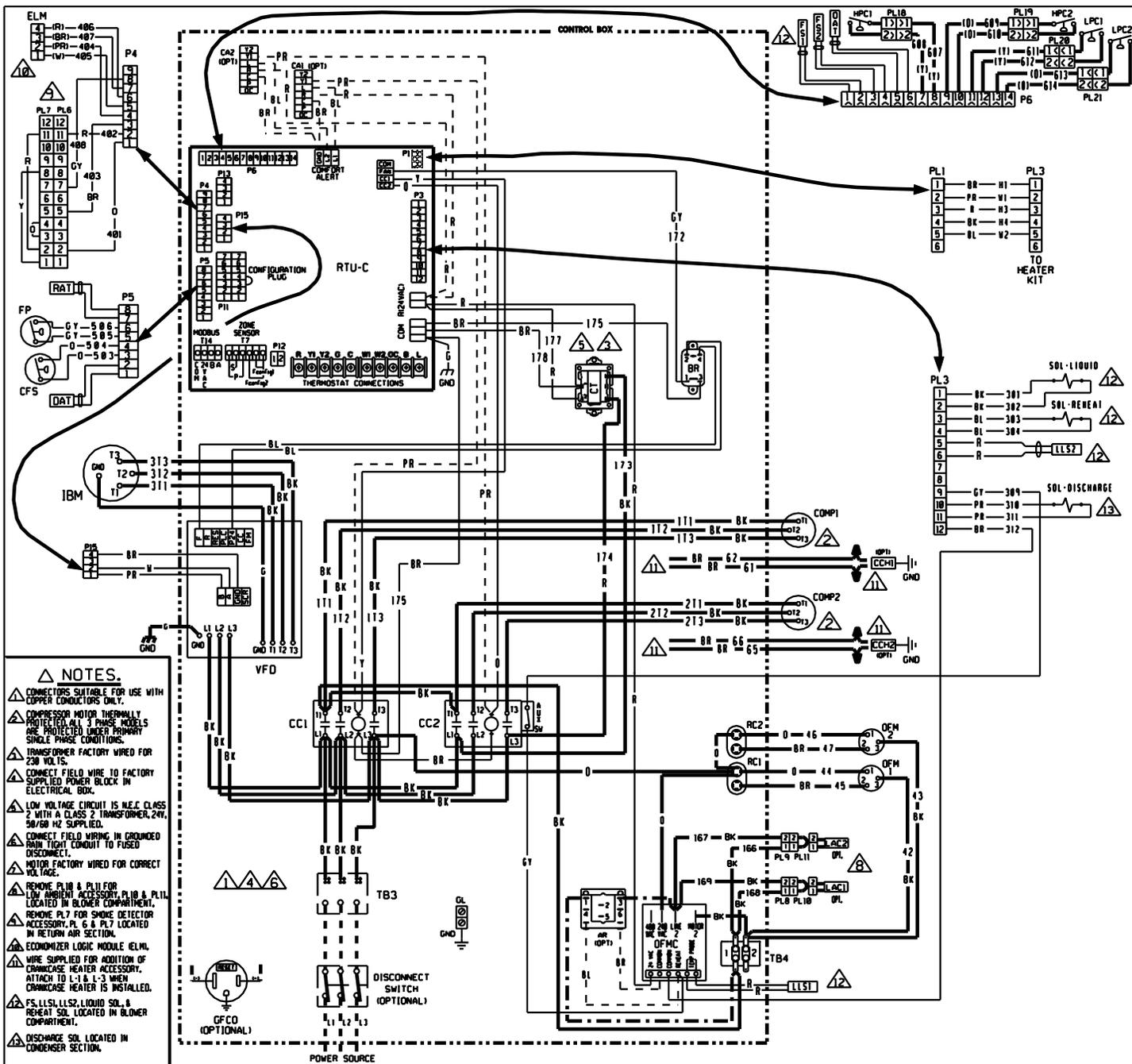
- 1. Integrated Economizers:
 - a. Integrated, gear-driven parallel modulating blade design type capable of simultaneous economizer and compressor operation.
 - b. Independent modules for vertical or horizontal return configurations shall be available. Vertical return modules shall be available as a 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.
 - 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 sensor setpoint 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 setpoint.
 - l. Dampers shall be completely closed when the unit is in the unoccupied mode.
 - m. 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.
 - n. Compressor lockout sensor on the unit controller is factory set at 35°F and is adjustable from 30°F (-1°C) to 50°F (10°C) and resets the cooling lockout at 5°F (+2.7°C) above the set point.

- o. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
 - p. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
 - q. Economizer wire harness will have provision for smoke detector.
2. Two-Position Motorized Damper
- a. Damper shall be a Two-Position Motorized 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 dampers and actuator motor.
 - d. Actuator shall be direct coupled to damper 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. Condenser Coil Hail Guard Assembly
- a. Shall protect against damage from hail.
 - b. Shall be louvered design.
6. Convenience Outlet:
- a. Non-Powered convenience outlet.
 - (1.) Outlet shall be powered from a separate 115-120v power source.
 - (2.) A transformer shall not be included.
 - (3.) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
 - (4.) Outlet shall include 15 amp GFI receptacles.
 - (5.) Outlet shall be accessible from outside the unit.
7. Fan/Filter Status Switch:
- a. Switch shall provide status of indoor evaporator fan (ON/OFF) or filter (CLEAN/DIRTY).
 - b. Status shall be displayed either over communication bus (when used with direct digital controls) or through the controller LCD display inside the unit control box.
8. 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.
9. Roof Curbs (Vertical):
- a. Full perimeter roof curb with exhaust capability providing separate air streams 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.
10. High-Static Indoor Fan Motor(s) and Drive(s):
- a. High-static motor(s) and drive(s) shall be factory-installed to provide additional performance range.
11. 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 setpoint 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 a recessed momentary switch for testing and resetting the detector.
 - e. Controller shall include:
 - (1.) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
 - (2.) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
 - (3.) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
 - (4.) Capable of direct connection to two individual detector modules.
 - (5.) Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications.
16. Electric Heat:
- a. Heating Section
 - (1.) Heater element open coil resistance wire, nickel-chrome alloy, strung through ceramic insulators mounted on metal frame. Coil ends are staked and welded to terminal screw slots.
 - (2.) Heater assemblies are provided with integral fusing for protection of internal heater circuits not exceeding 48 amps each. Auto reset thermo limit controls, magnetic heater contactors (24 v coil) and terminal block all mounted in electric heater control box (minimum 18 ga galvanized steel) attached to end of heater assembly.

26 29 23.12.Adjustable Frequency Drive

1. Unit shall be supplied with an electronic variable frequency drive for the supply air fan.
2. Drive shall be factory installed in an enclosed cabinet.
3. Drive shall meet UL Standard 95-5V.
4. The completed unit assembly shall be UL listed.
5. Drives are to be accessible through a tooled access hinged door assembly.
6. The unit manufacturer shall install all power and control wiring.
7. The supply air fan drive output shall be controlled by the factory installed main unit control system and drive status and operating speed shall be monitored and displayed at the main unit control panel.
8. Drive shall be programmed and factory run tested in the unit.



- 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 & PL11 FOR LOW AMBIENT ACCESSORY. PL10 & PL11 LOCATED IN BLOWER COMPARTMENT.
 - ▲ REMOVE PL7 FOR SMOKE DETECTOR ACCESSORY. PL6 & PL7 LOCATED IN RETURN AIR SECTION.
 - ▲ ECONOMIZER LOGIC MODULE (ELM) WIRE SUPPLIED FOR ADDITION OF CRANKCASE HEATER ACCESSORY. ATTACH TO L-1, L-2, L-3 WHEN CRANKCASE HEATER IS INSTALLED.
 - ▲ FS, LLS1, LLS2, LIQUID SOL., & REHEAT SOL. LOCATED IN BLOWER COMPARTMENT.
 - ▲ DISCHARGE SOL. LOCATED IN CONDENSER SECTION.

COMPONENT CODE

BR	BLOWER RELAY	HPC	HIGH PRESSURE CONTROL
CA	COMFORT ALERT MODULE	IBM	INDOOR BLOWER MOTOR BELT DRIVE
CC	COMPRESSOR CONTACTOR	LAC	LOW AMBIENT COOLING CONTROL
CC#H	CRANKCASE HEATER	LC	LIMIT CONTROL
CFS	CLOGGED FILTER SWITCH	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	DAT	OUTSIDE AIR SENSOR
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
DAT	DISCHARGE AIR SENSOR	OFMC	OUTDOOR FAN MOTOR CONTROLLER
DSR	DISCHARGE SOLENOID RELAY	PL	PLUG
DJSC	DISCONNECT SWITCH	RAT	RETURN AIR SENSOR
FP	FAN PROVING	RC	RUN CAPACITOR
FS	FREEZE SENSOR	RTU-C	ROOFTOP UNIT CONTROL
GFCD	GROUND FAULT CONVENIENCE OUTLET	TB	TERMINAL BLOCK
GL	GROUND LUG	VFD	VARIABLE FREQUENCY DRIVE
GND	GROUND	▲	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.)

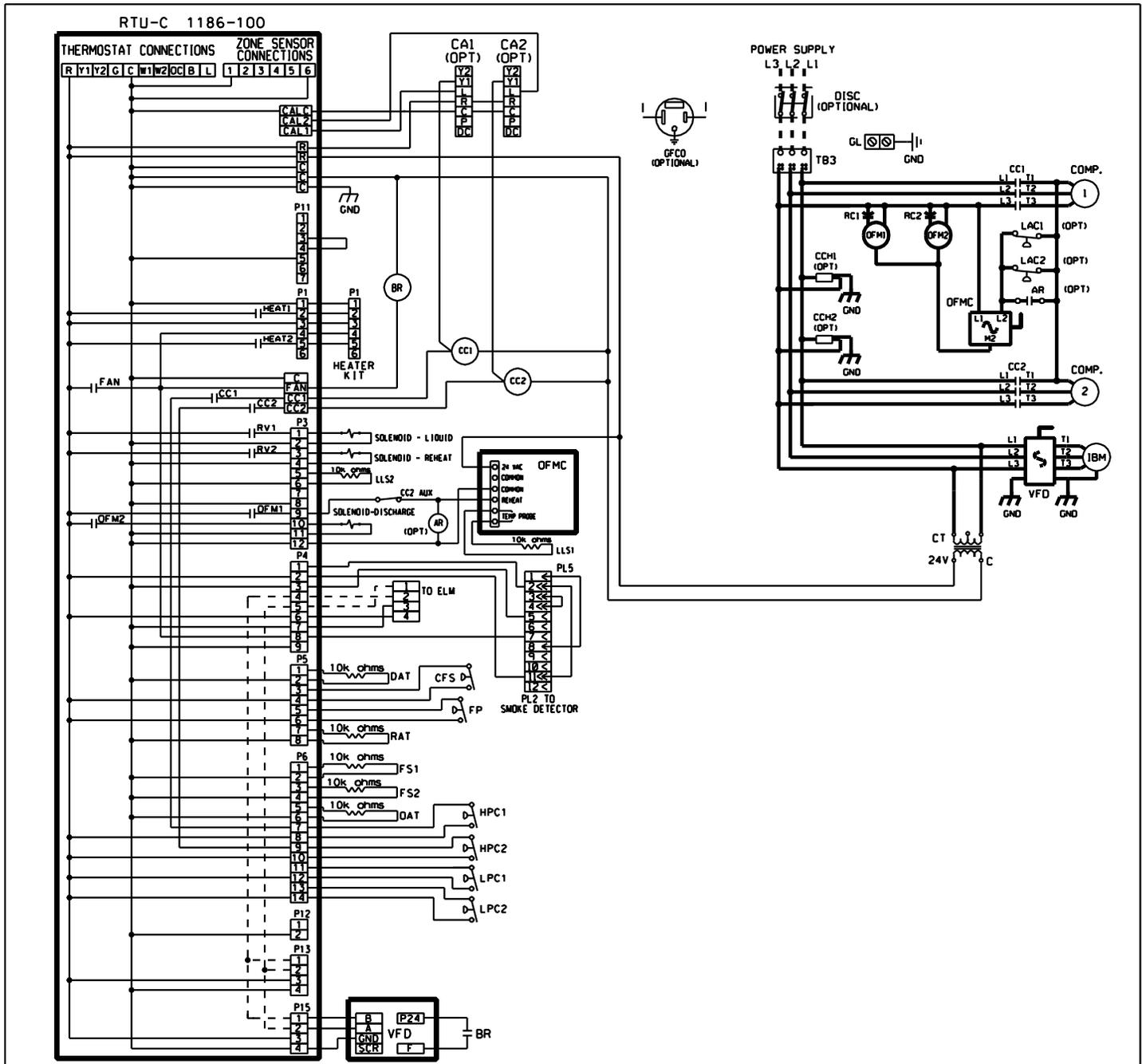
WARNING
 -CABINET MUST BE PERMANENTLY GROUNDED AND CONFORM TO I.E.C., N.E.C., C.E.C., AND LOCAL CODES AS APPLICABLE.

WIRE COLOR CODE

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

WIRING DIAGRAM
REHEAT 090/120/151
 208-230/460V 3 PH, 60 HZ.
 PACKAGED A/C W/RTU-C

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		10-24-11	90-103089-22	03



COMPONENT CODE

AR	ACCESSORY RELAY	HPC	HIGH PRESSURE CONTROL
BR	BLOWER RELAY	IBM	INDOOR BLOWER MOTOR BELT DRIVE
CA	COMFORT ALERT MODULE	LAC	LOW AMBIENT COOLING CONTROL
CC	COMPRESSOR CONTACTOR	LC	LIMIT CONTROL
CCH	CRANKCASE HEATER	LLS	LIQUID LINE SENSOR
CFS	CLOGGED FILTER SWITCH	LPC	LOW PRESSURE CONTROL
COMP	COMPRESSOR	DAT	DISCHARGE AIR SENSOR
CT	CONTROL TRANSFORMER	OFM	OUTDOOR FAN MOTOR
DAT	DISCHARGE AIR SENSOR	OFMC	OUTDOOR FAN MOTOR CONTROLLER
DSR	DISCHARGE SOLENOID RELAY	PL	PLUG
DISC	DISCONNECT SWITCH	RAT	RETURN AIR SENSOR
FP	FAN PROVING	RC	RUN CAPACITOR
FS	FREEZE SENSOR	RTU-C	ROOFTOP UNIT CONTROL
GL	GROUND LUG CONVENIENCE OUTLET	TB	TERMINAL BLOCK
GND	GROUND	VFD	VARIABLE FREQUENCY DRIVE
		▲	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
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WIRING SCHEMATIC
 REHEAT 090/120/151
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 PACKAGED A/C

DR. BY	APP. BY	DATE	DWG. NO.	REV
JRJ		10-24-11	90-103246-19	03

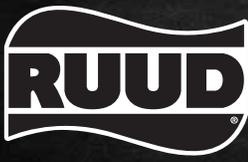
BEFORE PURCHASING THIS APPLIANCE, READ IMPORTANT ENERGY COST AND EFFICIENCY INFORMATION AVAILABLE FROM YOUR RETAILER.

GENERAL TERMS OF LIMITED WARRANTY*

Ruud 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.

***For complete details of the Limited and Conditional Warranties, including applicable terms and conditions, contact your local contractor or the Manufacturer for a copy of the product warranty certificate.**

Compressor	
3 Phase, Commercial Applications.....	Five (5) Years
Parts	
3 Phase, Commercial Applications.....	One (1) Year



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

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